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April 6 - 8, 1997
Bolton Landing, New York



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, states, 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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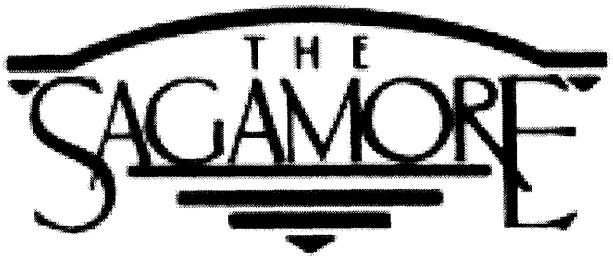
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Proceedings of the 1997 Northeastern Recreation Research Symposium

April 6 - 8, 1997



On Lake George in Bolton Landing, New York

Compiled and Edited by:
Hans G. Vogelsong
The Pennsylvania State University

Sponsors:
Lyndon State College
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The Pennsylvania State University
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Recreation, Protected Areas and Social Science

Opening Session

RECREATION, PROTECTED AREAS, AND SOCIAL SCIENCE: WHERE ARE WE GOING?

Brian R. Payne

Forest Inventory, Economics, and Recreation Research
USDA Forest Service
PO Box 96090
Washington, DC 20090-6090

Abstract: I am new in my job as coordinator for USDA Forest Service research in recreation, social sciences, and wilderness. I predict that we will be giving greater attention and resources to this area in the near future, despite recent budget cuts and personnel reductions. Researchers should cooperate with each other nation-wide, and involve resource managers and users in the research process. They should also take time to enjoy their jobs and their personal and family life, as new Chief Mike Dombeck has suggested.

Thank you for inviting me today. I must tell you that I prepared these remarks before I knew exactly what the assigned title was to be. However, I normally add titles to papers after I see what turns out, so this one may fit. Because I am new in my job, it's easier to talk about the future than the past. I know myself better than my job, so I will talk more about where I am going and less about where we are going. Please tell me if we're headed the same way.

Greetings from Washington, our nation's capital. I remember learning from Ross Tocher in 1969 about the *escape from* versus the *attraction to* motivations for recreation. For me, both are operative today. It's good to be here on Lake George, a very attractive place.

In truth, if I wasn't happy to be here, I would not be here. After all, today is Sunday, a day not for work, but for rest, renewal, recreation, family, and listening to "Car Talk" on National Public Radio. However, my wife came with me, and we are looking forward to celebrating our 34th wedding anniversary tomorrow in this luxurious hotel. So this is fun, and my remarks are going to reflect that.

It's Sunday. We can say anything we want. So greetings again from Washington -- home of avarice, bureaucracy, back-biting, butt-kicking, mud-slinging, political posturing, bombast, pork, drugs, murder, but no baseball. I like it there, I really do. Not because of all these negatives; every place has negatives. But Washington also has cherry blossoms, two rivers, fabulous buildings, great art, wonderful music, opera, museums, other cultural attractions, winning soccer, the best collection of ethnic restaurants outside of New York City, and cheap booze. Right! I can buy French wine cheaper in Washington than you can buy California wine in the Napa Valley. Why? Because Congress controls the taxes in DC, most of the cost of alcoholic beverages is taxes, and Members of Congress are known for their appreciation of the finer things in life, like foreign travel and foreign wines.

In addition to these attributes, Washington is full of good people who work hard. Despite stereotypes, despite what you read in the newspaper or see on TV, this is true for all three branches of government, from the very bottom to the very top of the pay scale. So it's an exciting place, and it's a great place to work with other people to get things done. It is a better place for extroverts than introverts. Even though I'm an introvert, I like working there.

Since last October 2, I have been sitting in a chair once occupied by Alan Ewart as the national coordinator for Forest Service research in recreation, wilderness, and social sciences. This is in the staff that also handles forest inventory, economics, and urban forestry research. Some of you know Al. All of you know him at least as well as I do. I think he called this area of research, "human dimensions". Apparently, that nomenclature failed to fly in the Forest Service. Nobody knew what it meant. So Ken Cordell and a cast of colleagues are convening Tuesday in Salt Lake City to figure out what to do with human dimensions.

I have spent some of my time since October counting heads and some of it counting dollars, mostly looking forward. For fiscal year 1998, which begins in only 6 months, the Forest Service is asking for about 4 1/2 million dollars for social/cultural research, including recreation, and about $1.1 million for wilderness research, some of which is recreation. The total of $5.6 million is up about 6 percent from actual dollars in 1997.

Is this a lot of money or a little? It's not a lot compared to a total budget of $180 million for all areas of Forest Service research. The only areas that got less in 1997 are forest health monitoring, forest product safety and human health, rangeland ecology, and urban forestry. Wilderness research would have been last if I hadn't cheated and added it to social, cultural, and recreation.

Hey, they brought me back from Vienna to be in charge of one of the five smallest research programs in the whole organization! I guess I can look at this magnificent display of confidence in two ways: (1) there's no way even I can make things much worse, or (2) they have given me a huge challenge to make things better.

Can we make it better? I hope so. Based on some very early numbers, I would not be surprised to see an increase of about one million dollars in 1999. If we turned everyone loose to ask for as much as they think they could use productively, we would probably get a request of more than double what we're requesting this year. Doubling sounds good, but I'll be happy simply with a bit of growth. We have certainly had enough of shrinkage.

Enough about dollars. What about people? My head count is not complete, but there are about 30 Forest Service scientists identified with social, cultural, recreation, and wilderness research, at about half that many locations. My goal, naturally, is to visit all these locations and meet all these people, and their cooperators. So far, I have been to

only two of these locations, but by going to meetings such as this, and because some folks come to Washington, I have met quite a few already.

As I get around to meeting everyone, I intend to assure them of my support in getting the resources they need to do their job.

I intend also to find out how well they know each other and whether it might be possible to integrate their efforts a bit better. Communications are getting cheaper, faster, and easier, but it is surprisingly easy still for researchers to put their heads down close to their work and not notice someone else doing similar work elsewhere. For example, it is surprising that we have two meetings scheduled this week that have forced many people to choose between Lake George and Salt Lake City.

As I get around, I plan to ask our researchers how they decide what to work on. Who participates in problem identification and problem selection? Do we have a good balance between individual inspiration and customer-driven research? Are resource managers and resource users consulted by researchers in deciding what to do, where to do it, and how to do it? Are we going far enough to make sure our research is relevant to real problems, used to solve these problems, and available to all who face these problems? Are researchers rewarded for doing the right thing, either in pay and promotions, increased resources and flexibility, or opportunities for professional growth and personal satisfaction?

I'll also ask if we're having fun. We are in *recreation* for goodness sake! If we are not having fun, there is something wrong with us. Former Forest Service Chief Dale Robertson used to encourage all of us to have fun, but he also told us that if we weren't working hard enough, we were going to be bypassed by someone who was working harder. He worked hard, but it didn't help. I think he's having more fun now. I know former Chief Jack Ward Thomas pretty well, but I can't remember him ever talking much about having fun. Jack did have fun as a researcher. I think he did not have much fun while he was Chief, although he worked hard in both roles. Our new Chief, Mike Dombeck, has said something I like. He said, "Give it your best, but don't give it your all; save something for yourself and your family." I *hope* he is following his own advice. I hope that *you* are following this advice. I *know* that I am following this advice!

I've told you a couple things I've done on the job so far, counting dollars and heads. That's been fun. Also on the job, I reviewed the Forest Service draft long term strategy under the Government Performance and Results Act. It was terrible, awful, poorly written, but I *had fun* saying so. I reviewed a couple manuscripts on social science inputs to ecosystem management that were pretty good, and I *had fun* reading them and saying so. I've traveled to Orlando, Riverside, Burlington, and Pretoria, South Africa, *on the job*! I drove to this meeting with my wife, and that was fun and continues to be. I learned about Koreans who pick ferns on forest land, saw a picnic area being modified to meet the wishes of Hispanic users, met a woman who is the executive director of the American Association of Nude Recreation. Diversity takes many directions, and diversity is fun.

On the job, I have fought with an old computer system that I could not believe still functioned, but this was fun, like using antique tools to build something. I have fought with a new computer to try to access e-mail and the Internet at the same time, and to build my own web page; here, the fun continues. I fielded inquiries from students at the Wharton School about the current definition of visits vs. visitor-days in the RPA statistics on recreation use. I consulted the experts. They didn't know! They disagreed! In the old days, when it made little difference, we knew the answer. Now, when it matters, we don't! I sent back a lot of information and explained the difference between information and knowledge. This was amusing, and it continues to be so.

What else? I shook hands with the new Chief as I came in the door on his first day at work. I shook hands with several Deputy Chiefs as they left on their last day of work. Well, some things are more fun than others.

I said I was following our new Chief's advice to save some time and energy for self, family, friends. Here's proof it can be done. Since we came home from Austria, I've been to a high school reunion in Oakland, saw ` beat Stanford at a basketball game in Berkeley, went to Pagliacci at the Metropolitan opera in New York, and the Matthew Passion at Constitution Hall in Washington. I went skiing with my older son, and baby-sat for his daughter, my granddaughter. I replenished my wine cellar and went to a winery, went out to dinner in two dozen different restaurants, hosted family and friends at our house, wrote a preface for a friend for his book of poems, raised funds for two churches, became a deacon, narrated a Christmas play, worked in the yard, walked in the woods, and spent way more than half of my time with my wife, some of it sleeping.

What is the point of this rambling walk with my inner self that I have inflicted on you this afternoon? I guess it's that I'm glad to be here, I'm glad to meet you, I'm glad to see you, I'm looking forward to working with you, and I hope you plan to have as much fun doing it as I will.

Thanks again for the invitation.

Water Based Recreation Management Studies

WATERCRAFT USER CHARACTERISTICS, MANAGEMENT PREFERENCES, AND USER ENCOUNTERS ON THE UPPER DELAWARE SCENIC AND RECREATIONAL RIVER: 1979 - 1996

Stephen M. Bowes

M.S. Student, SUNY College of Environmental Science and Forestry, Marshall Hall, Syracuse, NY 13210-2787

Chad P. Dawson

Professor, SUNY College of Environmental Science and Forestry, Marshall Hall, Syracuse, NY 13210-2787

Abstract: Recreational boaters on the National Park Service managed Upper Delaware Scenic and Recreational River were surveyed about their characteristics, management preferences, and user encounters. Field interviews were conducted from Memorial Day weekend through Labor Day weekend during the summer of 1996. A total of 650 boaters were contacted at public and commercial access sites and asked to participate in a brief interview and a follow-up mail survey. During the interview process, 602 boaters gave their addresses and agreed to participate in the mail survey. Of the 585 surveys deliverable, 326 were returned for a 56% response rate. Comparisons were made with a similar boater study conducted on the Upper Delaware Scenic and Recreational River in 1979.

Introduction

In 1978, Congress designated 73.4 miles of the Upper Delaware River as part of the National Wild and Scenic River System (NWSRS). The National Park Service (NPS) began management of the river in 1980. The Upper Delaware Scenic and Recreational River (UDSRR) is located south of the Catskills along the New York - Pennsylvania border. The designated portion of the river extends from the confluence of the Upper Delaware's east and west branches in Hancock, New York, and extends downstream to Mill Rift, Pennsylvania. Unlike many of the other rivers in the NWSRS, the UDSRR is located near a major metropolitan area and receives high levels of watercraft use. The river corridor is mostly privately owned and the land is not managed by a federal agency. While the NPS has jurisdiction on the water, the agency only owns and manages 24 acres along the UDSRR.

The NPS reserves the right to monitor an area of interest within the UDSRR watershed. With the cooperation and approval of the NPS, the Up[per Delaware Council, the Delaware River Basin Commission, the Citizens Advisory Council, the Commonwealth of Pennsylvania, the State of New York and the affected political subdivisions of these two States, the current river corridor area that the NPS monitors has been set at 55,574 acres. This allows the NPS certain management rights outside of the river and the 24 acres that it owns. The corridor boundary has been drawn to define an area in which there is a national interest. The intention of this is "to protect water quality, preserve natural features, provide for recreational uses, provide for the continuation of agriculture, conserve river resources, and maintain existing land use patterns." (Conference of Upper Delaware Townships and NPS 1986). The previous rights of land owners within the 52,400 acres of this project boundary are not limited or infringed upon.

Some of the UDSRR's river access sites are owned by the New York State Department of Environmental Conservation (NYSDEC) and held in cooperative management with the NPS. The NPS works in partnership with the NYSDEC at these sites, but is directly responsible for the day to day management of them. The Pennsylvania Fish Commission manages several sites along the river in a cooperative agreement with the NPS. There are many private access sites along both sides of the UDSRR that are owned and managed by commercial outfitters or by other organizations for their customers or members.

The first watercraft user study on the UDSRR was conducted in 1979 (Dawson et al. 1981a and 1981b) as part of the National River Recreation Study (Knopf and Lime 1984). Subsequent research on recreational river use on the UDSRR has been limited (Marion 1989, Pawelko 1996). In 1995, the NPS field staff expressed interest in better understanding and documenting current river user characteristics on the UDSRR. A 1996 study (Bowes 1997) was designed and conducted that was similar in research design and methodology to the 1979 study.

The NPS annual reports (unpublished) for the UDSRR estimated that recreational use of the UDSRR included 496,397 visits in 1996 with 80% due to boaters. Other users included anglers, swimmers, NPS historic site visitors, and other tourists seeking information from NPS offices. Estimated recreational use has risen dramatically (213%) from the 158,375 visitors in 1981 which was the first year of NPS management on the UDSRR.

The goal of this paper is to report on two objectives of the 1996 study: (1) to measure the characteristics, management preferences, and user encounters experienced by watercraft users on the UDSRR in 1996; and (2) to compare the results of the 1979 and 1996 watercraft user studies.

Methodology

The field research for the 1996 study was carried out between June 1 and August 31. A total of 14 weekend days, and 6 weekdays were sampled systematically across the public and commercial access sites. Brief field interviews were conducted to measure descriptive user characteristics such as group composition, watercraft type, origination and destination points on the river, and to ask boaters for their cooperation in a follow-up mail survey. The mail survey was similar to the questionnaire used in 1979. A modified Dillman technique was used (Salant and

Dillman 1994) and up to three mail survey reminders were used to ensure a high response rate. The research and sampling methodologies for the studies in 1979 and 1996 were similar so that direct comparisons could be made between the results. Statistical tests between the two data sets were not conducted because the 1979 data set was not available for analysis.

A total of 650 boaters were contacted in 1996 at public and commercial access sites and asked to participate in a brief interview and a follow-up mail survey. During the interview process, 602 boaters gave their addresses and agreed to participate in the mail survey. Seventeen of the surveys sent out were undeliverable. Of the 585 surveys deliverable, 326 were returned for a 56% response rate in 1996. All 326 surveys from the 1996 study were used in the following analysis and compared to the 230 surveys returned (67% response rate) in the 1979 study (Dawson et al. 1981a and 1981b).

Boater Characteristics

The states of residence reported by boaters has changed noticeably in 17 years (Table 1). Of the three states that can be compared, the only one that has diminished participation is New York with a 11% decrease in the number of boaters that claim it is there state of residence. More boaters are now coming from both New Jersey and Pennsylvania than they did in 1979. Boaters from New Jersey have increased by 10%, and boaters from Pennsylvania have increased by 2%. Only 4% of the boaters were coming from outside of the tri-state area in 1996.

People who reported participating in commercial trips has decreased by 15%, and those who reported being on a private trip using their own equipment rose by 14% (Table 1). More people own their own watercraft and have the interest to plan and manage their own trips. These changing trends are highlighted by the types of watercraft boaters are using today. The percentage of boaters rafting the UDSRR has risen to 47%, while the percentage of boaters using canoes has dropped to 48%. The recreational boating experience is affected by this change in watercraft in such characteristics as length of trip, speed of travel, and group size. These characteristics can also change the need for facilities along the way, location of access sites, and the behavior of boaters.

The percentage of boaters that reported being with family members dropped 30% since 1979 and groups consisting of friends dropped by 4% (Table 1). The one group type that increased is organizations which grew by 11% over the last 17 years. This may be related to the rise in the use of rafts since they can accommodate more boaters in one watercraft and allow members of an organization to spend time together.

The percentage of boaters coming to the UDSRR for day trips versus overnight trips has remained unchanged in the last 17 years (Table 1). The number of boaters who had floated the Upper Delaware one or more times prior to their interview has grown by 17% since the last study.

Table 1. Boater characteristics compared between the 1979 and 1996 UDSRR studies.

	1979	1996
Residence	Percent	Percent
New York	56	46
New Jersey	27	38
Pennsylvania	10	12
Others	7	4
Trip Type		
Commercial	89	75
Private	11	25
Watercraft Type		
Canoe	90	48
Raft	1	47
Kayak	4	4
Other	5	1
Group Type		
Friends	75	45
Family	47	44
Organization	10	21
Trip Length		
Day Trip	68	65
Overnight Trip	32	35
Previous Experience		
More than one trip on The UDSRR	52	69

Boater Motivations

Seventeen of the 29 motivational statements in the 1996 study had 50% or more of the boaters reporting that they agreed or strongly agreed with the motivational statement (Table 2). The top motivation for boaters visiting the UDSRR remains 'viewing scenery' which increased by 12% since 1979. Five of the other motivational variables also increased in percentage of boaters who agreed or strongly agreed that those where important motivations for their trips to the UDSRR. 'Spending time with friends' has moved from the fourth most highly rated motivation in 1979 to the second in 1996, ahead of 'peace and calm' and 'excitement.' A seventh motivational variable 'to get away from crowds' is considered as staying the same between 1979 and 1996. Ten new variables were used in the 1996 study that could not be compared to the 1979 results; all had a majority of boaters who reported that they agreed or strongly agreed that those where also important motivations for their trip to the UDSRR.

Perceived Recreational User Problems

Nine of the 30 boater related problems in the 1996 study had 50% or more of the boaters reporting that they agreed or strongly agreed with the problem statement (Table 3). All nine variables decreased in the percent of boaters who rated them as a perceived problem. This decrease in the percent of boaters that rate certain variables as problems could be caused by many things such as: less knowledge of the issues, less concern for the issues, or improvements in those areas. One fact that supports the latter possibility is that the number of boaters who previously visited the UDSRR has risen by 17% since the 1979 study (Table 1). In 1979, the situation considered by the highest percent of

boaters to be a problem was 'low water'; however, in 1996 this variable was ranked seventh in order of percent response. The problem of 'too few garbage cans' decreased by 17% since 1979 which suggests that this situation has improved. Both 'litter on the banks' and 'litter in the river' decreased by 14% from 1979 to 1996. It is important to note that six of the problems perceived by 50% or more boaters in 1996 were also considered problems by 50% or more boaters in 1979. Only two of the 1979 problems, 'low water' and 'unskilled boaters,' were no longer seen as problems by the majority of boaters in 1996. Fifty percent of the boaters perceived that insufficient information about the river was a problem in 1979 and 1996.

Table 2. The percentage of boaters who agree or strongly agree with a motive for boating on the UDSRR during the 1979 and 1996 studies.

Boater Motivations*	1979 Percent	1996 Percent
Increased		
View Scenery	84	96
Spend Time with Friends	71	89
Peace And Calm	80	81
Excitement	77	80
To Exercise	63	75
Experience New Things	59	70
Decreased		
Get Away From Crowds	60	59
No Comparison		
Change Of Routine	-	91
Get Away From Life	-	88
Close to Nature	-	88
Run the Rapids	-	86
Release Anxiety	-	80
Rest	-	72
Part of Group	-	67
Spend Time with Family	-	58
Similar People	-	53
Reflect	-	51
Developing Skills	68	-

*Originally measured on a 5-point Likert scale: -2= Strongly Disagree, -1= Disagree, 0= Neutral, 1= Agree, 2= Strongly Agree.

Table 3. The percentage of boaters who report a slight to serious problem while boating on the UDSRR during the 1979 and 1996 studies.

Perceived Boater Problems*	1979 Percent	1996 Percent
Decreased		
Inadequate Toilets at Stops	69	62
Litter On The Banks	74	60
Inadequate Toilets At Access Points	60	57
Litter In The River	70	56
Too Few Garbage Cans	68	51
Inadequate Brochures	51	50
Low Water	76	41
Unskilled People	50	37
Stayed The Same		
Insufficient Information	50	50
No Comparison		
Too Few Drinking Water Sources	60	

*Measured on a 5-point scale: 1= Not a problem, 2= Slight problem, 3= Moderate problem, 4= Serious problem, 5= Very serious problem.

Preferred Management Actions

Eleven of the 20 proposed management action statements in the 1996 study had 50% or more of the boaters reporting that they agreed or strongly agreed with the proposed statement (Table 4). The variables in Table 4 are organized from highest to lowest percent with the rank order of all nine variables from both studies remaining the same over the last 17 years. Four preferred management actions had an increase in reported support while five reported some decrease in support. The largest differences in percentages between the studies were for the decreases in number of boaters supporting: (1) 'post hazard signs' which decreased 15% since 1979, and (2) 'more enforcement patrols' which decreased 13% since 1979 and has become an issue that is not supported by the majority of boaters. Out of all the variables that 50% or more boaters supported in 1979, two no longer have the majority supporting them in 1996. Comparisons could not be made between five of the management variables because they were not included in each study. Two new variables were used in the 1996 study that could not be compared to the 1979 results -- 'improve access sites' and 'new visitor center' -- and both were supported by a majority of boaters. Three of the 1979 study variables were not replicated in 1996.

Table 4. The percentage of boaters who agree or strongly agree with a preferred management action on the UDSRR during the 1979 and 1996 studies.

	1979	1996
Preferred Management Actions	**Percent**	**Percent**
Increased		
Carry Out Trash	84	88
Add Hiking Trails	78	79
Designate Campfire Areas	59	66
Improve Loading Areas	48	55
Decreased		
More Mile Markers	73	68
Post Hazard Signs	73	58
Campsites At Access Points	64	54
More River Campsites	54	49
More Enforcement Patrols	55	42
No Comparison		
Improve Access Sites	-	64
New Visitor Center	-	64
Provide More Information	75	-
Provide Firewood	58	-
Prohibit Off-Road Vehicles	54	-

*Originally measured on a 5-point Likert scale: -2= Strongly Disagree, -1= Disagree, 0= Neutral, 1= Agree, 2= Strongly Agree.

User Encounters

The percentage of boaters who experienced the number of watercraft encounters they expected rose over the last 17 years in both the 'put in' and 'take out' variables (Table 5). Since the number of boaters who had been on the UDSRR previously had increased since 1979 (Table 1), this would seem to imply that boaters today have a more accurate idea of how many encounters to expect based on previous trips to the UDSRR.

Table 5. Expectations of boaters for the number of other watercraft that would be encountered versus what they actually experienced during their trip on the UDSRR in 1979 and 1996.

	At Put In		**At Take Out**	
Number Of	1979	1996	1979	1996
Watercraft Expected*	Percent	Percent	Percent	Percent
Fewer or Far Fewer than Expected	19	21	20	20
What Expected	57	65	55	63
More or Far More than Expected	24	14	25	17

*Originally measured on a 5-point scale: -2= Far Fewer, -1= Fewer, 0= What Expected, 1= More, 2= Far more.

Boaters were asked to estimate the number of other watercraft they saw at the put in and take out access points during their trip on the UDSRR in the 1979 and 1996 studies (Table 6). A majority of boaters in both studies reported seeing between 1 to 25 other watercraft at both put in and take out points. While there has been an increase in the percent of boaters seeing 1 to 25 other watercraft in 1996, the percentage of boaters reporting the higher watercraft encounter categories has decreased over the last 17 years. In both studies, only a minority of the respondents reported seeing more than 25 other watercraft at the put in and take out points and this percentage has decreased. It is difficult to determine the exact cause of this decrease in the percent of boaters seeing high numbers of other watercraft at the put in and take out, but it does not necessarily imply overall decreasing use levels on the UDSRR (e.g., users may be better distributed along the river).

Table 6. The number of watercraft encountered by boaters during their trip on the UDSRR in 1979 and 1996.

	At Put In		**At Take Out**	
Number Of	1979	1996	1979	1996
Watercraft Seen	Percent	Percent	Percent	Percent
0	6	5	5	8
1-25	65	77	60	72
26-50	19	11	22	14
51-75	4	1	5	2
76-100	5	4	5	2
>100	1	2	3	2

Boaters were asked how they felt about the number of other watercraft they encountered at different times during their trip on the UDSRR during the 1979 and 1996 studies (Table 7). This information shows a substantial rise in the percentage of boaters who rated their feelings about watercraft encounters as neutral; these feelings of neutrality increased 19% at the put in, and 18% at the take out. This may indicate a more tolerant attitude or more realistic expectations. Probably the increases in the percent of boaters with previous experience on the UDSRR has created more realistic expectations about the amount of

other watercraft to expect. The percentage of boaters who would like to see more other boaters decreased 11% between 1979 and 1996 for both put in and take out points along the UDSRR. The percentage of boaters who reported seeing too many other watercraft decreased as well for both put in and take out access points on the UDSRR.

Table 7. Feelings of boaters about the number of other watercraft they encountered versus what they would like to experience during their trip on the UDSRR in 1979 and 1996.

	At Put In		At Take Out	
Number Of Watercraft Wanted to Experience*	1979 Percent	1996 Percent	1979 Percent	1996 Percent
Would like to see More or a Few More Watercraft	15	4	13	2
Neutral	62	81	65	83
Saw Too Many or Far Too Many Other Watercraft	23	15	22	15

*Originally measured on a 5-point scale: -2= See More, -1= See Few More, 0= Neutral, 1= Few Too Many, 2= Far Too Many.

Summary and Discussion

Some of the important comparisons between the results of the 1979 and 1996 studies that have management implications are:

- An increased use of rafts (up to 47% in 1996) as the watercraft of choice has management implications due to the larger social group involved in each watercraft, slower travel, less distance traveled, and other factors.
- An increase in the percentage of private trips and organized groups suggests shifts in user types.
- Boater motivations have remained complex and relatively constant for seven motives.
- An increase in the previous boating experience on the UDSRR and in the percent of boaters experiencing the amount of encounters they expected indicates more accurate expectations by boaters.
- The perceived problems of boaters include the need for more boater services and information; these have remained the same in rank order of percentage reporting a problem but decreasing percentage ratings indicate management success, especially in view of the dramatic increases in use.
- The preferred management actions include more boater services and signage on the river.

The increase in visits to the UDSRR from 1981 to 1996 and the declining percentage of boaters who perceive problems suggests that management on the river has been successful. The cooperative management between the NPS, the Upper Delaware Council, the Delaware River Basin Commission, the Citizens Advisory Council, the Commonwealth of Pennsylvania, the State of New York, and the counties and townships within the UDSRR corridor makes management complex but boaters wee more satisfied (i.e., reported fewer percentage of problems than in 1979) in 1996. However, continued effort to further mitigate problems and provide better boater services and information are necessary. Future research on UDSRR boaters should be conducted every two to five years rather than the 17 years since the last study as more short term trends and fluctuations can be monitored and guide the management process.

Acknowledgments

This research was supported by cooperation and support from the National Park Service, the Upper Delaware Scenic and Recreational River National Park Service staff, and the SUNY College of Environmental Science and Forestry.

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CUSTOMER SATISFACTION AT US ARMY CORPS OF ENGINEERS-ADMINISTERED LAKES: A COMPILATION OF TWO YEARS OF PERFORMANCE DATA

Robert C. Burns

Doctoral Candidate, Leisure Studies Program, Penn State University, 201 Mateer Building, University Park, PA 16802

Alan R. Graefe

Associate Professor, Leisure Studies Program, Penn State University, 201 Mateer Building, University Park, PA 16802

John P. Titre

US Army Corps of Engineers, Waterways Experiment Station, 3909 Halls Ferry Road, Vicksburg, MS 39180

Abstract: The purpose of this paper was to demonstrate the application of a model which can be used to predict the overall customer satisfaction levels of water-based recreationists. Data were collected from two distinctly different user groups; boat ramp users and campground users. Results indicated that each user group had different satisfaction attributes that impacted their overall satisfaction level.

Introduction

Given the level of attention that customers across the nation are placing on customer service, it is not surprising that outdoor recreation resource managers are attempting to determine the most efficient methods of improving their own customer service levels. Within the marketing field, Parasuraman, Zeithaml and Berry (1985) focused on five tenets of service quality; tangibles, reliability, responsiveness, assurance, and empathy. These authors further developed their concept of service quality attributes into the well-known SERVQUAL model (Parasuraman et al., 1988). The SERVQUAL concept was introduced to the leisure services arena when Mackay and Crompton (1988) adapted the SERVQUAL model to meet the requirements of recreation-specific satisfaction issues in park environments.

The model presented in this paper relies upon four recreation-specific domains of visitor satisfaction; facilities, services, information, and experience. These four domains capture the individual satisfaction attributes important to outdoor recreation managers and visitors and are more easily understood than abstract concepts such as tangibles, reliability, responsiveness, assurance, and empathy.

Study Methods

Data for this study were collected at two US Army Corps of Engineers (Corps) lakes in South Dakota; the Lewis and Clark Lake, and Lake Francis Case, over the 1996 summer season. A systematic sample of visitors was interviewed through a series of on-site surveys at six separate recreation areas at the two lakes. The response rate for the survey was 92% (n=629).

Results

The results of this study demonstrated the importance of park-specific research, and suggested that service quality instruments should be adapted or supplemented to fit the characteristics of a particular park site or user group. Significant differences were found between the two user groups, and different satisfaction attributes were found to impact the user groups' overall satisfaction rates. Additionally, an overall model of satisfaction (Fig. 1) was developed to determine which attribute impacted the overall group of respondents without accounting for the specific recreation activity in which they had participated.

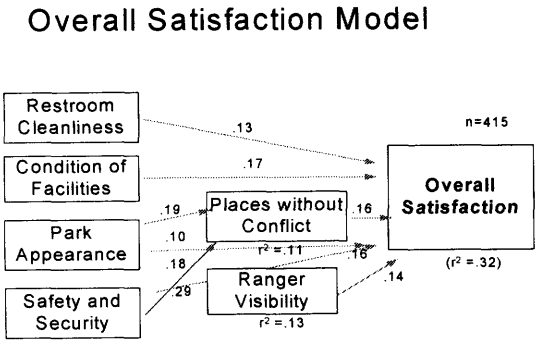


Figure 1 Overall Satisfaction Model

In the overall satisfaction model, the attributes of restroom cleanliness and condition of facilities directly impacted overall satisfaction, while park appearance and safety/security both directly and indirectly impacted overall satisfaction. Places without conflict and ranger visibility were moderating influences on overall satisfaction. The overall satisfaction model accounted for about 32% of the variance associated with visitor satisfaction levels.

When examining the satisfaction attributes that impacted the two user groups, differences were noted. For boat ramp users (Fig. 2), four of the eight satisfaction attribute impacted overall satisfaction. Restroom cleanliness, park appearance, safety/security, and the availability of places to recreate without being bothered by incompatible activities impacted overall satisfaction. Restroom cleanliness and places without conflict had a direct impact upon overall satisfaction, and safety/security had both a direct and indirect impact by virtue of its effect on the perception of places without conflict. Park appearance also impacted the places without conflict indicator, the strongest predictor of overall satisfaction. Overall this model accounted for about 32% of the variance associated with visitor satisfaction levels.

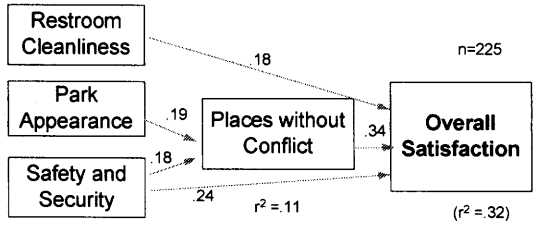


Figure 2 Ramp-user Satisfaction Model

The model which developed for understanding the customer satisfaction levels of campers (Fig. 3) was the most interesting and complex model. This model accounted for about 37% of the variance associated with overall satisfaction, which was the best overall model of customer satisfaction.

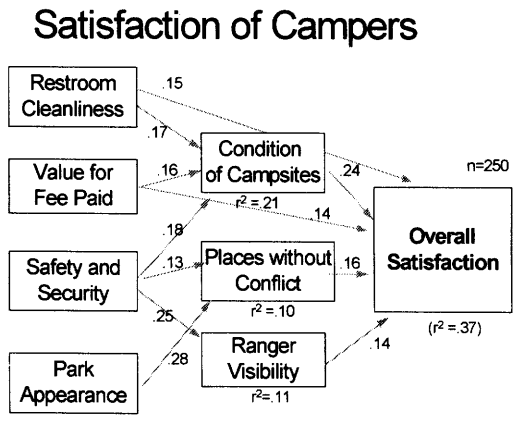


Figure 3 Campground-user Satisfaction Model

In the campground user model, restroom cleanliness and value for fee paid have both a direct and indirect effect on overall satisfaction. Safety and security impacts overall satisfaction only indirectly, but has an effect upon the condition of campsites, places without conflict, and ranger visibility. These three moderating variables, condition of campsites, places without conflict, and ranger visibility all impact overall satisfaction, with the condition of campsites being the strongest predictor.

Summary

The satisfaction models presented in this paper support the concept of maintaining separate sets of standards when attempting to determine the customer satisfaction levels of various user groups. It is possible (and probable) that each different user group will identify different attributes that impact their satisfaction levels in varying manners. Resource managers need an easily understandable means to determine the level of satisfaction of their visitors in order to allocate valuable and shrinking resources. These models, though applicable to user groups at two lakes in South Dakota, should be further developed and an attempt should be made to apply the concept to a larger base of users in a more geographically diverse setting.

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Forest Recreation Management Studies

IDENTIFYING FUNCTIONAL COMMUNITIES FOR USE IN FOREST PLANNING AND DECISIONMAKING

Pamela J. Jakes

Project Leader, North Central Forest Experiment Station, 1992 Folwell Ave., St. Paul, MN 55108

Thomas E. Fish

Graduate Research Assistant, College of Natural Resources, University of Minnesota, Green Hall, St. Paul, MN 55108

Abstract: Public land managers are searching for frameworks for organizing and displaying social information that will make it useful in forest management and decisionmaking. On the Chequamegon-Nicolet National Forests in Wisconsin, managers and researchers have used the concept of functional communities to develop such a framework. Functional communities define geographic areas in and around the Chequamegon-Nicolet where people's perceptions and use of the Forests are similar or compatible.

Introduction

The USDA Forest Service and other public land managers are wrestling with how to improve their analysis of the social impacts of management decisions. Two events have spurred Forest Service managers' interest in people/forest interactions. The first event was the Forest Service's adoption of ecosystem management as its new management paradigm. On June 4, 1992 the Chief of the Forest Service announced that the Agency was committed to "using an ecological approach in the future management of the National Forests and Grasslands."[1] The Agency's adoption of an ecological approach to management was a response to changing public values related to the environment and to increased understanding about how ecological systems work.

One of the foundations of ecosystem management is that people are part of and interact with ecosystems:

> "People are a part of forest ecosystems; they derive material and non-material goods and services from them, they live, work, and play in forests, and their attitudes, behavior, and knowledge of the forest ecosystem affect it in both direct and indirect ways. Thus, forest management systems that alter the structure and processes of the biological component will alter the human system that interacts with it. Conversely, the way in which people are organized and the processes through which they make decisions will lead to alterations in the forest ecosystem." (FEMAT 1993, p. VII-110)

Within the Agency, issues related to people/forest interactions fall under the rubric "human dimension of ecosystem management." In focusing on the human dimension of ecosystem management, Agency staff seek to understand human demands on, values and perceptions of, and interactions with ecosystems, and to integrate these into policies, programs, and management decisions.[2]

In addition to a change in management philosophy, the Forest Service is embarking on its second round of land and resource management planning under the National Forest Management Act (NFMA) of 1974 (as amended by the Resources Planning Act of 1976). The first forest plans completed in the late 1980s were criticized for their lack of social analysis (USDA Forest Service 1990a). For example, in a series of critiques of the initial NFMA planning effort conducted by the Forest Service in cooperation with The Conservation Foundation and Purdue University, critique team members noted that on forests where the planning process was successful "the attention to people's needs (emotional, symbolic, and organizational, as well as economic and community needs) were given consideration along with the resource capabilities and commodity schedules" (USDA Forest Service 1990a, p.13).

In analyzing the effectiveness of the planning effort for decisionmaking, a critique team found that decisionmakers were left in a vacuum with regards to social information on which to base planning decisions: "We concluded that the planning process was designed for an analytical approach to resource decisionmaking; it lacked any means for incorporating sociopolitical issues into the decisionmaking process. A balance of both approaches is needed..." (USDA Forest Service 1990b, p.14).

One of the problems with including information on the human dimensions in forest planning and decisionmaking is finding a useful format for displaying or organizing relevant qualitative and quantitative information. Last July, several social scientists from the North Central Forest Experiment Station and their cooperators met in Park Falls, Wisconsin at the headquarters of the Chequamegon-Nicolet National Forests[3]. The Chequamegon-Nicolet is one of the first forests in the Eastern Region of the Forest Service to initiate forest plan revision, and we met to talk about social issues related to forest planning. Wisconsin National Forest staff felt that they needed a social assessment to help them place their planning effort in a social context. As part of this task, we agreed to look at the concept of functional communities, and to test the use of functional communities as a means of organizing information for social assessment and forest planning. To accomplish this, we would be drawing on work initiated by Deborah Carr, U.S. Forest Service, and Dale Blahna, Utah State University, that analyzes peoples' ties to the national forest from two perspectives—from a distance, using secondary data from sources like the Bureau of the Census; and up-close-and-personal, using key informant interviews to identify functional communities. It is the use of functional communities for collecting and organizing information for social assessment that is discussed here.

The Concept of Functional Communities

Generally when you categorize a group of people (or any set of objects) you can do so according to two different schemes—by categories or functions (Flynn 1985). With categorical groups you classify people according to

statistical or definitional characteristics. Examples of categorical groups include "teenagers" or "families with incomes below the poverty line." With categorical groups, the groups are defined by the analyst, and people are either in or out. Functional groups are made up of people with similar behaviors or interactions. Functional groups cannot be determined prior to the analysis, but are determined by the analysis. In Wisconsin, we were interested in defining areas in and around the Chequamegon-Nicolet National Forests where people's perceptions and use of the Forests are similar or compatible. We would define these functional communities using key informant interviews.

Using Key Informants to Identify Functional Communities

Key informants are "experts" who can provide information about activities or events, or can help explain events (Patton, 1980). To identify potential key informants we contacted the five district rangers on the Chequamegon-Nicolet National Forests and asked them to provide lists of long-time area residents (Forest Service and non-Forest Service employees) who could help us understand the relationship of the area to forests, lakes and public lands. From those lists we selected 46 residents to interview, 23 Forest Service employees and 23 non-Forest Service employees. We met with people at places and times convenient for them. We met people at mills, sporting goods stores, resorts, and in district offices; we met over lunch, before work, and after supper.

The Forest Service employees we interviewed had lived in Wisconsin an average of 34 years, and in the community 39 years. Non-Forest Service key informants had lived in Wisconsin an average of 39 years and in the community 33 years. Table 1 shows the employment of non-Forest Service key informants. We were looking for balance in the employment and affiliation of our key informants, but ultimately we took whom ever had the time.

Table 1.—Distribution of key informants among occupation categories, average length of time living in Wisconsin and living in the functional community, non-Forest Service informants, Wisconsin National Forests Social Assessment

Occupation/ employment	Number of informants[1]	Years lived in Wisconsin	Years lived in the functional community
Educator/writer/extension	5	46	28
Timber industry	5	35	49[2]
Civic leader	5	50	37
Retiree	4	63	35
Small business owner/operator	4	43	32
Tourism/recreation	3	42	35
Other	3	22	10

During the interviews, we sat at a table with a large map of Wisconsin covered with a piece of mylar. We asked key informants to start drawing circles around areas where the people thought about and used the Wisconsin National Forests in similar ways. Then, we used an interview sheet to ask them a series of questions about the people and resources in their circles. These questions sometimes caused our key informants to redraw their communities, but by using this process we came up with 15 functional communities for the Chequamegon-Nicolet National Forests.

Using Functional Communities in Forest Planning and Decisionmaking

How are we using these functional communities to help forest managers understand the social context in which they are operating? First, narrative information is used as part of the Forests' public involvement process. For each community we created a community profile. Community profiles include a general description of the community, a discussion of community ties to the land, further discussion of ties to the Wisconsin National Forests, and a list of issues important to the residents of the functional community. Community profiles are an important component of the public involvement process developed by the Forests. Community profiles help diversify the input received regarding forest management and planning by providing information on the issues and concerns from people who might not otherwise become involved in formal public involvement activities. Information presented in community profiles adds texture and depth to the discussion of programs and issues that occur during "Friends of the Forest" meetings and other outreach efforts. Information contained in community profiles helps round out the list of issues managers develop as part of the forest planning process. Finally, insights gained from interviews and displayed in the profiles help land managers anticipate the responses by different publics to potential changes in forest management.

Functional communities are useful frameworks for displaying categorical data. For example, the map in Figure 1 shows the percent change in population in northern Wisconsin by county. This is interesting, but it's a little hard to see how it applies to the Forests specifically. Figure 2 shows the same information for the 15 functional communities. These maps are useful in showing how different various communities around the forests really are.

Finally, functional communities could serve as a basis for analyzing the impacts of alternative management actions on different communities for social impact analysis. For example, after identifying impact categories of importance to a community (perhaps number of jobs, quality of life, tradition and culture, economic diversity), a focus group could be formed in each community to ascertain people's perceptions of the potential impacts of management alternatives on the community.

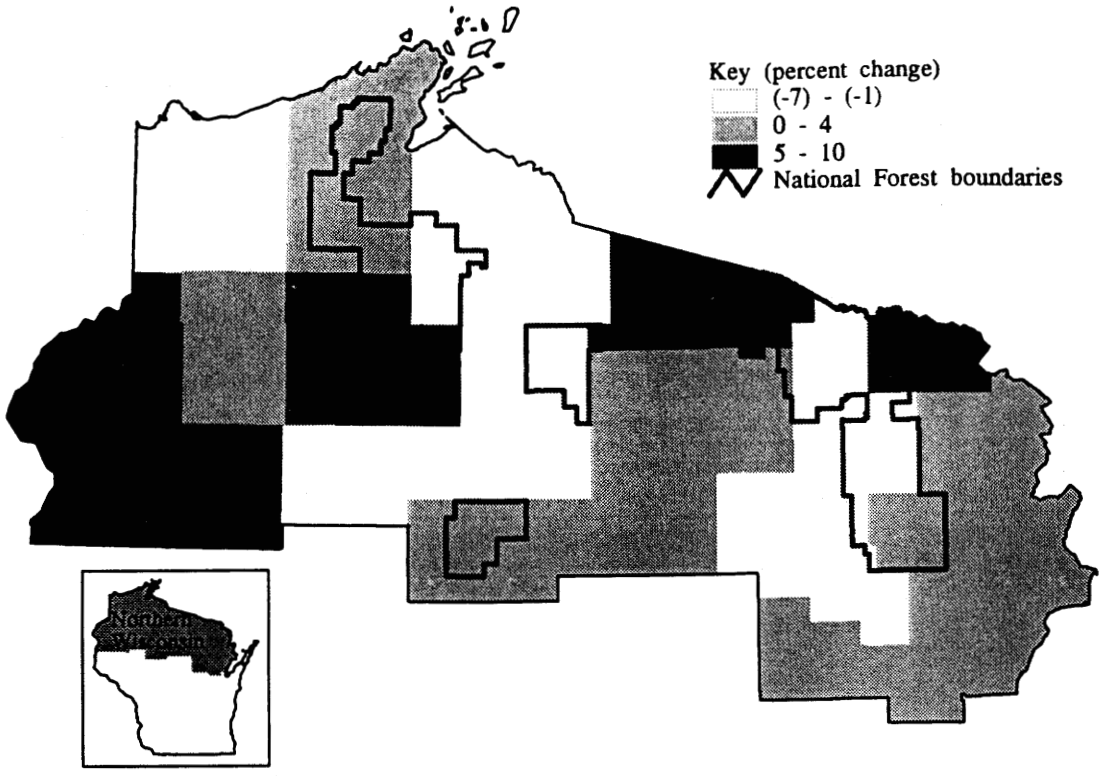


Figure 1. Percent change in population, northern Wisconsin by county, 1980-1990 (US Census Bureau)

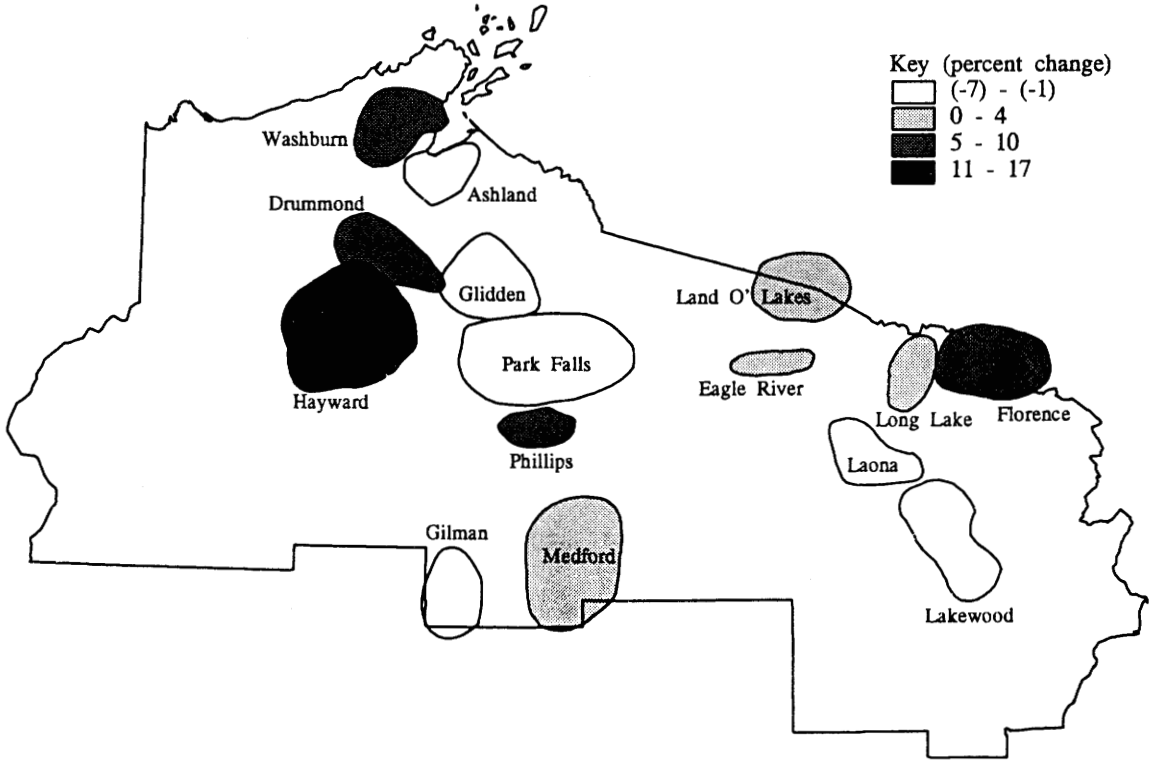


Figure 2. Percent change in population, northern Wisconsin by functional communities of the Chequamegon-Nicolet National Forests, 1980-1990

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[2] USDA Forest Service, National Human Dimensions of Ecosystem Management Task Team. Human Dimensions in Ecosystem Management: A Concept Paper. September 1996.

[3] The Chequamegon National Forest and Nicolet National Forest have one administrative staff and are being managed as one forest even though they technically remain two forests.

RECREATIONAL ASPECTS OF FORESTLAND EASEMENTS IN THE NORTHERN FOREST REGION OF NEW YORK STATE

Steven Bick

Research Associate, Department of Forestry, College of Forestry and Wildlife Resources, Virginia Polytechnic Institute and State University, Blacksburg, VA 24061.

Harry L. Haney, Jr.

Garland Gray Professor and Extension Specialist, Department of Forestry, College of Forestry and Wildlife Resources, Virginia Polytechnic Institute and State University, Blacksburg, VA 24061.

Chad P. Dawson

Professor, Faculty of Forestry, State University of New York College of Environmental Science and Forestry, Syracuse, NY 13210.

Abstract: Forestland easements are the subset of conservation easements encumbering forested properties. These less than fee interests in private land are flexible legal mechanisms that contribute to a diverse collection of land use influences. This study of forestland easements and their grantors in the northern forest region of New York State revealed that recreation rights are an important aspect in the decision by forest landowners to grant a conservation easement. These recreation rights may be legally acquired by the grantee, retained by the grantor, or divided in ways that allows both parties to share them. Financial and non-financial values placed on the use of forestland for recreation are evident in the factors affecting the decisions of landowners who granted forestland easements. Private, non-industrial landowners who donated forestland easements most often retain recreation rights to the protected property. Industrial landowners who sold forestland easements commonly granted broad public access to the protected property for recreation.

Introduction

Conservation easements are commonly associated with protecting land from development, but they have other functions as well. Often they go beyond ensuring that land remains as open space by constraining or directing how that open space is used. Conservation easements may encumber land of many different open space uses, as well as buildings, so it is helpful to divide them by land use types for the purpose of discussion. The subset of conservation easements encumbering forestland, known as *forestland easements*, are used to ensure land remains forested and to provide other forest related benefits to the grantee. The disposition of recreation rights is often dependent upon whether the landowner donated the forestland easement or sold it. An investigation into the content of forestland easements in the northern forest region of New York State revealed that one of the benefits from forestland that is commonly addressed in the agreement is the use of the property for recreation.

In the northern forest region of New York, the highest and best use of many forested properties is joint production of timber and recreation. That is, forestland has a market value that reflects its ability to grow timber and to be used concurrently for recreation. Most this land has some development value, which may be to the exclusion of the other two uses. Private, non-industrial landowners often capture this recreation value through their own enjoyment of the property. Industrial owners, such as forest products companies, capture this value through hunting leases or year-round recreation leases. Forestland easements have been used by landowners, at least in part, to retain, sever, or divide recreation values of forestland. Examination of forestland easement deeds reveals the various ways in which recreation is addressed in these easements.

The northern forest region of New York State has a diverse group of forestland easements, providing a background for this study. This region was first defined by the Forest Service's Northern Forest Land Study (1990) and later described in greater detail by the work of the Northern Forest Land Council (1994). It is a 7,600,000 acre area of largely undeveloped forestland that includes both the Adirondack Park and the Tug Hill Plateau. Within the 6,000,000 acre Adirondack Park, there are some 2,500,000 acres under New York State ownership. This state land is classified as "forest preserve", which means, among other things, that it can never be managed for timber production.

The forestland easement study (Bick 1996) inventoried all of the conservation easements held by known grantees in the region. The deeds to these conservation easements were examined. Those deeds found to encumber a property with a significant forestland component were included in the data set. The information contained in the deeds was divided into five categories: general information, affirmative right, restrictions, reserved rights, and terms and conditions. The variables within each of these five categories were then identified and inventoried. A description of the five categories follows in the next section, along with a discussion of the recreational aspects of each.

Results and Discussion

There is a considerable amount of general information included in most deeds. This information includes, among other things, the identity of the grantor (person or organization who donates or sells), and the identity of the grantee (organization that receives the easement). There are 50 donations and 29 sales in the study area, spread among eight grantees. The 50 donations came from 47 different grantors (i.e. a few grantors made more than one donation). Of these 47 grantors, 39 were private, non-industrial landowners. The sold easements, most of which were purchased by New York State, came from 11 different

sellers. Of these 11, a group of seven, including forest products companies, a public utility, a real estate investment firm, and a college, are considered industrial landowners. Donated and sold easements are discussed as distinct groups throughout this paper and, to a certain extent, this distinction generally represents the difference between non-industrial and industrial landowners.

Affirmative rights are those things the grantee is allowed to do on or with the protected property. A total of 23 different affirmative rights occur in the study. The donated easements generally contain far fewer affirmative rights than the sold easements. Among these are a group that pertains to allowing public use of the property for recreation. These affirmative rights for recreation are shown in Table 1.

Table 1. Affirmative rights found in forestland easements in the Northern Forest Region of New York State and the percentage of deeds they occur in, by type of grant.

	Type of grant	
Public Recreation Affirmative rights	*Donations* (%)	*Sales* (%)
Construct and maintain trails	2	79
Public recreation use comparable to that on state land	0	79
Parking lot construction	0	72
Recreation corridor access	4	10
Fishing	0	10
Trapping	0	10
Construct and maintain campsites	0	3

The data set includes 50 forestland easements that were granted as donations and 29 forestland easements that were granted as sales.

Only two of the affirmative rights for recreation purposes occur among the donated forestland easements in the study. Two donated forestland easements allow public use of trails on the property. One forestland easement grants the right to construct a trail for this purpose. Few landowners donated recreation rights, indicating these rights are of value to them. Public recreational use of the property can detract from the landowner's privacy and may degrade the resource. A landowner who derives satisfaction from the private enjoyment of his/her property could be forgoing all or part of that satisfaction by sharing the on-site use of the property with others.

Affirmative rights for recreation are major components of the deeds from forestland easement sales. This underscores the financial value these rights have. One of the two most common is broad public access for recreation uses comparable to those allowed on public lands in the State Forest Preserve. This is the right in which the landowner most clearly surrenders privacy and opens the resource to public access. Among sales, the other common recreation rights are intended for use in managing the resource to enhance public recreation access, including the right to construct trails and the right to construct parking lots. The remaining affirmative rights for public recreation, including fishing (10%), trapping (10%), and campsite establishment and maintenance (3%), are associated with use of the property under the affirmative right to broad public recreation access. A few of the sales deeds (10%) provide for public use of trails, rather than broad access. It is interesting to note that these forestland easements were purchased from private, non-industrial owners.

Restrictions are those things that the grantor is prohibited from doing on, to, or with the protected property. There are 37 different restrictions found among the forestland easements. These restrictions can be divided into two types. Some of the restrictions involve various aspects of development, effectively constraining the property to forested uses. With restrictions in place that assure continued forest uses, the second category includes restrictions that shape and limit how the forest is used as open space. All restrictions work with reserved rights in determining the extent of development and the way the forest will be used. The restrictions affecting recreation use of the protected property are shown in Table 2.

Table 2. Restrictions affecting recreation uses found in forestland easements in the Northern Forest Region of New York State and the percentage of deeds they occur in, by type of grant.

	Type of grant	
Open space use restrictions	Donations (%)	Sales (%)
Motor vehicle use	50	65
Hunting	22	0
Trapping	12	0
Fishing	8	0
Powerboats	4	0
Number of vehicles on the property at one time	0	3
Trail construction	2	0
Use of firearms	2	0
Camping	2	0

The data set includes 50 forestland easements that were granted as donations and 29 forestland easements that were granted as sales.

Among the restrictions affecting recreation use of the protected property are limits on motor vehicle use, hunting, trapping, fishing, powerboats, the number of vehicles on the property at one time, trail construction, firearms, and camping. Note that many of these restrictions pertain only to donated forestland easements, those in which the recreation rights were retained by the grantor. Though most of the restrictions occur infrequently in the study, they are worth noting because their presence demonstrates the variability of content in forestland easement agreements.

The restrictions, by themselves, provide an incomplete picture of how the use of the property is constrained. Reserved rights are those uses of the property retained by the grantor. This section is the portion of the forestland easement agreement where the grantor can truly customize

it to meet his/her needs. These reserved rights guarantee continued or future uses of the property by the grantor or subsequent owners of the protected property. In many cases, these reserved rights serve to modify the restrictions in the deeds and define the limits of acceptable development and use of the protected property. Nevertheless, the reserved rights section represents more than a list of exceptions to the rules. These reserved rights are very telling evidence about the landowner's intended uses of the property. A total of 72 separate reserved rights are found among the forestland easements. These reserved rights can be separated into four types: development, resource management, ownership administration, and on-site enjoyment. The reserved rights for on-site enjoyment are shown in Table 3.

Table 3. Reserved rights for on-site enjoyment found in forestland easements in the Northern Forest Region of New York State and the percentage of deeds they occur in, by type of grant.

	Type of grant	
Reserved rights	*Donations* (%)	*Sales* (%)
Use of the property for recreation	32	7
Construct and maintain lean-tos	12	41
Cut firewood for on-site use	18	0
Create and maintain scenic vistas	16	0
Recreation use the same as allowed to the public	0	4
Construct docks	6	0
Home gardening	4	0
Bury camping refuse	2	0
Establish lawns	2	0
Have electric generators	0	3
Hunting and fishing	2	0
Bring enforcement proceedings against violators	2	0
Use aircraft near the property	2	0

The data set includes 50 forestland easements that were granted as donations and 29 forestland easements that were granted as sales.

There are relatively few reserved rights for on-site enjoyment among the sold forestland easements. This is expected because most of these grantors are industrial landowners who have foregone their own on-site enjoyment of the property to convey broad public recreation access. In addition to an outright reservation of the right to use the property for recreation, some donors reserved such complementary rights as the right to construct leantos, to clear scenic vistas, and to cut firewood for on-site use. Other reserved rights for on-site enjoyment occur infrequently in the data set, demonstrating the unique ways in which forestland easements have been tailored to meet the needs of the landowners.

Two reserved rights that are included in the resource management category of reserved rights also pertain to use of the property for recreation. Among sold easements granting public recreation access, it is common for the grantor to retain the right to close portions of the property to public access during and immediately after timber harvesting. A smaller number of these grantors also retain the right to close reforestation areas for a set time period after the plantation is established.

Terms, conditions, and other provisions encompass all of the interesting information falling outside the limits of the other four categories. Ten variables in this category were tracked through all of the deeds. Four of these variables are directly related to recreation (Table 4).

Table 4. Terms, conditions, and other provisions found in forestland easements in the Northern Forest Region of New York State and the percentage of deeds they occur in, by type of grant.

Terms, conditions, & other provisions	Type of grant	
	Donations (%)	Sales (%)
No public access clause	72	7
Liability clause - grantor held harmless	8	83
Liability clause -grantee held harmless	18	38
Management plan requirement (by grantee, grantor, or both)	0	69

The data set includes 50 forestland easements that were granted as donations and 29 forestland easements that weregranted as sales.

The clause denying public access generally states that nothing contained in the forestland easement shall give or grant to the public a right to enter upon or use the property where no such right existed prior to the grant. This clause occurs in 72% of donations but only 7% of sales. This difference is expected because most of the sold forestland easements grant public access for recreation.

The grantor held harmless clause generally states that the grantee holds harmless and indemnifies the grantor for any and all liability from misfortunes the grantee may suffer in the course of activities on the property. This clause occurs in very few donations (8%), but is very common among sales (83%). A chi-square test indicates inclusion of this clause it is correlated with public recreation rights among sales.

Similarly, the grantee held harmless clause generally states that the grantor holds harmless and indemnifies the grantee for any and all liability from misfortunes the grantor may suffer in the course of activities on the property. This clause is occurred in 18% of donations and 38% of sales. Again, a chi-square test indicates inclusion of this clause it is correlated with public recreation rights among sales.

The management plan requirement may be on the grantee, grantor, or both. The donated forestland easements failed to include this requirement in all cases. Among donated forestland easements, the deed itself is an impressive

planning document for the property. Since most donors retained all of the recreation rights to the property, their are fewer potential conflicts in use and, thus, less need for a plan. The opposite is true of the sold forestland easements, where potential conflicts between recreationists and timber harvesting must be addressed.

Conclusions

Private forestland in the northern forest region of New York State has a market value that can be thought of as a combination of three different components - its value as a timber producing resource, its value for recreation, and its development potential value. This is a strong generality, and in some cases these values overlap or perhaps exclude one another. To the extent that we can observe all three of these uses and values occurring at once on a single ownership, we can think of them as subsets of the land's total market value. With this in mind, the ways in which these values have been divided by forestland easement grantors become more evident.

A substantial number donors in this study are private non-industrial landowners who retained recreation rights. Clarifying what these recreation rights mean to the individual landowner requires further examination. Perhaps the landowner is just retaining privacy that they would have been unable to enjoy with public recreation on the property. Privacy may be an element of their own recreation use, it may be a quality they find desirable in a homesite, or it may be an option for either of these two purposes they retained for future owners of the property.

Reserving the rights necessary to keep the recreation value of the property intact demonstrates the financial value of these recreation rights. When interviewed, most forestland easement donors stated that they would be using the land in the same manner they were at the time of the interview, regardless of whether they had donated the forestland easement. This suggests that they did not give up anything that was personally valuable to them in the forestland easement.

Forestland easements are being used, in part, as a means of providing opportunities for public recreation on private forestland. This has been accomplished through the purchase of forestland easements from industrial landowners by the State of New York. In most cases, the forestland easements came from industrial private landowners. As long as the recreation value coexists with the value of the land as a timber producing resource, financially motivated landowners must capture this value. For example, the annual capture of recreation rent has been accomplished through hunting leases. When the State of New York began purchasing forestland easements, some industrial landowners had the opportunity to capture the recreation value or recreation rent of the land through a one time sale of these rights. This allowed them to lower their basis in the land, making the economics of holding the land as a timber producing resource more feasible. Two of the sold forestland easements granted trail corridor access across the protected property to the public. In both cases these forestland easements were granted by private, non-industrial landowners.

Literature Cited

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PUBLIC RECREATION ON PRIVATE FORESTS: NO MORE GUARANTEES

Barry McPhee

University of Vermont, School of Natural Resources, 356 George D. Aiken Center, Burlington, VT 05405

Abstract: Studies across the U.S. have found that non-traditional ownership of Non-Industrial Private Forest-land (NIPF) ownership, centered on residential and recreational rather than timber production objectives, is gaining prevalence. Recent NIPF conversion in the Northern Forest of Northern New England and New York came under scrutiny by the Northern Forest Lands Council . A study conducted by the University of Vermont to determine ownership factors associated with conversion of Vermont NIPF found that generational turnover in ownership drives much of the change in ownership objectives to residential and recreational use. The new generation of owners, undertaking conversion at greater rates, were dominated by middle-aged, affluent professionals having these coexistent objectives. Recreation-centered owners converted NIPF parcels at rates higher than the average for all new owners. Owners purchasing with nature preservation objectives, and engaging in wildlife management activity, exhibited a pronounced increase in conversion activity. The study concluded that this generational turnover of Vermont NIPF to owners with recreational/residential objectives is contributing to the parcelization and privatization of this land, affecting the current and future availability of public, open recreation space in Vermont.

Introduction

Recently attention has turned to the conversion of Non-Industrial Private Forest-land (NIPF) to developed uses across the Northern Forest of New York, Vermont, New Hampshire and Maine. Large-tract purchases by speculators in the Northern Forest in the late 1980s spurred the formation of the Northern Forest Lands Council (NFLC), which identified NIPF conversion among issues to be studied as potential threats to traditional uses of the Northern Forest (Harper et al 1990).

The NFLC-commissioned Northern Forest Lands Study found that decreased travel time from major urban centers, increased number and quality of roads, and the demand for scenic property among other causes have led to identification of NIPF lands by major commodities markets as undervalued and economically attractive for purchase and development (Harper et al. 1990). Similarly, recent studies across the Northeast found the majority of NIPF owners in Vermont and elsewhere do not hold land for timber management. The prevalence of non-timber ownership objectives is so widely recognized in NIPF ownership studies that it has been termed "the NIPF problem" (e.g., Bliss et al. 1994, Bourke and Luloff 1994, Egan and Jones 1993). A recent study of Vermont NIPF owners found residence (43%) and aesthetic enjoyment (39%) the leading reasons for ownership (Widmann and Birch 1988). That study also concluded that timber production ranked low (1%) and was concentrated on parcels of 500 or more acres.

The new NIPF owner with residential/recreational objectives often has little knowledge of the benefits of timber management and little desire to manage for timber (Rosen and Kaiser 1988). These owners, typically from urban areas, often find they have no practical need for the acreage of forestland they purchase (Hubbard 1989). The more frequent newer uses of NIPF, such as residential and nontimber investment, do not require parcels of the size necessary for economic timber production. Even after the land has been subdivided, the new owner often finds more land left than he or she knows what to do with (Healy 1981).

NIPF parcels with amenity values such as water bodies and views are coveted by owners with non-timber objectives; accordingly, recreational activities have begun to attract increased numbers of vacationers and retirees from large metropolitan areas to the Northern Forest (Harper et al. 1990). They will be more unlikely to harvest forest products and more likely to develop. Recent indications point to recreation demand's positive effect on conversion. Participants at the 1989 "Conserving the North Woods" conference noted increased claims being made on forestland by recreationists and second-home buyers (Bristow 1989, Healy 1989). They said that landowners catering to the recreational development market have found it profitable to divide larger parcels into 1-40 acre tracts. These tracts sell for higher prices per acre and are most in demand by those planning to erect a second home. The Irland Group study in Harper et al. 1990 states that recreationally valuable lands in the northern reaches of New England and New York are being subdivided--privatized--so that individuals may secure their share of a diminishing amenity resource.

In connection with these findings, a study of Vermont NIPF conversion was undertaken by the UVM School of Natural Resources to determine the extent of this conversion and identify the ownership factors associated with it. The objectives of this study were:

- To identify ownership factors associated with the conversion of Vermont's Non-Industrial Private Forest Land (NIPF) to other land uses.
- To characterize NIPF ownerships that are prone to land use change.

Methods

That study's population, all 100+ acre land parcels transferred between January 1987 and June 1993, was obtained from the VT Department of Taxes transfer tax form. A total of 772 survey returns were gathered from 3072 valid addresses for a 25.5% proportion of the state's NIPF transferrents during that period. Sellers and buyers

were surveyed to obtain generational data, and to elicit empirical data on differences thought to exist between recent ownerships and older ownerships. Locational, demographic, natural feature, legal, land use, and parcel sale information were collected as independent variables to establish profiles of ownerships prone to conversion. The dependent variable, conversion, was defined as that point in time when the NIPF owner engages in a land development activity on the NIPF property not primarily associated with woodland management, or subdivides, or sells for subdivision or development, all or part of the NIPF property.

Several types of conversion were distinguished for this study; two types, *woodland conversion* and *sale conversion*, are discussed in this paper. *Woodland Conversion* occurred when clear indications of development took place during ownership tenure on a parcel primarily in woodland use before purchase. Four study criteria indicate such development had taken place:

1. the parcel had developed acreage
2. the parcel had one or more structures added
3. the parcel had one or more property features added (utilities, water system, access road or driveway)
4. the parcel was used primarily as permanent residence, second home, vacation home, commercial business, or industrial enterprise.

Sale Conversion was measured in the study as a parcel undergoing a transfer involving initial or continued conversion through development or subdivision, denoted by these events:

1. The parcel was sold to a developer, a real estate agent/broker, or a buyer purchasing for development;
2. The parcel was sold to develop land for profit.
3. The parcel was subdivided into parcels of less than 100 acres, one or more of which was sold.
4. The parcel was sold to a buyer purchasing for a residential single home, residential home with multiple units, vacation home, commercial use or industrial use.

The data were analyzed in several stages of univariate, bivariate and multivariate analysis. Frequency analysis was used to find the proportion of respondents exhibiting a single ownership characteristic or group of characteristics; the Z-test of binomial proportions was used to test the hypothesis that any two proportions found in the frequency analysis were statistically different. Chi-square analysis was used to identify ownership factors corresponding with conversion activity at statistically significant levels. Chi square analysis of all nominal independent variables were run against all conversion types, including the *woodland conversion* and *sale conversion* types discussed here.

Results

The study's central finding was that roughly half--47.9% was the exact finding--of Vermont NIPF was being converted during the study period either as a function of the sale or during the resulting ownership.

Generational Turnover

Most conversion appears to be driven by a generational turnover effected in the transfer from sellers to buyers, resulting in many newer ownerships by affluent, middle-aged white-collar professionals (Table 1). Purchasing often from retiring sellers with lower incomes and more often with land-based occupations, new owners exhibited significant increases in income, education, managerial/professional occupations, and out-of-state residency. They also were dominated by buyers in baby-boomer to middle-age.

Table 1. Demographic profile of buyers and sellers of 100+ Vermont NIPF, 1987-1993

	NIPF Sellers 1987-1993	NIPF Buyers 1987-1993
Age 40-59	35.6%	67.8%
graduate education	33.3%	42.7%
Income > 50K	36.4%	53.6%
managerial/professional occupation	22.5%	44%
Vermont native	43%	31%
Recreation/aesthetic Ownership objectives	27.2%	55.7%

Note: Profile of the new user is a middle aged, educated, affluent, white collar professional with recreation/aesthetic ownership objectives.

Note: Total percentages add to over 100% because some respondents, contrary to instructions, listed several objectives without indicating primary objective

These new ownership's match the profile of urban, mobile, affluent professional noted in previous studies as gaining predominance in NIPF ownership across the country.

A Recreation-minded New Owner Generation

As noted in the set of demographics shown in Table 1, recreation-related ownership objectives were prevalent among NIPF buyers during the study period. Over half of all purchasers between 1987 and 1993, 55.7%, listed a recreation-related motive as their primary purchase objective Nature preservation and recreational activity were reported by buyers at a frequency between 2 1/2 to 3 times that of the generation that sold to them. These figures, representing sharp increases from seller to buyer generation, compare to decreases to 19.7% in timber production and to 16.8% in farm/food production objectives. Additionally, a more than doubling has occurred in ownerships with hunting or fishing camp objectives. Table 2 illustrates this shift in purchase objectives the previous generation to current generation of Vermont NIPF owners.

A Development-minded New Owner Generation

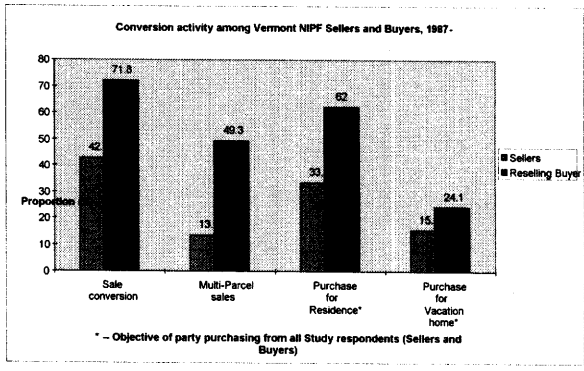
Concurrent with the sharp increase in recreation-centered NIPF ownership were sharp increases in conversion

activity among the buyer generation, and of conversion-related activity, measured as purchase for primary or vacation residence. *Woodland Conversion* activities during ownership tenure (adding structures, utilities, roads and/or other features to the property) increased by over half, from 13.9% among sellers to 21.4% among buyers; this increase produced a chi square significance level under 1%. The increase in conversion activity related to the sale of NIPF property approached or exceeded a doubling in several areas, as shown in Figure 1.

Table 2.Primary purchase objective disparities between buyers and sellers.

Purchase objective	Buyers (%)	Sellers (%)	Δ Z-score (.05 sig. >= 1.645)
nature preservation	18.8	6.5	4.9041
recreational activity	19.2	8.0	4.3461
vacation home residence	17.7	12.7	1.8801
hunting/fishing camp	11.9	5.0	3.3096
farm/food production	16.8	22.9	2.1254
timber production	19.7	22.3	.8789

Figure 1. Sale-related conversion among Vermont NIPF buyers and sellers, 1987-1993.



The first column in Figure 1 shows the overall proportions of sellers and buyers engaging in any type of *Sale Conversion*; the remaining columns show three of the several measures used which contribute to the overall figure. Each of these increases produced chi square significance levels of under 1%.

The sale of an NIPF property for vacation home use is shown in Figure 1 to be an prominent manifestation of these sale conversions. Having already experienced a significant increase from the seller to the buyer generation (Table 1), activity in this area continues its significant rise. Figure 1 shows the sale for vacation home among both seller and buyer study generations. Reselling buyers (buyers who resold within the seven-year study period) sold to a "third" generation exhibiting a still greater likelihood (24.1%, vs. the 12.7% and 17.7% of study buyers and sellers) to purchase for vacation home.

Decreasing parcel acreage and ownership tenure accompanied this conversion activity in a cycle in which accelerating parcelization appears to accompany accelerating turnover. Sellers reported parcelization in only 15.3% of sales. In contrast, fifty-two of the seventy-nine reselling buyers, or 66%, reported parcelization. This is more than a four-fold rate increase. The resulting parcels, moreover, were less than half the size of parcels in multi-parcel sales by the seller generation, as shown in Table 3.

Table 3.Mean acreage of parcels in multi-parcel sales.

Sold parcel(s)	Sellers' mean acreage	Reselling Buyers' mean acreage
2nd sold parcel	70.5	22.8
3rd sold parcel	32.4	13.8

Additionally, reselling buyers sold all or part of their parcel for residential development in 68 sales--almost half the 142 seller parcels sold for that purpose. Seller residential sales occurred on ownerships averaging approximately 23 years, while reselling buyers sold after a 4.9 year average tenure. At these rates, reselling buyers within ten years will sell for residential use as many parcels as did the generation that sold to them. This is a generational doubling in turnover rate if present rates are maintained.

The results presented in this section apply to the respondent population as a whole. Among new ownerships whose owners who indicated directly or indirectly that recreation activity was primary to their purchase, these indications of conversion activity showed still greater increases.

Conversion on Recreation-Centered Ownerships

The large overlap between the recreation-centered ownerships and converting ownerships suggested in the above section was more directly seen in several NIPF buyer statistics. One data indicator of this was the increased conversion rates near recreation activities. Conversion measured as addition of structures on the parcel during tenure (*woodland conversion* in the study) rose significantly on NIPF parcels within 20 minutes of some recreation activities. Table 4 shows these increases.

Table 4 Buyer *Woodland Conversion* rates in proximity to recreation activities.

Activity	< 20 min. to rec activity	> 20 min. to rec activity	Chi sq sig. level
X-C skiing	26.0%	16.9%	.018
Golf course	24.5%	15.6%	.022
Downhill skiing	24.1%	17.6%	.091

Another more direct indicator of the prevalence of conversion among recreation-oriented ownerships, and perhaps more telling as to the type of owner and activity on such ownerships, was the increased conversion activity among owners who saw their ownerships as opportunities to links to nature. A sizable 55.4% of all parcels, including parcels already in developed use, sold for development-related purposes. However two-thirds --66.67% -- who had purchased with nature preservation as primary objective sold some or all their property for development purposes.

A similar finding resulted among owners seeking connection with wildlife through NIPF ownership. Conversion among owners practicing any of several wildlife activities increased from 14.4% to 34.2%, a factor of about 2.4, with a chi-square significance level of 0%. Each category of wildlife management activity producing the overall result was practiced by owners exhibiting similar increase in conversion, as shown in Table 5.

Table 5. *Woodland Conversion* rates when wildlife management activities practiced.

Wildlife management activity	not practiced (%)	practiced (%)	chi square significance level
Wildlife habitat creation	17.7	35.1	.00026
Wildlife feeding stations	20.0	42.9	.0042
Wetland protection, restoration, or creation	20.1	35.1	.03315
Pond construction	19.5	39.5	.00226
Fish stocking	20.3	35.5	.04715
Any wildlife management activity	14.4	34.2	.0000

Summary

A generational turnover was found to be predominant in the transfer of Vermont NIPF; this generation manifested as transfer from the retiring to the baby-boomer/middle-aged; from less affluence to greater affluence; from land-based occupation to managerial/professional occupation; finally in ownership objective. The new generation of owners purchased for recreation-related objectives in over half of all purchases. Though the new generation's conversion activity as measured in this study increased significantly among all buyers, the recreation-minded buyers exhibited still greater increases in development and fragmentation.

Several particular ties between conversion and recreation/aesthetic ownership factors accompanied the general conversion increase among owners with recreation purchase objectives. Increased development and parcelization occurred on parcels within 20 minutes of commercial recreation activities. NIPF Buyers with nature preservation objectives showed added increases in sale for development and subdivision; similarly, conversion during ownership rate among buyers practicing wildlife management activities was well over twice that of those who did not.

Conclusions

Among the findings arising from this study of Vermont NIPF conversion was the finding that new owners have increased desire for recreation-related NIPF use, as well as incomes allowing purchase of 100 ac+ NIPF land for recreation. These new owners often desire a "back-to-nature" ownership of Vermont NIPF, involving both interaction with nature, recreation and residence on their "piece of Vermont." Due to the smaller parcel size and shorter tenure requirements for residential use as contrasted to traditional timber and farm use, these owners are also prone to subdivision of parcels and shorter tenure. They may also be unused to managing such large acreage or have little idea how to do so. As a result the new NIPF owner is using NIPF for private recreation on increasing numbers of smaller parcels.

One speculation arising from this study is thus that new owners, used to a standard of greater land use density and clearly-marked private boundaries, are importing a new standard of decreased accessibility on smaller parcels. The activity of the owners described above appears to be an increased pace of parcelization on parcels sprouting residences, causing a visible fragmentation of land once open-seeming and accessible. Such parcels are more clearly bounded and privatized. A new ownership ethic regarding public use of these lands may also be imported by such ownerships, and traditional recreational activities such as hunting and fishing have little choice but to move on to other land less clearly marked and in private use.

Fragmented private ownership may be creating increased difficulty for public recreation on NIPF lands. Privatized small ownerships are eating up potential public acquisition and provision of recreation land; as these areas suburbanize and urbanize, more recreation land may need to be provided by the public sector.

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Outdoor Recreation Management Studies

PERMITTING PETS IN FLORIDA STATE PARK CAMPGROUNDS: SELECTED PERCEPTIONS OF CAMPERS

Andy Holdnak

Assistant Professor
Department of Recreation, Parks and Tourism, University of Florida,
P.O. Box 118208, Gainesville, FL 16827.

Steve Holland

Associate Professor
Department of Recreation, Parks and Tourism, University of Florida,
P.O. Box 118208, Gainesville, FL 16827.

Tony Fedler

Assistant Professor
Department of Recreation, Parks and Tourism, University of Florida,
P.O. Box 118208, Gainesville, FL 16827.

Abstract: Since the 1950s pets have been excluded from Florida State Park Campgrounds. In response to public comment and pressure, the Florida State Park System recently began to reconsider this policy. The initial step in this process was to survey campers to examine camper characteristics and perception's about a variety of campground issues, particularly attitudes towards allowing pets in Florida State Park campgrounds. This paper discusses the findings. People with previous camping experience at campgrounds that permitted pets reported only slight negative impacts. Most campers expected that permitting pets in campgrounds would have negative impacts on campground noise and the observance of wildlife. If behavior is consistent with stated intention, permitting pets in the state park campgrounds would result in a slight increase in overall camping frequency.

Introduction

Florida State Parks Campgrounds are currently one of the few state parks campground systems to restrict pets from their campgrounds. The reasons for this restriction cited by the state parks managers include safety hazards, increased noise, negative impacts on the observance of wildlife and a general negative impact on the overall experience of campers. Recently, this policy has been challenged by numerous pet owners. They cite personal companionship and personal safety as positive impacts resulting from permitting pets in campgrounds. In 1996, at the request of the state legislature, the state parks system undertook a research project to survey campground visitors. The purpose of the study was to examine camper characteristics and perception's about a variety of campground issues, particularly attitudes towards allowing pets in Florida State Park campgrounds.

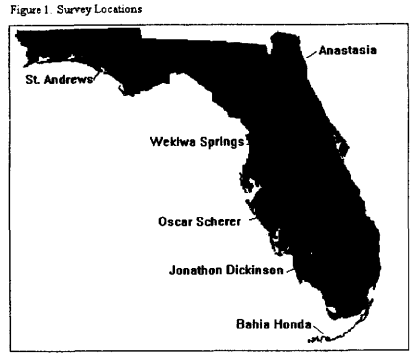
This paper will discuss some of the findings from this research project - particularly what the perceived impacts might be if pets were permitted in Florida state parks campgrounds and how changing the pet policy in campgrounds might impact the frequency of camping in Florida State Parks by state residents and non-residents.

Methodology

An on-site intercept interview was conducted during January through March, 1996 at 16 campgrounds in Florida.

One state park campground was selected in each of the six administrative regions of the Florida State Parks system. Private campgrounds in the vicinity of each state park campground were also invited to participate in the study. Ten private campgrounds agreed to permit their campers to be surveyed. An interview with 47 questions was administered to campers in both the state park and private campgrounds. Questions included basic demographic and camping history questions plus additional sections to discover the respondent's familiarity with pets in campgrounds; their perceptions of the impact pets might have and their likely changes in state park camping patterns if pets were to be permitted in state park campgrounds. The survey was conducted by project personnel from the University of Florida. A total of 619 surveys was completed.

Figure 1. Survey Locations



Findings

The profile of respondents is summarized in Table 1. About 53% of the respondents were interviewed in state park campgrounds while 47% were interviewed in private campgrounds. 34% were Florida residents , 58% were non Florida, US residents and 8% were international visitors. About 43% were pet owners while 57% did not own pets. Regarding participant experiences with camping in campgrounds with pets, about 82% reported camping at some previous time in a campground that allowed pets while 18% had no experience camping in campgrounds that permitted pets.

Among all campers, 36% reported that pets enhanced their camping experience, 41% reported no effect and 23% reported a negative effect on their camping experience. When further analyzed, about 30% of non pet owners

reported a negative effect on their camping experience. About 38% of the campers who were interviewed in Florida State Park Campgrounds reported a negative effects on their camping experience.

Table 1. Profile of respondents

Interview Location
53% Interviewed in state parks
47% Interviewed in private campgrounds
Residence
34% Florida residents
58% Non resident - US
8% Non resident - International
Pet Ownership
43% Pet owner
57% Non pet owners
Campers previous experience with pets
82% Stayed in campgrounds that permitted pets
18% Never stayed in campgrounds that permitted pets

The reported effects of pets on pets on previous camping experiences are shown in Table 2.

Table 2. Effects of pets on previous camping experience

All Campers
36% - Positive effect
41% - No effect
23% - Negative effect
Non pet owners - only 30% felt a negative effect
State park campers - 38% felt a negative effect

Campers were asked to explain what they believed would occur if pets were permitted in state park campgrounds. These beliefs are summarized in Table 3.

Table 3. Beliefs about impacts if pets were permitted (Overall sample)

Safety
18% - Positive effect
54% - No effect
28% - Negative effect
Observation of wildlife
3% - Positive effect
42% - No effect
55% - Negative effect
Noise in campground
2% - Positive effect
42% - No effect
56% - Negative effect
Overall Experience
28% - Positive effect
37% - No effect
35% - Negative effect

A slight majority of of state park campers indicated that allowing dogs in state park campgrounds would have a negative effect on their overall camping experience. About 41% of state park campers indicated that the presence of pets would have a negative effect on safety, 72% expect a negative effect on the ability to observe wildlife and 70% anticipate a negative effect on noise levels in state park campgrounds. Only about 15% of private campground campers expect a negative effect on safety while about 40% predicted a negative effect on wildlife observation and noise.

Campers were asked to report how changes in the current pet policy might affect their future camping patterns in Florida State Park campgrounds. Anticipated changes in camping frequency due to a change in the pet policy are shown in Table 4.

Table 4. Changes in camping frequency if pets were permitted.

Willingness to camp in Florida State Parks (overall sample)
No change - 70%
Increase - 18%
Decrease - 12%
Willingness to camp in Florida State Parks (Private campgrounds)
No change - 74%
Increase - 23%
Decrease - 3%
Willingness to camp in Florida State Parks (State Park Campgrounds)
No change - 68%
Increase - 12%
Decrease - 20%

When asked how their camping frequency in state parks would change if pets were permitted in campgrounds, 70% of the overall sample replied it would make no difference, while 18% indicated they would increase their camping in state parks and 12% would decrease their camping in state parks. 23% of the campers interviewed in private campgrounds indicated potential increases in visits to state park campground while 20 of the campers interviewed in state park campgrounds indicated that their future visits would potentially decrease.

Conclusion

Results of this study were somewhat mixed. Less than one forth of the campers who had camped in campgrounds which permitted pets felt that their overall experience had been negatively impacted yet most campers anticipated some negative impact on the observance of wildlife and campground noise. Overall, if behavior was consistent with stated intentions, changing the policy would have a small positive impact on camping frequency in Florida State Parks. More than two-thirds said that the policy would not affect their camping frequency. Of the nearly one-third who indicated that a change in policy would affect their camping frequency, slightly more than half the group indicated that they would camp more often in state park campgrounds and slightly less than half said that they

would camp less frequently. If pets were permitted in campgrounds, there would be some small positive impact on camping frequency but also some negative impacts on wildlife and noise. Clearly the decision to change campground policies should consider other issues than campground attendance as little overall change in camper attendance is indicated by this study.

Discussion:

Increased attendance may/may not cover additional operating costs. Additionally, there are some questions as to whether policies like this should even be subject to popular opinion. Since this study was conducted during the winter tourist season , it had a high proportion of non resident campers, perhaps seasonality may have been a research issue. Other policy issues such as length of stay and reservations methods plus the availability of full service hook-ups for motor homes may reduce the move from private campground to state park campgrounds.

Parables and Paradigms: An Introduction to Using Communication Theories in Outdoor Recreation Research

James Absher, Research Social Scientist, USDA–Forest Service, Riverside, CA

Abstract: Studies that employ communication theories are rare in recreation resource management. One reason may be unfamiliarity with communication theories and their potential to provide useful results. A two–dimensional metatheoretical plane is proposed, selected recreation and communication theories are located in it, and functional comparisons are made among eight disparate theories. Communication theories have much to offer scientists and managers, and both are encouraged to use them.

Introduction and background

Communication theories have much to offer those who are concerned with outdoor recreation management and research. Managers' experiences with (mis)communication, whether they are considered frustrations or successes, are commonplace. Nonetheless few research approaches to systematically investigate these experiences have been reported in either the leisure studies or recreation resource management literature. Why don't outdoor recreation researchers use communication theories more often? Clearly it is, in part, due to a lack of familiarity with communication theories. Yet communication theories have much in common with familiar and more often used social psychological theories. To bridge this gap a paradigmatic perspective that gives the reader a unifying view of the research process is presented, followed by examples of theories from the recreation and communication literature.

To begin, the research process itself needs to be viewed as if it were short narrative (story). These "stories" of the initial phases of a particular study when presented in a short, summary form can be analyzed as a text (data) from which the behavior (choices) of the controlling character (scientist) can be obtained. Such research narratives serve as more than an objective statement of the work done: they are like parables, providing a paradigmatic insight about the norms and conditions that define a particular research enterprise.

For instance, a recent communication focused article reported a study of low impact messages on wilderness trailside bulletin boards (Cole, Hammond & McCool, 1997). The study was concerned with communication effectiveness. The authors chose a persuasive communication theoretic approach to an information processing problem and used a quasi–experimental design method. The paradigmatic choices made by the authors are clear: their approach is individualistic and rationalist. Similar "parables" could easily be constructed from other studies with a communication or information flow objective. If analyzed as a set they would empirically define the approach (paradigm) currently taken by scientists working at the interface between communication and recreation resource management.

The existing body of recreation resource management studies is ample evidence that there is a recognized need to better understand the ways in which recreationists learn, and decide, about when, where and how to do various activities. This logically includes the application of mass media effects, social network, information processing, and other useful communication theories. Nonetheless, as in the example above, most of the work currently being done in this literature conforms to paradigms rooted in a few social psychological theories, especially persuasion theory or other close variants of theories of reasoned action (e.g., Manfredo, 1992).

This is not an undesirable state of affairs, but there are many other potentially useful theories, especially among the relatively untapped work of mass communication theorists. To many recreation researchers these other theories may seem strange or not applicable. Knowing more about their strengths or weaknesses, and how or when to employ them, is a logical first step. This paper will not try to promote one theory over another. Instead the goal will be to reduce the uncertainty about communication theoretic approaches in order to make some of them more immediately useful to future research.

The Paradigm Plane

Metatheoretical concerns: A comparative framework. All science makes some philosophical assumptions: this is a problem of approach, or paradigm. There are unwritten rules or exemplars that quietly, and some might say insidiously, guide recreation researchers to choose one or another approach to a management "issue." For this paper, two distinct metatheoretical aspects are presented to reveal the underlying theory choices: these are normative utility and epistemological frame.

Utility is axiological: it is self–evident that a theory must be useful in explaining or understanding actual behavior(s) at some level. Sometimes a theory may encompass a close modeling of specific behavioral characteristics, or a strong and immediate link back to the "real world." At other times, research is focused at a more abstract level, or is general in scope, or even intentionally removed from the application of results. Thus theories exist in a range of types from those whose utility is relatively abstract, general or nomothetic (law–like) to theories whose utility is quite applied or aimed at site–level contexts. Consequently the theory "at risk" in any given study can be distinguished as to its immediacy or closeness to a particular recreational setting or decision context. This immediacy or utility delimits the study's generalizability. In practical terms, theories tailored in one setting may not be appropriate in others, and nomothetic theories may require additional effort to apply them to specific settings. It is a necessary tradeoff. In choosing a theory to apply to a problem, a researcher has acceded to a normative imperative to pick an approach and, ipso facto, it will have a utility level. Of course many times this may be done uncritically; i.e.,

merely assuming the approach previously taken by others is "good enough."

Second, the epistemological frame of a theory can yield useful distinctions as well. When a researcher follows a paradigm (e.g., picks a theory) the meaningful concepts of that theory also delimit discourse. This is another metatheoretical concern. By necessity each theory makes assumptions about how people come to know things and the categories of knowledge they employ. This is the purview of epistemology. In the context of devising a study, these assumptions reside in the tacit agreement scientists make on behavioral issues through the choice of a given theory or in the type of analysis needed. They are not always explicit nor obvious, and these distinctions too are often ignored.

In short, each theory contains epistemological assumptions about the nature of a subject's action, thought, and reality. Although this area is extremely complex, the approach here is to make it manageable by crudely modeling this domain through a tripartite typification of theories that distinguishes idiosyncratic, sociological, and highly individualistic types of explanations. The differences among these categories mirror important differences in approach to recreational behavior(s) that the researcher subsumes in the theory (either because they are felt to have been established by other scientific work or because it is a pure and arguably logical assumption).

At one end is the idiosyncratic approach: few, if any, assumptions are made to group respondents and the subject is often investigated with a strong emic (roughly, from the subject's own viewpoint) stance. The uniqueness of individuals and setting dynamics, e.g., culture or power relationships, play a strong role. Typical theories of this sort in communication research are those that focus on symbolic content or latent values.

On the other hand, a theory might make substantial assumptions that allows the grouping of individuals or eases variable measurement. Some theories that focus on, say, choice behavior may wish to assume a rational thought process or that setting differences do not substantially affect the behavior in question. Finally, a third group of theories may investigate a person's actions in support of, or in relation to, a social role or status. Again some assumptions will be made about the actor's view of the world and the focus is largely on sociological behaviors. In order, constructivist theories, rational exchange theories, and symbolic interactionist theories may serve as familiar examples of these three types of epistemological assumptions.

Therefore, in this paper the epistemological dimension is grouped into three "camps," which reflect (1) strongly rationalist and individualistic theories, (2) a middle ground in which relations, roles, and group processes are the focus, and (3) a broadly open intellectual tradition that makes few assumptions about the thoughts and commonalities of the subjects and focuses on symbolic, meaning and valuation processes in various contexts.

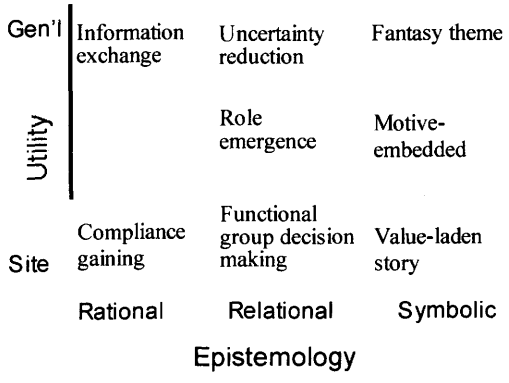
Taken together the utilitarian and epistemological dimensions of paradigm type define a plane of choice that will co–locate the many useful and distinct communication theories (see figure 1). The next step is to place familiar or potentially useful theories in this space. For clarity, two theories commonly applied to recreation behaviors are presented. These would be placed along the left edge of the plane (rational column). Following that, selected communication theories are presented that could be, or currently are, used in studies of outdoor recreation settings.

Recreation–related theories: Persuasion theory is typical of theories that occupy the upper left portion of the paradigm plane. It is relatively abstract, and meant to apply to a broad range of settings and people, and is therefore a general theory. Moreover it is clearly rationalist in its approach to the behavior studied. People are hypothesized to have measurable responses to inputs, which are in the form of information, usually by either central or peripheral routes. The assumptions of broad scale utility and reasoned behavior make it both general and rational.

At the lower left corner of the plane one might find recreational crowding theories. The actor is usually seen as a rational processor of stimuli, and the clear level of application is meant to be activity, if not site, specific. Numerous studies have been done along this line of inquiry to the point where summary papers listing dozens of individual studies are now in print with an eye toward generalizing more broadly to the behaviors in question. These studies are not fully representative of all recreation or visitor studies and are not presented as a characterization of the entire field, but they are examples that illustrate two long standing research traditions in resource recreation research.

Communication theories: One objective of this paper is to provide an overview of communication theories with reference to the paradigmatic plane presented above. The two rational mass communication theories, one general and one specific, occupy much the same position as the two recreation theories previously presented (see figure 1). These are reviewed first.

Figure 1. Paradigm plane with selected communication theories



Rational theories. Information Exchange Theory is a general theory meant to apply to most, if not all, communication settings. In this theory, messages are considered objectively describable and exist independent of the receiver. The receiver in turn is affected by these messages (persuaded, informed, etc.) in a linear process of response. Berelson and Lazarfeld (1948) defined its essence nearly 50 years ago as "objective, systematic and quantitative description of the manifest content of communication."

A more applied or setting dependent version of this perspective is Compliance Gaining Theory, where specific behavioral outcomes are desired from the communication events that are being measured. In this theory, the actor is rational and the communication events are still largely objective facts. That is, they do not depend largely upon specific individuals or social requirements, and the specific behavior of interest, such as rule compliance, is explicitly included in the theory (Krippendorf, 1993). A recreation example might be a prohibited behavior such as having a campfire in certain areas. A researcher would measure which "rules" campers know about, where they obtained site use information, and whether they saw signs, notices, or written prohibitions.

Relational theories. The second column of figure 1 locates communication theories that differ from the first by relaxing the strongly individualistic assumptions of the rational approach. Instead the actor is set in a role–bound context where relational features interact with the communication elements to give rise to meanings, interpretations, and ultimately behaviors. All relational theories assume an epistemological need for social structure, but emphasize different aspects of the communication process. Some are more client–centered than others. Each in its own way contributes to a particular place in the paradigmatic plane.

A general relational theory is Uncertainty Reduction Theory (Berger and Calabrese, 1975). It too focuses on the relational aspects of communication as a means to define and uphold societal structures or symbols. Many of the key social facts for this theory are roles or authorities. For example URT might be useful to understand how communication can reduce uncertainty and lead to efficiency as district rangers do their job in communicating with the public.

A fairly general theory in this vein is Role Emergence Theory (Bormann, 1990). The objective is to understand decisionmaking in small groups by classifying the utterances of actors according to the role they have in a group process, such as a jury deliberation, and how these are used to signify status, provide leadership, etc. Both utility and assumptions about the actors are in the middle range of the paradigm plane. By restricting the concern for a particular task group, such as a quality assurance committee, a more specific theory such as Hirokawa's (1985) Functional Theory of Group Decision Making may be a good choice. This approach would be especially useful when the focus is on communications in groups trained to decide relatively specific issues and the goal is to understand how better decisions might be engendered. The paradigmatic focus is still relational but the utility level is more specific and would not be generalized to other small groups that don't share decision making roles and characteristics. For the prohibited campfires example a scientist might investigate how or why a given campfire regulation achieves compliance or non–compliance within certain user groups by investigating who says what to whom, who are the group decisionmakers, etc.

Symbolic theories. Finally there are numerous communication theories that seem to have more in common with the humanities than social science. They make no claim to provide behavioral predictions and favor situated understanding and explanation as the primary goal. This sort of intellectual tradition is typical among social scientists and educators from constructivist, feminist, and post modern approaches to science. In communication there are general theories that provide a means to assess the meaning of communication events to particular groups especially on their own terms (emic) or as embedded regularities not previously recognized. A well–known one is Fantasy Theme Analysis (Bormann, 1982) wherein communication is analyzed to pull out the themes and symbols that are operative in that setting. For instance, consider the slogan "Only you can prevent forest fires." Who promotes this idea and how is it received and transmitted through society? What is the symbolic reality that Smokey Bear embodies for a given group, and how different might it be for a mountain community surrounded by National Forest lands than one in an urbanized area? According to FTA, people who share a way of communicating about an issue are termed a rhetorical community, and their symbolic use of language and media can be studied theoretically to arrive at an understanding of the entire community.

A more focused or middle level utility theory might be Motive–Embedded Analysis. It is essentially a particularized form of dramaturgical analysis where the symbols used in conversations, writings, ads, or speeches are analyzed to uncover the motives that underlie them (Bullis & Tompkins, 1989). Although this study focused on communication among forest rangers, MEA might have particular usefulness to resource managers who are faced with conflicting demands from stakeholder groups in a planning context or discussions with a particularly important customer group. The theory allows a trained analyst to attribute motives to a person or group based on a study of behaviors, anecdotes, and discourse.

Finally, figure 1 presents a theory that relies heavily on symbolic analysis but is more specific in its utility: Value–Laden Story, which is a form of Narrative Paradigm Theory. The researcher preselects a particular class of events (e.g., health care workers servicing HIV patients). The core idea is to "unpack" the values, both instrumental and terminal, found in the narratives (stories) of individuals in a particular circumstance. For instance, by evaluating closely the value–laden components of subjects' stories, a strong sense of the differences in goals and values between HIV patients and their doctors was accomplished

(Vanderford, Smith, & Harris, 1992). Similar approaches would be useful in selected recreation resource decision making contexts. For instance in the campfire issue from above a researcher might interview managers and selected user groups to uncover substantive differences in their values, needs, and preferences. Both groups are treated emicly; i.e., the researcher's task is to understand the issue from each group's own perspective and make comparisons or conclusions afterward. Their subjective values and evaluative statements are the data that emerges from interviews and drives the analysis.

SUMMARY AND CONCLUSIONS

Returning to the broader picture, thoughtful application of communication theories will assist the larger enterprise of multimethod social science (e.g., triangulation) applied to resource recreation management. No argument is made that communication theories are meant to supplant existing recreation behavior theories. Increased use of communication theories is far from antithetical to current practice in the leisure paradigm. In many instances it is complementary and occupies the same metatheoretical place as existing outdoor recreation research. This paper has only scratched the surface and planted a few selected seeds. Scientists are encouraged to attend to the concepts and models of the broad field of communication so that these theories can be applied beyond the arenas of product marketing and mass media studies and, thereby, be brought fruitfully into the outdoors.

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The Relationship Between Activity Specialization And Preferences For Setting And Route Attributes Of Selected Rock Climbers

Kurt Merrill

Director, Outdoor Program
The Pennsylvania State University

Dr. Alan Graefe

Associate Professor
The Pennsylvania State University
School of Hotel Restaurant and Recreation Management

Abstract Many natural areas are now in the process of developing climbing management plans in order to control management factors associated with the growth of rock climbing. These factors may include limiting areas of use and limiting the type of climber utilizing the resource. The purpose of this study was to further develop and operationalize the concept of recreation specialization as it relates to rock climbing. This study also examined preferences for the physical characteristics of rock climbing routes and the general recreational setting. Management implications of this study include the development of a heuristic management tool to categorize and rate climbers into a continuum of specialization from general to specific users that in turn would display different environmental preferences for the environment in which the sport of rock climbing takes place.

Introduction

The sport of rock climbing, a form of adventure recreation, has grown considerably in the past several decades (McAvoy & Dustin, 1985). This incredible expansion and resulting upsurge of participation raises many questions for land managers and park officials. What role should they play in regulating this recreational activity? To what degree should forms of the sport be regulated? Which participants should receive special management intervention? Many natural areas are now in the process of developing climbing management plans in order to control management factors associated with the growth of the sport, such as limiting areas to use, and limiting the type of climber utilizing the resource. Managers would benefit from the development of a heuristic tool capable of matching management strategies with the variability of recreational orientations and needs.

To help management understand variability within recreational activities, Bryan (1977) introduced the idea of specialization which provided a conceptual framework with which to explore recreation behavior. He sought to explore the diversity of recreationists within a given activity. Recreation specialization "...refers to a continuum of behavior from the general to the particular" (p. 175). This continuum is reflected by the equipment, skills, and activity setting preferences of the recreationist. At one end of the specialization continuum is someone who has very general interests in an activity and participates in several forms of the activity. At the other end of the continuum is a person who has a narrow field of interest and limits interest to a specialized branch of the sport. Bryan sought to explain variability among recreationists in terms of their behavior and attitudes regarding different forms of the activity.

Bryan's (1977) specialization typology has subsequently been used by researchers to help explain attitudes and behaviors towards management, setting and resource preferences, attitudes towards resource conservation, and motivations for participation. Specialization has also been utilized, with varying success, to help understand behavioral patterns in several activities including canoeing, backpacking, rock climbing, as well as non- outdoor recreational related activities such as contract bridge.

Hollenhorst (1987) attempted to apply recreation specialization theory to rock climbers and the sport of rock climbing. In Hollenhorst's study, expertise was used as a surrogate measure of specialization and was compared to the independent variables of experience use history (EUH); the ecological, social, and climbing difficulty character of the environment; age; gender; equipment used; and social context. Hollenhorst's study was delimited to those rock climbers who engaged in top-rope rock climbing. Other rock climbers that were excluded from this study were solo climbers, lead climbers, boulderers, and aid climbers. A limitation of this study was that it potentially excluded a wider variety of climbers on the specialization continuum.

Hollenhorst (1987) also found that two climbing sites that contrasted in ecological character (developed vs. natural) did not differ in terms of the level of specialization exhibited by users. As Hollenhorst stated, the finding would seem to contradict the specialization theory developed by Bryan (1977) who said that an increase in specialization would increase the dependency on the natural character of the environment. Hollenhorst asserted that "...rock climbers are generally insensitive to and unconcerned with the ecological character of the rock climbing site... it is more likely that these attribute preferences relate to the quality of the rock and the climbing route" (p.129). Hollenhorst's assertion, however, would seem to confirm Bryan's theory. Bryan suggests that the values attached to a level of specialization are "inextricably linked to the properties of the resource on which the sport is practiced" (p.186). The present study focused on exploring the properties of the resource and its relation to specialization.

It was the intent of this study to help gather information on the attitudes of rock climbers so that informed decisions could be made in terms of managing our natural areas with rock climbing resources. The sport of rock climbing has several different forms which may be characterized by participants of differing skill and experience levels (Hollenhorst, 1987). In the present study, rock climbers

were examined in the context of recreation specialization to help better understand the heterogeneous behavior associated with participation in the sport.

Purpose of Study

The purpose of this study was to develop and operationalize the concept of specialization as it relates to rock climbing. This study developed and tested a multi-attribute index for measuring and categorizing activity specialization of rock climbers. As an extension to previous rock climbing studies, this study also examined the preferences of rock climbers for the ecological character of the environment by measuring preferences for the physical characteristics of climbing routes and general recreational settings. This study examined the following questions:

- What specific setting and route attributes do rock climbers prefer?
- Overall, do climbers prefer the attributes related to the rock climbing route or the general recreational setting?

Use of the specialization index as a heuristic management tool would help managers identify who is participating in rock climbing and help understand users' attitudes and preferences towards specific environmental attributes. Findings would also suggest to land managers how to increase user satisfaction across the entire specialization spectrum and in turn help to avoid "recreation triage" (Ewert, 1986; Hollenhorst, 1987), a condition in which managers inadvertently cater to one specific user group.

Data Collection Procedures

Seneca Rocks Recreation Area, located in Pendleton County, West Virginia in a remote area of the Appalachian Mountains, was selected as the study site. The recreation area lies on US Forest Service land and offers a variety of recreational opportunities including over 400 rock climbing routes. The study site was selected because it draws a representative sample of rock climbing enthusiasts according to a study conducted by Botkin (1985).

The subjects were delimited to people participating in rock climbing and explicitly excluded people engaging in other related activities such as rappelling and hiking. Climbers were asked to fill out the survey as they exited the rock climbing area. The participants were also asked whether they had completed the survey on a previous occasion to help control for duplication. A total of 263 surveys were collected over the administration period between June 23 and August 12, 1996. Ten individuals refused to complete the survey, creating a response rate of 97 percent.

Instrumentation

A multi-attribute specialization index was developed to help measure the heterogeneous behavior associated with participation in the sport of rock climbing. Seven indicators were utilized to measure three behavioral aspects of specialization including skill level, prior experience, and commitment. These indicators were standardized through a Z-score transformation and additively combined to create a specialization index that ranged in score from -10.7 to 15.96. A Cronbach's Alpha was utilized in order to test the internal consistency of the 7 items. One of the items was eliminated from the scale when reliability analysis revealed that it did not contribute to the overall specialization index. The remaining six items of the specialization scale obtained a reliability coefficient of .81. The Alpha coefficient for the testing of the relative homogeneity of the specialization index exhibited a strong degree of internal consistency among the indicators employed to construct the index and thus the specialization index was judged to be sufficiently reliable.

To measure climbers preference for environmental attributes related to the general recreational setting (the rock climbing area) and the rock climbing route, participants were asked to rate the importance of statements relating to the physical attributes of both the rock climbing route and the general activity area. This was done on a seven-point rating scale with responses ranging from "not important" (1) to "very important" (7). Subsequently, each set of questions relating to either the general setting or rock climbing route were combined to create a general setting score and a route attribute score, respectively.

Analysis

Pearson Correlation coefficients were used to analyze the relationship between the specialization index and preferences for both general setting attributes and rock climbing route attributes. The specialization index was further divided into high specialists and low specialists consistent with other specialization studies (Wellman, Roggenbuck, & Smith, 1982). High specialists were defined as the upper quartile (upper 25%) and low specialists as the lowest quartile (lowest 25%). Subsequently, Paired T-Tests were utilized to compare preferences for route and setting attributes between high and low specialists.

Table 1: Pearson Correlation Coefficients Between the Specialization Index and the Importance of Physical Setting Attributes (n = 257)

Attributes	Mean	Pearson r	Two-Tailed Probability
High Mountain	4.05	.001	.987
No Evidence Of Man Made Features	4.39	-.076	.226
Natural Lakes and Streams	4.93	-.075	.233
Availability of Potable Drinking Water	3.72	-.231	.000
Seeing Wildlife	4.21	.079	.204
Rugged Terrain	4.23	.042	.500
Scenery of Area	5.54	-.015	.805
Condition of Access Trails	3.16	-.164	.008
Cleanliness of Area	5.54	.001	.981
Short Length of Approach	4.55	-.226	.000

Table 2: Pearson Correlation Coefficients Between The Specialization Index And Physical Route Attributes (n = 257)

Attributes	Mean	Pearson r	Two-Tailed Probability
Scenery Viewed From Climb	5.23	.141	.023
Natural Condition Of Climbing Route	5.69	.079	.208
Not Seeing Manmade Features On The Climb	4.5	-.050	.424
Cleanliness Of The Climb	5.54	.076	.225
High Degree Of Naturalness On The Climb	5.42	.006	.923
Presence Of Bolts	5.02	-.042	.505
Length Of Climb	4.71	.023	.708
Presence Of Permanent Top Rope Anchors	4.36	-.226	.000
No Loose Rock	2.83	-.015	.811
Difficulty Level Of The Climb	4.95	-.039	.532
History Of Climb	3.37	.107	.087
Quality Of Route	5.81	.295	.000
Type Of Climb	4.61	-.078	.212
Amount Of Exposure	4.53	.051	.415
Natural Features Of Climb	4.5	.092	.139

Table 3: Paired T-Tests for High Specialists and Low Specialists on Route Attribute Score and Setting Attribute Score.

Variable	N	Mean	St. Dev	St. Error	T Value	2 Tail Prob.
HighSpecialists						
Route Attributes		4.89	.67	.09		
	56				3.17	.002
SettingAttributes		4.58	.92	.12		
Low Specialists						
Route Attributes		4.69	.68	.09		
	55				3.51	.001
Setting Attributes		4.34	.63	.08		

The results of the Pearson Correlations between the specialization index and general setting attributes would seem to confirm that, as specialization increases, the preference for specific physical setting attributes becomes more extreme. There were three specific setting attributes that were significant at the .05 level. "Availability of potable drinking water", "condition of access trail", and "short length of approach" all showed a significant negative correlation. As specialization increases these variables would seem to be less important to rock climbers' preferences for a rock climbing area. (Table 1)

Secondly, the results of the Pearson Correlations would seem to confirm that, as specialization increases, the preference for specific physical route attributes becomes more extreme. There were three specific route attributes that showed a significant correlation at the .05 level. "Scenery viewed from the climb", and "quality of the route" showed a significant positive correlation while "presence of permanent top-rope anchors" showed a significant negative correlation. It would seem that as specialization increases, "Scenery viewed from the climb" and "quality of the route" become more important to climbers' preference of a climbing route. It would also seem that as specialization increases the "presence of permanent top-rope anchors" becomes less important to a climber's choice of a rock climbing route. (Table 2)

The results of the Paired T-tests would seem to confirm that high specialists show a stronger preference for physical route attributes than for physical setting attributes. High specialists ($p = .002$) overall showed a stronger preference for the route attributes than the setting attributes. It was found that low specialists ($p = .001$) also demonstrated a significantly higher preference for route attributes than setting attributes, although not as strong as high specialists. (Table 3)

Discussion and Implications

The findings would suggest that rock climbers are more concerned with the attributes of the rock climbing route than the general recreational setting. Therefore, managers could channel rock climbers into areas that are not in pristine condition, closer to the trail head, and in areas that are generally unappealing to other recreational users. To cater to low specialists, these sites could be equipped with permanent top-rope anchors since it was found that this attribute became more important as specialization decreased. Since high specialists are less concerned with the length of approach than low specialists it would make sense to channel high specialists into a more pristine and backcountry setting. Channeling rock climbers into appropriate areas could be accomplished through distribution of informational brochures or the establishment of appropriate trail signage.

Land managers and park officials are currently developing climbing management plans to be able to manage the recent influx of rock climbers into their areas. Many land managers and agencies are struggling with whether or not fixed and permanent anchors (i.e. bolts, pitons, and rappel anchors) should be allowed in their management areas. Specialization does not seem to have any relationship to "presence of bolts", "degree of naturalness", "not seeing manmade features on the climb", and "natural condition of climbing route". However, as mentioned earlier, this may be due to current acceptable practices in the sport. Climbers, regardless of what route they are on, may actually expect to find bolts, anchors, and other manmade features. This acceptance of current practice may render these attributes moot in terms of route selection preferences.

In the future, it would benefit land managers to conduct research on the issue of fixed protection (i.e. bolts, rappel

anchors, belay/rappel stations). Is this an acceptable practice in rock climbing and how would the elimination/addition of these devices be perceived by climbers? Findings would help provide mangers with a basis to make informed resource oriented management decisions that would help protect the environment as well as increase user satisfaction along the entire continuum of climbing activities.

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STATISTICAL TESTS AND MEASURES FOR THE PRESENCE AND INFLUENCE OF DIGIT PREFERENCE

Jay Beaman

Auctor Consulting, 676 Highland Ave., Ottawa, ON, K2A-2K4 (jaybman@igs.net) Canada and Adjunct Professor, Human Dimensions in Natural Resources Unit, Colorado State University, Fort Collins, Colorado

Michel Grenier

Senior Analyst, Parks Canada, Hull, Quebec, Canada (michel_grenier@pch.gc.ca-or-mgrenier@istar.ca)

Abstract: Digit preference which is really showing preference for certain numbers has often described as the heaping or rounding of responses to numbers ending in zero or five. Number preference, NP, has been a topic in the social science literature for some years. However, until recently concepts were not adequately rigorously specified to allow, for example, the estimation of number of responses for a given stated value that are a consequence of NP. This paper reviews developments, identifies current research directions and then builds on methods of estimating numbers exhibiting NP to provide measures and statistical tests. A chi-square test of significance of NP; a test for the significance of particular heaps and confidence intervals for the estimated proportion of a population exhibiting NP are presented. The interpretation of the tests and measure is illustrated. Of particular practical value is a measure of the potential for NP to bias the value of the mean and total of a stated response variable.

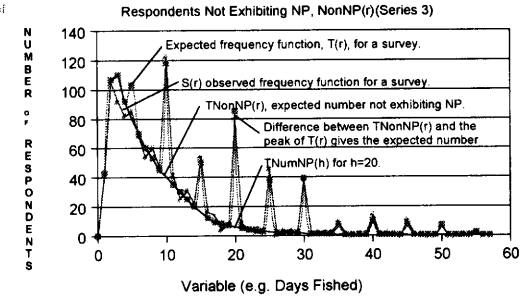
Note: In this article certain standard symbols are used. These are: $\approx$ or $\cong$ is approximately; $\equiv$ is equivalent; $\therefore$ is therefore; $\exists$ is there exists; $\forall$ is for all; $\subset$ is "is a subset of"; $\in$ is "is a member of"; $\ni$ is such that.

Keywords: digit preference, bias, statistical test, heaping, rounding, stated participation

Perspective

Digit preference, really number preference (NP), is a phenomenon that is recognized by the heaping on or rounding of responses to certain numbers such as numbers ending in zero or five. It has been a topic in the scientific literature for some years (Burton & Blair. 1991; Baker 1992; Hultsman, Hultsman, Black 1989; Huttenlocher, Hedges, & Bradburn 1990; Pickering, 1992; Rodgers, Brown, & Duncan1993; Rowe & Gribble 1993; Tarrant & Manfredo 1993; Wen, Kramer & Hoey 1993). Recent publications have operationalised the concept of exhibiting number/digit preference, NP. This has been done with adequate rigor to allow the estimation of the number of responses for a given stated value of a variable r for which NP was exhibited (Vaske, Beaman, Manfredo, Covey and Knox 1996; Beaman, Vaske, Donnelly and Manfredo 1997). A key idea is that heaping/rounding such as exhibited in response to questions about the frequency of doing something or the amount spent should be viewed as a generic phenomenon. The implication of this approach is that results can be derived that relate to a variety of practical problems of making estimates using stated responses.

Figure 1: Hypothetical Example of A Frequency Function Showing The Consequence of 0-5 Number Preference Without Random Variation (Series 1) and With Random Variation, S(r) (Series 2); and Respondents Not Exhibiting NP, NonNP(r)(Series 3)



This article presents results that are part of a larger research thrust that began in 1994 when the magnitude of heaping in Colorado fishing data was recognized (see Vaske et al. 1996). Figure 1 closely resembles an actual frequency function for the Colorado fishing data. In the figure the horizontal axis is used to indicate the stated number of days fished, r. One sees that for r=15, there are 50 responses. However, from the figure one also sees that there is a function marked as S(r) that is 50 for r=15 but that is relatively smooth for values that do not end in 0 or 5. In fact, the smooth function NonNP(r) is formed by ignoring heaps on numbers ending in zero or five. An important concept is elaborated on by Beaman et al. (1997). It is that the value of NonNP(r) for values of r at which heaps occur is an estimate of the number of people giving that responses who are not exhibiting NP. For example, one sees that for r=15 it is estimated that there are 10 people not exhibiting NP. Having estimated the number of people not exhibiting NP, one can conclude that 40 (=50-10) were respondents exhibiting NP.

The section below titled "Derivation of Statistical Tests and Measures" formalizes the idea just introduced and proceeds to derive measures and statistical tests with some degree of rigor. In that section, the result just introduced for estimating numbers of respondents exhibiting NP is expressed by Equation 1. This result is important since Hultsman, Hultsman and Black (1989) recognized that simply taking the proportion of responses ending in zero or five as an estimate of the proportion of the population exhibiting NP is biased. This is because even if nobody exhibited NP about 20% of responses would still be expected to end in zero or five. Having identified the NonNP(r) function and noting that if one can estimate the number of people exhibiting NP for each heap, Beaman et al. (1997) deduced that the proportion of the population exhibiting NP can be estimated. It is just the sum of the estimates of numbers exhibiting NP for all heaps divided by the number of respondents (Equation 2). Their analysis shows that for a given variable r, unless some special

conditions occur, this approach gives essentially unbiased estimates of the number of respondents exhibiting NP. They also identified the fact that if a NonNP(r) function can be defined, the same unbiased approach to estimating the proportion exhibiting NP can be applied regardless of whether heaping is on a set of numbers ending 0 and 5 or on aother set of preferred numbers.

Huttenlocher, Hedges and Bradburn (1990) were specific in identifying prototypes, groups of numbers on which heaping occurs. Prototypes include sets of numbers other than numbers ending in zero and five. The work of Huttenlocher et al. (1990) also plays an important role in ongoing research in that they propose a psychological theory of heaping. They propose that though there may be special cases where people intentionally give a response that is too large or too small, generally **heaping is a consequence of recall being imprecise.** In other words, the heaps that one sees in Figure 1 can be viewed as a consequence of respondents giving a "best estimate" of what they believe to be the true value with which they should respond. If asked about hours in western cultures responses will, for many respondents, be rounded to a prototype of 4, 8, 10 and 12. In other contexts, for some individuals, the mind as part of retrieving a response will "produce" responses heaped on 7; 14 or 15; 30; etc. reflecting weeks and months. Unfortunately, while based on a given question some respondents are disposed to respond by one prototype, others may use another. So, digit preference or more precisely number preference, NP, can be **generically** viewed as certain respondents minds using certain prototypes rather than giving exact responses (Huttenlocher et al. 1990).

The next section accepts the prototype model of NP. Based on accepting it, set theory, statistical theory and mathematical equations are used to deduce consequences. After deriving the proportion of the respondents exhibiting NP (Equations 1 and 2), attention turns to statistical tests for heaping. Firstly, the **null hypothesis** that there is no NP exhibited is examined. In this case, variation around NonNP(r) is random. The expected value of NonNP(r), TnonNP(r), gives the means of a multinomial distribution. So one has the information about the distribution of responses so that a chi-square distribution can be defined (Equation 4) to test whether any apparent exhibition of NP (any heaping) is statistically significant. Given that the chi-squared distribution is related to the sum of squared deviations from a normal distribution, a formula for the significance of a particular heap is derived (Equation 5). Equations 6 and 7 recast the consideration of deviations in term of the difference between an expected number of responses and the number actually observed by introducing the binomial distribution and a Poisson approximation for frequency functions with heaps. When one acknowledges that there are heaps, expected values and variances do not have the values that are expected under the null hypothesis. Equations 8, 9 and 10 formalize variance estimates, distributions and statistical tests when the null hypothesis obviously does not apply.

Though most of this article focuses on statistical tests and measures for stated response frequency functions, it also addresses the matter of the influence of heaps on the mean and totals. In applied research, one is not typically interested in what proportion of respondents may be exhibiting NP but rather in the influence their response heaping has on important parameters for managerial and operational decisions. In many cases the value of the stated responses to management or operations is in estimating such statistics as total participation, average catch or total kill. Knowing if such statistics are biased is the crucial matter to clarify in considering NP. The ability to estimate the numbers exhibiting NP is used to compute a ratio showing the potential of NP to influence the estimates of means and totals (see Equations 11 and 12).

Part of the problem of examining the distribution of stated responses is that some respondents may live near streams and fish hundreds of days a year. The statistical concern is that a very small heap can be concluded to be significant based on the fact that responses around it have a frequency of zero. Equation 13 addresses this matter. However, what this article does not do is examine the general estimation problem of redistributing heaped values back to the actual or "accurate" values. These are "accurate", not rounded, values. One may think of the mind as determining that, for example, determining by some information retrieval process determining that 27 is a best estimate. However, in a second step the mind, using a particular prototype, maps 27 into 30. This second step would be invoked when there was a certain level of uncertainty about a response such as 27. Still, "accurate" responses retrieved in a first step could be off because of recall error. On its own recall error should not cause heaping. Such matters are being pursued in other research where it is argued that not recalling all events or recalling some that should not be recalled simply does not result in heaping.

Specifically, promising research on unbiased estimation is proceeding based on a Huttenlocher, Hedges and Bradburn (1990) observation. This was that **typically a respondent is not trying to bias results.** A respondent's heaped response can be taken to give **what that individual considered to be** the most accurate report of their actual behavior that would be given in the particular context. If appropriately coached they might recall more accurately but that alters the context. Given that respondents are not attempting to introduce bias by exaggerating or understating what they do, algorithms to distribute heaps back to "where they came from" are being developed. Furthermore accepting that respondents are not trying to bias survey results allows for principles of **multiple imputation** (Rubin 1996) to be invoked. Multiple imputation has been used since the 70's to produce data sets in which accurate responses for individuals become part of a data set that can be processed to produce unbiased estimates of all statistics that may be biased by heaping. Papers reporting on such developments are being prepared for publication in 1997 and 1998.

In summary, a step toward dealing with the influence of NP on a variety of estimates is taken by providing a variety of measures and statistical tests. The following section derives these. These derivations may be of limited interest . However, it is suggested that until estimation methods

under development are available (current references, manuscripts and programs can be requested from the authors), researchers should compute the "influence on the mean" measure (Equation 12). This suggestion is based on managerial or operational decisions depend on means computed from data in which NP is significant. Significance can be clear either because statistical tests show it or because it is obvious that the potential for bias from NP should not be ignored.

Derivation of Statistical Tests and Measures

Assume that there is a frequency function, S(r) (see Figure 1) that is defined on a set of response values, R. Also consider that there is a preferred set $P \subset R$. The observation by Beaman et al. (1997) facilitating new findings is that: All frequencies that are not for values in P are for members of R-P. Frequencies for members of R-P are $\therefore$ responses of people who do not exhibit NP. Based on having many replications of a study, one can visualize the observed frequencies, S(r), from each survey as distributed around a function T(r) (see Figure 1). For $r \in R - P$, one has $T(r) \equiv$ TNonNP(r) where TNonNP(r) gives the expected number of individuals not exhibiting NP. One does not observe TNonNP(r) but rather for $r \in R - P$ one observes $NonNP(r) \equiv S(r)$ which is subject to statistical variation from survey to survey. So for a value, $h \in P$, at which there is a heap ENonNP(r),the estimated value of TNonNP(h), should be estimable using a "smooth" curve. Such a curve would joining together values of NonNP(h) for neighboring non-heaped values (e.g. a linear or quadratic function fit to surrounding values e.g. for $r \geq 5$ values of NonNP(r) $\ni r \in \{$ h-2, h-1, h+1, h+2 $\}$ see Beaman et al. 1997).

Now, by hypothesis heaps only occur at $h \in P$. In Figure 1 this is for integers ending in 0 or 5. This means that observed values of S(r) for other r-values ($r \notin P \equiv r \in R - P$) are observed frequencies of not exhibiting NP, $S(r) \equiv$ NonNP(r). This is the case as long as there is no reason for actual behavior to favor five, 10, etc. thus causing *real* peaks on such values (see Beaman et al. 1997). So, assume that there are no "real" heaps. Then, it is reasonable to conclude, as shown in the figure, that for integers $h \in P$ for which $S(r) \neq$ NonNP(r), an estimate of the value of TNonNP(h), ENonNP(r), can be obtained by extrapolating to it from non-heaped values above and below h. Furthermore, if ENonNP(h) is an estimate of the number of responses for h for which there is no NP the other responses at h are a consequence of exhibiting NP so:

Equation 1:

S(h)-ENonNP(h)=ENumNP(h)

The number of responses in which NP is exhibited, ENumNP(h), can be estimated. As indicated in Figure 1 this is an estimate of T(h)-TNonNP(h)=TNumNP(h).

The two recent articles identified above as clarifying generic NP concepts (Vaske et al. 1996 and Beaman et al. 1997) have suggested that the sum of ENumNP(h) values divided by ***N***, the total number of responses on the stated response variable r, is an estimate of the proportion of a population(or of a subpopulation) exhibiting NP on the variable r. Here this measure is defined by:

Equation 2:

$$\text{PropXingNP} = \sum_{\forall h \in P} ENumDP(h) \Big/ \sum_{\forall r \in R} S(r) \cdot$$

The value of PropXingNP is .26 for the S(k) function shown. The notation $\text{PropXingNP}_{(var)}$ could be used to make it clear for which variable on a survey the measure was calculated. We do not further complicate description and notation by explicitly dealing with several variables and with nonresponse on different variables as producing subpopulations of different sizes form which estimates for a population would be made. Still, unless two variables had the same distribution for actual behavior $\text{PropXingNP}_{(var)}$ would be expected to have a different value for each. For example, if S(r) is for days fished and the other variable is total catch, c, then based on Vaske et al. (1996), PropXingNP_c would be predicted to be greater than .26. Based on the preceding, one can legitimately say that PropXingNP=.26 means that 26% of the respondents actually gave a response ending in 0 or 5 when their response should not have ended in 0 or 5; they exhibited NP. A proportion of .26 is a relative large percentage. Its large value is consistent with it being obvious by viewing Figure 1 that the heaps are too large and too regular in where they occur to reflect random variation. In Vaske et al. (1996 Figure 1) one sees that the only clear exceptions to 0-5 NP are heaping on 12 and 14. Though these might be thought to relate to avoiding 13, they also correspond to "once a month" and to "every day for two weeks." Clearly, one might ask for statistical proof of significance or more reasonably want a general significance criterion that would apply to smaller PropXingNP values such as .1 or .05 that might not be significant. What is needed is a test that allows one to reject the hypothesis that *NP is not being exhibited.*

To develop a test for the "not being exhibited" hypothesis, assume that for a given variable, r, and for ***N*** respondents no NP is being exhibited. Then for r the observed frequencies, S(r), are *all for people who are not exhibiting NP* thus they are just a set of observations, NonNP(r) that relate to the expected distribution, TNonNP(r). Based on the multinomial distribution TNonNP(r) gives expected frequencies, for a population of size ***N*** with an observation vector $S(r) \equiv$ NonNP(r). For 0-5 NP the research cited in the introduction has defined estimates of NonNP(h), ENonNP(h), for numbers >0 ending in 0 or 5($h \in P$). For each $h \in P$, ENonNP(h) was estimated by the average of S(r) for 2 values above and two values below h:

Equation 3:

ENonNP(h)=mean(S(h-2),S(h-1),S(h+1),S(h+2))
≡Mean(NonNP(h-2), NonDp(h-1) ,NonDp(h+1), NonNP(h+2)).

It may appear "obvious" that the estimates defined by Equation 3 should be obtained by curve fitting. However, since one does not know what curve to use, results of curve fitting can produce poorer estimates than those obtained by

using Equation 3. More importantly, because Equation 3 estimates each ENonNP(h) using different observations, the estimates for the different values of h are, for practical purposes, uncorrelated. This is since correlation only results from the constraint that ***the total number of respondents = the sum of all the S(r)***. Virtual independence of the estimates is important since given the definition of a chi-square with degrees of freedom, d, as the sum of squared deviates of d independent Normal(0,1) variates, based on and means, variances and asymptotic normality of the distribution of multinomial responses(e.g. see Kendal 1943, Ch. 12):

Equation 4:

$$\chi^2_d \cong \sum_{\forall h \in H} ((S(h)\text{-}ENonNP(h))^2/ENonNP(h))$$

where d=Size(H) and
ENonNP(h)>0 and $(S(h)\text{-}ENonNP(h))/ENonNP(h)^{1/2}$ $\cong$ Normal(0,1).

As defined in Equation 3, chi-square (Equation 4)must be computed for ENonNP(u)>0 while an estimated ENonNP(r) $\leq$ 0 can occur. This present problems. As one sees in Figures 1 and 2, for h=30 or greater, for some values of h, surrounding values are zero(as occurs in real data examined e.g. see Vaske et al. 1996). For h where adjacent values(re adjacent see Equation 3) are zero:

> **Equation 3 Alternative Conditions**: If the mean of surrounding values is 0 then: (a) if S(h)>0 then, based on the assumption that all the responses in the interval of interest have actually occurred at h by chance(testing the plausibility of this assumption is introduced below), an estimate of ENonNP(h)= S(h)/5; (b) if adjacent S(r)=0 and S(h)=0 then the potential heap should be ignored and d reduced by 1 since, effectively, an h has been removed from P.

In the case where ENonNP(r) is estimated by prorating its value to an interval, chi-square (Equation 4)is biased if there is actually a heap. The bias results since the allocation of S(r)/5 is based on there being no heap and thus mass is assigned to adjacent values that should not be assigned to them. If there is a heap of expected size TNumNP(h), then the mass allocated to each surrounding cell(should be) has an expected value of T(h)-TNumNP(h). Regardless, the effect on chi-square of the bias is conservative in that it results in a reduced probability of NP being found to be significant.

Equation 4 is important for more reasons than that it defines chi-square (Equation 4). Firstly, note that it is defined $\forall$ h$\in$P for which ENonNP(h) is estimated. The definition does not depend on 0-5 NP being studied but applies to any set of preferred values P. It is only the way that ENonNP(h) is estimated(Equation 3) that is specific to 0-5 NP. If the variable being considered was average hours spent fishing and heaps were expected at 4, 8, 10 and 12 then an "alternative" Equation 3 could be formulated allowing a chi-square to be calculated.

The second matter to note about chi-square (Equation 4) is that it can be significant simply because NumNP(h) is very large for one or two values of h.. In fact, if NP is obviously significant, there may be good reason to focus on particular residuals, NumNP(h) rather than deriving a statistical test that just confirms the obvious. Based on the way that chi-square is defined in Equation 4 and derived from the multinomial(Kendal 1943 ch 12) each term in the sum can be treated as the square of an observation from a Normal(0,1). This means that confidence intervals can be based on the distribution:

Equation 5:

$$Distribution((S(r)\text{-}ENonNP(r))/(ENonNP(r))^{1/2}) \cong Normal(0,1)$$

Each S(r) being an observation from a multinomial the probability of a response, h, is:

Equation 6

Eprob(h| NP is not exhibited and h is not favoured in actual behavior)= p(h|~~NP~~)=ENonNP(h)/***N***

So, under the null hypothesis the difference between S(h) and ENonNP(h), NumNP(h), has a binomial distribution. Such a distribution is defined by a ***p*** and ***N***. Thus, the following defines alternative distributions to use for making statistical tests

Equation 7: Distribution(S(h)|~~NP~~) $\cong$
(a) Binomial(***N***, p(h|~~NP~~)); or
(b) $Distribution((S(h)\text{-}\boldsymbol{N}*p(h|\text{~~NP~~}))/(\boldsymbol{N}*p(h|\text{~~NP~~})(1-p(h|\text{~~NP~~}))^{1/2}) \approx Normal(0,1)$; or
(c) Poisson($\boldsymbol{N}*$p(h|~~NP~~) for $\boldsymbol{N}*p(h|\text{~~NP~~}) << \boldsymbol{N}$.

Here, again, the methods apply to any heaping not just 0-5NP. The important matters are that:

1. there be an hypothesis about where the heaps occur(a set of preferred values, P, must be pre-specified); and
2. there be a way of computing ENonNP(h) that is appropriate for the set P.

The arguments just made for p(h|~~NP~~) can actually apply for any S(r) where p(r)=S(r)/***N***). One can simply substitute p(r) for p(h|~~NP~~) into the expressions given in Equation 7 to obtain distributions. However, for p(h|NP) where the probability is estimated as p(h|NP)= ENumNP(h)/***N*** the same approach may seem appropriate but there is a complication. It arises because ENumNP(h)=S(r)-ENonNP(h). As indicated above, given 0-5 NP and the estimates specified in Equation 3, S(r) and ENonNP(h) are for practical purposes independent, so:

Equation 8:

Var(NumNP(h))=Var(.S(h)-ENonNP(h))
=Var(S(h))+Var(ENonNP(h)) and based on the Poisson
=S(h)+Var(ENonNP(h)) and based on Euation 3
=S(h)+Var((1/4)(S(h-2)+S(h-1)+S(h+1)+S(h+2))
$\cong$ S(h)+(1/16)ENonNP(h)
and since for no heap E(S(h))=ENonNP(h) and otherwise
E(S(h))>ENonNP(h)
$\leq$ S(h)+(1/16)S(h)=1.06S(h)

The preceding, in fact, provides proof that Equation 7 does not apply to NumNP. The variance derived is not

Np(h|NP)(1-p(h|NP)) which it would be if the distribution were binomial nor is E(NumNP(h))=Var(NumNP(h)) which must be the case for a Poission distribution. Of the options identified in Equation 7 one is left with approximating the distribution of NumNP(h) by a normal distribution or using weak distributional assumptions, such as expressed in Tchebycheff's inequality to define statistical tests and confidence intervals. Equation 9 shows these options:

Equation 9:

(a) the distribution of NumNP(h)

$\cong Normal(NumDP(h), (1.06S(h))^{1/2})$; or

(b) regardless of distribution using Tchebycheff's inequality(Kendal 1943, p. 203)

Probability(|NumNP(h)-TNumNP(h)|$> \alpha$) $\leq 1/\alpha^2$

where α can be arbitrarily chosen e.g. as 10 to give a 1% level.

Another matter that might concern a person who is examining data in which NP occurs is whether for different data (e.g. for different segments) differences in estimates of the proportions of the populations exhibiting NP are significant. To develop a statistical test one must note that though by definition PropXingNP is an estimate of what appears to be the p of a binomial since it is based on NumNP(h) , as described above, its variance is defined by Equation 8 meaning that

Equation 10:

The distribution of PropXingNP is

(a) $\approx$ Normal(PropXingNP,$((1.06/N)(\sum_{\forall h \in P} S(h)))^{1/2}$); or

(b) based on Tchebycheff's inequality and given "that a variance of a sampling distribution of proportions of an attribute" in samples of N

is $\leq 1/(4N)$(Kendal 1943, p. 203):

Probability(|PropXingNP-TPropXingNP|)>k)

$\leq 1/(4N*k^2)$

where k $\ni$ 0<k<1 and is e.g chosen for a 1% level.

The preceding provides tests for significance and confidence intervals, however a small part of a population may exhibit NP with high variability. Knowing NumNP(h) allows one to assess the degree to which NP is contributing to the mean or total of the response variable as follows:

Equation 11:

$$\text{Sum(r|S(r))} = \sum_{\forall r \in R} rS(r)$$

=Sum(rS(r) $\forall r \in$ R-P)+ Sum(hS(h) $\forall h \in$ P)

= Sum(rS(r) $\forall r \in$ R-P)+

Sum(h(ENonNP(h)+ENumNP(h)) $\forall h \in$ P)

=(Sum(rS(r) $\forall r \in$ R-P)+ Sum(hENonNP(h) $\forall h \in$ P))+

Sum(hENumNP(h) $\forall h \in$ P)

=Total related to not exhibiting NP+Total related to exhibiting NP

So, the contribution to the total and thus to the mean of r can be partitioned based on exhibiting and not exhibiting NP. This suggest that a measure of the potential for exhibiting NP to influence the mean of r be defined by:

Equation 12:

$$\text{PropMeanNP} = \sum_{\forall h \in H} h * ENumDP(h) / \sum_{\forall r \in R} rS(r)$$

Figure 2: Hypothetical Frequency Functions For Computing NP Measures And Tests

(for descriptions of the functions see the text)

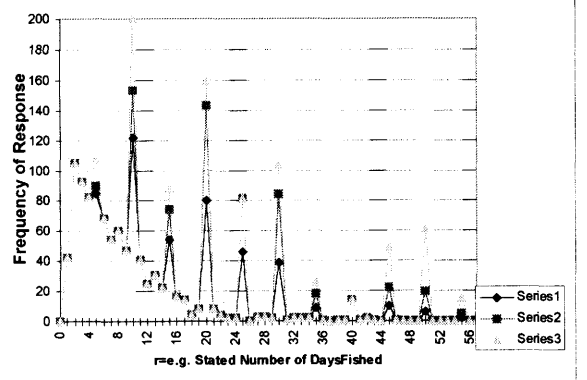
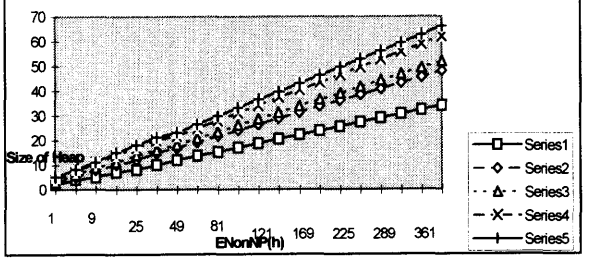


Figure 3: Deviations That Are Significant for a Given ENonNP(h) at the Levels Defined for the Different

(Series 1=.05, Series 2=.01, Series 3=.005, Series 4=.001, Series 5=.0005)



Results of Computations for Examples

Some measures and statistical tests have been calculated for the hypothetical S(r) data shown graphically in Figure 2. Series 1 in Figure 2 is Series 1 in Figure 1. The other two series in Figure 2 are variations on Series 1. Series 2 has about the same level of NP for small numbers as Series 1 but by r= 25 about twice as many people exhibit NP in Series 2. Series 3 has more people exhibiting NP than Series 2 except for r= 26. Because the three series share the same NonDp(r) function one knows that NumXingNP will increase in value from Series 1 to 2 to 3. Also chi-square (Equation 4) and PropMeanNP values are expected to satisfy the same relation. The PropXingNP values are .26, .38 and .45. Because the NP peaks are large and obvious chi-square is expected to be so large as to have an infinitesimal probability of occurring by chance. For chi-square with d=11 the .001 level for it is 28 while values calculated for it start at 3313 for Series 1 and are larger for Series 2 and 3 (11,962 and 19,301). One way to see this is by examining the probability that a heap like the one at 30 occurred by chance. For Series 1, based on a normal approximation, the difference between the heap frequency

and the expected frequency is 7.3 times the expected standard deviation. Given that deviations of more than 4.1 standard deviations occur about 1 time in 10,000, the heap is clearly significant.

Given that there is significant NP being exhibited, if management is interested in a mean or total then one still has no idea whether there is potential for such values to be biased. The measures of the potential influence of NP on the mean (PropMeanNP, Equation 12) are .47, .63 and .71. There is obvious reason to be concerned that treating the heaps as valid observations could cause a significant bias in estimates of means and totals.

When chi-square (Equation 4) will obviously be significant, as is the case in the examples presented here, simply showing that one or more heaps is highly significant using distributions defined in Equation 7 is an easy alternative to computing chi-square (Equation 4) . Figure 3 was prepared based on Equation 7. It facilitates testing for the significance of heaps since one need only determine the value of S(r), estimate NonNP(h), to use the figure to determine the value of NumNP(h) that is significant at one of the levels given. The only issue then is if the estimate NumNP(h) is large enough to be significant. The .001 and .0005 levels are provided in Figure 3 so that if, for example, the significance of η heaps is being considered, one can use the Bonferonni principal that if η heaps, say 10, are significant at the λ (e.g. λ =.001). level, then all considered together are, at least, significant at a level $\lambda \times \eta$ (e.g. =10(.001)=.01). Ongoing research suggests that understanding the structuring of significant heaps is necessary to produce estimates of NP bias.

The Poission distributional approximation introduced allows statistical significance to be examined in another way. Assumption 3- Alternative Conditions (a) specified that an estimate of NonNP(h) be based on T(h)=S(h)/5 given that S(r)=0 $\forall r \in A = \{h-2, h-1, h+1, h+2\}$. One can examine the likelihood of heaps surrounded by zeros by considering:

Equation 13:

$\text{Prob}(S(h) \text{ and } S(r)=0 \ \forall r \in A) \leq \Theta$

where it is assumed that there is no NP and no *real heaps; and* where Θ is the desired level of significance(e.g. .01).

In figure 2, one can see a potential heap of 2 at 55 surrounded by 4 zeros. Accepting the Poission distribution approximation as specified in Equation 7, based on $T(r) \cong S(h)/5$, the probability of 0 for a given S(r) is $e^{-S(h)/5}$. There is only one way for all 4 adjacent observations to be 0 so the probability of this is $(e^{-S(h)/5})^4 = e^{-4*2/5} = .2$. For the heap of 6 at 50 the probability is $(e^{-S(h)/5})^4 = e^{-4*6/5} = .008$ so, conservatively, the heap is significant at the 1% level. Actually this shows that *any heap of 5 or greater, **considered on its own,** is significant at the 1% level.*

Conclusion

This research has immediate consequences and implications for future research. Its immediate practical importance is providing statistical tests for the significance of NP in data and a measure of the potential of NP to cause bias in the mean or total of a response variable (e.g. in average days fished or total catch). By taking a generic approach, attention is not on 0-5 NP or a preferred set of 4, 8, 10 and 12 (because a question is about hours). Continuing research is showing that as the "NP processes" are better understood criteria for rational decisions about ignoring, attenuating or correcting NP are being developed.

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PERSONAL BENEFITS OF PUBLIC OPEN SPACE: A CASE STUDY IN BOSTON'S ARNOLD ARBORETUM [1/]

Thomas A. More

Research Social Scientist, USDA Forest Service, Northeastern Forest Experiment Station, P.O. Box 968, Burlington, VT 05402

John Blackwell

Clerk, Arnold Arboretum Park Conservancy, 14 Beacon Street, Boston, MA 02108

Abstract: Managers of urban parks need to document the benefits that their parks produce. Use level is a typical measure of such benefits, but simple use statistics can mask the rich diversity of people and activities that the parks serve. This study examined the uses and users of Boston's Arnold Arboretum during late summer in 1992. On 25 sample days, we recorded observations on 3,983 individuals engaged in 98 different activities. The highest use levels were recorded on sunny afternoons, particularly on weekends; the most common activities were strolling, conversing, looking at something, and cycling. The incidence of problem behavior was slight. These activities represent the personal benefits produced by the Arboretum in that they accrue directly to the individuals involved. Additional research is needed on the social benefits of urban parks that accrue to institutions throughout the community.

Introduction

Urban parks are among the nation's foremost recreation resources, providing services to millions of Americans each day. Regrettably, many once great city parks have deteriorated; in times of fiscal austerity, parks tend to be bypassed in favor of other city services. Nationwide, the result is a huge backlog of deferred maintenance, vandalized facilities, and ineffective service--circumstances that can lead to even further declines (Whyte 1980). To counter this situation, park managers must be able to document the benefits that urban parks produce. Such documentation could help parks departments achieve parity with other city departments in the competitive world of municipal finance.

The general topic of recreation benefits has received much attention during the past two decades and numerous studies have examined the effects of activity participation on benefit measures ranging from the physiological to the psychological to the economic (see review by Driver et al. 1991). This paradigm works well for many forms of recreation, particularly in more remote settings where there is uniformity in both the activities undertaken and the population served. In the city, though, things are different. Cities provide space, and a highly diverse population makes what use of it they will. For example, More (1985) examined two central city parks during July and August and found users engaged in 156 different activities. The amount and nature of use varied with the time of day and the characteristics of the landscape. In a study of trail use in Chicago's Warren Park, Gobster (1991) found that 51.2% of the users engaged in strolling as their primary activity, while the remainder were engaged in a variety of activities ranging from sitting (13.9%) to bicycling (9.2%) to free play (2.3%). In addition, 73.3% of all users engaged in a secondary activity such as walking a dog (8%), conversing (6.5%), or listening to the radio (1.7%). In a study of four parks in the Los Angeles area, each frequented by a different ethnic group, Loukaiton-Sideris (1995) found that stationary activities (watching children play, watching sports, picnicking, sitting/relaxing) were the most common in all parks, followed by mobile activities (walking, jogging, bicycling) and sports activities. These studies indicate how difficult it is to document the benefits of urban parks at a highly detailed level. For example, a jogger receives an entirely different set of benefits than a mother who is watching her child play, yet both sets of benefits may be attributable to the same park. Moreover, parks provide a variety of other benefits that can be biological or social in nature--they modify microclimates, reduce air pollution, absorb runoff of surface water, stimulate economic development, and provide settings for community and civic events. All of these benefits must be included in any comprehensive assessment of urban parks. Yet the most obvious starting point continues to be documenting the multitude of ways in which people use urban parks. In this study we examined the late summer use of the Arnold Arboretum, a 265-acre reserve that is a key component of Boston's "emerald necklace."

Methods

Designed by Frederick Law Olmstead in the 1870's, the Arnold Arboretum is a natural area located in the Jamacia Plain section of Boston. It is administered jointly by Harvard University and Boston's Department of Parks and Recreation. As such, the area is both a major scientific resource--maintaining a vast collection of trees, shrubs, and vegetation from throughout the world--and a major recreational resource for the people of Boston. It contains a variety of landscapes ranging from intensely cultivated areas with lawns and beautifully arranged flowering shrubs to marshes, streams, and hills covered with naturally occurring oak and hemlock. A small section of the Arboretum houses a unique collection of Bonsai trees and Japanese gardens.

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The Arboretum is readily accessible to most city residents by car or mass transit. Although it is entirely fenced, access is available from multiple points. At the main entrance, a visitor center provides information and includes educational exhibits and a small gift shop.

Visitors move through the Arboretum on a series of paved roads and paths. General access to these roads is restricted, so most people walk or ride bicycles, though it is possible to make special arrangements to drive. The Arboretum also operates a series of tours via a small bus.

To systematically inventory the late summer recreational use of the Arboretum, we followed procedures outlined in More (1985). This entailed having two trained observers follow a fixed route throughout the area on selected sample days between August 1 and September 15, 1992. To establish the sample days, the week was divided into weekdays and weekend days, with holidays treated as weekend days. The total sample consisted of 17 randomly selected weekdays and 8 weekend days, 55 and 53% of their respective categories. On each sample date, observations were made in the morning (beginning at 9 a.m.) and in the afternoon (beginning at 1 p.m.).

In making the observations, the Arboretum was divided into 21 sectors following roads and paths. The entire area was covered and a fixed walking route was established to allow the observers to cover all parts of each sectors. On each sample date, an observer chose a starting point (a major access point) at random and flipped a coin to determine the travel direction (forward or backward). The observer then followed the fixed route until an entire circuit was completed. On average, it took 2-1/2 hours to walk the route; observations were made on all sample dates, regardless of weather.

As the observer encountered Arboretum users, he or she recorded their ages, genders, the number in their group, their location (on road or path, or off road or path), and as many as five behaviors per individual. Multiple behaviors were recorded because some activities are compatible; for example, a couple strolling hand in hand and talking would have been recorded as strolling, talking, and engaging in affectionate behavior--a total of three activities. When an inventory of all users within a sector was completed, the observer moved to the next sector until a complete circuit of the Arboretum was completed. When data collection was completed, observations had been obtained on 3,983 individuals. Since the study was considered exploratory, the data were simply tabulated rather than being subjected to a comprehensive statistical analysis.

Results

The Arnold Arboretum tends to attract heavy recreation use. We observed an average of 122 visitors on weekdays and 319 on weekend days. Moreover, late summer is a time of year when park use generally declines (cf. More 1989; Gobster 1991). Highest use generally tends to be in the spring and early summer. Use was heaviest on Sundays and most visitors (67%) arrived in the afternoon or on sunny days (Table 1).

Table 1--Visitation by time of day and weather

Time and weather	Frequency	Percent
Morning	1,301	32.7
Afternoon	2,682	67.3
Total	3,983	100.0
Sunny	3,137	78.8
Cloudy	740	18.6
Rainy	106	2.7
Total	3,983	100.0

Park use was distributed unevenly across the sectors; the visitor center and adjacent areas attracting the greatest use. Most visitors (69%) remained on the roads and paths. Socially, users tended to be alone (48%) or in couples (33%); the largest group observed was 65. Nearly 95% of all users were in groups of four or fewer. Approximately 61% were adults between the ages of 20 and 40, while 19% were preteens (Table 2). Both genders were nearly equally represented (51% male vs. 49% female), so even a gender distribution is unusual (More 1985; Westover 1988) in American parks. These percentages are a testament to how comfortable women feel visiting the Arboretum. With respect to race, 83% of the Arboretum users were Caucasian, 10% were African-American, and 8% were other non-Caucasian (Table 3).

Table 2--Ages of visitors

Age category	Frequency	Percent
Infant	123	3.1
Child	735	18.7
Teen	143	3.6
Younger adult (20-39)	2,406	61.3
Older adult (40-60)	306	7.7
Senior	216	5.5
Total	3,925	99.9

Behaviorally, we observed users engaging in 98 different activities. We grouped individual activities into 12 major categories plus a miscellaneous category (Table 4).

Table 3--Race of visitors

Race	Frequency	Percent
Caucasian	3,188	82.6
African-American	375	9.7
Hispanic	142	3.7
Asiatic	138	3.6
Eastern Indian	15	0.4
Total	3,858	100.0

The most common activities were walking (40.5% of the total), particularly strolling, and conversing (17.5%). Other common activities included looking at something (9.5%), cycling (6.9%), sitting (6.0%), and playing (5.5%) (Table 5).

Table 4--Behavior categories as a percentage of total behavior

Behavior category	Number	Percent
Walking behavior	2,659	40.5
Conversing	1,157	17.6
Looking behavior	622	9.5
Cycling	452	6.9
Sitting	397	6.0
Play behavior	364	5.5
Eating/drinking	188	2.9
Affectionate behavior	143	2.2
Exercise	138	2.1
Reading/writing	105	1.6
Resting/sunning	77	1.2
Photography	40	0.6
Miscellaneous	221	3.4
Total	6,563	100.0

Particularly noteworthy is the relative absence of what might be termed "problem behavior." Table 5 includes several activities that might be considered questionable, for example, walking dogs off leash (n=393), climbing trees (n=46), picking flowers and vegetation (n=15), drinking alcohol (n=4), and arguing (n=4). Together, these accounted for 7.0% of all observed behavior, most of which is attributable to unleashed dogs. However, it may be that our data underestimate such activity somewhat; for example, littering takes only an instant and may be underrecorded with observational techniques, and other problem activities may be more furtive in nature and not easily observed. Nevertheless, the large numbers of women and children who visit the Arboretum, along with our own data and observations, suggests that neither safety nor problem behavior (with the possible exception of unleashed dogs) is a concern.

Discussion and Conclusion

These data need to be interpreted cautiously. Our goal was to specify what a particular person was doing in the Arboretum at the time when we observed him or her, but there are inherent problems with behavioral observation. We have noted the problem of multiple activities, and measurement reliability--the extent to which two observers agree--is somewhat less for behavior than for variables like gender or age (More 1985). The larger categories of Table 5 also are somewhat arbitrary, for example, should singing be placed in the category of "conversing" or under "miscellaneous?"

Perhaps even more serious are what the data fail to reveal. For example, we have no indication of visit duration--some people spend only a few minutes in the Arboretum, while others stay all day and engage in multiple activities. Similarly, the behavioral data give us no indication of the intensity with which some people use the Arboretum. While many are infrequent visitors, others visit daily, frequently occupying the same bench at the same time and displaying a level of commitment to the area that is not apparent from our data. Finally, the behavioral data give us no idea about people's mental state--what they are thinking. For example, some users might value the Arboretum for its tranquility and solitude. However, we do not know this from our data; all we can record is someone sitting on a bench or strolling alone through the woods.

These problems notwithstanding, our behavioral data provide a rich source of information about the Arboretum and the purposes it serves for its users. Strolling and talking, getting exercise, enjoying the beauty of the area, or simply sitting in the grass are common among the 98 activities we observed. People came to eat lunch, hold hands, or watch their children make discoveries under rocks or in the eddy of a quiet brook. They birdwatched, posed for photographs, and read books, newspapers, and magazines. Their purposes were as rich and varied as the complex city that surrounded them. However, we need to turn to the question we raised in the introduction: how can we go from these rich data to a deeper understanding of the benefits that the Arboretum and other urban parks like it provide city residents?

Clearly, quantity of use is one major criterion for benefit; it has been the typical measure of the success of most parks and plazas (cf. Gold 1972; Hatry and Dunn 1971; More 1990; Whyte 1980). However, the diversity of use and users may be another important criterion. For example, city parks departments often attempt to achieve high use by providing structured facilities and programming around them. Yet, while ball diamonds, soccer fields, and the like may help fulfill this goal, they also may serve a limited clientele. When coupled with high use levels, the diversity of users and uses that we observed in the Arboretum suggests a park that offers a broad spectrum of benefits for community residents. Such service diversity deserves greater attention as a criterion for success.

We also need to be doing more conceptual work on the benefits of urban parks in general. Typically, recreation activities like camping, hiking, and hunting can be analyzed for the various benefits they offer participants (cf. Driver et al. 1991). But this is impractical when dealing with 98 different activities. Instead, we suggest a tripartite classification of the benefits of urban parks. First, urban parks offer their users personal benefits in that they accrue directly to individuals who use the area. This is the kind of benefit with which we have been primarily concerned in this study. Second, urban parks produce a variety of biophysical benefits. As noted, parks contribute to the functions of city ecosystems: they modify temperatures and microclimates, reduce air and noise pollution, and absorb water. Such benefits ultimately accrue to people, but they do so indirectly through the improvement of ecosystem functioning rather than through direct use. Third, urban parks produce an important set of social benefits. These are benefits that accrue to community institutions rather than to individuals. For example, the Arboretum is booked well in advance for Easter sunrise services. While the

Table 5 Behavior of Arboretum Users

Behavior	Number	Percent
Walking Behavior		
strolling	1733	65.2
walking dog off leash	393	14.8
walking with child	138	5.2
in stroller	109	4.1
walking dog on leash	84	3.2
walking with something[a/]	83	3.1
walking purposively	61	2.3
being carried	35	1.3
running	10	0.4
wheelchair	7	0.3
running purposive;y	6	0.2
Total	2659	100.0
Conversing		
talk to others	1057	91.4
listen to others	67	5.6
talk to wildlife	25	2.2
arguing	5	0.4
yelling	2	0.2
talk to self	1	0.1
Total	1157	99.9
Looking Behavior		
looking at trees	282	45.3
looking at view	198	31.8
looking at animals	43	6.9
looking at pond	39	6.3
looking at plants	23	3.7
looking at other people	21	3.4
looking at child	9	1.4
looking at flower	7	1.1
Total	622	99.9
Cycling Behavior		
Cycling	416	95.4
teach child to ride bike	8	1.8
learning to ride bike	6	1.4
child in bike seat	5	1.1
repairing bike	1	0.2
Total	436	99.9

Behavior	Number	Percent
Play Behavior		
children's' games	131	34.5
roller-skating/blading	50	13.2
climbing trees	46	12.1
playing with ball	38	10.0
Frisbee	19	5.0
with dogs	19	5.0
tricycling	16	4.2
baseball	15	3.9
with toddler	13	3.4
with sticks	9	2.4
in water	7	1.8
with plants	6	1.6
on rocks	3	0.8
catch	3	0.8
with sprinkler	1	0.3
with wagon	1	0.3
with fountain	1	0.3
skateboarding	1	0.3
digging	1	0.3
Total	380	100.2
Eating/Drinking Behavior		
snack	86	45.7
picnic	72	38.3
drinking from fountain	24	12.8
drinking alcohol	4	2.1
carrying food	2	1.1
Total	188	100.0
Affectionate Behavior		
hand-in-hand	124	86.7
embracing	19	13.3
Total	143	100.0
Exercise		
jogging	110	79.7
speed walking	16	11.6
roller skating	6	4.3
exercising	5	3.6
gymnastics	1	0.7
Total	138	99.9

Behavior	Number	Percent
Reading/Writing		
reading book	43	41.0
reading sign	33	31.4
reading newspaper	17	16.2
reading map	6	5.7
writing	4	3.8
reading magazine	2	1.9
Total	105	100.0
Resting/Sunning		
resting	38	49.4
sunbathing	23	29.9
sleeping	16	20.8
Total	77	100.1
Photography		
wedding pictures	19	47.5
being photographed	7	17.5
photographing something	4	10.0
photographing flowers	4	10.0
photographing people	4	10.0
photographing view	1	2.5
videotaping	1	2.5
Total	40	100.0
Sitting		
on bench	192	48.4
on ground	188	47.4
on lawn chair	17	4.3
Total	397	100.1
Miscellaneous		
organized group	94	42.5
listening to radio	56	25.3
driving in car	21	9.5
pick flowers/vegetation	15	6.8
singing	10	4.5
crying	7	3.2
painting	5	2.3
changing diaper	5	2.3
picking up	3	1.4
lost	2	0.9
planting trees	2	0.9
using metal detector	1	0.4
Total	221	100.0

[a/] Includes objects such as binoculars, cameras, books, food, etc.

individual participants undoubtedly benefit from participation, there also is a "corporate" benefit that accrues to the church that offers the service. Thus, we need to understand how urban parks benefit various community social systems including business/commerce, government, health, religion, education, and community service organizations. Bluestone (1991) made it clear that the founders of Chicago were anxious to develop parks (in addition to other forms of civic ornamentation) as a means to attract investment. Such social benefits accrue when parks contribute to the functioning of civic systems and community institutions.

In sum, this study revealed both high use levels and great diversity of use in Boston's Arnold Arboretum during late summer of 1992. Although the typical user was a strolling/talking Caucasian adult aged 20 to 39, it would be misleading to place any emphasis on the "typical user" because of the Arboretum's many different uses. Future studies need to focus on documenting the variety of benefits produced by urban parks; the "personal" benefits examined in this study represent only one category of such benefits.

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AN EXPLORATORY COMPARISON OF MOTIVATIONS AND CROWDING NORMS BETWEEN ETHNIC GROUPS IN DOWNHILL SKI AREAS OF NEW YORK STATE AND KOREA

Chung In Park

Ph.D. Student, SUNY College of Environmental Science & Forestry, Marshall Hall, Syracuse, NY 13210-2787

Chad Dawson

Professor, SUNY College of Environmental Science & Forestry, Marshall Hall, Syracuse, NY 13210-2787

Abstract: This study explores the concept that ethnic groups have different motivations and crowding norms when downhill skiing and that visiting and immigrant ethnic groups would respond more like their original ethnic group than they would be like their host ethnic group. The four ethnic groups or sampling strata that were surveyed in this study were: White Anglo skiers at Hunter Mountain Ski Area; Korean skiers at Hunter Mountain Ski Area; White Anglo skiers at Yong Pyeong Ski Resort; and Korean skiers at Yong Pyeong Ski Resort. The total sample was 1,157 skiers for the four sampling strata. Eight hypotheses were tested to explore what affect the ethnic differences of skiers had on motivations for skiing and crowding norms for White and Korean skiers in New York State and Korea. Discriminant analysis was used to predict group classification in the four sampling strata based on the eight variables used in the hypotheses testing.

Introduction

Managers have expressed concern about not having adequate information to plan for and serve various ethnic groups. Information on recreational differences between ethnic groups is limited. Several studies have reported on different participation rates between different ethnic groups and other studies have reported that ethnic differences in participation rates remain even when socio-economic factors are controlled (Carr and Williams 1993, Floyd et al. 1994, Klobus-Edward 1981, Washburne 1978). Ethnic groups are the subject of this study and are defined as a group that is distinct on the basis of country of origin, language, religion, or cultural tradition (Hutchinson 1987). The term race is not used herein since it is based more on socially constructed definitions of physical appearance and differences in physical appearance between groups (Banton 1987).

This study was designed to investigate the relationships between ethnicity and motivations for a recreational activity and crowding norms. The approach in this study was to select a recreational activity and setting that would be relatively consistent in the United States and Korea, as these were the two ethnic comparisons of interest to the authors. Downhill skiing was determined to be a recreational activity that was similar in individual equipment, commercial services, and skiing experience in the two countries to warrant an exploratory study of them (Kim 1992, Rowan 1993, Sandberg 1989). After investigating many ski areas in the Northeastern United States and Korea, two ski areas were found to be reasonably comparable and each had a strong ethnic population of White Anglo and Korean skiers from which a sample could be collected (Park 1996). These two areas were Hunter Mountain Ski Area in New York and at Yong Pyeong Ski Resort in Korea. The characteristics of these two areas are summarized in Table 1. The largest differences were in the greater vertical drop and more ski slopes at Hunter Mountain.

Table 1. Comparison of the ski area characteristics at Hunter Mountain Ski Area in New York and at Yong Pyeong Ski Resort in Korea during the 1997 ski season.

Description Summary	Hunter Mountain Ski Area, NY	Yong Pyeong Ski Resort, Korea
Peak elevation (feet)	3,200	3,720
Vertical drop (feet)	1,600	750
Number of ski slopes	49	13
Number of ski lifts	15	16
Ski slope distribution		
Beginner	35%	25%
Intermediate	35%	50%
Advanced	30%	25%
Average annual snowfall (inches)	125	35
Season	Nov. 1 to May 7	Nov. 25 to April 7
Night ski slopes	0	2
On-site lodging	Condo, hotel, Inn	Condo, hotel
Adult lift ticket price (weekend)	$40	$35
Classification	Large medium size	Medium size

The approach in this study was to explore the concepts that ethnic groups will have different motivations and crowding norms and that visiting and immigrant ethnic groups would respond more like their original ethnic group than they would be like their host ethnic group. The two objectives of this paper are: (1) to explore what affect the ethnic

differences of skiers had on motivations for skiing and crowding norms for White and Korean skiers in New York State and Korea; and (2) to predict group classification in the four sampling strata based on the eight variables used in the hypotheses tested.

Methods

Skiers were systematically sampled going into the main ski lodge and were asked to complete an on-site self-administered survey (Park 1996). The ethnic background of the skiers was asked to determine if they would be included in the study sample and to categorize them into the White Anglo or Korean groups. The survey was available in both English and Korean languages and the survey staff were bi-lingual to help in the interview and survey process. Survey sampling was conducted in 1996 on 2 3-day weekends in February at Yong Pyeong Ski Resort in Korea and on 3 2-day weekends in February-March at Hunter Mountain Ski Area in New York.

Eight hypotheses were tested in this paper using the Kruskal-Wallis *H* statistic, Duncan's Multiple Range Test, or the Chi-square statistic: (1) the natural environment motivational scale has equal mean scores for all four groups; (2) the escapism motivational scale has equal mean scores for all four groups; (3) the social interaction motivational scale has equal mean scores for all four groups; (4) the physical exercise motivational scale has equal mean scores for all four groups; (5) the level of skiing experience is the same between the four groups; (6) the preferences for downhill skiing crowding are the same for all four groups; (7) the expectations for downhill crowding are the same for the four groups; and (8) the acceptable waiting time (mean) for a ski lift is the same for all four groups. These eight variables were used in a discriminant analysis to classify survey participant membership in the four ethnic groups.

Results

The field interviews and surveys resulted in the following sample sizes for each of the four ethnic groups (i.e., sampling strata) that were analyzed in this study: (1) 415 White Anglo skiers at Hunter Mountain Ski Area; (2) 124 Korean skiers at Hunter Mountain Ski Area; (3) 116 White Anglo skiers at Yong Pyeong Ski Resort; and (4) 502 Korean skiers at Yong Pyeong Ski Resort. The total sample was 1,157 skiers in the four sampling strata.

Ten motivational questions (survey items) were combined into four scales using factor analysis to reduce the number of variables for the following analysis. The four scales were made of motivational questions as follows: (1) the natural environment scale was based on 'to be close to nature', 'to feel calm and tranquillity', and 'to enjoy the absence of man-made features'; (2) the escapism scale was based on 'to be away from job stress', 'to change from the daily routine', and 'to be away from others'; (3) the social interaction scale was based on 'to develop a friendship with others' and 'to meet new and different people'; and (4) the physical exercise scale was based on 'to improve skiing skills' and 'to get physical exercise'. Korean skiers in Korea reported the highest mean rating for all four motivational scales (Table 2) and two of these mean scale scores were significantly higher than the other three ethnic groups: natural environment scale and social interaction scale. White Anglo skiers in Korea reported a significantly higher mean scale score for escapism than the other three ethnic groups. White Anglo skiers in New York State reported a significantly higher mean scale score for physical exercise than the other three ethnic groups.

Table 2. Mean motivational scales scores for the four ethnic groups.

Motivational Scales[abc]	**Korean** $_{k}$	**Korean** $_{nys}$	**White Anglo** $_{k}$	**White Anglo** $_{nys}$
Natural environment scale (3 survey items)	**3.4**	2.9	2.9	2.9
Escapism scale (3 survey items)	3.3	2.9	**3.6**	3.1
Social interaction scale (2 survey items)	**3.0**	2.5	2.8	2.9
Physical exercise scale (2 survey items)	3.6	3.8	3.7	**4.0**

[a]Item responses: 1=never true, 2=slightly true, 3=somewhat true, 4=quite true, 5=always true.
[b]Scale score = (total of all item responses/ # of items in scale).
[c]Statistical test: bold type indicates that mean is significantly different using Kruskal-Wallis *H* Statistic with $p< 0.05$.

Comparison of the skiing experience levels between the four ethnic groups required the construction of a new variable to accommodate the magnitude of difference between new beginning skiers and experts. A skiing experience composite variable was created based on four reported variables from the study so that skiing experience level = ((years skiing x times skiing per year) + number visits + ski ability). The results of the composite variable on skiing experience was then categorized into three experience levels: low, moderate, and high. The Chi-Square statistical test results indicated that there were significant differences between the experience levels of the four ethnic groups (Table 3). Korean skiers in Korea and New York State tended to be in the low to moderate skier experience levels, White Anglo skiers in Korea tended to be moderate to high experience levels, and White Anglo skiers in New York were evenly distributed between all three skier experience levels.

Table 3. Skiing experience level percentages for the four ethnic groups.

Skiing Experience Level[ab]	**Korean** $_{k}$	**Korean** $_{nys}$	**White Anglo** $_{k}$	**White Anglo** $_{nys}$
Low	51%	41%	15%	31%
Moderate	35%	40%	42%	34%
High	14%	19%	43%	35%

[a]Skiing experience level = ((years skiing x times skiing per year) + number visits + ski ability).
[b]Statistical test: Chi-Square Statistic with 6 df. and $p< 0.05$.

Comparison of the downhill crowding preferences between the four ethnic groups required the construction of a new composite variable to reduce the number of variables for the following analysis. The downhill crowding preference scale was based on the acceptable average number of times that a skier had to stop, change direction, and reduce speed will skiing. The Korean skiers in Korea had a significantly lower scale score compared to the other three ethnic groups (Table 4). The lower acceptability of these downhill skiing interruptions or maneuvers is probably related to the higher number of Korean skiers in Korea who are beginners learning to ski. The expectations for downhill crowding were significantly lower for the Korean skiers in Korea than for the other three ethnic groups (Table 4); although the mean scores, from a management perspective, were relatively similar for all four groups.

Table 4. Expectations and preferences for downhill crowding for the four ethnic groups.

Expectations and Preferences for Crowding	**Korean** $_{k}$	**Korean** $_{nys}$	**White Anglo** $_{k}$	**White Anglo** $_{nys}$
Downhill crowding preference scale (3 items)[ab]	**3.8**	5.9	5.4	5.0
Downhill crowding expectation[cd]	**2.3**	2.6	2.6	2.5

[a]Scale score = (total of all item responses/ # of items in scale).
[b]Statistical test: bold type indicates that mean is significantly different using Kruskal-Wallis *H* Statistic with $p< 0.05$.
[c]Item responses: 1=much less than expected, 2=less than expected, 3=about same, 4=more than expected, 5=much more than expected.
[d]Statistical test: bold type indicates that mean is significantly different using Duncan's Multiple Range Test with $p< 0.05$.

The mean waiting time for riding a chair lift or other transport uphill was significantly lower for Korean skiers in Korea than the other three ethnic groups (Table 5). The mean waiting time for both Koreans and White Anglo skiers in Korea was less than New York groups probably because of the shorter ski slopes and higher number of lifts per slope in Korea (i.e., skiers expected more rapid accommodation on a lift because the downhill experience was shorter in time in Korea than in New York).

Table 5. Acceptable mean waiting time for riding the chair lift for the four ethnic groups.

Acceptable waiting time[a]	**Korean** $_{k}$	**Korean** $_{nys}$	**White Anglo** $_{k}$	**White Anglo** $_{nys}$
Mean (minutes)	**6.4**	8.8	7.1	8.1

[a]Statistical test: bold type indicates that mean is significantly different using Kruskal-Wallis *H* Statistic with $p< 0.05$.

The attempt to predict group classification in the four sampling strata was based on the eight variables used in the hypotheses tests previously described herein. The statistical procedure used was discriminant analysis with a stepwise method of including the eight discriminating variables. All eight variables had high Wilk's lambda values and each were significant ($p< 0.05$) in comparing between the groups and were included in the analysis (Table 6). The results of the Box's M test indicated that the group co-variance matrices were not too dissimilar. Three discriminant functions were used to combine the eight variables. The attempt to correctly classify the skiers in their respective ethnic group using the discriminant functions was significantly ($p< 0.05$) better than what would be predicted by chance. The overall correct classification was 52% with the highest percent correct classification (70%) for Korean skiers in Korea (Table 7).

Table 6. Stepwise analysis with 8 discriminant variables.

Step	**Variable Entered**	**Wilks' Lambda**	**Significance**
1	Downhill crowding preference scale	0.89	0.000
2	Skiing Experience Level	0.81	0.000
3	Natural environment scale	0.74	0.000
4	Physical exercise scale	0.67	0.000
5	Escapism scale	0.63	0.000
6	Downhill crowding expectation	0.62	0.000
7	Social interaction scale	0.61	0.000
8	Acceptable waiting time	0.60	0.000

Table 7. Correct classification using discriminant analysis for the four ethnic groups.

	Korean $_{k}$	**Korean** $_{nys}$	**White Anglo** $_{k}$	**White Anglo** $_{nys}$
Percent correct classification	70.1%	46.4%	55.9%	31.1%

Discussion

The approach in this study was to explore the concepts that ethnic groups will have different motivations and crowding norms and that visiting and immigrant ethnic groups would respond more like their original ethnic group than they would be like their host ethnic group. Based on the analysis of the eight variables in this paper, White Anglo skiers in Korea were more similar to White Anglo skiers in New York than to the host ethnic group of Korean skiers. Korean skiers in New York were more similar to the host

ethnic group of White Anglo skiers than they were to Korean skiers in Korea. Acculturation may have played a major role as an intervening variable since Korean skiers in New York tended to be residents (e.g., first or second generation immigrants) whereas White Anglo skiers in Korea tended to be businessmen and women or military staff in Korea on assignment or tourists in Korea for an extended vacation. Thus, White Anglo skiers in Korea did not tend to assimilate Korean culture and behavior. Further analysis by Park (1996) concluded that the three ethnic groups of Korean skiers in New York and White Anglo skiers in New York and Korea were more similar to each other than any of them were to Korean skiers in Korea.

Two cautionary notes are necessary when reviewing this paper: (1) larger samples are needed to control for the affect of skiing experience levels on this type of comparative analysis; and (2) the ability to generalize these findings is of some concern since only one ski area was used from each country. Future research needs to take these two research design issues into consideration when testing for differences between ethnic groups and host versus visiting and immigrant groups.

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MOVIES AND MOOD: AN EXPLORATION OF THE CRITICAL VARIABLES RELATED TO MOOD STATES

Laura L. Payne

Ph.D. Candidate in Leisure Studies, The Pennsylvania State University, University Park, PA 16802

Tammie Shaw, CTRS

MS Candidate in Leisure Studies, The Pennsylvania State University, University Park, PA 16802

Linda L. Caldwell, PhD.

Associate Professor in Leisure Studies, The Pennsylvania State University, University Park, PA 16802

Abstract: The purpose of this study was to examine the relationship between movie viewing and mood, and to test the Pleasure Arousal Dominance (PAD) mood theory in a theater setting. The results of this exploratory study are presented here, challenging the PAD model, and providing suggestions for future research regarding the leisure and mood relationship.

Introduction

Mood is defined by Hull (1990) as a specific set of subjective feelings which occur as a consequence of everyday leisure experiences. Kamins, Marks, and Skinner (1991) asserted that moods are sub-categories of feeling states that are subjectively perceived by individuals and are more transient than feelings.

Among leisure researchers, mood is a relatively new area to be studied. As Hull (1990) pointed out, researching specific moods rather than the general phenomena of "feeling good" or "having fun" may lead to a better understanding of leisure. Furthermore, it has been suggested that one's mood may impact an individuals behavior, cognitive skills, and even health (Hull, 1990; Forgas & Moylan, 1987).

Several researchers have used film as a stimulus to test the effects of mood on attitudes and behavior (Hubert & Dejong-Meyer, 1990; Cools, Schotte, & McNally, 1992; Forgas & Moylan, 1987). Hubert and Dejong-Meyer conducted a study in which they exposed two matched groups of participants to films with contrasting themes: Raiders of the Lost Ark (an action/adventure) and The Peanuts (a comedy). Self-assessment mood scales, perception of bodily sensations, salivary cortisol tests, respiration, and facial electromyogram (EMG) were used to collect data. Analysis revealed viewing film stimuli influenced the moods of the participants. In a similar study, Cools, Schotte, and McNally (1992) exposed three groups of women to film segments with contrasting themes: a travelogue (neutral affect), a comedy (positive affect), and a horror film (negative affect). Results indicated that food intake for subjects who viewed the horror film decreased, whereas food intake for subjects exposed to either the neutral film or positive film increased following viewing these films. Although these studies took place in a controlled setting, it suggests that mood may be manipulated in certain environments and that mood is a powerful force that influences behavior.

Forgas and Moylan (1987) also used film stimuli to test the effects of mood on attitudes and behaviors. However, their data collection was completed in a more natural environment: a movie theater. Over 900 movie-goers were interviewed immediately following happy, sad, and aggressive films. The interview schedule contained 13 questions which were designed to assess political judgments (satisfaction with aspects of government, etc.), the likelihood of future events (e.g., future performance of economy or likelihood of a nuclear war, etc.), an examination of attitudes toward punishment and responsibility (e.g., appropriateness of punishment for crimes), and questions about satisfaction with their private, social, and working lives. The last question asked respondents to rate their mood on a 7-point scale from bad to good. In order to determine pre-movie attitudes, 120 individuals were interviewed before the movie. Analysis revealed significant changes in attitudes and mood after viewing the movies. Those who viewed the happy movie reported being in a significantly better mood than those who viewed the sad or aggressive movies. Further analysis suggested that all of the films significantly influenced political, social, and quality of life judgments among respondents. Although it was found that attitudes were influenced through this study, the researchers didn't examine the long term effect (if any) of mood on behavior. For instance, do post movie attitudes and judgments carry over into everyday life and behaviors such as voting in an election? In addition, those interviewed before the film were not matched with those interviewed after the movie. Therefore, the results don't reveal individual changes in mood before and after viewing the films.

Although the link between film and mood seems to be well established, some leisure researchers have also examined mood in relation to its effect on the leisure experience. For example, Godbey and Blazey (1983) explored the leisure behavior of older adults in urban parks. They used a questionnaire to examine several social psychological constructs including mood. Results indicated that about 47% of respondents reported that park use had a positive effect on mood. In other words, using parks contributed to improving people's moods. In a similar study, Mannell, Zuzanek, and Larson (1988) used the experience sampling method with 92 retired adults to investigate the antecedents and consequences of leisure (e.g., perceived freedom, intrinsic motivation, mood states, flow, etc.). Results indicated that perceived freedom was significantly related to mood. Participants who indicated higher levels of perceived freedom in leisure reported being in better moods than those with lower levels of perceived freedom. These results demonstrate how mood might influence the leisure

experience or perhaps how the leisure experience might impact mood.

Hull (1990) asserted that mood reflects attributes of the leisure experience and that mood is a product of leisure. In a review of literature on mood, Hull (1990) posited that mood is a "predictable, measurable and a theoretically grounded product of leisure activities" (p. 99). Furthermore, he asserted that managers may be able to control factors which influence mood. Hull and Michael (1995) tested Hull's assertions of mood by conducting an empirical examination of mood in which approximately 100 people completed a series of questionnaires before, during, and after engaging in activity at a park. Results indicated that anxiety and tiredness decreased significantly as a result of park use. Moreover, Hull and Michael asserted that results suggested that measures of mood reflect attributes of the leisure experience.

These studies demonstrate that mood is a powerful psychological force which may affect attitudes, cognitions, and behaviors among recreationists. Hull's notion that mood is a characteristic of the leisure experience seems logical and relevant to the study of the antecedents and consequences of leisure. Further examination of mood may help managers learn how to produce positive moods or reduce negative moods during leisure. For instance, a leisure produced mood may influence levels of enjoyment and satisfaction. Therefore, learning more about the determinants and consequences of mood could help managers to positively impact enjoyment and satisfaction in an outdoor recreation setting. In future studies we might ask if there are common attributes of an activity or setting that are essential to improving mood.

The Pleasure Arousal Dominance Theory of Mood

Although the importance of studying mood has been demonstrated, it is more difficult to identify a theory from which to base an investigation on mood. Hull (1990) suggests using a multi-dimensional model to examine the effects of mood on attitudes and behavior. One such theory is the Pleasure Arousal Dominance (PAD) theory of mood which was developed by Berlyne (1960) and further refined by Russell and Snodgrass (1987). PAD consists of three bi-polar dimensions which range from very aroused to very sleepy, very pleasant to very unpleasant, and very dominant to very submissive (see Figure 1). Mood is then described according to where an individual falls in the three dimensional space. For instance, someone who is unpleasant, but aroused, may be in a stressed mood, whereas pleasant and aroused feelings may lead to an excited mood. Dominance and submission refer to the amount of control the individual has in a situation. This dimension differentiates between anger and fear. For instance, someone experiencing arousal, unpleasant, and submissive feeling states would result in anger.

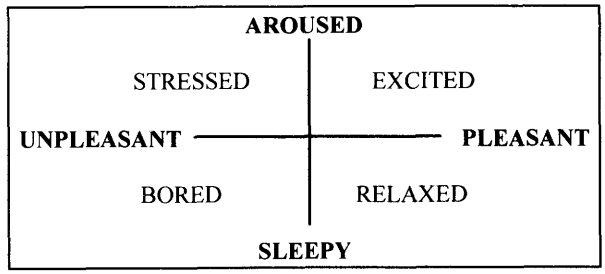
Although this model was suggested to investigate the impact of leisure on mood, it has not been thoroughly tested in a leisure setting. The primary purpose of this paper was to examine the validity of the PAD mood theory. A secondary purpose of this paper was to determine the effects of a movie induced mood on behavior.

Therefore the research questions for this study were as follows:

1. Is the PAD mood theory supported in a movie setting?

2. Does a mood induced by movie viewing affect the intention to perform specific behaviors?

Figure 1: Two of three dimensions of the PAD mood theory are shown here. The third dimension, dominance/submission is not pictured and runs orthogonal to the other two dimensions. It runs straight out from where the two dimensions intercept.



Methods

A comprehensive list of current movies was compiled by the research team. They were then viewed and categorized into themes on the basis of media film reviews and personal reports. From that list, two movies were chosen for the study: Celtic Pride and Fargo. These movies were chosen because they elicited distinctly different responses in mood among the research team. Celtic Pride was labeled as a comedy, and Fargo was labeled as a psycho-drama. A self-administered questionnaire was used, representing five categories including (1) gender, (2) group size, (3) how quickly time passed, (4) intention to perform activities post movie viewing, and (5) mood. Non-identifying demographic characteristics were also obtained. Perceived time duration was measured by a 5-point response scale with 1 being slowly, and 5 being quickly. Plans for after the movie were measured by a nominally scaled list of activities and included such items as dining out, shopping, studying, and going home. Two questions were asked to assess specific changes in plans caused by the movie induced mood.

The dependent variable of mood was measured with eight mood states: aroused, relaxed, unpleasant, sleepy, excited, bored, pleasant, and stressed. This was done with a 5-point Likert type scale where 1= definitely do not feel, and 5= definitely do feel. While the PAD Mood Theory is a three dimensional model, this study was limited to the two dimensions pictured in the model in Figure 1: pleasure and arousal.

Members of the research team convened in the theater lobby on two different evenings. Data were collected on individuals immediately following the viewing of either film. All subjects were approached yielding a response rate of 86%. Willingness to participate and refusal rates were equal between the two films, and the overall refusal rate for this sampling was 14%.

Description of Sample

The sample (n=96) included 36% (n=35) females and 64% (n=61) males; 40 viewed the comedy (Celtic Pride) and 56 viewed the psycho-drama (Fargo). Of the total sample, 37.9% (n=36) were between the ages of 18-22, 17.9% (n=18) were between 23-27, 6.3% (n=6) were between 28-32, 7.4% (n=7) were between 33-39 years, 20% (n=19) were between 40-49, and 10.5% (n=10) were 50-59. Minors were not selected for this sample, and there was an under representation of senior citizens in the population surveyed. Group sizes were as follows: 10 individuals saw the movie alone, while the remaining were with the following number of people; 56 were among pairs, 16 were with 2 other people, 3 were with 3 others, 6 were with 4 other individuals, 3 were among a group of 6, and there were 2 people who were in a group size of 7-8.

Analysis

Single item variables were used to test the constructs of interest in this study and bivariate parametric tests of significance were used. A significance level of .05 was used to determine the significance of the relationships tested during the analysis. The following represents the description of the analysis and results of the testing as related to each research question.

In order to examine the validity of the PAD mood theory, the researchers first had to establish that the movies produced significantly different moods. A series of t-tests revealed that the two films produced significantly different moods for five mood variables: unpleasant ($t=3.63$; $p<.05$), relaxed ($t=2.60$; $p<.05$); sleepy ($t=2.97$; $p<.01$); pleasant ($t=3.65$; $p<.001$); and stressed ($t=2.17$; $p<.05$). Table 1 provides a summary of these results.

Table 1. Relationship Between Movie Type and Mood

Mood	Celtic Pride mean (n) Std. Dev	Fargo Mean (n) Std. Dev.	t-value
Aroused	2.19 (37) 1.29	1.71 (56) 1.20	1.79
Unpleasant	1.53(38) .86	2.38 (55) 1.41	3.63**
Relaxed	3.28 (39) 1.45	2.52 (56) 1.34	2.60*
Sleepy	2.54 (39) 1.41	1.70 (55) 1.21	2.97**
Excited	2.85 (40) 1.21	2.50 (54) 1.49	1.26
Bored	1.87 (38) 1.16	1.49 (55) 1.09	1.58
Pleasant	3.38 (39) 1.23	2.40 (55) 1.37	3.65**
Stressed	1.36 (39) .81	1.80 (56) 1.18	2.17*

Since it was determined that the two movies produced significantly different moods, the researchers performed a series of two-way ANOVAS to examine the interactive effect of gender and movie type on mood for the five mood variables that produced significantly different moods during the two movies. Because men and women differ in terms of the meaning of leisure (e.g., Henderson & Rannells, 1988), this analysis accounted for gender. Results indicated that there was one gender by movie interaction of note. Among females, Fargo produced a much less pleasant mood than Celtic Pride. However, Fargo produced only a slightly less pleasant mood among males than Celtic Pride ($f=5.09$; $p<.05$). Results also indicated that there was a significant main effect of movie type for the following mood variables: Fargo produced a more unpleasant, more stressed, less relaxed and less sleepy mood than Celtic Pride.

A correlation matrix was produced for each gender by movie type combination in order to examine the validity of the PAD mood theory. For females who viewed Fargo, it was found that bored and unpleasant ($r=.43$; $p<.05$), relaxed and pleasant ($r=.46$; $p<.05$), bored and sleepy ($r=.52$; $p<.01$, and stressed and unpleasant ($r=.41$; $p<.05$) were positively and significantly related. It was also found that relaxed and unpleasant ($r=-.61$; $p<.01$) and pleasant and unpleasant ($r=-.53$;$p<.01$) were negatively and significantly related. For females who viewed Celtic Pride, results suggested that sleepy and relaxed moods ($r=.75$; $p<.01$) were positively and significantly related. For males who viewed Celtic Pride, results indicated that relaxed and aroused ($r=.471$; $p<.05$), excited and relaxed ($r=.35$; $p<.05$), and stressed and unpleasant moods (.57; $p<.05$) were positively and significantly related. Males who viewed Fargo were found to be relaxed and aroused ($r=.52$; $p<.01$), aroused and stressed ($r=.40$; $p<.015$), unpleasant and stressed ($r=.63$; $p<.001$), relaxed and excited ($r=.72$; $p<.001$), sleepy and bored ($r=.68$; $p<.001$), and excited and pleasant ($r=.53$; $p<.01$).

It is interesting to note, that for males the intercorrelations of aroused and excited, relaxed and excited, and aroused and relaxed were statistically significant and moderate. However, according to the PAD mood theory, these moods are not supposed to occur simultaneously. These mood variables appear in different quadrants of the model suggesting that they are independent of each other. However, results of this study suggests that for males, two theoretically opposed moods may co-exist. The PAD mood theory does not account for simultaneous moods. Therefore, researchers should consider further testing this model and perhaps it should be refined to represent true mood states that occur during leisure experiences.

A secondary purpose of this paper was to examine the effects of a movie induced mood on behavior. The relationship was examined with a series of chi-squares. Results indicated that a movie induced mood does not affect movie-goers' intentions to perform behaviors following viewing the movie. In other words, a movie induced mood has no statistically significant effect on changing plans for after viewing the movie.

Conclusion

According to the Pleasure Arousal Dominance (PAD) mood theory, excited, relaxed, and aroused moods are theoretically opposed and cannot occur at the same time.

However, according to the results of this study, two opposing moods can exist simultaneously. The leisure-mood connection needs further attention before this conclusion can be made and the investigators of this study propose testing the PAD mood theory in other leisure settings such as outdoor recreation. Outdoor recreation activities may produce significantly different and perhaps heightened mood states than other types of recreation providing for unique research. We suggest modifying the PAD model if future studies also support simultaneous moods. These modifications may make the model more flexible and representative of true mood states that exist during a leisure experience. It is important to conduct more research in this area. Theories of mood and methods of studying mood may provide fruitful research approaches to traditional leisure problems. In addition, the effects of mood have implications
for improved health and wellness, as well as marketing and commercial recreation (Hull, 1990).

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Minority Group Participation in Recreational Fishing: The Role of Demographics and Constraints

Kelly L. Finn

Department of Forestry and Wildlife Management
University of Massachusetts, Amherst, MA 01003-4210

David K. Loomis

Department of Forestry and Wildlife Management
University of Massachusetts, Amherst, MA 01003-4210

Abstract: Minority populations are increasing in numbers and will influence participation and expenditures in fishing activities. This, in turn, will affect fisheries management. Between 1995 and 2025, 78% of the net change in the U.S. population will be attributed to minority group members. This increase in minority populations will be related to a potential increase in the number and proportion of minorities involved in fishing activities. However, it has been shown that minority groups presently comprise a much lower proportion of those who participate in fishing activities when compared to Anglos. This low participation rate implies that minority groups are subject to a variety of constraints or factors that inhibit their participation in fishing activities. Unfortunately, there is little information to explain which constraints are perceived as most serious by minority populations. This paper attempts to identify and discuss possible explanations for low participation rates or non-participation among minority populations, and to discuss the importance of recognizing population trends so agencies can successfully recruit new participants and respond to different types of desired angling experiences. This, in turn, should help fisheries agencies become more efficient in delivering opportunities and services to what will be a growing number of minority constituents.

Introduction

Population dynamics within the United States will be one of the most important factors influencing fisheries management within the next few decades (Robey 1985; Fosler, Alonso, Meyer and Klein 1990; Murdock 1995). Projections predict that the U.S. population will increase by 72 million between 1995 and 2025, with immigrants and their descendants playing the major role in this increase (U.S. Census Bureau 1996). This growth in minority populations is largely due to the high projected birth rate of immigrant groups, many of which came to the U.S. during the 1980's when immigration levels were high and are already in residence. It is this change in population structure that will impact the social and political contexts of fishery management. The purpose of this paper is to suggest to resource managers that in order to secure future angler support, they must understand the implications associated with demographic change, identify and remove constraints, and develop strategies to recruit groups that presently have low participation rates.

Management agencies need to address demographic changes, especially within minority populations, if they are to increase participation rates, recruit additional participants, and succeed in providing services that will meet the demand for a more diverse constituent base. In order to accomplish this, managers must develop programs and services that overcome constraints that have prevented certain groups from participating. This is of primary importance since studies based on current trends suggest that more people are less likely to participate, and participate less frequently, as the population becomes more ethnically varied (Loomis and Ditton 1988 Murdock, Backman, Colberg, Hoque and Hamm 1990; Murdock, Loomis, Ditton and Hoque 1996).

The types and effects of constraints can vary among subpopulations defined by social and economic factors, with those most likely to be affected including minority racial and ethnic groups (Ritter, Ditton and Riechers 1992). It has been suggested that personal and situational characteristics can create variability in perceptions of constraints (Searle and Jackson, 1985). By identifying minority subgroups that distinguish women and ethnic/racial minorities, agencies can focus on specific strategies that extend services to include groups, that have traditionally been underrepresented.

Demographic Background

The Anglo subgroup (whites of non-Hispanic origin) is the largest of the racial/ethnic groups (Table 1, Figure 1). However, Anglos are projected to be the slowest-growing group between 1995 and 2025 (U.S. Census Bureau 1996) (Figure 2). This group is projected to account for approximately one-fifth of the total population increase in the United States. Growth in the angling population will occur in all regions, except the Northeast (Maine, Vermont, New Hampshire, Massachusetts, Pennsylvania, Connecticut, Rhode Island, New Jersey and New York) where this group will decline in size. Census Bureau information predicts that 67% of the 16 million Anglos added to the population will be located in the South (Delaware, Maryland, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, and Texas).

The Black subgroup (Blacks of non-Hispanic origin) is also projected to show slow growth in all regions, except in the South where 64% of the 12 million Blacks added to the population will occur (U.S. Census Bureau 1996). It currently ranks as the second most populous racial/ethnic group in all regions, except in the West (Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, and California), where it ranks fourth. However, it is projected that by the year 2025, the Hispanic population will surpass the Black population numerically throughout the Nation (Table 1). Projections show a rapid increase of 32 million people in the Hispanic population between 1995 to 2025, accounting for 44% of the total growth of the U.S. population during that time period (U.S. Census Bureau 1996) (Table 1). This is the second fastest-growing population in every region.

The Asian and Pacific Islander population (not of Hispanic origin) is the fastest-growing subgroup in every region and will account for the largest percent increase in the total population between 1995 and 2025 (Table 1, Figure 1). This subgroup is currently the fourth-largest in all regions except in the West where they are ranked third. Fifty-six percent (7 million people) of the total increase in the Asian and Pacific Island population is projected to occur in the West, while the Northeast will see an increase of 2 million (U.S. Census Bureau 1996).

The American Indian population (including Eskimos and Aleuts) is the least populous group and is projected to be the third slowest-growing population in all regions except in the south, where it will be ranked second (U.S. Census Bureau 1996). Almost half of the 812,000 American Indians added to the population between 1995 and 2025 will be located in the West.

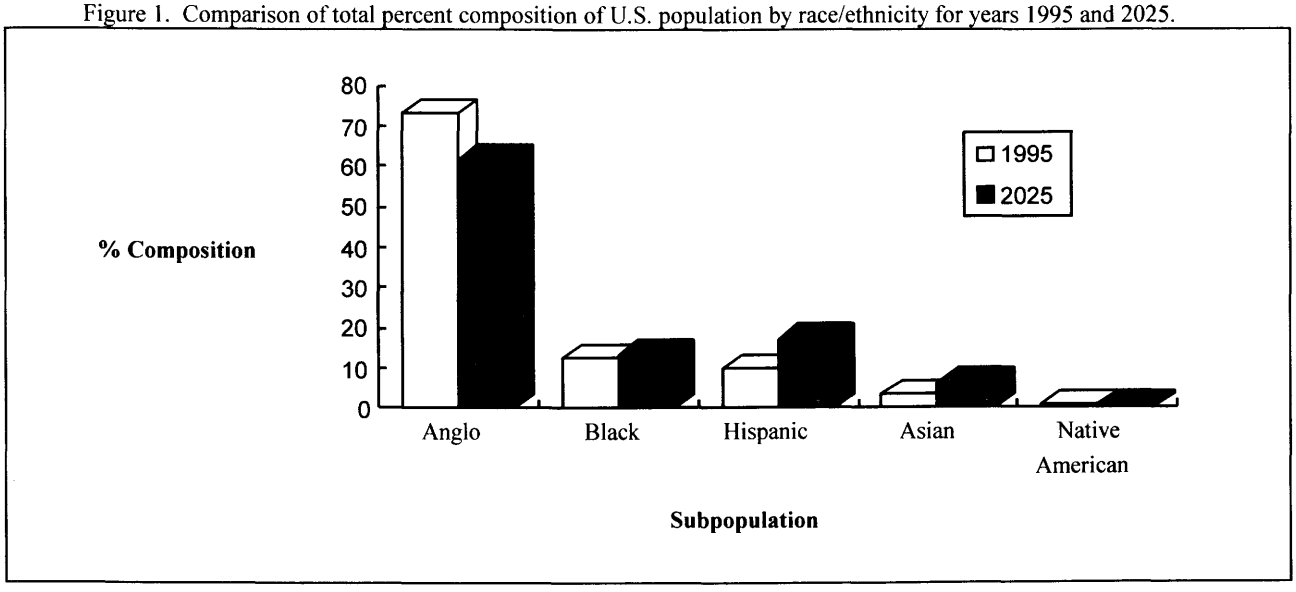
Role of Immigration

The population of the United States has grown significantly compared to other developed nations, with the exception of the Depression and World War II eras when growth rates decreased. The years between 1946 and 1964 were characterized by rapid growth, and are commonly known as the "baby boom" era. The cohorts produced in this period currently comprise one-third of the total population (Murdock et al. 1996). However, the 1960's began a period of moderate to slow growth which is projected to continue into the next century. Current trends suggest that the average annual growth rate will decrease by one-third between 1995 and 2025 (Day 1996) (Table 2). However, the proportion of the total U.S. population composed of minority group members will increase to 38.2% by 2025, compared to 24.4% in 1990. Much of the increase in minority group populations can be attributed to Hispanic and Asian immigrants (many arriving in the 1980's) and their descendants. The percent composition of Anglos in the population by 2025 will have decreased by 11% from 1995, whereas the minority groups will see an increase in total percent composition in the population (Table 1, Figure 1). In addition, 78% of the net change in the population between 1995 and 2025 is projected to be accounted for by members of minority groups, with Hispanics and Asians showing the largest percent increase by 2025 (Figure 2). Immigration will continue to have a substantial effect on demographic changes in the United States over the next 30 years. The majority of immigrants will continue to come from Latin America and Asia (Murdock 1995), bringing with them their own traditional ideologies and customs. They will exert different demands on products and services than will the traditional recreationist.

Table 1. Total population and percent changes between 1995 and 2025 according to race/ethnicity. Population numbers in millions.

Race/Ethnicity	Population in 1995	Percent Composition in 1995	Population in 2025	Percent Composition in 2025	Numerical Increase 1995-2025	Percent Increase 1995-2025
Anglo	193.6	73.1%	209.1	61.8%	15.6	8.1%
Black	31.6	12.5	43.5	13.4	11.9	37.7
Hispanic	26.9	10.1	58.9	17.4	32	119
Asian/Pacific Island	8.8	3.5	20.7	6.5	11.9	135.2
Native American	1.9	0.8	2.7	0.9	0.8	42.1
Total	262.8	100	334.9	100	72.2	27.5

Figure 1. Comparison of total percent composition of U.S. population by race/ethnicity for years 1995 and 2025.



Angler Demographics

It is estimated that 88% of all adult anglers nationwide are Anglos (Harrington Market Research 1992). But noted earlier, Anglos will represent a decreasing percentage of the general population by the year 2025, and therefore are likely to make up a smaller proportion of the angling public. Blacks over the age of 16 accounted for only 5% of the total fishing population in 1993 (U.S. Department of the Interior, Fish and Wildlife Service 1993), and Hispanics, the second fastest-growing population, make up only 2% of all anglers (Harrington Market Research, 1992). The fastest-growing group, the Asian and Pacific Islander population, is reported as comprising only 0.5% of the total U.S. angling population (Harrington Market Research 1992). Only 10% of all women (inclusive of all racial and ethnic groups) participate in angling activities.

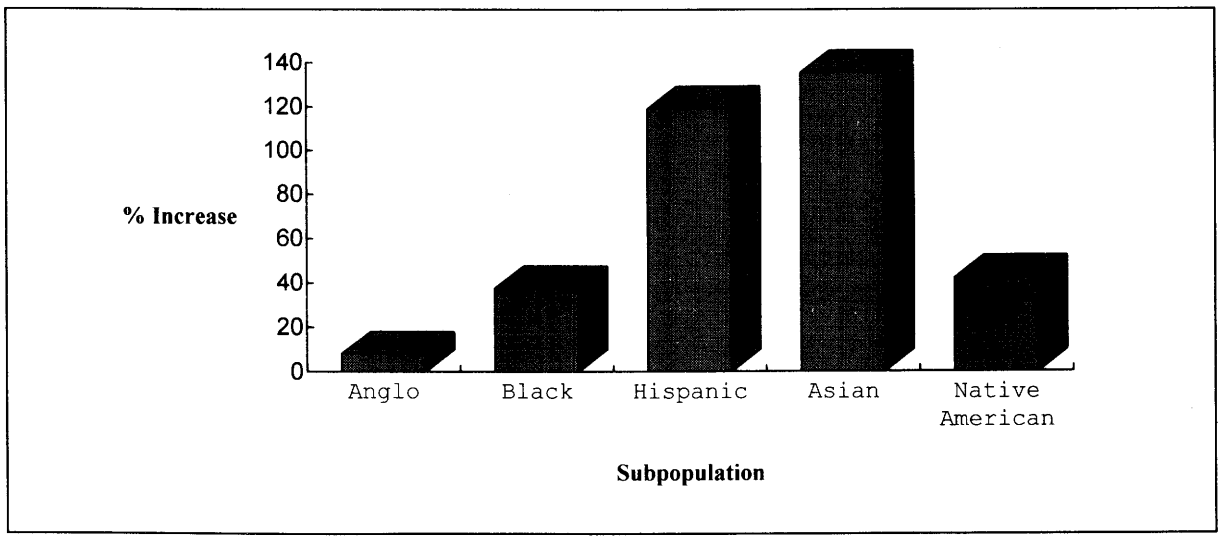
Little information exists on the level of recreational angling participation by the Native American subgroup. Many Native American and Alaskan people have continued to fish as a part of their cultural heritage, and many treaties (signed by the U.S. Government in the mid-1800s) have recently been upheld in Federal courts which recognize their traditional right to harvest fish. In addition, these rights have been upheld despite harvesting regulations placed on commercial industries, and the rest of the angling public. While fishery management agencies may not focus on the Native American populations, their interests are of no less importance. In fact, states in the west region might especially take note on their demographic characteristics when making recreational fishing or water allocation policies that could possibly conflict with Native American fishing rights.

Immigration will continue to be an important factor on the future growth of angling participants. Murdock et al. (1996) projects that most of the net increase in total numbers of anglers will be due to minority populations. Black, Hispanic and Asian immigration further increases the net number of participants. Furthermore, if it were not for the projected immigration rates of Anglos, the total number of Anglo participants would actually decline (Murdock et al. 1996).

Table 2. Average annual percent change for years between 1995 and 2030.

Years	Projected Growth Rates
1990-1995	1.05
1995-2000	0.88
2000-2005	0.81
2005-2010	0.80
2010-2020	0.81
2020-2030	0.72

Figure 2. Percent increase in subg roup populations from 1995 to 2025



Review

A constraint can be viewed as a restriction towards participation in a certain activity, and could inhibit an individual's desire to participate in leisure activities (Jackson 1988), including angling. Scott (1991) suggests that leisure constraints are forces within people's lives that must be successfully negotiated if they are to be involved in leisure activities. Nonparticipation is just one possible outcome as a result of constraints, but people may, instead, modify their behavior to maintain some pattern of sustained involvement (Scott 1991). It may be said that participation is dependent not on the absence of constraints, but on negotiation through them. Such negotiation may modify rather than foreclose participation (Jackson, Crawford and Godbey 1993). This negotiation process is dependent on the relative strength of, and interactions between, constraints on participating in an activity and the motivations for such participation (Jackson et al. 1993). Identifying and understanding the extent to which constraints prevent participation in an activity will help managers distribute programs and services to produce opportunities for those interested in participating in that activity. While there is research into the constraints that prevent angling participation, there is little research into which constraints are most often perceived by or affect minority groups. Constraints that have a greater effect on minority group participation may include insufficient sources of information (no knowledge of how to get

involved), social-economic (low income) considerations which may also lead to a lack of time, inadequate facilities or lack of access, and social isolation.

Affects on Minority Groups

Poor availability or use of information is often an important constraint to participation in recreational constraints. Insufficient knowledge of information sources can prevent an individual from participating in an activity, even though they might otherwise want to. Since fishing is more popular among rural residents for all racial/ethnic groups, including Anglos (Waddington 1995; Duda 1993; Radonski 1983), anglers tend to be over-represented in rural areas and under-represented in urban areas as a percent of the population (U.S. Department of the Interior Fish and Wildlife Service 1980). This under-representation may reduce opportunities for urban dwellers from obtaining information about fishing, such as learning how, where, and when to fish. It is possible for information on fishing activities to be more readily exchanged between family and community members in rural areas than in urban areas, since rural members are more likely to fish (and fish more often) than those who reside in the cities. In rural communities it may be possible that this information is passed along through verbal communication, whereas in urban communities, anglers may be more likely to gain information through fishing organizations.

Socialization into fishing activities, often by a family or close community member, can be an important element in the recruitment of angling participants, especially for children (Dargitz 1988). Children who have anglers in their households are more likely to engage in fishing activities than are children who do not have anglers in their households. with females being less likely to have the opportunity to be introduced to angling than males (Dargitz 1988).

Dargitz (1988) states also that residence plays a minor role in socialization, and that ethnicity is a much larger factor towards the introduction of recreational fishing to children. However, since demographic information reveals that ethnic subpopulations are greater in urban areas, they would, therefore, be less likely to be socialized into angling activities than those who reside in rural areas. These groups may wish to participate in fishing activities, but lack the information on how to get involved. Management agencies putting more effort into distributing information in urban areas, specifically targeting minority groups, will likely see an increase in angling-related interests from these groups. With most immigrants moving to urban areas, this will result in a large increase in potential urban anglers.

Minorities may find that they lack general access to fishing areas, especially in urban centers. Fishing areas may be far from residences and there may be few opportunities to participate near home. Participation by minority groups and single-parents may be limited because they may lack certain socio-economic means to access these areas. It will be increasingly important for management agencies to understand who is not using their facilities in order to improve services in these areas. Developing recreational fishing opportunities adjacent to urban areas, such as "put and take" systems (i.e. fishing in swimming pools and public water ways), along with distributing information on their locations may work to recruit new anglers and get current anglers to fish more often. Public agencies can also provide public shore and pier access for anglers who lack boat access.

Socioeconomic groups differed widely in their per capita fishing expenditures in 1991 (U.S. Fish and Wildlife Service 1993). Anglos had greater per capita fishing expenditures than any other subgroup. If this trend continues, total expenditures will decline since the number of Anglo participants are projected to decrease. Also, socioeconomic factors can quite often dictate the amount of disposable income, minority anglers will have less time and money to devote to angling activities. The use of a sliding-scale fee structure may be an option for managers to provide access services for those with lower incomes.

It may be possible that some minorities and women feel threatened or uncomfortable participating in an activity dominated by white males, even though they may be otherwise interested. This social isolation may be difficult to imagine for some, but it can often be an uncomfortable situation for a woman, or a member of a racial/ethnic minority group to walk into a room (perhaps for a class offering techniques in angling) that is comprised of white men. Perhaps providing an atmosphere where people of different ethnic backgrounds are encouraged to participate, such as through advertisements portraying a family or group of people of Asian or Hispanic descent, for example, enjoying the angling experience. Agencies involved in the recruitment of urban dwellers, women, and ethnic/racial subgroups may well benefit by focusing on outreach programs to overcome their historically low participation rates.

Discussion

Managers must realize that they can not focus solely on the interests of the traditional angling clientele. Instead, they will have to overcome constraints that inhibit a group's desire to participate in order to continue to satisfy its constituents and financial support base. According to Boothby et al. (1981), it is a variety of constraints, not just one, that often influences reasons for non-participation in a recreational activity. Many surveys conducted by fishery management agencies mask much of the angling diversity through the use of means and measures of central tendency when publishing results (Ditton 1996). Ditton suggests that such results can often be misleading because they do not promote an understanding of female or black anglers. Furthermore, many surveys distinguish only between whites, females and blacks, and then lump all other racial/ethnic groups into the "other" category. This does little to encourage the understanding of the constraints, experiences and preferences of Hispanics and Asians, the two fastest-growing populations.

Agencies should consider the growing political influence among minority groups as a result of their increasing numbers, and that they may be less supportive of existing or proposed management rules and regulations than is the existing population of anglers (Murdock et al. 1996).

Acknowledging the ethnicity-specific demographic changes that are projected to occur in the United States over the next 30 years will facilitate an understanding of the implications these changes will have on recreational fishing and its management agencies. As indicated, the traditional angler constituent base, consisting of mostly white males, is a decreasing percentage of the total U.S. population. This decrease will coincide with a decrease in financial support for fisheries conservation and management through the loss of state license revenues and Federal Aid moneys that traditionally support these services. Furthermore, a decrease in participants means fewer expenditures that would otherwise benefit local economies. Fisheries managers will need to develop programs and services that target other members of the population that have had historically low angling participation rates. By considering the present levels of minority group participation and expenditures, agencies can extrapolate information as to why these subpopulations feel constrained to participate in recreational fishing. Because present research into the leisure constraints of minorities is scarce, additional studies need to be performed to discover why minorities have historically remained non-participants in fishing activities. Classification of constraints by race and gender would greatly enhance the quality of future research and increase the understanding in the diversity of perceived physical and behavioral constraints. Once constraints are identified, managers can focus on the development of outreach programs in order to recruit those who wish to participate. Therefore, by understanding the importance of demographic changes and the increasing diversity among possible recruits, management agencies will be able to provide better services to a larger, more diverse constituent base.

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Estimation of Economic Impact of Recreation & Tourism

THE ECONOMIC IMPACT OF SNOWMOBILING IN MAINE[1]

Stephen D. Reiling

Professor and Chair, Department of Resource Economics and Policy, Winslow Hall, University of Maine, Orono, ME 04469.

Matthew J. Kotchen

Graduate Research Assistant, Department of Resource Economics and Policy, Winslow Hall, University of Maine, Orono, ME 04469

Rod L. Bennett

Graduate Research Assistant, Department of Resource Economics and Policy, Winslow Hall, University of Maine, Orono, ME 04469

Abstract: This paper reports the results of a study designed to measure the economic impact of snowmobiling in Maine during the 1995-96 season. Two surveys were conducted to provide the necessary data. First was a survey of Maine residents and non-residents who registered their snowmobiles in Maine during the 1995-96 season. Second was a survey of New Hampshire resident snowmobilers, since they have reciprocity in Maine. The total economic impact of $225,973,240 and 2,700 full-time equivalent jobs was determined using an input-output model of the Maine economy. The impacts of each sector are reported, along with a description of the socio-demographic characteristics of snowmobilers in Maine.

Introduction

Snowmobiling is a popular winter recreational activity in Maine. During the 1995-96 snowmobiling season, over 69,000 snowmobiles were registered by Maine residents and another 6,500 were registered for use in Maine by non-residents. The sport has undergone several changes in recent years. Technological improvements, for example, have made snowmobiles more reliable and more comfortable to ride, which in turn, has altered the riding habits of snowmobilers. For example, snowmobilers no longer only ride in and around their own community; overnight trips of several hundred miles are becoming quite common.

Major improvements in snowmobile trails and trail maintenance over the last ten years have also contributed to the changing riding habits. The interconnecting trails system now allows people to ride from one end of the state to the other, and the Maine trails connect to those in neighboring states and provinces. Trail grooming has also improved as local snowmobile clubs and municipalities have purchased new and better equipment. Consequently, people can ride greater distances over better trails today than they could ten years ago. All of these changes have contributed to the rapid growth of the sport in Maine.

The growth of snowmobiling has also increased the importance of snowmobiling to the Maine economy. Snowmobiling is now a major winter activity that has a large impact on the state economy, especially in more rural areas. In addition to purchasing snowmobiles and accessories, snowmobilers purchase gas, food, accommodations and other services in the communities where they ride.

One of the problems facing the snowmobiling industry in Maine, however, is the lack of current information about the sport. The last study of snowmobiling in Maine was conducted in the early 1980s, and is inadequate for describing the current status of the sport. Representatives of the sport need up-to-date information about the impact of snowmobiling on the Maine economy. To partially rectify this problem, the Department of Resource Economics and Policy at the University of Maine, in conjunction with the Maine Snowmobile Association, conducted a study of snowmobiling in Maine for the 1995-96 season. The purpose of this paper is to describe the methods used in the study and to summarize the results. Specifically, we provide a profile of the Maine snowmobiling population and the overall economic impact of snowmobiling in Maine, including direct, indirect and induced impacts.

Procedures

Two surveys were conducted as part of the overall study. One was a survey of Maine residents and non-residents who registered their snowmobiles in Maine for the 1995-96 snowmobiling season. The second was a survey of New Hampshire residents who registered their sleds in New Hampshire for the 1995-96 snowmobiling season. Since New Hampshire residents can ride their snowmobiles in Maine without registering them in Maine, the second survey was required to obtain a complete overview of snowmobiling activities in Maine. The results of the study reported below are based on the information obtained from these two surveys.

A stratified random sample of snowmobile registrations was obtained from the Maine Department of Inland Fisheries and Wildlife for resident and non-resident snowmobiles registered in Maine. The sample was selected in a way that insured each snowmobile registration within a registration category had an equal probability of being selected. The name and address of the person on the registration form was recorded, along with the snowmobile registration number. Respondents were asked to answer questions about the specific snowmobile selected in the sample.

The resident sample contained 1,500 registrations while the non-resident sample contained 981 registrations. The Dillman Total Design Method was used to conduct the mail

[1] Maine Agricultural and Forest Experiment Station Publication number 2120.

survey in the spring of 1996, immediately after the 1995-96 snowmobiling season.

A stratified random sample of snowmobile registrations was also obtained from the New Hampshire Department of Corrections for the survey of New Hampshire snowmobilers. The sample contained a total of 1,000 registrations, with 400 selected from the counties that border Maine, and the other 600 selected from the remaining counties of New Hampshire. The Dillman Total Design Method was also used to conduct the mail survey of New Hampshire snowmobilers. This survey was conducted in the fall of 1996.

The questionnaire sent to residents and non-residents who registered their snowmobiles in Maine contained the questions needed to estimate the economic impact of snowmobiling by these two groups. For example, respondents were provided with the snowmobile registration number of the specific sled selected for the sample, and they were asked whether it was purchased in 1995-96 and, if so, how much they paid for it, excluding the value of any trade-in. Other questions obtained the net price on trailers purchased during the 1995-96 season.

Three additional questions provide the remaining information needed to estimate the economic impact of snowmobiling in Maine for these groups. The first question asked for trip-related expenses associated with the use of the specified snowmobile. These expenses include gas and oil for the snowmobile, a share of gas expenses for the tow vehicle, a share of restaurant/lounge purchases, groceries, accommodations and other expenditures related to snowmobile trips. Note that only a share of these expenses were reported. For example, if two snowmobiles were trailered to an area, respondents reported only one-half of the fuel costs for the tow vehicle, since expenses were collected on a per-snowmobile basis.

The second question asked respondents to report all 1995-96 expenditures made in Maine for maintenance, repairs, accessories and storage of the specific snowmobile identified in the survey. They were also asked whether the snowmobile was insured during 1995-96, and if so, the annual amount of the insurance premium for the snowmobile.

Finally, the third question asked for clothing and other specialty snowmobiling-related purchases made in Maine for the primary rider of the snowmobile identified in the survey. Items such as coats, boots, gloves, helmets, face masks and gauntlets are listed as possible purchases. Only expenditures incurred for the primary rider of the snowmobile were requested to insure that these expenses were directly related the specific snowmobile identified in the survey.

The questionnaire sent to New Hampshire snowmobilers was similar to that described above. However, there was one major modification. Expenditure data were collected on a per-household basis rather than a per-snowmobile basis because registration numbers for specific snowmobiles could not be obtained for New Hampshire snowmobiles.

Results

The original sample size for the Maine Resident/Non-resident survey was 2,481; however, 31 of the surveys could not be delivered because of incorrect or incomplete addresses. In total, 1,684 questionnaires were returned for an overall response rate of 68.7 percent of the deliverable questionnaires. The response rate for residents and non-residents was 69.2 and 68.0 percent of deliverable questionnaires, respectively.

For the sample of 1,000 New Hampshire snowmobilers, 64 of the surveys could not be delivered because of incomplete or incorrect addresses. Of the 936 deliverable surveys, 532 were completed and returned, for an overall response rate of 56.8 percent.

Socio-Demographic Characteristics

Selected socio-demographic characteristics of residents and non-residents who registered snowmobiles in Maine in 1995-96 are reported in Table 1, along with the characteristics of New Hampshire snowmobilers. It should be noted that the characteristics reported for New Hampshire snowmobilers only reflect those who snowmobiled in Maine during the 1995-96 season, and may not accurately portray all New Hampshire snowmobilers.

As expected, most people whose names appeared on the snowmobile registrations are male: about 87 percent of residents, 92 percent of non-residents and 89 percent of New Hampshire residents. It should be noted that this gender mix reflects the person whose name appeared on the snowmobile registration form and may not accurately reflect the gender mix of the actual riders of the snowmobiles.

The average age of residents (42.8 years) is slightly higher than that of non-residents (41.1) and New Hampshire riders (40.8), and the average household size of 3.1 persons for residents is also slightly higher than for non-residents (3.0) and New Hampshire respondents (2.8). The average age and household size for snowmobilers are similar to those reported for other outdoor recreation participants. Non-residents have a higher level of education than residents. However, the education levels of both residents and non-residents are about the same as for the population as a whole. Information on the education level of New Hampshire snowmobilers who snowmobiled in Maine during 1995-96 was not obtained.

The average household income of the non-resident and New Hampshire groups are much higher than that of the Maine resident group. This difference is not unusual, as Maine residents have lower incomes than residents of the other New England states. Furthermore, non-resident snowmobilers incur higher costs to snowmobile in Maine. Therefore, their income level is probably higher than the average income of all snowmobilers in their home state. Although the average income of resident snowmobilers is less than that of non-residents and their New Hampshire counterparts, it is well above the average income of Maine residents in general.

Table 1. Socio-Demographic Characteristics of Resident and Non-Resident and New Hampshire Snowmobilers in Maine, 1995-96.

Characteristic	Maine Resident	Non-Residents	NH Residents
Gender (% Male)	86.8	92.2	89.3
Average Age	42.8	41.1	40.8
Average Number of People in Household	3.1	3.0	2.8
Average Education (years)	12.8	13.3	na[1]
Average Household Income ($)	47,492	68,213	60,466
Have Personal Computer at Home? (% yes)	43.7	49.5	57.2
Access to Internet and World Wide Web? (% yes)	31.9	43.8	46.6

[1]To shorten the survey, the education level of New Hampshire respondents was not requested.

The Internet and World Wide Web are becoming popular sources of information about many things, including snowmobiling. For example, snowmobile manufacturers and some dealers have developed home pages, and some localities are providing trail information through home pages. Use of the Internet and World Wide Web for seeking and distributing information is growing rapidly, and is becoming an important method of communication.

Given the potential of the Internet and World Wide Web as an information source, we asked respondents whether they have a computer in their home, and whether they have access to the Internet. Almost 44 and 50 percent of residents and non-residents, respectively, reported having a computer in their home. Furthermore, over 57 percent of New Hampshire respondents have a home computer. These figures are well above the national average.

Among those with computers, about 32 percent of residents, 44 percent of non-residents and almost 47 percent of New Hampshire respondents have access to the Internet through their home computer. Hence, about 14 percent of residents, 22 percent of non-residents and 27 percent of New Hampshire respondents in the surveys have access to the Internet in their home. Others may have access through computers at work.

Other information about snowmobilers is also helpful for describing participants. For example, 41.8 percent of resident snowmobilers indicated that their first snowmobiling experience in Maine occurred before 1970. Only about eight percent of residents reported that they first snowmobiled in Maine between 1990 and 1995. Hence, most resident snowmobilers have been active in the sport for a long period of time. In contrast, 47 percent of non-residents indicated that they first snowmobiled in Maine between 1990 and 1995. This clearly indicates that Maine has attracted a large number of non-resident snowmobilers in recent years.

Resident households own an average of 2.21 snowmobiles and non-residents own an average of 2.38 snowmobiles per household. Respondents from New Hampshire own an average of 2.1 snowmobiles per household. Furthermore, 40 percent of the New Hampshire respondents indicated that they snowmobiled in Maine during the 1995-96 season. Those who snowmobiled in Maine took an average of about three snowmobiling trips in Maine during 1995-96 and rode an average of 534 miles. This compares to 682 miles for non-residents and 704 miles for Maine residents.

Economic Impact

Total 1995-96 snowmobiling-related expenditures are summarized in Table 2. They include expenditures on new and used snowmobiles and trailers purchased in the state during 1995-96, trip-related expenses, repair, maintenance and accessory expenses, and expenses for clothing and specialty items. The total expenditures in Table 2 for these three categories include the expenditures made by residents and non-residents who registered their snowmobiles in Maine, and the expenditures made in Maine by New Hampshire residents who snowmobiled in Maine.

The insurance expenses represent the estimated premiums paid by residents only, as it was assumed that non-residents and New Hampshire residents insured their snowmobiles through agencies located outside the State. Finally, the total amount collected through snowmobile registration fees paid by residents and non-residents who registered their snowmobiles in Maine is reported, along with the amount municipalities contributed to trail maintenance and grooming, over and above the amount they received in registration fees and grants. Overall, these expenditures total about $152.5 million for 1995-96.

Expenditures associated with the purchase of new and used snowmobiles account for almost half (48.3 percent) of the total expenditures. The next largest category, trip-related expenses by residents, non-residents and New Hampshire residents while snowmobiling in Maine accounts for 25.1 percent of total expenditures. Maintenance, repair and accessory expenses rank third and represent 11 percent of total expenses. Clothing and specialty item expenses and trailer purchases account for 6.5 and 4.9 percent, respectively, of total expenditures.

In the language of economic impact analysis, the $152,487,000 in total expenditures represents the direct economic impact of snowmobiling on Maine's economy. It is referred to as the direct impact because it represents the dollar expenditures spent directly by the participants in the activity. The total economic impact, in contrast, includes

not only the direct impact, but the indirect and induced impacts as well. Indirect effects are output changes in backward-linked sectors caused by the changing input needs of the sectors directly affected by snowmobiling. Induced effects represent changes in economic output caused by changes in household incomes generated by the direct and indirect effects.

Table 2. Total Expenditures Associated with Snowmobiling in Maine, 1995-96.

Expenditure Category	Amount ($1,000)
Total Expenditures on Snowmobiles	$73,511
Total Expenditures on Trailers	7,513
Total Trip-Related Expenditures (Residents, Non-Residents and New Hampshire Residents)	38,253
Total Maintenance, Repair, Accessory Expenditures (Residents, Non-Residents and New Hampshire Residents)	16,986
Total Clothing/Specialty Item Expenditures (Resident, Non-Resident and New Hampshire Residents)	10,003
Insurance Expenditures (Residents only)	4,432
Snowmobile Registration Expenditures (Residents and Non-Residents)	1,752
Extra Municipal Expenditures	37
Total Expenditures	$152,487

To estimate the total impact of snowmobiling, one must either construct an input-output model or have access to multipliers derived from an input-output model. For this study, an input-output model of the Maine economy was constructed using IMPLAN, or IMpact analysis for PLANning, developed and used by the U.S. Forest Service.

Once the input-output model is constructed, each type of expenditure was assigned to the appropriate sector of the input-output model. In the first column of Table 3, the economic sector and the type of expenditures assigned to that sector are shown. For example, the types of expenditures associated with the Dealers and Service Stations sector include dealer sales of new and used snowmobiles and trailers, all gasoline sales, end-of-season service, and one-half of snowmobilers' expenses for accessories, clothing and helmets. The other economic sectors in the model and the types of expenses assigned to each sector are also shown in Table 3.

The total expenses made in each sector are shown in the second column of Table 3. For example, the total expenses assigned to the Dealers and Service Stations sector equal $73,837,291. Note that the total expenses shown in the second column equal the total direct expenditures of snowmobilers, or $152,487,621.

Table 3. Total Snowmobiling Expenditures by Economic Sector and the Margined Expenditures for Each Sector, 1995-96.

Economic Sector/Expenditure Type	Total Expenditure	Total Marginal Expenditure
Dealers and Service Stations: dealer sled and trailer sales, all gas and oil expenses, season service, and one-half of accessory, clothing and helmet expenses;	$73,837,291	$18,867,081
Repair and Service: all repairs, expendable parts, performance parts/labor, storage and other maintenance expenses;	9,931,494	6,565,955
Wholesale and Retail: specialty items, misc. and other trip expenses, and one-half of clothing, accessory, and helmet expenses;	11,191,359	3,356,214
Insurance: annual insurance premiums;	4,432,000	4,432,000
Eating and Drinking Establishments: restaurant and lounge expenses;	6,952,941	6,952,941
Food Stores: food and beverage expenses;	4,747,201	939,946
Non-Profit and Clubs: snowmobile club donations and memberships;	1,191,133	1,191,133
Recreation Services: rentals, guides and tours;	407,568	407,568
Hotels and Motels: overnight accommod.;	4,788,743	4,788,743
Government: registration fees and turnpike tolls;	1,971,390	1,971,390
Households: private party sled and trailer sales	33,036,551	33,036,551
Total Direct Expenses	$152,487,621	$82,509,522

The last column of Table 3 shows the margined expenses, or the expenses for that sector that are multiplied by the output multiplier for that sector. Note that only $18,867,081 of the expenditures made in the Dealers and

Service Stations sector are used in the multiplier analysis. Before conducting the multiplier analysis, it is necessary to multiply the total expenditures in that sector by the sector's marketing margin.

This margin reflects roughly the difference between the price the firms in that sector pay for the goods they sell and the
price they charge consumers. Note that for some sectors, such as Insurance, Eating and Drinking Establishments and Non-Profit Organizations and Clubs, the margined expenses are equal to the total expenses. That is, the marketing margin is equal to one. However, the marketing margin is as low as .12 for gasoline sales and only .21 for the sale of new snowmobiles.

Finally, the following formula is used to estimate the total economic impact for each sector:

Total Sector Impact = Direct expenses
+ Margined expenses x (sector multiplier - 1)

This formula provides an estimate of the total economic impact for each sector. The total expenses for a given sector represent the direct impact, and multiplying the margined expenses by the sector multiplier less one yields the indirect and induced impacts. This equation is applied to every economic sector from which snowmobilers purchased goods and services, and the results are summed over all sectors to estimate the total impact of snowmobiling in Maine. The process results in an estimate of $225,973,240 for the total economic impact of snowmobiling. The total impact is composed of $152,487,621 in direct impacts and $73,485,569 in indirect and induced impacts.

The overall multiplier for the snowmobiling expenditures can be determined by dividing the total impact by the direct impact, or $225,973,240 / $152,487,621. This overall multiplier is equal to 1.48, which is quite low for an overall input-output multiplier. Several factors contribute to this low multiplier. First, many of the expenditures associated with snowmobiling have to be margined before applying the multiplier. This reduces the overall multiplier effect. Second, many of the goods and services purchased by snowmobilers, such as snowmobiles, clothing and parts, are manufactured out of state. Therefore, a large part of the money spent for these items leaves the state and does not circulate within the state and generate indirect and induced impacts.

It should also be mentioned that over $33 million of the expenditures made by snowmobilers involve purchases from private households. When an individual purchases a used snowmobile from another household, there is a transfer of money from the buyer to seller, but the total amount of income held by households in the state does not change. Hence, there are no new dollars to be multiplied through the economy. Therefore, these purchases do not have a multiplier effect, which further reduces the overall multiplier.

Finally, employment multipliers were also generated from the input-output model and were used to estimate the employment impact of snowmobiling. The total employment effect of snowmobiling is the creation of about 2,700 full-time-equivalent jobs in Maine. About half of these jobs are associated with the direct impact of snowmobiling, and the other half stem from the indirect and induced impacts.

Summary and Conclusions

The results of the study clearly indicate that snowmobiling has grown in popularity in the last 20 years, and its importance to the Maine economy has also increased. For example, the economic impact of snowmobiling has approximately doubled since the early 1980s. The growth in the industry is partially due to the technological improvements in snowmobiles themselves and improvements in the state's trail system.

We believe that potential for further growth also exits. Non-residents who register their snowmobiles in Maine account for less than ten percent of all machines registered in Maine. This is a much lower percentage than in neighboring states. Given the quality of the trail system, we believe that more non-resident snowmobilers can be attracted to the state through an aggressive marketing campaign. This would increase further the economic impact of snowmobiling in the state, which has become increasingly important in many rural areas, and would provide the incentive for further improvements in the state's trail system.

A COMPARISON OF ESTIMATES OF STATEWIDE PLEASURE TRIP VOLUME AND EXPENDITURES DERIVED FROM TELEPHONE VERSUS MAIL SURVEYS

Dae-Kwan Kim

Senior Research Assistant, Travel, Tourism, and Recreation Resource Center, Michigan State University, 172 Natural Resources Building, East Lansing, MI 48824-1222.

Daniel M. Spotts

Assistant Professor, Travel, Tourism, and Recreation Resource Center, Michigan State University, 172 Natural Resources Building, East Lansing, MI 48824-1222.

Donald F. Holecek

Director, Travel, Tourism, and Recreation Resource Center, Michigan State University, 172 Natural Resources Building, East Lansing, MI 48824-1222.

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Abstract: This paper compares estimates of pleasure trip volume and expenditures derived from a regional telephone survey to those derived from the TravelScope mail panel survey. Significantly different estimates emerged, suggesting that survey-based estimates of pleasure trip volume and expenditures, at least in the case of the two surveys examined, appear to be affected by methods of data collection. This in turn suggests that caution should be exercised in using such estimates to make important decisions in the tourism industry.

Introduction

Accurate estimates of pleasure trip volume and expenditures are fundamental to making sound investment, planning, policy, and marketing decisions in the tourism industry. In particular, such estimates are essential for monitoring changes in the magnitude of the tourism industry in a given state, and for comparing the economic significance of tourism versus other industries in a state.

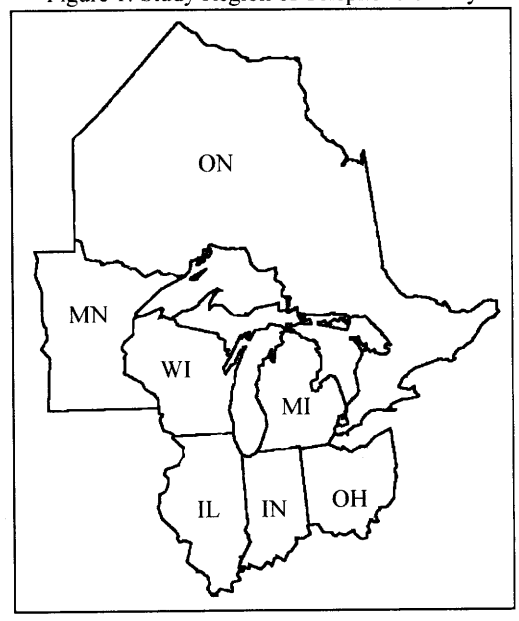
Unfortunately, little definitive information exists about the accuracy of estimates currently in widespread use by the industry. To help remove at least some of this uncertainty, this paper compares estimates of pleasure trip volume and expenditures in Michigan derived from a regional telephone survey conducted by Michigan State University to those derived from the TravelScope mail panel survey conducted by the U.S. Travel Data Center (USTDC).

The specific estimates compared are the number of pleasure trips to Michigan that originated from each of the states of Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin, and the expenditures in Michigan that occurred on these trips. According to the TravelScope survey, the above six states constituted an estimated 83% of Michigan's pleasure travel market in 1996.

Methods

The phone survey data were collected during each month of 1996 in a computer-assisted telephone interviewing laboratory maintained by the authors' unit. The survey population consisted of adults age 18 or older who permanently resided in Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin, or Ontario (Figure 1). The sample was a random digit-dial sample of household phone numbers in the region purchased from Survey Sampling, Inc. Interviewing occurred on weekday evenings and weekend afternoons. On the average, 494 interviews were completed each month. Up to three call-backs were made for each member of the designated sample. Interviewers randomly selected respondents within households by asking to "speak to the adult over 17 years old who will have the next birthday." Twenty-nine percent of eligible potential respondents refused the interview. The response rate, including partially-completed interviews, was 44%. The response rate, including only fully-completed interviews, was 35%. A test for possible nonresponse bias in the data revealed no statistically significant differences between the characteristics of 53 nonrespondents (other than refusals) and a subsample of 53 randomly selected respondents on 30 basic variables, including demographic and socioeconomic characteristics. Results were weighted to account for variations in response rates across the state and provincial boundaries of the region in such a manner that the resulting weighted sample conformed to the distribution of households in the six states and Ontario. Since the TravelScope survey covered only households in the U.S., responses obtained from Ontario residents were deleted from the phone survey data base for purposes of this paper.

Figure 1: Study Region of Telephone Survey



The TravelScope survey was a monthly, nationwide mail survey of a National Family Opinion panel. About 20,000 new households were contacted each month. The response rate was 69% (USTDC, 1996a). Data were weighted using the "household trip weights," "person-trip weights," and "projection weights" that were included in the TravelScope data base.

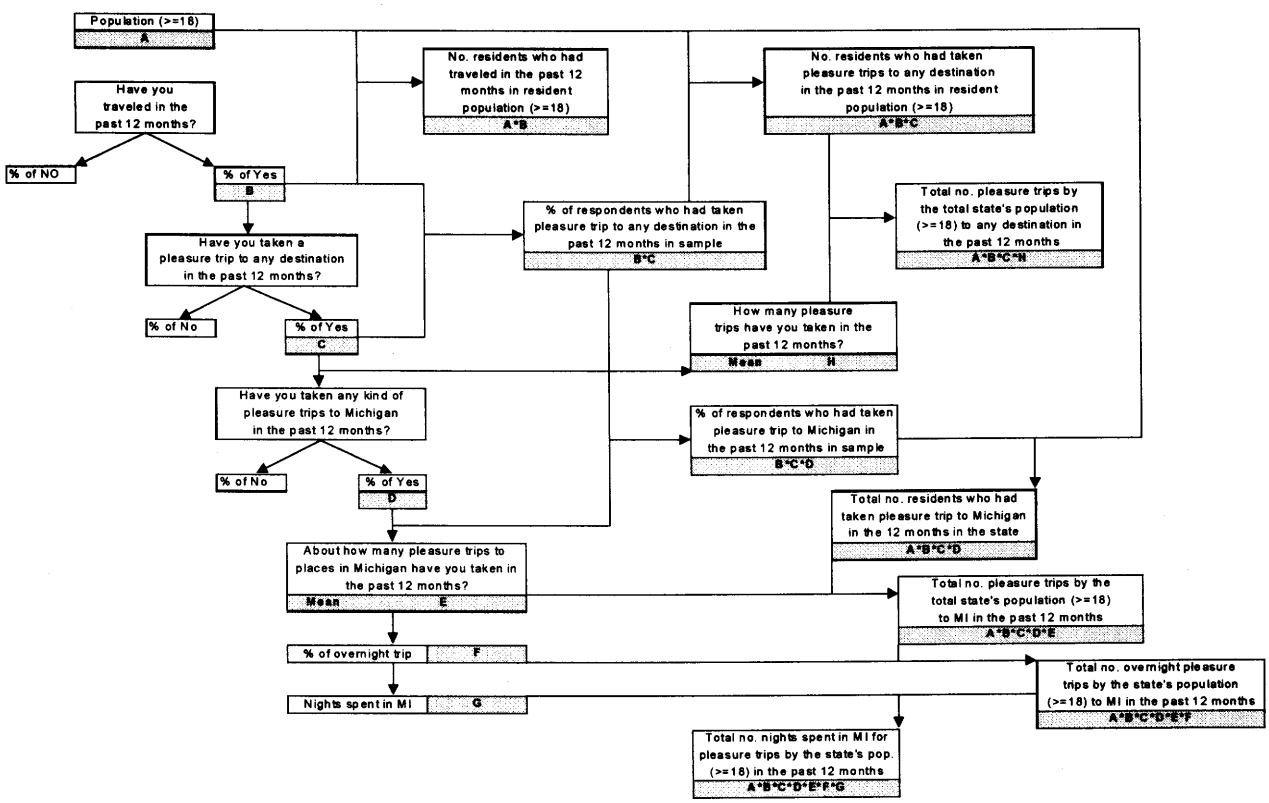
Definitions of "trip" and pleasure trip" were similar in the two surveys, but not identical. A "trip" was defined in phone survey interviews as "any overnight or day trip to a place at least 50 miles from your home, unless it was taken in commuting to work or school." In the mail survey, the questionnaire instructed respondents to report on up to three "pleasure or business" trips taken in a specific month "where you and/or other members of your household traveled 50 miles or more, one-way, away from home or spent one or more overnights."

A "pleasure trip" was defined in phone survey interviews as "any overnight or day trip to a place at least 50 miles from your home that was made for your enjoyment, including vacations, weekend getaways, shopping trips, and trips to visit friends or relatives." In the case of the mail survey, "pleasure trips" were operationally defined by the authors as trips taken for the primary purpose of visiting friends or relatives, outdoor recreation, entertainment, or business/pleasure. Only 3% of trips to Michigan were in the latter category.

To the obtain the data necessary to estimate pleasure trip volume and expenditures, phone survey interviewees were first asked whether they had taken any kind of trip during the past 12 months. Those who had were then asked whether they had taken a pleasure trip during the past 12 months. Those who had were asked the main destination of the most recent such trip. Respondents who had taken a pleasure trip to Michigan during the past 12 months were asked to report the party size and total expenditures in Michigan associated with the most recent such trip. They were also asked to report how many pleasure trips to Michigan they had taken during the past 12 months.

In the mail survey, respondents were first asked whether they and/or other members of their household had taken any kind of trip during the previous month. Those who had were then asked to report information on up to three of these trips, including the primary and secondary purposes of trip(s), the number of household members traveling (adults and children), whether it was a group tour, up to three states or countries visited on trip(s), key cities/places visited in each state/country, number of nights spent in various types of accommodations, trip activities participated in, and trip expenditures in each state or country.

Figure 2. Estimation of pleasure trip volume using telephone survey data.



The unit of analysis in the phone survey was the respondent; the unit of analysis in the mail survey was the trip. The phone survey findings presented below pertain to the 5,928 respondents who completed interviews during the 1996 calendar year; the mail survey findings pertain to the 72,989 trips taken by respondents who returned a questionnaire during the 1996 calendar year.

Estimates of pleasure trip volume and expenditures derived from each survey were made according to the procedures portrayed in Figures 2-4. Results from the individual surveys are presented in Tables 1 and 2 and compared in Tables 3 and 4.

Figure 3. Estimation of aggregate pleasure trip expenditures in Michigan using telephone survey data.

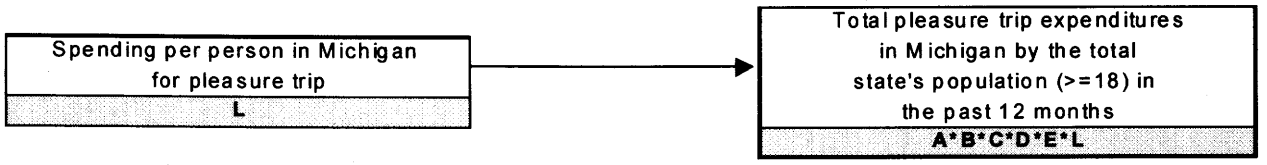


Figure 4. Estimation of pleasure trip volume using mail survey data.

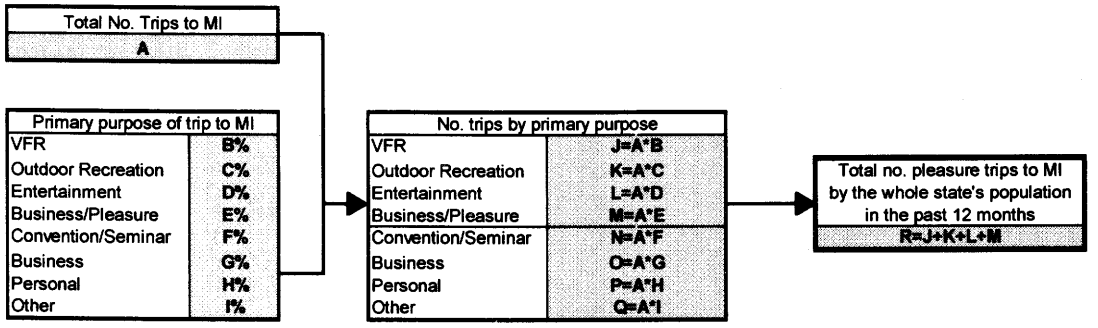


Table 1. Estimated pleasure trip volume and expenditures in Michigan by state of origin, as estimated by the 1996 telephone survey.

State of Origin	Population Over 17 (1996)[a]	Took Trip in Past 12 Months	Took Pleasure Trip in Past 12 Months	Pct. of Pleasure Trips Destined for MI	Avg. No. Pleasure Trips to MI Taken in Past 12 Months	Estimated Number of Pleasure Person-Trips to MI	Estimated Expenditures/Pleasure Person-Trip
	A	B	C	D	E	F=A*B*C*D*E	G
		n=1,176	n=690	n=632	n=95		n=89
IL	8,756,222	68.8%	92.7%	5.9%	3.41	3,084,994	$162.86
		n=585	n=347	n=312	n=79		n=73
IN	4,277,825	65.8%	93.6%	6.5%	2.63	1,829,298	$113.43
		n=956	n=614	n=555	n=373		n=341
MI	7,011,023	72.2%	92.1%	42.4%	5.48	18,317,994	$131.59
		n=466	n=326	n=306	n=25		n=23
MN	3,370,567	76.2%	96.1%	2.9%	1.91	405,427	$301.17
		n=1,146	n=732	n=667	n=117		n=105
OH	8,257,069	68.8%	95.6%	4.8%	1.99	1,956,158	$182.93
		n=515	n=335	n=308	n=63		n=60
WI	3,767,547	72.2%	94.6%	5.7%	2.78	1,530,896	$143.08
Total	35,440,253					27,124,767	------
							n=757
Mean							$160.61

[a] Population estimates are from *Sales & Marketing Management* magazine's "1996 Survey of Buying Power".

Table 2. Estimated pleasure trip volume and expenditures in Michigan by state of origin, as estimated by the 1996 mail survey.

State of Origin	No. Person-Trips to Michigan	Pct. That Were Pleasure Trips[1]	Estimated Number of Pleasure Person-Trips	Estimated Expenditures/Pleasure Person-Trip
	H	I	J=H*I	K
		n=1,857		n=1,221
IL	1,865,182	73.1%	1,362,901	$108.72
		n=1,254		n=732
IN	1,267,694	69.9%	886,331	$148.46
		n=16,373		n=11,244
MI	16,529,198	78.3%	12,940,099	$82.61
		n=442		n=221
MN	473,195	52.0%	245,958	$181.75
		n=2,442		n=1,448
OH	2,535,604	68.7%	1,741,003	$85.24
		n=1,000		n=836
WI	1,000,410	85.9%	859,653	$98.84
		n=28,478		
Total	28,933,124	75.0%	18,053,945	-------
				n=15,702
Mean				$90.21

[1] "Pleasure trip" includes the following purposes: visiting friends or relatives, outdoor recreation, entertainment, or business/pleasure.

SOURCE: Authors' analysis of weighted 1996 TravelScope data.

Results

The number of pleasure trips to Michigan that originated in the above six states was estimated from the phone survey data to be 27.1 million--50% higher than the TravelScope result (Table 3). Average per person expenditures on these trips were estimated to be $161--78% higher than the TravelScope result (Table 3).

Phone survey estimates of the number of pleasure trips to Michigan originating from a given state were higher than those generated by the mail survey in the case of each of the six states examined (Table 3). Estimates derived from the two surveys were similar in the case of Ohio, but quite different in the case of other states. Phone survey estimates of the number of trips originating from a given state were 12% higher in the case of Ohio, 42% higher in the case of Michigan, 65% higher in the case of Minnesota, 78% higher in the case of Wisconsin, 106% higher in the case of Indiana, and 126% higher in the case of Illinois.

Table 3. Comparison of estimates derived from telephone versus mail surveys.

	No. Pleasure Person-Trips			Expenditures/Pleasure Person-Trip		
State of Origin	Phone Survey	Mail Survey	Percentage Difference, Phone vs. Mail	Phone Survey	Mail Survey	Percentage Difference, Phone vs. Mail
IL	3,084,994	1,362,901	126.4%	$162.86	$108.72	49.8%
IN	1,829,298	886,331	106.4%	$113.43	$148.46	-23.6%
MI	18,317,994	12,940,099	41.6%	$131.59	$82.61	59.3%
MN	405,427	245,958	64.9%	$301.17	$181.75	65.7%
OH	1,956,158	1,741,003	12.4%	$182.93	$85.24	114.6%
WI	1,530,896	859,653	78.1%	$143.08	$98.84	44.8%
All 6 States	27,124,767	18,053,945	50.4%	------	-------	-------
Mean				$160.61	$90.21	78.0%

Table 4. Comparison of regional and national estimates of pleasure trip volume and expenditures derived from telephone versus mail surveys.

Variable	Phone Survey	Mail Survey	% Difference, Phone vs. Mail
Estimated no. pleasure person-trips to MI from 6 states	27,124,767	18,053,945	50.4%
Estimated no. pleasure person-trips to MI from all U.S. states	32,629,818	21,696,393	50.4%
Average estimated expenditures/pleasure person-trip to MI from 6 states	$160.61	$90.21	78.0%
Estimated total pleasure trip expenditures in MI from 6 states	$4,356,508,828	$1,628,646,378	167.5%
Estimated total pleasure trip expenditures in MI from all U.S. states	$5,240,675,069	$1,957,231,613	167.8%

Since the study population for the phone survey was confined to the upper Midwest, it was necessary to expand the phone survey results from a regional to a national population to estimate the number of trips to Michigan from all possible origins in the U.S. An analysis of TravelScope data indicated that the six states generated 83.13% of all domestic pleasure trips to Michigan. Applying this percentage to the 27.1 million pleasure person-trips to Michigan taken by residents of the above six states, an estimate of 32.6 million pleasure person-trips from all possible U.S. origins was obtained. This estimate was 50% higher than the TravelScope estimate (Table 4).

The above estimates of pleasure trip volume were used to estimate total pleasure trip expenditures generated by residents of the six states and the nation as a whole. Total expenditures in Michigan by residents of the six states were estimated from the phone survey data by multiplying total pleasure trip volume by average person-trip expenditures of $161 to obtain a value of $4.36 billion; total expenditures in Michigan by pleasure travelers nationwide were estimated by multiplying nationwide pleasure trip volume by this same value of $161 to obtain an estimate of $5.24 billion (Table 4). Both estimates were about 167% higher than those derived from TravelScope data.

The estimate of $5.24 billion in domestic pleasure trip expenditures in Michigan derived from the phone survey data seems to compare fairly reasonably with the estimated $7.94 billion in total domestic trip expenditures in Michigan in 1994 generated by the U.S. Travel Data Center's Travel Economic Impact Model (U.S Travel Data Center, 1996b). However, the comparability of these estimates is limited by the differing time periods to which they pertain and by differing definitions of a "trip." The USTDC estimate pertains to all overnight trips in paid accommodations regardless of distance away from home, but excludes day trips to places less than 100 miles away from home. Nevertheless, it would appear that the inclusion of business, convention, educational, and other types of non-pleasure trips in the USTDC estimate should probably result in a higher estimate than a figure pertaining only to pleasure trips, even though the USTDC estimate excludes overnight trips involving stays in second homes and friends' or relatives' homes and most trips to places less than 100 miles from home.

Conclusions

The reasons for the differences in estimates derived from the phone and mail surveys are unclear. Certainly the results of both surveys to some extent could be distorted by sampling error, nonresponse and recall biases, and other errors. Different definitions of "pleasure trip" could also be a factor.

Overall, the results of this analysis suggest that survey-based estimates of pleasure trip volume and expenditures, at least in the case of the two surveys examined, appear to be affected by methods of data collection. This in turn suggests that caution should be exercised in using these estimates to make important decisions in the tourism industry. It also suggests that further research on this subject would be warranted. This study could be expanded by comparing the above results to those derived from additional household travel surveys, including the U.S. Census Bureau's 1995 American Travel Survey and panel surveys conducted by Longwoods International, Inc. and D.K. Shifflet & Associates. It could also be expanded by comparing household travel survey results to those derived from statewide travel surveys involving various types of on-site data collection (e.g., Hunt and Gartner, 1988; Maiorano, 1995; Perdue, 1985).

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Place Meaning And Attachment

SENSE OF PLACE: MOUNT DESERT ISLAND RESIDENTS AND ACADIA NATIONAL PARK[i]

Nicole L. Ballinger

Graduate Research Assistant, University of Vermont, School of Natural Resources, 211 Aiken Center, Burlington, VT 05405

Robert E. Manning,

Professor, Univérsity of Vermont, Recreation Management Program, School of Natural Resources, 356 Aiken Center, Burlington, VT 05405

Abstract: The framework of sense of place, developed by humanistic geographers, has been employed by researchers in their efforts to explain the range of attachments, values, and meanings assigned to natural areas. This study used an exploratory approach to address the range of values and meanings assigned by local residents to places in Acadia National Park. Qualitative interviews were used as a scoping instrument to identify characteristic places and place values in Acadia National Park. Interview findings informed a mail-back questionnaire administered to a representative sample of local residents. Research findings address the range of values assigned to places in Acadia National Park. Implications of sense of place research for management of national parks are also discussed.

Introduction

The sense of place concepts elucidated by humanistic geographers such as Tuan (1974, 1977), Relph (1976), and Steele (1981) speculate about and describe ways humans attach value and meaning to place. Sense of place can be viewed as the variety of attachments, meanings, and values that humans assign to and derive from physical spaces. Personal constructions of place that contribute to self identity, as well as more social constructions of place, which contribute to regional or local shared senses of place are considered within the framework of sense of place.

Recent natural areas research has used a range of methods and perspectives to consider sense of place. Research on place attachment, a subset of sense of place, has examined the extent to which visitors emotionally bond to recreation sites (Williams *et al.* 1992, Mitchell *et al.* 1993, Moore and Graefe 1994). Other sense of place research has attempted to identify important places and the values associated with places (Schroeder 1991, 1996, Brandenburg and Carroll 1995). All of the above researchers suggest that natural areas managers need to be more receptive to the range of values and attachments to place when planning for natural areas.

Sense of place is an important concept for national park research. National park designation provides protection for natural and historical resources valued by many Americans. At the national level, national parks are considered icons of an American identity (Schreyer and Roggenbuck 1981). At the local level, the natural and historic resources protected by parks may be integral parts of local communities (Zube 1989). Adjacent residents may value these areas not just as symbols of an American identity, or as recreation places, but as places important to the local character or regional identity. The local connections to national parks can be positive sources of stewardship; however, they may also spur conflict over management decisions about the resource. Thus, national park managers may do well to understand how the places they manage have local significance.

This research considers how places protected by Acadia National Park, Maine (United States) contribute to local character, and the values that local residents feel are important to these places. Acadia National Park is an unusual unit of the park system, because it is comprised of a patchwork of federally owned lands interspersed with locally owned land. The majority of this patchwork is on an island (Mount Desert Island), thus making planning decisions all the more important in this finite area of land. Mount Desert Island (MDI) residents have a long history of stewardship of the natural and historic resources of the park (National Park Service 1992). Understanding how places in the park are valued by local residents and contribute to the local character may help park managers and the community make more informed planning decisions.

Objectives and Methods

The goal of this research considered how sense of place concepts might be used to understand more about places important to the local character of MDI, and the values associated with the places. Given that MDI has a resident population of 10,000, a representative sample of the population was used to provide the most accurate information. Therefore, an additional goal of this research was to develop a method to address these issues in the format of a mailed questionnaire. The specific objectives of the research were as follows:

1. Identify the values assigned to Acadia National Park by local residents.
2. Identify types of places in the park that are important to the local character and the values assigned to such places by local residents.

A two phase approach which used both qualitative and quantitative methods was used to explore the issues described above. Phase I was an information gathering stage and used primarily qualitative methods. The objectives of this phase were to identify places important to the character or identity of MDI, and inform Phase II. The Phase II questionnaire was designed to address this issue in a more quantitative format to a representative sample of MDI residents. Since this research was exploratory, Phase I was a scoping phase to inform Phase II. This paper will concentrate primarily on the objectives, methods, and results of Phase II. Phase I will be discussed only in reference to its implications for Phase II.

Nine local residents were interviewed for Phase I. Interview respondents were chosen using a non-random chain referral technique. The interviews were comprised of

two parts. The first part was a series of open-ended questions which asked respondents to identify places they felt were important to the character of MDI, and the values and meanings associated with the places. Interview candidates were allowed to mention places both inside the park and outside the park boundary. The methods used for this part followed qualitative methods used by previous sense of place research (Schroeder 1991, 1996, Mudrak 1982, and Brandenburg and Carroll 1995), and followed basic qualitative methods reviewed by Marshall and Rossman (1989). The second part of the Phase I interviews tested potential close-ended questions for the development of the mailed survey.

Phase I results showed that residents were able to identify places important to the character of MDI and the values associated with the places. Over half of the places mentioned by the interview candidates were places protected by Acadia National Park, thus lending support to the assumption of this research that places in the park are important to the local character. Interview respondents also suggested that the park as a whole was important to the local character. Interview respondents were also able to use the close-ended questions, which were kept with some modification for Phase II. The close-ended questions are described in more detail with regard to their use for Phase II.

Phase I results were used to inform Phase II. Since previous sense of place research had not asked about the values of places in a quantitative format, a typology of values derived from the diverse theoretical literature on environmental values was incorporated as a heuristic device. Table 1 shows this typology. Versions of this typology have been used to address the values of the Vermont State Park System (Manning *et al.* 1996) and the Breadloaf Wilderness (Green Mountain National Forest) (Manning and Valliere 1996). Thus, it follows that this typology can also be used to look at the values of a national park. Results from the Phase I research showed that residents were able to rate the values of both the park as a whole, and the values of types of places representative of local character. The typology of values was used to address objective one -- the values of Acadia National Park.

To accomplish the second objective, a series of six photographs which represented types of places in the park was included with the mailed survey. [ii] The places chosen for the photographs were informed by places mentioned most often as important to the character of MDI during Phase I. Informal suggestions from park personnel as to which places in the park were important to local residents were also used. The photographs illustrated the following types of places in the park: 1) the ocean and rocky cliffs, 2) the carriage roads, 3) an estuary, 4) the mountain interior, 5) a fresh water lake, and 6) a hiking trail. The use of photographs to represent places was tested during Phase I, and proved a successful method.

Two questions were asked in regard to the photographs described above. First, respondents were asked to rate the extent to which each type of place represented 1) the character of Acadia National Park, and 2) the character of MDI (Table 2). Next the respondents were asked to rank each of the values of each place, using the same values typology described for objective one.[iii]

The objectives of Phase II were accomplished by means of a mailed questionnaire to a representative sample of MDI residents during the summer of 1996, following the methods recommended by Dillman (1978). Nine hundred and thirty-nine questionnaires were mailed to a stratified sample of the populations of each town on MDI. Of the 761 deliverable questionnaires, 377 were returned, yielding a response of 49.5%.

Results

Results to the first objective are shown in Table 1. Acadia National Park is important for all of the values; however certain values were rated more highly by residents. Recreation and aesthetic values were given the most importance, followed by a second group of values, which included ecological and therapeutic values. Educational/scientific values, moral/ethical, spiritual, and historical/cultural values comprised a third tier of values. Finally, intellectual and economic values were reported least often as important.

Table 1. Acadia National Park Values.

Value	Statement	Average Points of Importance*
Recreation	The opportunity to participate in outdoor recreation activities	15.6 a
Aesthetic	The opportunity to enjoy the natural beauty of this area	15.3 a
Ecological	The opportunity to protect nature in order to ensure human well-being and survival	12.2 b
Therapeutic	The opportunity to maintain or regain physical health and/or mental well-being through contact with nature	10.3 c
Educational/Scientific	The opportunity to study and learn more about nature	8.9 d
Moral/Ethical	The opportunity to exercise a moral/ethical obligation to respect nature and protect other living things	8.2 d, e
Spiritual	The opportunity to obtain spiritual meaning through contact with nature	7.9 d, e
Historical/Cultural	The opportunity to preserve traditions and past ways of life	7.6 e
Intellectual	The opportunity to think creatively and be inspired by nature	6.8 e, f
Economic	The opportunity to earn a living through tourism and other means	6.7 e, f

* based on 0-100 possible points of importance.
a-f denotes statistically significant differences based on t-tests.

Results to the second objective are shown in Tables 2 and 3. All of the photographs ranked highly as types of places which show the character of Acadia National Park and MDI. The carriage road and the lake were most representative of Acadia National Park, and the lake and the ocean and cliff were most representative of the island.

Table 2. Average responses for how well each photograph shows a type of place that represents the character of Acadia National Park and Mount Desert Island.

	Average Rating*	
Type of Place	Acadia National Park	Mount Desert Island
Photo 1 - "Ocean and Cliff"	5.20	5.04
Photo 2 - "Carriage Road"	5.45	4.03
Photo 3 - "Estuary"	4.59	4.88
Photo 4 - "Mountain"	5.23	4.90
Photo 5 - "Lake"	5.26	5.21
Photo 6 - "Trail"	4.99	3.76

* 1 = "not at all," 6 = "extremely."

Table 3 shows the values assigned to each place ranked relative to the values assigned to Acadia National Park as a whole. Different types of places in the park are clearly allocated different values by MDI residents, and are different from the values of the park in general. Although all of the places represented by the photographs, like Acadia National Park in general, ranked high for recreation and aesthetic values, and low for economic and intellectual values, there were some differences. The photographs illustrating the ocean and cliff and the estuary ranked highest for aesthetic and ecological values. Carriage roads and the trails were given high ranks for historical/cultural value, in contrast to the lower rankings of this value for the park.

Conclusions & Management Implications

Several conclusions may be drawn from the results of this study. The values of Acadia National Park can be classified and measured using the values typology. The results of this effort demonstrate that the park is valued by MDI residents for a number of values. Even though recreation value scored high, other values rated high as well. This result suggests that Acadia National Park is important to MDI residents for more than recreation.

Conclusions about the values of the types of places represented by the photographs are limited due to the exploratory nature of the methods; however, results suggest some implications for park management. Measuring the values of types of places showed that these places are allocated a range of different values by MDI residents. Often these values are allocated differently than the values allocated to Acadia National Park as a whole. Although Acadia National Park did not score high for historical/cultural value, the "carriage road" and "trail" photographs were highly valued for their historical/cultural significance. Park management may need to consider this value when planning for these resources, given the historical/cultural importance to MDI residents.

Table 3. Values of types of places in Acadia National Park represented by photographs.

	Average Points of Importance*					
Value	"Ocean and Cliff"	"Carriage Road"	"Estuary"	"Mountain"	"Lake"	"Trail"
Recreation	10.7	23.2	11.7	19.0	16.0	24.1
Aesthetic	19.5	13.5	16.4	15.6	18.0	11.2
Ecological	14.6	8.4	19.7	12.3	13.8	10.0
Therapeutic	11.2	10.9	9.1	10.6	10.3	11.2
Educational/Scientific	10.2	7.0	10.9	9.0	8.2	8.2
Moral/Ethical	6.7	5.5	7.4	6.3	6.2	5.8
Spiritual	9.4	7.7	8.6	9.0	9.6	7.3
Historical/Cultural	5.9	11.4	6.0	6.6	6.0	10.2
Intellectual	6.6	6.5	6.3	6.7	6.7	6.4
Economic	5.0	5.7	4.0	4.8	5.3	5.4

* based on 0-100 possible points of importance.

Results also suggest that types of places in the park are important to residents because they represent the character of Acadia National Park and MDI. This result lends empirical support to the idea that parks are important for local residents not just as places to visit, but that the places protected by parks are integral to the sense of place of the region. Management implications suggest that parks need to continue efforts at developing relationships with local communities. Parks may play a role in protecting both the resources of the park and the integrity of the sense of place of the region.

A limitation of this study is that it represents the views of only one constituency of Acadia National Park -- the residents of MDI. Future research into the sense of place and values of Acadia National Park will need to balance these views with those of visitors and others. However, given that national parks and local residents can be connected by the geographical nature of place and historical stewardship relationships, understanding this relationship more empirically is an important step for national parks.

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End notes

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[i] Funding for this research was provided by the National Park Service, United States Department of the Interior.

[ii] Previous research used mapping exercises to identify places important to local character and identity in the context of in-person interviews(Mudrak 1983, Peterson and Saarinen 1986). Due to the format of the mailed survey, which precluded a mapping exercise, photographs were pre-tested as a method for describing important places. Narratives to describe types of places were decided against, because it is difficult to describe a place in a narrative format without alluding to the potential function or of the place, thereby biasing the assignment of potential values. For example, asking about the values of a "hiking trail," may bias the response to recreation values. Future research may need to consider this distinction to refine and validate methods for considering sense of place in the context of quantitative research. The use of photographs to describe places in this research is exploratory.

[iiiiii] Candidates were asked to rank the photographs according to the extent to which the place was important to the character of the island and provided for the value, not according to his or her preference for the place, which is the primary objective of most landscape assessment studies. Several landscape assessment researchers have acknowledged that landscapes can be judged not just for their appeal, but also for how well they provide for activities (Purcell *et al.* 1994), meanings and emotions (Schroeder 1991), and community symbols (Mudrak 1983). However, these researchers are concerned with how the other attributes of landscape are associated with landscape preference, whereas this research is not concerned with the relationship between values and preference.

A TYPOLOGY OF PLACE ATTACHMENT AND ACTIVITY INVOLVEMENT

Andrew J. Mowen

Ph.D. Candidate in Leisure Studies, School of Hotel, Restaurant and Recreation Management
201 Mateer Building, The Pennsylvania State University, University Park, PA 16802-1307

Alan R. Graefe, Ph.D.

Associate Professor, School of Hotel, Restaurant and Recreation Management
201 Mateer Building, The Pennsylvania State University, University Park, PA 16802-1307

Randy J. Virden, Ph.D.

Associate Professor, Department of Recreation Management and Tourism
Arizona State University, Tempe, AZ 85287-4905

Abstract: While previous research suggests that place attachment and activity involvement impact visitor perceptions, it has not examined the simultaneous effects of these affective constructs. This study develops a typology of both place attachment and activity involvement. It examines variations between attachment-involvement levels and visitor evaluations of quality. Results indicate that evaluations do vary significantly across the typology with the more attached/more involved visitors evaluating the setting and experience more positively. Such evidence suggests that future research utilize and expand upon the typology. Implications for management of quality recreation experiences are discussed.

Introduction

The study of place attachment and activity involvement continues as an important topical area in the recreation research community. These constructs were designed to measure the extent that an individual values or identities with a particular setting or activity, respectively. Several studies have explored how these constructs relate to important attitudinal and behavioral variables (Dimanche, Havitz, and Howard, 1993; Williams, Patterson, Roggenbuck, and Watson, 1992; McIntyre, 1990). This research indicates that activity involvement and place attachment have an impact on perceptions of both the recreation experience and setting. These studies have focused on either activity involvement or place attachment rather than examining both constructs together in the same research effort. Recreation, however, is a complex phenomena involving not only settings, but experiences within those settings. In light of the dynamic nature of the recreation experience, examining both constructs may provide a more complete framework for integrating the affective domain into management action. Such an approach would create a framework that would allow for the simultaneous examination of place attachment and activity involvement with other key attitudinal and behavioral variables. For this framework to be useful, it should at least be significantly related to key managerial variables.

One type of managerial variables which has received much attention at the national, state, and even local agency level is customer satisfaction, service quality, and general visitor evaluations. Increasingly, managers are being required to increase efforts which maximize satisfaction, perceptions of service quality, and general visitor evaluations of the agency, setting, and experience. Understanding the role that place attachment and activity involvement plays in determining such evaluations may provide a more justifiable reason for integrating the affective domain into existing management plans.

Purpose of the Study

The purpose of this study is to explore the utility of a combined place attachment-activity involvement typology. Moreover this research seeks to examine how various levels of this typology relate to visitor evaluations of the experience and setting. Specific study objectives are: (1) To examine the relationship between a place attachment-activity involvement typology and setting evaluations, and (2) To examine the relationship between a place attachment-activity involvement typology and experience evaluations. Results may help managers understand how the typology relates to specific evaluations as well as which typology level is most suited to a specific visitor evaluation. This exploratory research may also assist the research community to understand the linkages and distinctions between involvement and satisfaction evaluations.

Methods

The data for this study was obtained from a comprehensive research project conducted at the Mount Rogers National Recreation Area in 1993. Funding was provided by the USDA Forest Service. Research objectives for the larger project included gathering information pertaining to current users, use patterns, economic expenditures, and preferences for management. The sampling frame was constructed to include the diversity of activity types and settings found within the National Recreation Area. The Mount Rogers National Recreation Area, named for Virginia's highest peak, includes over 115,000 acres of National Forest Land available for public use and enjoyment. It provides a variety of recreation opportunities in both frontcountry and backcountry settings. Specific activity pursuits common to this area include camping, hiking, nature study, auto touring, off-road bicycling, and horseback riding.

Data Collection Procedures

The study utilized both a brief on-site interview and a more detailed mail survey. Visitors who were contacted within a randomized time block were asked to participate in the study. Those who agreed to participate provided answers

to a few brief questions. These questions dealt with trip variables and requested the respondent's address for the purpose of mail-back follow-ups. A mail survey was then given to respondents to be completed and returned after the completion of the visit. Postcard reminders were sent out 10 to 15 days after the initial on-site contact. Participants who did not respond within one to two weeks of the postcard mailings were then sent a second copy of the questionnaire with a cover letter explaining the importance of their participation. As a final request, a postcard reminder was sent in order to encourage participation among previous non-respondents. Data collection started in mid May, 1993 and ended in mid October, 1993. Specific sampling times and locations were chosen in a systematic way to obtain, as representative as possible, a sample of users. Total sampling time was 790 hours.

Instrumentation

While a variety of demographic and behavioral variables were assessed in the larger survey, the present study formulated a typology of place attachment-activity involvement. A 25-item Place Attachment instrument was measured using an adaptation to the Williams and Roggenbuck (1989) scale which was comprised of place identity and place dependence sub-dimensions. Respondents were asked to indicate how strongly they felt about specific statements (1 = strongly disagree to 5 = strongly agree). Such statements included, "This place says a lot about who I am" and "This place is the best place for doing the outdoor activities I enjoy." The Activity Involvement scale used in this study was a modified version of McIntyre's (1990) enduring involvement instrument. This 13-item scale included Attraction, Centrality to Lifestyle, and Self-Expression sub-dimensions. Respondents were asked to indicate how strongly they felt about specific statements such as, "this activity plays a central role in my life" and "I find that a lot of my life is organized around this activity." Like the place attachment scale, respondents evaluated statements based on a 1 - 5 scale with 1 being strongly disagree and 5 being strongly agree. The reliability of both the place attachment and activity involvement scale was acceptable with Cronbach's Alpha reliabilities of .98 and .87, respectively.

Together, place attachment and activity involvement were combined into a four level (or 2 X 2) typology (Table 1). This typology was formed by splitting both constructs into "high" levels and "low" levels according to the median split method. This 2 X 2 typology was then compared with setting evaluations and experience evaluations. Setting evaluations emphasized the physical site and were assessed through two items. The first item asked respondents to evaluate the importance of the site to facilitating their activities (1 = not very important to 7 = extremely important). The second item involved a comparison of the study site to other, similar sites visited in the past year. This item was reverse coded with 1 = much better and 5 = much worse. Experience evaluations dealt with internal psychological states and focused on expectations and overall satisfaction judgments. Again, this involved the use of two items. The first asked respondents to rate the area based on expectations (1 = much worse than expected to 5 = much better than expected). The second item asked respondents to indicate their overall feelings about the quality of their visit to the site (1 = extremely dissatisfied to 7 = extremely satisfied).

Table 1. A Place Attachment and Activity Involvement Typology

High Activity Involvement** Low Place Attachment**	High Activity Involvement High Place Attachment
Low Activity Involvement Low Place Attachment	Low Activity Involvement High Place Attachment

** Place Attachment median = 3.69 on a 5 point scale
** Activity Involvement median = 3.44 on a 5 point scale

Analysis

The purpose of this study is to test if any differences exist between a 2 X 2 typology of place attachment-activity involvement and four specific visitor evaluations. Given the categorical nature of the typology and the interval/ordinal nature of the visitor evaluations, a One-Way ANOVA was an appropriate procedure to test for overall differences between the typology and the dependent variables. In order to better discern which typology categories were different across specific evaluations, Tukey's HSD post-hoc tests were also applied.

Results

The response rate for this research was sixty-seven percent with a total sample size of 528. The averages for the five-point place attachment and activity involvement scales were 3.71 and 3.46, respectively. After the typology was created via a median split method, cell sizes could be ascertained. The first cell (low place attachment/low activity involvement) represented 171 respondents. The second cell (high place attachment/low activity involvement) contained 79 respondents. The third cell (low place attachment/high activity involvement) contained 90 respondents. Finally, the fourth cell (high place attachment/high activity involvement) represented 174 respondents. There were 14 missing cases excluded from the analysis for a final sample size tally of 514 responses.

The One-Way ANOVA test indicated that overall differences existed across experience and setting evaluations. A total of four F-tests were conducted. All but one F statistic exceeded 10.0 and were significant at the .001 level (Table 2). This indicates that there are significant differences in visitor evaluations across a place attachment-activity involvement typology. More specifically, post-hoc tests indicated that those with high

levels of both place attachment-activity involvement (Cell 4) had more positive setting evaluations than either mixed levels of place attachment-activity involvement or low levels of both. Significant group variations also existed across experience evaluations. Post-hoc analysis indicated that those with high levels of place attachment-activity involvement also had the highest overall satisfaction evaluations (Table 2). The relationship between typology categories and the comparison of the visit to personal expectations item did, however, deviate from patterns found in the former analyses. Here, those with the highest levels of place attachment (Cells 2 and 4) had the higher visit evaluations compared to personal expectations regardless of activity involvement levels (Table 2). Thus, it seems as if activity involvement plays a lessor role in influencing this type of experience evaluation.

Table 2. One Way ANOVA of visitor evaluations across a four group Activity Involvement and Place Attachment Typology with Tukey's Post Hoc test for group differences.

Visitor Evaluation	F statistic	Low Place Attachment Low Activity Involvement N=171	High Place Attachment Low Activity Involvement N=79	Low Place Attachment High Activity Involvement N=90	High Place Attachment High Activity Involvement N=174
Importance of the site to their activities (1 not important - 7 very important)	33.43**	4.67 (A***)	5.58 (B)	5.34 (B)	6.05 (C)
Comparison of the site to similar sites visited in the past year. (1 better - 5 worse)	10.57**	2.62 (A)	2.04 (B,C)	2.56 (A,C)	1.84 (B)
Comparison of the visit to personal expectations (1 worse - 5 better)	10.53**	3.57 (A)	3.88 (B)	3.54 (A)	4.00 (B)
Overall satisfaction rating (1 dissatisfied-7 very satisfied.)	5.31*	5.81 (A)	6.19 (B)	6.04 (A,B)	6.24 (B)

* Sig. at .01 level

** Sig. at .001 level

*** Cells with at least one corresponding letter are <u>not</u> statistically different from another with the same letter

Conclusions and Implications

This study suggests that a typology of place attachment-activity involvement can be a useful tool in which to segment visitors according to varying evaluations. Place attachment and activity involvement exhibited positive and significant relationships with setting and experience evaluations. This finding partially confirms previous work focused upon the relationship of activity involvement and service quality (Dimanche & Havitz, 1995), but may also contradict other studies such as Applegate and Clark's (1987) research on birders, who noted that the most committed birders were less satisfied with their experience. Clearly, further research is required before a positive linkage between satisfaction and attachment/involvement is established. Future studies could expand upon this exploratory research by comparing the typology to other key satisfaction measures such as the service quality instrument or site-specific managerial preferences and evaluations. While the 2 X 2 typology represents an important step in considering the collective role of activity involvement and place attachment, this framework could be further expanded. Given that both instruments are multi-dimensional, the typology could be further broken down by sub-dimensions. Interval scales could also be used as an alternative to a typology. Such modification may help researchers and managers understand which types of place attachment and which types of activity involvement contribute most to varying visitor evaluations.

One implication which may be taken from this study is the positive relationship between place attachment, activity involvement, and setting/experience evaluations. Public recreation agencies are increasingly being asked to provide not only a breadth of diverse recreation opportunities, but are also being asked to provide a satisfactory level of quality of those opportunities. At the site specific level, outdoor recreation managers are increasingly held accountable for satisfaction and are evaluated by visitor evaluations. Thus, positively influencing attachments to recreation settings and involvement with particular activities may be a viable strategy to increase visitor satisfaction. Such a strategy could include tactics such as improvements to educational programs designed to increase site appreciation, conducting site or community involvement events, or providing activity workshops at the site. Given that many outdoor recreation sites are under the purview of the public domain, issues of equity must first be addressed before implementing actions based on the "more is better assumption." Indeed, efforts to force an increased place attachment or activity involvement upon occasional users may have the undesired consequence of decreasing visitor evaluations.

The findings of this study suggest that evaluations are different across a typology of place attachment and activity involvement. Future studies should recognize that recreation activities do not occur unto themselves, but require settings. Likewise, the setting is actualized through

activity experiences which occur on their site. The outdoor recreation profession has been very adept at categorizing and managing for physical setting attributes as well as inventorying activity types. The field has been less successful in defining the personal meaning of places/activities and incorporating these affective states into management frameworks. The present study adds to the increasing volume of attachment/involvement research designed to address this issue.

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INTERNATIONAL STUDENTS' IMAGE OF RURAL PENNSYLVANIA AS A TRAVEL DESTINATION

Po-Ju Chen

Masters Candidate, Leisure Studies Program, The Pennsylvania State University, 201 Mateer Building, University Park, PA 16802

Deborah L. Kerstetter

Assistant Professor, Leisure Studies Program, The Pennsylvania State University, 201 Mateer Building, University Park, PA 16802

Abstract: The purpose of this study was to examine the image international students at Penn State have of rural travel destinations in the state of Pennsylvania. In addition, this study investigated whether destination image differed depending upon travel behavior and socio-demographic variables. Four distinct image dimensions, "tourism infrastructure," "atmosphere," "natural amenity," and "farm life" were uncovered. Overall image scores on the image dimensions differed with respect to one travel behavior variable, future travel intention, and four socio-demographic variables: household status, class standing, gender, and country of origin. There was a relationship between image dimensions and age. The findings could be helpful to marketers interested in positioning their rural tourism destination and could offer image profiles to generate targeted campaigns to sub-groups of the international student market.

Introduction

The average international traveler visits environments with a high quality of life (Lundberg & Lundberg, 1985). According to Betz and Perdue (1993), such tourists are not drawn to a specific resource or attraction, but to the entire "experience" of a city or town, to the distinctive and attractive places of rural communities and surrounding areas. While this may be true, international travelers have not proven to be a lucrative market for rural tourism destinations. Why is this? It may be due to the fact that international tourists' choice to visit pleasure travel destinations such as rural communities may depend heavily on their image of the destination (Fakeye & Crompton, 1991; McLellan & Foushee, 1983; Um & Crompton, 1990; Woodside & Lysonski, 1989). Image, which has been defined by Assael (1984) as "The total perception of the destination that is formed by processing information from various sources over time" (in Fakeye & Crompton, 1991, p. 10), is critically important because it is likely to detract from, or contribute to, the success of a tourism destination (Hunt, 1975). In light of the apparent importance of "image" in individuals' decision to travel for pleasure, it is imperative that research be conducted to substantiate the image international travelers have of rural tourism destination areas.

Study Objectives

There were three objectives of this study. The first objective was to conduct an exploratory examination of the image international students have of rural tourism destinations in the state of Pennsylvania. This approach was adopted because research (c.f. Mathieson & Wall, 1982; McIntosh & Goeldner, 1990) has shown that increased levels of education heighten the propensity to travel. The second objective was to examine whether destination image differed depending on travel behavior (e.g., past travel behavior, future intention to travel to rural destinations). This objective was based on conflicting results presented by Hunt (1975) and Fakeye and Crompton (1991). The final objective was to document whether destination image differed depending on socio-demographic variables. Crompton (1979), Goodrich (1978), and Reilly (1990) have confirmed that differences do exist.

Description of the Instrument

A multi-method approach was used to develop the survey instrument. First, a review of literature was conducted to develop a master list of attributes which theoretically measure destination image. This initial list consisted of 26 attributes. The master list was then modified specifically based on the work of Echtner and Ritchie (1993), Fakeye and Crompton (1991), and Hu and Ritchie (1993). The modification resulted in an expanded list of 37 image attributes. The list was then further modified and additional input was obtained by conducting a focus group and employing a two-phase pilot study with a convenience sample of international students. The responses from the focus group and the pilot study were used to generate the final list of image attributes. The final list of image attributes contained 48 items. Finally, five international students were given the developed instrument and asked to provide feedback on layout and wording. The study instrument consisted of a self-administered questionnaire comprised of two sections: (a) destination image section which consisted of 48 image items measured on a 10-point scale and (b) general socio-demographic/travel behavior section focusing on respondents' age, marital status, household status, class standing, gender, past residence, past travel experience to rural Pennsylvania, and future intention to travel to rural Pennsylvania as a travel destination.

Data Collection

International students, graduate or undergraduate, whose permanent residence is outside of the United States of America and who were registered at The Pennsylvania State University during fall or spring semester, 1996-1997, comprised the study population. A random sample of 700 individuals from a pool of 2,537 international students at Penn State were surveyed. Questionnaire packets were mailed by the Office of International Students (OIS) on January 15, 1997, to the randomly selected sample. A post card reminder and one additional questionnaire packet, sent only to non-respondents, completed the data collection process. After six weeks of data collection, a total of 332 international students had returned completed

questionnaires; however, only 329 were useable. Seven of the three hundred sixty-eight non-responses were due to bad addresses. Thus, the overall response rate was 48 percent.

Data Analysis and Results Respondent Profile

The overall demographic and travel behavior profiles were determined using the frequency procedure in SPSS (version 6.1.3) for Windows. Respondents ranged in age from 18 to 55 with the average age being 28. Approximately one-third (36%) of the respondents were married. However, most of the respondents (83%) reported that they live alone. Less than one-fifth (17%) lived with children and/or relatives. The majority (86%) were graduate international students and 60 percent were male.

Table 1. Image Dimensions

Attribute Statement	Tourism Infrastructure	Atmosphere	Natural Amenity	Farm Life
Good local infrastructure	.77519			
A wide variety of restaurants	.74425			
Lots of things to do in the evening	.73379			
A wide variety of accommodations	.72633			
Good local transportation	.72467			
Very accessible	.71135			
Good service	.70422			
Quality service	.67305			
Good shopping centers / facilities	.66325			
A wide variety of types of foods	.65065			
Good nightlife possibilities	.64436			
Easy to communicate	.62078			
A wide variety of recreation activities	.61717			
High standard of living	.60896			
Good climate / weather	.57862			
Technologically advanced	.57565			
Ample local information	.57284			
Good opportunities for local tours	.57057			
Plentiful cultural and historical sites	.51997			
Relaxing atmosphere		.75301		
Fresh air		.74947		
Lack of crime / safe		.73362		
Lack of traffic congestion		.68975		
Quiet		.66664		
Friendly people		.64175		
Peaceful / tranquil		.59080		
Traditional "home cooking"		.57813		
Lots of open space		.47682		
Attractive scenery			.74513	
Beautiful parks			.67976	
Plentiful wilderness activities/parks			.63379	
Beautiful greenery			.55336	
Good opportunity for adventure			.46213	
A wide variety of outdoor activities			.43220	
Many places of interest to visit			.43128	
Many farms				.64791
Old population				.64537
Homogeneous population				.56954
Simple life-style				.48724
Eigenvalue	**12.68**	**5.55**	**2.60**	**1.75**
Variance Explained	**30.2%**	**13.2%**	**6.2%**	**4.2%**
Cumulative Variance Explained	**30.2%**	**43.4%**	**49.6%**	**53.8%**
Cronbach Alpha	**.94**	**.88**	**.83**	**.71**

Respondents reported that they had lived in the United States about 34 months on average. They had, however, spent less time in Pennsylvania. The average length of stay in Pennsylvania was about two years (25 months). Forty-six percent of the respondents reported that they had lived in a rural community previously. With respect to travel behavior, 59 percent of respondents reported having traveled to a rural area in Pennsylvania. Among those international students who had traveled to a rural area in Pennsylvania, the number of trips ranged between 1 to 210, with the average being 8 trips. However, four individuals indicated that they had taken 50 or more trips. When they were removed from the frequency analysis, the average number of trips dropped to six. Over 70 percent of the respondents expressed an intention to travel to rural Pennsylvania in the next 12 months. Fifty nine percent of respondents came from Asia, including East Asia, South and Central Asia, and Southeast Asia (n=186). Forty-one percent of respondents came from regions other than Asia (n=129

Image Dimensions

The frequency procedure was also used to highlight responses to the destination image attributes. The image items individuals most strongly agreed with were "fresh air," "quiet," and "peaceful/tranquil." Those items that they were least likely to agree about represented a rural area in Pennsylvania including: "good shopping centers/facilities," "good nightlife possibilities," and "a variety of good bars." Principal-axis factor analysis with a varimax rotation was used to determine whether image dimensions existed. Several other criteria were also used to determine the viability of each dimension. For example, only items with a factor loading of at least 0.4 were retained (Kim & Mueller, 1978; Tabachnick & Fidell, 1989). Furthermore, for item retention within a factor (dimension) the criterion of at least .10 difference between the item's loading with its factor and factor loadings under each of the other factors was used (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975). Third, each dimension was subjected to reliability testing. Items which reduced the reliability of a dimension were eliminated from further analysis. And, the Cronbach Alpha reliability coefficient was adopted to test the internal consistency of reliability for each resulting dimension. Only those factor dimensions with Cronbach Alpha values greater than 0.6 were deemed acceptable. After the four criteria were applied, the optimal number of factor dimensions was found to be between three and four. In order to further verify the optimal number of factor dimensions, a second principal-axis factor analysis, now using an oblique rotation, was adopted. The results confirmed that a three- or four-factor solution was suitable for this study. However, when the resulting factor dimensions and their associated items were reviewed and examined for face validity, and Cronbach Alpha statistics were referenced, the four-factor solution was judged most suitable.

The final four image dimensions/factors were named Tourism Infrastructure (Factor 1), Atmosphere (Factor 2), Natural Amenity (Factor 3), and Farm Life (Factor 4). The image dimensions are presented in Table 1. The four-factor solution accounted for approximately 54% of the variance. Cronbach Alphas of the four factors ranged from .71 to .94. The overall mean scores for the four image dimensions were: Tourism Infrastructure, 5.58 (SD =1.61); Atmosphere, 8.16 (SD = 1.39); Natural Amenity, 7.48 (SD = 1.48); and Farm Life, 6.71 (SD = 1.63). The dimensions respondents most strongly agreed with were "Atmosphere" (M = 8.16) and Natural Amenity (M = 7.48).

To explore differences of mean scores on image dimensions by, or relationships between the image dimensions and, socio-demographic as well as travel behavior variables, multiple analysis of variance (MANOVA) and correlation analyses were used. If significant differences were identified through the MANOVA procedure, follow-up one-way analysis of variance procedures were used to determine where the significant differences existed. MANOVA revealed that overall image scores on the image dimensions differed with respect to one travel behavior variable, future travel intention, and four socio-demographic variables: household status, class standing, gender, and country of origin. There was also a relationship between image dimensions and age. (Table 2)

Image Dimensions and Travel Behavior Variables

Two travel behavior variables, past travel and future intention were addressed in this study. MANOVA indicated that image dimensions differed depending upon future intention travel to rural areas. The overall mean scores on image dimensions did not differ with respect to past travel to rural Pennsylvania. A follow-up ONEWAY procedure showed that there were significant differences with two of the four image dimensions, Tourism Infrastructure and Natural Amenity. Individuals who indicated that they intend to travel to rural areas in the future were more likely than individuals who do not have this intention to agree with the Tourism Infrastructure and Natural Amenity dimensions. Table 2 highlights the results.

Table 2. Overall Mean Score on Image Dimensions by Travel Behavior Variables Using Oneway Analysis of Variance.

Travel Behavior Variables	Tourism Infrastructure	Atmosphere	Natural Amenity	Farm Life
Future Travel Intention				
Yes	5.13**	8.03	7.06**	6.67
No	5.72**	8.32	7.72**	6.78

** sig. at .01 level

*** sig. at .01 level

Note: Dimension scores were coded on a 10-point Likert scale ranging from 1 "strongly disagree" to 10 "strongly agree."

Image Dimensions and Socio-demographic Variables

The socio-demographic variables consisted of intervally scaled variables (age, length of stay in the United States, length of stay in Pennsylvania) and nominally scaled variables (marital status, household status, class standing, gender, country of origin).

Correlation analysis was adopted to explore the relationship between the four image dimensions and three intervally scaled variables: age, length of stay in the United States and length of stay in Pennsylvania. One significant relationship was uncovered. Age was found to be positively and significantly related to the Natural Amenity dimension. The result indicated that the older the international students the higher the score or level of agreement associated with the Natural Amenity dimension. Table 3 highlights the results.

To document whether mean scores on image dimensions differed depending upon nominally scaled socio-demographic variables, MANOVA and ONEWAY procedure were adopted. MANOVA revealed that overall image scores on the image dimensions differed with respect to four socio-demographic variables: household status, class standing, gender, and country of origin. Follow-up ONEWAY procedures showed that:

(1) Respondents who lived with children and/or relatives were more likely than respondents who lived alone to agree with the Tourism Infrastructure dimension (5.97 versus 5.44, respectively) and the Natural Amenity dimension (7.94 versus 7.40, respectively).

(2) Graduate international students were more likely than undergraduate international students to agree (have higher scores) with the image attributes associated with the Natural Amenity dimension.

(3) Females were more likely than males to agree with the Tourism Infrastructure and the Natural Amenity dimensions.

(4) International students whose country of origin fell within the Asia region were more likely than those who came from Other regions to agree with the Farm Life dimension. (see Table 3).

Table 3. Overall Mean Score on Image Dimensions by Socio-demographic Variables Using Oneway Analysis of Variance.

Socio-demographic Variables	Tourism Infrastructure	Atmosphere	Natural Amenity	Farm Life
Age (bivariate relationship: Pearson's r)	.01	.09	.07***	-.03
Household Status				
Lived Alone	5.44**	8.20	7.40*	6.78
Lived w/children &/or relatives	5.97**	8.34	7.94*	6.29
Class Standing				
Undergraduate	5.23	7.93	6.79***	6.71
Graduate	5.57	8.26	7.60***	6.72
Gender				
Male	5.28**	8.10	7.31*	6.61
Female	5.82**	8.37	7.72*	6.84
Country of Origin				
Asia	5.69	8.27	7.44	6.99***
Other Region	5.34	8.15	7.59	6.34***

* sig. at .05 level
** sig. at .01 level
*** sig. at .01 level
Note: Dimension scores were coded on a 10-point Likert scale ranging from 1 "strongly disagree" to 10 "strongly agree."

Conclusions and Implications

Destination images may be considered as favorable (positive) or unfavorable (negative) (Milman & Pizam, 1995; Willits, Bealer, & Timbers, 1990). McLellan and Foushee (1983) suggested images of a travel destination are a mixture of both positive and negative perceptions. The results of this study supported McLellan and Foushee's contention. International students' images of rural areas in Pennsylvania were mixed. Their mean scores ranged from 3.80 on the image item, "good shopping centers/facilities" to 8.90 on the image item, "fresh air." With respect to the mean scores on the image dimensions, they were mixed as well. Image dimensions receiving the highest mean scores were "Atmosphere" (M=8.16) and "Natural Amenity" (M=7.48). The "Farm Life" and "Tourism Infrastructure" dimensions had lower mean scores, 6.71 and 5.58 respectively.

International students' overall images of rural Pennsylvania could be summarized and generalized as positive images (Atmosphere, Natural Amenity) and neutral to negative images (Farm Life, Tourism Infrastructure). This generalization appears to complement a study performed by Willits, et al. (1990). They found that the image of rural America can be summarized into two categories: positive images which have been generated from qualitative

impressions such as nostalgic pictures of simpler lifestyles in previous generations, linkage from this nation's heritage and basic American character, and the negative images from impressions that rural areas are disadvantaged in the quality of life and quantity of opportunities.

Older international students tended to have more positive images of rural Pennsylvania than those who were younger. And, graduate international students tended to have more positive images of rural Pennsylvania than undergraduates. Additionally, female international students were more likely than male international students to have higher image scores on the Tourism Infrastructure and Natural Amenity dimensions. This finding contradicts results presented by Ross (1993) who stated that female travelers are less likely to evaluate their destination positively because they perceive that activities and attractions are more suited to males than to females. Asian students were more likely than students from the "Other" region to have statistically significant higher mean scores on the Farm Life dimension. The reasons for this significant difference on the Farm Life dimension are not apparent. However, destination image differences across country of origin could potentially be used in segmenting tourist markets and in tourism planning efforts (Calantone, di Benedetto, Hakam, & Bojanic, 1989). Further study on the inter-relationships between general image dimensions and age, gender, class standing and country of origin should be performed in the future.

Also of significance was the fact that respondents who intend to travel to rural areas in the next 12 months were significantly more likely to agree with the Tourism Infrastructure and Natural Amenity dimensions. This finding suggests that both dimensions may be attractive to individuals interested in visiting rural areas. Further research to validate this finding would be of real value to tourism professionals responsible for marketing rural destination areas.

In conclusion, international students do have distinct images of rural Pennsylvania and, overall, their images were reasonably positive. However, there were a number of findings which contradicted results reported in other image related studies. Thus, further research similar to this study is warranted.

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Tourism Studies

SEGMENTING MICHIGAN TOURISTS BASED ON DISTANCE TRAVELED

Xiamei Xu

Ph.D. Candidate, Department of Park, Recreation and Tourism Resources, Michigan State University, 131 Natural Resources Building, East Lansing, MI 48824

Tsao-Fang Yuan

Ph.D. Candidate, Department of Park, Recreation and Tourism Resources, Michigan State University, 131 Natural Resources Building, East Lansing, MI 48824

Edwin Gomez

Ph.D. Candidate, Department of Park, Recreation and Tourism Resources, Michigan State University, 131 Natural Resources Building, East Lansing, MI 48824

Joseph D. Fridgen

Professor, Department of Park, Recreation and Tourism Resources, Michigan State University, 131 Natural Resources Building, East Lansing, MI 48824

Abstract: The purpose of this study was to segment Michigan travelers into short, medium and long distance traveler groups by distance that they traveled from home to a primary destination in Michigan, and to compare travel behavior, trip characteristics and sociodemographics among these segments. Significant differences were identified in past trip experiences in Michigan, current trip purpose, side trip behavior, length of stay, travel party size and types of lodging used at destinations. Results of the study suggest that travel distance is a viable variable for travel market segmentation.

Introduction

The relationship between travel distance and travel behavior has been given considerable attention in tourism studies. Travel distance has been most widely included as a partial factor in the gravity models, with respect to its function in forecasting tourist flow from an origin to a destination (Sheldon & Var, 1985; Uysal & Crompton, 1985; Smith, 1985; Calantone, et al. 1987). Gravity models propose that the number of tourists generated or the number of trips taken by a given population from an origin to a particular destination is a function of the total population and per capita income of the origin; the distance between the origin and the destination; and the attractivity of the destination. Some earlier studies in travel forecasting showed that gravity models were applied to predict tourist flows between different countries, estimate visitor arrivals to a given state, and project the number of campers traveling to state parks (Van Doren, 1967; Armstrong, 1972; Durden & Silberman 1975). However, gravity models have limitations. Because the function of the gravity models is to forecast travel flows from an origin to a destination, they are not able to be used to predict individual travelers' behaviors from an origin to a destination.

A few researchers have investigated the relationship between travel distance and length of stay at destinations. Walsh & Davitt (1983) and Silberman (1985) found that travel distance was positively related to length of stay at destinations. Yet, Uysal, et al. (1988) reported that travel distance was negatively associated with length of stay at destinations. Thus, Uysal, et al. concluded that the relationship between length of stay and distance traveled to destinations may depend on the nature of the activity and the nature of the trip. A more recent study conducted by Stewart and Vogt (1997) explored the relationship between travel distance and trip patterns. The results of their study suggest that travel distances varied significantly across different trip patterns.

A handful of tourism market studies have adopted travel distance as a concept to compare in-state and out-of-state vacationers (McQueen & Miller, 1985; Andereck & Caldwell, 1994), and distant vs. near-home travelers (Etzel & Woodside, 1982). In these studies, a distance traveler was defined in terms of the state of residency rather than upon an actual distance. In reality, however, it is possible that an in-state traveler could have traveled a greater distance than an out-of-state traveler. Conversely, an out-of-state traveler could have gone a shorter distance than an in-state traveler. It is also likely that an in-state traveler may have traveled the same distance as that of an out-of-state traveler. Therefore, the in-state and out-of-state segmentation approach tends to overlook the differences in distances people travel to their destinations, and try to treat the in-state and out-of-state travelers as two distinct homogeneous groups based on state of origin. Nevertheless, the question of whether people traveling different distances to their destinations regardless of state of origin would vary in travel behaviors or whether people traveling similar distances to their destinations regardless of state of origin would exhibit similar travel behaviors remains unanswered.

Purpose of Study

This study was to utilize travel distance (from one's origin to his/her primary destination) as a variable to segment Michigan's travel market into short, medium and long distance traveler groups. Travel behaviors among these three groups were also profiled and compared. The specific research questions addressed in this study were: what differences are there among travelers who have traveled different distances to their destinations in Michigan? Are there differences in (1) past trip experiences in Michigan; (2) current trip characteristics; (3) use of lodging facilities; and (4) sociodemographic characteristics?

Data Source

Data utilized for this study was from the research project titled the Michigan Travel Study, which is jointly funded

by Travel Michigan (formerly known as Michigan Travel Bureau) through contracts with Certec, Frankfort, KY; Travel, Tourism and Recreation Resource Center, Michigan State University; and the Agriculture Experiment Station, Michigan State University. The purpose of this study was to obtain in-depth trip and travel information on the Michigan pleasure travel market. Data were collected in three consecutive seasons: summer (September), fall (October -- December), 1996, and winter (February -- March), 1997. Since this research paper used the data collected from the summer season, discussions regarding methods will be related to the summer season survey only.

Sampling Procedures

The population of the Michigan Travel Study was auto travelers who took a pleasure trip in Michigan during the summer of 1996. A pleasure trip was defined as a trip to a place at least 50 miles one way from one's home, excluding travel for work, business, or school. Highway welcome centers and rest areas administered by the Michigan Department of Transportation (MDOT) were used as sampling locations for the study. In order to get a representative sample, five welcome centers and 11 rest areas were selected. The welcome centers selected were located on the state's major freeways and highways. The eleven rest areas chosen were scattered throughout the state. These sixteen sampling locations were further divided into four regions comprised of four welcome centers/rest areas in each region. These regions represented transportation outflows as shown by maps provided by the Michigan Department of Transportation.

Data were collected on randomly selected weekends and weekdays in morning or afternoon hours at the 16 pre-selected welcome centers and rest areas in the month of August 1996. Auto travelers who stopped at the sixteen pre-selected welcome centers and rest areas during the surveying days were approached by the interviewers. A self-administered questionnaire was distributed on site. Respondents qualified for inclusion in the study based on two criteria: (1) they were on their way back home from a pleasure trip, and (2) they stayed at least one night in commercial lodging in Michigan while on the trip. Commercial lodging consisted of hotel, motel and lodge, bed and breakfast, rented or owned cabin, cottage and condo, public or private campground, and a boat or ship. A total of 1,882 people were approached. Of these, 437 people met the criteria yielding a qualifying rate of 23.2%. Among those qualified people, 359 respondents completed the questionnaire, representing an 82.2% response rate.

Classification of Three Market Segments

The inclusion of respondents in this study was based on travelers who chose Michigan as their primary destination, and who had spent at least one dollar on Michigan lodging. One hundred and sixty eight respondents were screened and partitioned into three groups based on the distance they traveled from home to a Michigan primary destination. The groups were defined as (a) the short distance traveler (SDT, n=71), traveling within 250 miles; (b) the medium distance traveler (MDT, n=66), traveling between 251 and 500 miles; and (c) the long distance traveler (LDT, n=31), traveling more than 500 miles.

The rationale for the classification of the three market segments were as follows: (1) a review of the frequency distribution for the travel distance variable showed that the 250 and 500 miles points were the natural cut-off points; (2) using these cut-off points it was possible to include both the in-state and out-of-state travelers in the long distance traveler group because the travel distance from the southern border to the northern border of Michigan is more than 500 miles; (3) an effort was made to secure a reasonable size for each of the three market segments for both data analysis and marketing purposes.

Data Analysis

The independent variable for this study was travel distance, and the dependent variables were:

(1) Past trip experiences in Michigan:
- number of pleasure trips taken in Michigan in the last three years
- number of pleasure trips taken in Michigan in the last 12 months;

(2) Current trip characteristics:
- trip purpose
- number and miles of side trips taken in Michigan
- total nights away from home on this trip
- nights spent in Michigan on this trip
- nights spent on side trips in Michigan
- number of persons in immediate travel party
- number of persons under age 18 in immediate travel party;

(3) Types of lodging stayed in on this trip in Michigan; and

(4) Demographic characteristics:
- gender
- age
- household income
- number of full time wage earners in the household

Analytical techniques employed in this study included Chi-square tests for categorical variables and one-way ANOVAs for continuous variables to examine whether differences existed among the three groups.

Results

The results of the analyses indicated significant differences existed in past trip experiences in Michigan, current trip characteristics, and types of lodging used at the destination. Yet, there were no significant differences detected in socio-demographic variables across the three groups.

Past trip experiences in Michigan Differences were observed in the number of past pleasure trips taken in Michigan among the three groups. Table 1 illustrates that the SDT and MDT group took significantly more trips to Michigan in the past than the LDT group. In the last three years, on average, the SDT group took 10 trips to Michigan, the MDT group made almost nine trips, whereas

the LDT group only reported 3.4 trips. In terms of trips taken in the last 12 months, the LDT group again took less trips in Michigan as compared to the other two groups. These findings suggest that frequent or repeat travelers are more likely to be those who reside within a 500 mile radius from a travel destination than those who reside some distance from the destination.

Table 1. Past pleasure trips taken in Michigan by group

	SDT	MDT	LDT	F ratio
Avg. pleasure trips taken in Michigan in last 3 years	n=68 10.12	n=48 8.60	n=24 3.38	5.84**
Avg. pleasure trips taken in Michigan in last 12 months	n=67 3.81	n=47 3.36	n=23 1.30	3.70*

* Significant at $\alpha \leq .05$.

** Significant at $\alpha \leq .01$.

Current trip characteristics: (1) Purpose of trip When assessing the current trip to Michigan, significant differences were identified in purpose of the trip. Sixty two percent of the people in the SDT group claimed their trip purpose was outdoor recreation compared to 36.4% in MDT group and 25.8% in LDT group. Thus, the SDT group was more likely to travel to Michigan for outdoor recreation purposes than the MDT and LDT groups. The MDT and LDT groups were more associated with touring/sightseeing trips. Approximately 48% of people in the MDT and LDT groups reported their trip purpose were touring/sightseeing. Only 20% of people in SDT group stated that their trip purpose were touring/sightseeing (see Table 2). These findings suggest that people traveling to Michigan from destinations within 250 miles had a different travel purpose from that of those people who traveled between 250 and 500 miles, or more than 500 miles.

Table 2. Purpose of trip by group

Purpose of trip	SDT	MDT	LDT	χ^2
	n=71 (%)	n=66 (%)	n=31 (%)	
Visit friends/relatives	11.3	19.7	22.6	2.71
Outdoor recreation	62.0	36.4	25.8	14.85*
Touring/sightseeing	19.7	48.5	48.4	14.64*

* Significant at $\alpha \leq .01$.

(2) Side trip behavior When comparing side trips behavior at the destination among the three groups, there were no significant differences detected in the number of sites visited on side trips. Yet, differences were found in the distance traveled from the primary destination to the site. On average, the LDT group traveled substantially more miles (118.6 miles) than the SDT (46.7 miles) and MDT group (56.7 miles) on side trips. As expected, the LDT group spent more nights on the side trips than the other two groups (see Table 3). The findings implied that the SDT and MDT groups exhibit different travel patterns than those of the LDT group when at primary Michigan destinations. The SDT and MDT tended to visit tourist attractions or sites located close to their primary destinations, and they were less likely to stay overnight at the site visited. In contrast, the LDT group was more interested in exploring the areas they visited than their counterparts, and were attracted to visit sites located farther away from their primary destinations in Michigan. Also they were more likely to spend more nights on side trips than the other two groups.

(3) Length of trip There was a difference in total nights away from home on the trip and the nights spent at Michigan destinations between the long distance travelers and the other two sets of travelers. As indicated in Table 4, the long distance travelers spent 12 days away from home on the trip, of which, ten nights were spent at MI destinations. Both the SDT and MDT groups spent a total of four nights away from home on the trip and spent all these four nights at MI destinations. The results of the analysis implied that the LDT group tended to take longer vacations and stayed longer at their primary destinations in Michigan. While the SDT and MDT groups preferred to take shorter trips on their vacations.

Table 3. Side trips taken at the destination by group

	SDT	MDT	LDT	F ratio
	n=46	n=48	n=28	
Avg. # of sites visited	2.5	3.0	3.7	2.53
Avg. miles traveled from destinations to sites	n=45 46.7	n=47 56.7	n=27 118.6	8.24*
Avg. nights spent on side trips	n=68 .37	n=65 .97	n=28 1.96	11.42*

* Significant at $\alpha \leq .01$.

(4) Travel party size Differences were found in travel party sizes among the groups. The SDT group was likely to travel with a larger group than their counterparts. The average number of persons in the travel party for the SDT group was four. The number for the MDT and LDT groups, however, were 2.9 and 2.7, respectively. There was no significant difference found in the number of persons under age 18 in the travel party among the three groups (see Table 4).

Table 4. Length of trip and travel party size by group

	SDT	MDT	LDT	F ratio
Avg. total nights away from home	n=71 4.32	n=66 4.52	n=31 12.35	14.78**
Avg. nights spent in Michigan	4.32	4.45	10.61	9.02**
Avg. No. of persons in the travel party	4.10	2.89	2.68	3.05*
Avg. No. of persons under age 18 in the travel party	1.27	.85	.65	2.58

* Significant at $\alpha \leq .05$.

** Significant at $\alpha \leq .01$.

Selected Types of Lodging Used at Destinations

Preferences for the types of lodging used at Michigan destinations by three groups are presented in Table 5. As a whole, hotel/motel was the most widely used lodging facility compared to the other selected lodging types for all travelers. The MDT and LDT groups were more likely to patronize a hotel/motel than the SDT group (68.2%, 64.5% vs. 38.0%, respectively). Short distance travelers were more likely to use campground lodging, particularly commercial campgrounds. This might be associated with the travel purpose of the SDT group, i.e., they came to the Michigan primary destinations for outdoor recreation. Among those who chose to stay with friends/relatives, the long distance travelers stayed at friends/relatives' homes (22.6%) more than did short distance (5.6%) and medium distance travelers (10.6%). This finding suggests that many long distance travelers to Michigan destinations take advantage of staying with their friends or relatives and of course this is inherently related to trip purpose. No significant difference was found in the number of people staying at the rented cabin.

Table 5. Selected types of lodging used at the destination by group

	SDT	MDT	MDT	χ^2
	n=71	n=66	n=31	
	(%)	(%)	(%)	
Friends/relatives' home	5.6	10.6	22.6	6.48*
Hotel/motel	38.0	68.2	64.5	14.01**
Rented cabin	15.5	15.2	22.6	.96
Public campground	28.2	16.6	25.8	2.68
Commercial campground	19.7	6.1	6.5	7.16*

* Significant at $\alpha \leq .05$.

** Significant at $\alpha \leq .01$.

Sociodemographic Characteristics

Sociodemographic variables including gender, age, number of full-time earners in the household, and household income were compared among the three groups. No statistically significant differences were identified. Table 6 presents the sociodemographics of the three groups.

Gender Across the three groups, there were more male respondents than female respondents. This is particularly apparent in the MDT and LDT group. In these two groups, over 60% of the respondents were male. One of the reasons for the disproportion between male and female respondents might be caused by the fact that males were more likely to fill out the questionnaire.

Age Travelers aged 36 - 55 constituted the majority across the three groups. (46.5% in the SDT group, 53.9% in the MDT group and 53.4% in the LDT group). The SDT group had a higher percentage (23.3) of respondents between the ages of 18 and 35. While the LDT group had the lowest percentage of respondents in this category (3.3). The LDT group had the highest percentage (43.3) of respondents in 55 and older age group.

Number of full-time wage earners in the household More than 60% of respondents had between 1-2 full-time wage earners in the family across the three groups. But, the SDT and LDT group had a higher percentage (23.7 and 22.6) of respondents in zero full-time wage earners category as compared to 16.4% in the MDT group.

Household income The majority of people among the three groups had household incomes over $50,000 a year, but, the LDT group had the highest percentage (65.5%) of respondents in this category. The SDT and MDT groups had higher percentages (22.4 and 20.7) of people with household incomes less than $31,000, while only 6.9% of people in the LDT group fell into this category. These findings are reasonable because longer trips are generally more costly.

Table 6. Sociodemographic characteristics by group

	SDT	MDT	LDT	χ^2
	n=77	n=66	n=31	
	(%)	(%)	(%)	
Gender				
Female	48.5	37.1	36.7	
Male	51.5	62.9	63.3	2.15
Age				
18-35	23.3	20.0	3.3	
36-45	20.5	31.4	26.7	
46-55	26.0	22.9	26.7	
56+	30.1	25.7	43.3	8.68
No. of full-time wage earners in household				
0	23.7	16.4	22.6	
1	32.9	34.2	35.5	
2	35.5	39.7	32.3	
3+	7.9	9.6	9.7	1.59
Household income				
Less than $31,000	22.4	20.7	6.9	
$31,001 - $50,000	31.0	32.8	27.6	
$50,001 or more	46.6	46.6	65.5	4.55

Conclusion and Implications

This study attempted to segment Michigan's travel market by distance traveled from one's origin to his/her primary destination in Michigan. Three market segments - the short, medium and long distance travelers have been identified. They differ in past trip experiences in Michigan, current trip characteristics including purpose of trip, side trip behavior, length of trip and travel party size, and types of lodging used at Michigan primary destinations. The results of the study support the notion that travel distance is a viable variable for travel market segmentation.

The study suggests a new approach for destination marketing in general. Findings of the study show that people who travel similar distances from home to their primary destinations display similar travel behaviors and trip characteristics regardless of whether the origin is in-state or out-of-state which suggests that travel distance could be a better indicator than one's origin because it defines the assumption that the in-state and out-of-state

travelers are two distinct homogeneous groups and proposes that in-state and out-of-state travelers can be segmented into different subgroups based on distance traveled from one's home to the destination. Thus, destination marketers may locate a city, a community, or even a region in a given state as target markets, unlike the traditional marketing which usually focuses on defining markets by the state of residence. Also, in terms of promotion and advertising, it seems inappropriate to apply the same marketing program to all in-state travelers or all out-of-state travelers. Instead, various marketing programs should be developed and directed to different market segments within in-state and out-of-state travelers. Finally, with respect to tourism product packaging, findings of the study suggest that people traveling from varying distances tended to have different preferences for locations and demonstrated distinct travel patterns within the destination region. This suggests that the destination marketers may incorporate travelers' tastes and preferences into packaging design, so tailored programs can be provided to different markets to better meet their needs and wants.

The study also suggests some implications for Michigan destinations in particular. First, results of the study indicate that Michigan's prime market is likely to be constituted by the short and medium distance travelers who reside from a 500 miles radius from a travel destination. But the sociodemographic characteristics suggest some interesting targets with respect to the long distance travelers. They not only have the highest percentage of respondents who are elderly (55+), but they are also the wealthiest group. This could be reflective of a long distance traveler market which is both mature (elderly) and wealthy suggesting, perhaps, that this market has more discretionary time and expendable income. Second, information on uses of lodging at Michigan destinations suggests that the medium and long distance travelers tend to use hotel and motel more than the short distance travelers and the short distance travelers preferred to use more campground lodging. This may be associated with their trip purpose in the summer season. The short distance travel market deserves attention from the lodging industry since much of this market is composed of in-state residents who are the type of travelers that are most likely to take trips in Michigan.

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TRIP EXPERIENCES AND TOURISTS' MOTIVATION

Joseph S. Chen, Ph.D., CHA

Assistant Professor, Department of Hospitality and Tourism Management, Virginia Polytechnic Institute and State University, 351 Wallace Hall, Blacksburg, VA 24060

Alan R. Graefe, Ph.D.

Associate Professor, School of Hotel, Restaurant and Recreation Management, The Pennsylvania State University, 201 Mateer Building, University Park, PA 16802

Deborah L. Kerstetter, Ph.D.

Assistant Professor, School of Hotel, Restaurant and Recreation Management, The Pennsylvania State University, 201 Mateer Building, University Park, PA 16802

Abstract: Little evidence exists to support the proposition that travel experiences may affect tourists' motivations. This study found that there was a significant difference in travel motivation between tourists who had an experience visiting other routes similar to the route they currently visited and tourists who did not have this experience; "interest in the site" represented the largest difference in the reason for visiting.

Introduction

In tourism study, many scholars studying the effect of previous trip experience on choice behavior have found that past trip experience may impact an individual's choice decisions (Kando and Summers, 1971; Schreyer, Lime and Williams, 1984; Mazursky, 1989). Schreyer et al. (1984) developed the Experience Use History (EUH) theory that suggests previous participation in recreational activities may be utilized as an indicator of the amounts and types of information a person can draw on to make decisions with regards to leisure behavior. They further asserted that EUH may serve as an indicator of motivations for visiting. Beaulieu and Schreyer (1984) expressed the significance of users' experience on choice behavior more directly. They stated that one of the most important factors affecting choice behavior should be the amount and type of experience a person has with an activity. Due to the deficiency in the research on the impact of both types and amounts of experience toward tourist motivation, this study investigated the relationship between trip motivations and types and amounts of previous trip experience. It is hoped that this study will furnish scholars and industrial professionals with better insights about tourist behavior in the context of heritage travel and further assist them in service delivery and strategy development. Consequently, a research question - "Are there any differences in the number of trips and types of experience to historic sites among the tourists who had different reasons for visiting the heritage attraction?" was developed.

Methods

This study used data derived from a visitor survey conducted for the Southwestern Pennsylvania Heritage Preservation Commission (SPHPC) concerning industrial heritage tourism in southwestern Pennsylvania. Samples were collected through personal interviews and follow-up mail surveys from May 27 to October 15, 1995. This period was chosen because it is the major travel season in southwestern Pennsylvania. This seasonal demand for travel has been observed by Weiner (1980) who revealed that diversity of programming lends itself to deluxe, moderate or modestly priced tourism and supports the major May to October travel season. The survey sites are located along a designated route - the Path of Progress- in southwestern Pennsylvania. The total number of on-site interviews was 1778. After eliminating local visitors from the sample, this study included 1320 visitors for the data analyses.

Three variables representing tourist motivation, number of travel experiences and type of travel experiences were developed. In regard to the data analysis of the differences in the number of trips among tourists with different reasons to visit the heritage destination, one-way Analysis of Variance (ANOVA) was used. The variable concerning tourist motivation was derived from an open-ended question asking "what influenced you to visit the site" in the on-site questionnaire. The dependent variable was, "What is the number of total trips to historic sites you made within the last 12 months ?" This dependent variable was a continuous variable which ranged from 0 to 98. As for the data analysis of the differences in the reason for visit among tourists with different types of experience, the test of homogeneity (chi square) was employed. The variable in connection with the type of experience was derived from a question asking "have you visited any other designated heritage routes similar to the Path of Progress in the past 12 months?"

Results

Results from the ANOVA (Table 1) indicated that there were no significant differences ($p=.15$) in the amounts of travel experience among tourists stating different reasons for their visit to the site. Regarding the test of the difference in reasons for visit between tourists who had experience visiting other routes similar to the route they currently visited and those who did not have this experience, the chi-square statistic (Table 2) showed that there was a significant difference ($p=.04$) based on previous experience at similar sites.

A two-way contingency table of reason for visit (Table 2) and visit to other designated routes was developed to further examine the relationship among each sub-population. Between the tourists who had visited another designated route similar to the site they currently visited,

and those who did not visit another designated route, "interest in the site" represented the largest difference (4.7%) in the reason for visit. About 41% of the tourists who had visited routes similar to the Path of Progress stated that having interest in the site influenced their visit to the site. However, only 36% of the tourists who had not visited similar designated routes regarded interest in the site as the reason for visiting the site. "Having knowledge of the site" accounted for the second largest difference (4.5%) in the reason for visit. About 9% of the tourists who had not visited other designated routes stated "having knowledge of the site" influenced their visit to the site. Only 4.3% of the tourists who had visited other designated routes stated having knowledge of the site influenced their visit to the site.

Table 1. Analysis of Variance (ANOVA) of Trips to Historical Sites among Tourists Having Different Reasons for Visiting

Total Trips	Sum of Squares	df	Mean Square	F	Sig
Between Groups	189.75	5	37.95	1.59	.15
Within Groups	15310	645	23.74		
Total	15500	650			

Table 2. Crosstabulation of Reasons for Visits between Tourists Who Visited Other Routes and Those Who Had Not

Reason for Visit	Visited Other Routes		%
	Yes	*No*	*Total*
Interest in Site	36.4	41.1	37.5
Families and friends	22.7	21.4	22.4
Promotional Information	10.3	13.9	11.2
Recreation	12.1	8.9	11.4
Been Here Before	9.7	10.4	9.8
Having Knowledge	8.8	4.3	7.7
Total	100	100	100

Pearson Chi-Square (X^2) =11.484 d.f.=5 P=.04

Conclusion

The evidence suggests that previous trip experience had an impact on tourists' motivation for visiting a site only if tourists had visited other sites similar to the site they currently visited, while the number of previous trip experiences did not affect tourists' motivation for visiting. The study findings reported here were consistent with the research conducted by Schreyer et al. (1984) showing that the type of past experience affects tourists' travel behavior. For future research, tourism scholars may further explore the impact of previous trip experiences on other behavioral issues such as travel preferences, trip satisfaction and decision-making that promise to refine behavioral theories in the context of pleasure travel.

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IT'S REAL SUSTAINABLE RURAL TOURISM DEVELOPMENT: CASE STUDIES FROM THE HEARTLAND

Steven W. Burr

Assistant Professor of Recreation, Park and Tourism Administration, Western Illinois University, 1 University Circle, Macomb, Illinois 61455-1390

Abstract: In order to be sustainable, tourism development must involve the local population, proceed only with their approval, and provide a degree of local control. The most promising approach involves development which is low impact, small in scale and careful in progress, appropriate and sensitive to the local natural and socio-cultural environment, and readily integrated into the existing social and economic life of the community. This study examines two case studies of county-wide rural tourism development, one in west-central Illinois and the other in southeastern Iowa. With local involvement, planning, management, and ongoing assessment of impacts, based on collaborative and cooperative relationships developed through positive interactions among key leaders, sustainable tourism development appears to be attainable, as demonstrated by the accomplishments of residents in these two rural counties in their tourism development efforts.

Introduction

Because of the potential for substantial economic impact, there is great interest in tourism as an economic development strategy, especially for rural communities and areas with an abundance of resource amenities. Tourism as a development industry can create recreational uses for the natural and man-made amenity resources of a rural community and convert these into income producing assets (Siehl, 1990; Willits, 1992). Tourism relies on the development and utilization of natural, historical, cultural, and human resources in the local environment as attractions and destinations (Burr, 1995). A critical challenge is to make such development and accompanying use sustainable in order to not degrade environmental resources nor negatively exploit local human and cultural resources, and insure that such resources are maintained for present and future use (Inskeep, 1991).

Sustainable Tourism Development

Sustainable development is "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987, p. 43). Sustainable development is often tied to sustainable use, referring to the notion that careful and sensitive economic development is possible without degrading or depleting natural and human resources needed by present and future generations. Tourism is often presented as an ideal, non-polluting, and environmentally friendly, labor intensive industry. Tourism relies on the development and utilization of natural, historical, cultural, and human resources in the local environment as tourist attractions and destinations. It is dependent both on these resources and on a clean and safe environment. "Increased emphasis is being placed on those forms of tourism that are particularly sensitive to promoting and retaining the integrity of natural and socio-cultural environments" (Swinnerton & Hinch, 1994, p. 5). In many rural areas, new development initiatives have begun to place more emphasis on the sustainable development of tourism resources as part of a viable community base (Burr, 1995, p. 12).

Although sustainable tourism may be defined as tourism which maintains its viability over time, sustainable tourism development can be viewed differently as meeting the needs of tourism and host regions while protecting and enhancing opportunities for the future (Inskeep, 1991). Sustainable tourism development fulfills economic, social, and aesthetic needs while maintaining cultural integrity, essential ecological processes, biological diversity, and life support systems. It too remains viable over time, but it does not degrade nor alter the human and physical environment to such a degree that it prohibits successful development and well-being of other activities and processes (Butler, 1993).

Cronin (1990) developed the following criteria for sustainable tourism development. Tourism development, in order to be sustainable, should 1) *follow ethical principles* that respect the culture and environment of the host area, the economy and traditional way of life, indigenous behavior, and local leadership and political patterns; 2) *involve the local population* in planning, proceed only with their approval, and provide for a degree of local control; and 3) *be undertaken with equity in mind* with the idea of access to a fair distribution of benefits and costs among tourism promoters and host peoples, now and in the future. There must be a balance between "a degree or type of development that will bring economic and other benefits to a community and the point at which that development starts to feed on rather than sustain the very elements at its basis" (p. 15). Sustainable tourism development should be: 1) planned and managed for the protection of the natural environment for future generations; 2) planned in an integrated manner with other economic sectors; and 3) assessed on an ongoing basis to evaluate impacts and permit action to counter any negative effects. Thus with sustainable tourism development, the fundamental focus should be on *achieving equity and balance*. Sustainable tourism development is determined largely by what "stakeholders" want it to be.

Of critical importance to sustainable tourism development is "an informed, open participatory public process for decision-making" (Nelson, 1993, p. 259). This creates empowerment and involvement, for working together toward goals of sustainability through cooperative action. Sustainable tourism development involves "mutual learning and adaptation among all concerned parties in the context of shared responsibility and equity (p. 260). The best chance of achieving sustainable tourism development can come from developers of tourism. The most promising

approach involves development which is low impact, small in scale and careful in progress, appropriate and sensitive to the local natural and socio-cultural environment, and readily integrated into the existing social and economic life of the community (Gunn, 1994). Such an approach can facilitate resident involvement, participation in decision-making, and local control in development. Cooperative interaction can create networks both within and outside the community, roles for involved community members, shared experiences, opportunities for further community development, and contributions to the general quality of life in a community.

Case Studies of Sustainable Tourism Development

The following two case studies demonstrate the creation of two rural cultural tourism industries accomplished by 1) preserving and enhancing local small town character and history, 2) creating complementary attractions and activities associated with lifestyles of the farm and small river towns of the Illinois and Iowa prairies and woodlands, and 3) developing a county-wide marketing image based on collaborative and cooperative relationships developed through positive interactions among local leaders in participating rural towns.

Spoon River Valley Scenic Drive

The Spoon River of west-central Illinois flows southeast through a scenic valley of woodlands and farmlands in Fulton County, emptying into the Illinois River. The Spoon River was made famous in the early twentieth-century by poet-author Edgar Lee Master's *Spoon River Anthology*. Masters lived in Lewistown, and in his youth wandered along the banks of the river and in Oak Hill Cemetery. Later, he developed thoughts and ideas he gathered into a written book of poems about the local residents. Today, the highways and byways in Fulton County sport the colors of four seasons and are open to visitors year-round with routes running approximately 140 miles through a variety of picturesque rural towns such as London Mills, Avon, Farmington, Babylon, Canton, Ipava, and Vermont, to name a few. Although the Spoon River Valley Fall Festival is the largest special event in the area, a variety of other festivals and special events occur throughout the year. Marketed with the theme "Spend Some Time with Nature's Joys on the Spoon River Scenic Drive," a marketing mix employing a variety of approaches, attracts a large number of visitors to the area. In 1996, over 120,000 people visited Fulton County over two weekends in October for the Spoon River Valley Fall Festival.

When key informants were asked, "What's special or unique about the Spoon River Valley Scenic Drive?", a variety of responses were given which encompassed the following themes:

- What's really special is so many people have been working together from nineteen different villages and towns in our county for over thirty years.
- We have been able to reach back to the "roots" of our area and preserve the historical buildings, landscapes, and traditions in each village that are important. This has kept people working together.
- The original people involved in this effort are now in their 80s and 90s. They have passed on valuable information and been sources of strength and encouragement; our "roots." So now, three generations have been involved in our efforts.
- People giving of their time and talents throughout the years, this is what keeps the Spoon River Valley Scenic Drive great! The dedicated efforts and hard work of volunteers along with the assistance of the Spoon River Valley Scenic Drive Friends contributions have been very important.
- People here really enjoy sharing their rich heritage with visitors, the beautiful scenery, crafts and demonstrations, antiques and quilts, historic buildings, house tours, great food, outdoor recreation, and many other sights and sounds of Fulton County, our "Forgotonia."
- The Spoon River Valley Scenic Drive has instilled "pride" in our towns, villages, county, and even the whole region; pride in place, tradition, and family.

The support of county government has been important to the success of the Spoon River Valley Scenic Drive. The Fulton County Board of Commissioners and Planning Commission are very much involved and supportive of tourism development efforts. The Fulton County Highway Department has taken on the responsibility of erecting directional signs with the red and white Scenic Drive logo and maintaining and oiling the country roads. The County Civil Defense helps with parking and traffic flow during the busy Fall Festival. In addition, the county Historical and Genealogical Society works to support the efforts of the Spoon River Valley Scenic Drive. Spoon River Valley Scenic Drive has been able to network with a number of regional, state and federal agencies and organizations for assistance in order to take advantage of "outside" expertise and resources, including the Illinois Department of Natural Resources, the State Historical Society, the Illinois Department for Economic and Community Assistance (DECA) for grants for development and publicity, the Western Illinois Tourism Council, the Illinois Bureau of Tourism, and the Army Corps of Engineers for the development of boat docks on the Spoon and Illinois Rivers. Additionally, representatives of the Spoon River Valley Scenic Drive have annually attended the Illinois Governor's Conference on Tourism and even the White House Conference on Travel and Tourism held one time in Chicago.

According to Joan Johnson, Publicity Chairman for the Spoon River Valley Scenic Drive, the main market for visitors is from the Chicago metropolitan area, "literate people with money and time to travel who want to get out in the country" (personal communication, March 13, 1997). But in addition, visitors come from all over the states of Illinois, Wisconsin, Michigan, Iowa, Indiana, and Missouri. Visits by owners of recreational vehicles have increased, and a number of campground facilities have been developed in the county to meet this increasing demand.

Word-of-Mouth marketing has been successful. "People come to visit our county and return home to tell their family and friends" (personal communication, March 13, 1997). Additional marketing efforts have been directed at target marketing, based on information associated with inquiry calls about the scenic drive. Bus tour groups have been increasing and accommodations have been made to handle this particular demand. Visitors can even take a "virtual tour" of the Spoon River Valley Scenic Drive by visiting a home page on the World Wide Web (available at www.outfitters.com/illinois/fulton/srd.html).

Certainly one of the benefits of the Spoon River Valley Scenic Drive is the economic impact of visitors coming into the county and spending money. Local crafters and artists sell their creations, local groups make money from food sales, and visitors spend money in stores, at gas stations, motels, and campgrounds throughout Fulton County and in the surrounding counties of west-central Illinois. This impact is especially felt during the busy Fall Festival, but also throughout the year to a somewhat lesser degree from visitors touring at other times. Local farmers are not always thrilled with the traffic during the busy Fall Festival, since this occurs at harvest time. Yet, the "city folk" have become fascinated with the harvest, watching the huge combines traveling back and forth across the immense fields harvesting the corn and soybeans. This has actually developed into another attraction in the county. In fact, several enterprising farmers have even developed a Spring Farm Day, where visitors can watch forty head of horses plow, disk, and harrow the fields the "old" way. Some farmers even offer "Farm Weekends" for visitors, providing weekend accommodations and activities.

Spoon River Valley Scenic Drive, now in its thirtieth year, has become a model for other scenic drives and rural tourism development in Knox and Stark Counties in Illinois, in several Missouri counties, in one Michigan county, and for the Villages of Van Buren in southeast Iowa. "This is something any community can do, taking advantage of its 'specialness' or 'uniqueness', whether it's historical, geographic, natural, or just an 'oddity'" (Joan Johnson, personal communication, March 13, 1997).

The Villages of Van Buren

The Des Moines River extends from the heart of Iowa to the Mississippi River in the southeast. Riverboats used to steam upriver to Des Moines, passing through scenic, wooded Van Buren County and its old river towns of Bentonsport, Keosauqua, Bonaparte, and Farmington. Today, these and nearby towns market themselves under a unified rural tourism concept as the Villages of Van Buren, preserving a slower-paced environment in which visitors can relax and enjoy the rural small-town settings and amenities. County tourism promotional history began in 1987, with "Bike Van Buren," an event which brought bikers from throughout the state. The success of this event demonstrated to local leaders the great potential for tourism development which lay untapped in their county. Today, tourism visitation is promoted through the theme of "Explore the Villages of Van Buren—An Age Apart." Marketing efforts include 1) gathering information through surveying visitors to learn more about their characteristics, needs, and satisfactions, 2) target marketing of seniors, young families, and relaxation-seeking young urban professionals, 3) target advertising using a video promotion for four selected area television stations, 4) publication of a visitors guide which supplies information on attractions and history, 5) production of a promotional video for use at area tour motor coach shows, 6) active catering to travel magazine writers, and 7) a creative and informative home page on the World Wide Web (available at www.villages@netins.net). In addition, hospitality training is used to enhance the ability of local hosts to provide directions and offer a quality experience to visitors. A variety of festivals, special events, and other activities attracts a great number of visitors to the Villages of Van Buren from April through December.

When key informants were asked, "What's special or unique about the Villages of Van Buren?", a variety of responses were given which encompassed the following themes:

- Van Buren County is a very rural county with a population between 7700 and 7800. There are eight incorporated towns plus about seven more unincorporated villages. We have lots of history and scenic value in our county that you don't find in other places.
- We're off the beaten path in southeastern Iowa, just a short drive to the "big cities," but far enough away to make it a great place to live and visit.
- Our people here have banded together to present ourselves as a unit through coordination and cooperation. Our focus on unity has really been beneficial for the county.
- The success of our tourism has made the people in the county more aware of the amenities here. It's a really nice place to live.
- We're proud of our heritage here and we enjoy sharing it with our visitors.

In 1996, over 200,000 visitors toured the Villages of Van Buren. The Fall Festival attracts about 15,000 to 20,000 visitors each weekend. Other festivals, held throughout the year, draw about 3,000 to 5,000 visitors. Most of the visitors come from a 100 to 150 mile radius which includes the cities of Des Moines, Iowa City, Cedar Rapids, and the Quad Cities of Iowa and Illinois on the Mississippi River. However, more and more visitors are coming from as far away as Chicago, St. Louis, and Kansas City.

For the most part, local residents support the tourism development efforts of the Villages of Van Buren. They can see and realize the benefits. However, some residents do not like the increased traffic and presence of crowds during the busy times of the year. According to Mary Muir, Executive Director of the Villages of Van Buren, because of increased tourism development, some property

values are going up which is generating more tax revenue for the towns and county (personal communication, March 14, 1997). In addition, there has been an increase in construction of both second homes and retirement homes, as visitors have become residents, attracted by the county's amenities. More professionals have moved into the county, especially in the health care industry. The main economic base of the county is still agriculture, but there are also some strong industries which have grown 70% in the last ten years. Muir believes it is important to have diversity in the economic mix (personal communication, March 14, 1997). Tourism certainly plays a role here, as it helps the mainstreet businesses, the hotels, motels, bed & breakfasts, and campgrounds. Visitor spending helps to bring in money to the local economy. There has been some local control in terms of tourism development. In fact, there are no fast-food franchises in the county, although this may be due more to the sparse year-round population.

Conclusion

With sustainable tourism development, besides maintaining resources for present and future use, it is important to emphasize the concept of equity—recognizing the contributions that people and communities, customs and lifestyles make to the tourism experience (Cronin, 1990). This implies that people must share in both benefits and costs, now and in the future. This in turn, implies a strong commitment of participation by local people and government, and to leadership on their part. In order to be sustainable, tourism development must involve the local population, proceed only with their approval, and provide a degree of local control. With local involvement, planning, management, and ongoing assessment of impacts, based on collaborative and cooperative relationships developed through positive interactions among key leaders, sustainable tourism development appears to be attainable, as demonstrated by the accomplishments of the Spoon River Valley Scenic Drive and the Villages of Van Buren in their tourism development efforts.

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SCALE ISSUES IN TOURISM DEVELOPMENT

Sinji Yang

Research Assistant of the Michigan Travel, Tourism, and Recreation Resource Center, Michigan State University, 172 Natural Resources Building, East Lansing, MI 48824.

Lori Pennington-Gray

Doctoral Student in the Department of Park, Recreation, and Tourism Resources, Michigan State University, 131 Natural Resources Building, East Lansing, MI 48824.

Donald F. Holecek

Director of the Michigan Travel, Tourism, and Recreation Resource Center, Michigan State University, 172 Natural Resources Building, East Lansing, MI 48824.

Abstract: Proponents of Alternative Tourism overwhelmingly believe that alternative forms of tourism development need to be small in scale. Inasmuch as tourists' demand has great power to shape the market, the issues surrounding the tourism development scale deserve further consideration. This paper discusses the implications and effects of the tourism development scale on natural resources and the environment from the perspective of externalities, strategic business behaviors, energy and resource efficiency, and the pollution detecting and monitoring abilities of environmental administrators. It concludes that small scale development is not necessarily more sustainable or environmentally sound than larger scale development. It is a fallacy that alternative forms of tourism development need to be in small scale. To be sustainable, scale considerations should be subject to the efficiency principle and the carrying capacity of the environment. If efficiency and carrying capacity are ignored, small scale development as well as large scale development will equally lead to environmental deterioration.

Introduction

After several years of mass tourism development that has led to environmental, cultural and societal degradation, researchers have suggested that excess numbers of tourists are one of the major sources of the problem. Alternative Tourism or the alternative to the negative side of mass tourism has recently emerged as another form of tourism resource development and operation. To date, there is no consensus on the definition of Alternative Tourism, nor are there proponents of it; however, there is an overwhelming majority who believe that alternative forms need to be small in scale, as well as culturally and environmentally sound (de Kadt, 1992; Pearce, 1992). Since the publication of the "Limits to Growth" in 1972 by a group of researchers and scholars affiliating themselves with the Club of Rome, researchers and scholars in both natural and social sciences have seriously argued and discussed environmental and natural resource problems relating to population and economic growth of the world. In the 1980s, some scholars, opposing the dismal argument of the Club of Rome, advocated "Sustainable Development" to resolve problems caused by mismanaged economic growth and development. Since then, the emergence of the concept has induced many thoughts and suggestions relating to environmental and natural resources management. In the field of tourism, Alternative Tourism is considered an analogous concept to Sustainable Development (Butler, 1992; and Lanfant and Graburn, 1992).

Alternative Tourism is an idealistic term which "has been academically discarded but the demand for small scale tourism persists" (Smith, 1992). Greater consideration of the development scale in Alternative Tourism is needed, for the small scale development argument is both vague and misleading. When put to practice, problems of small scale development may be revealed. Smith's (1992) case study on Boracay Island, Philippines, has provided such an example of uncontrolled and mismanaged small scale development causing environmental degradation. Under a global energy and resource conservation consideration, the question remains: Is small scale development more favorable than mass development? Is the development scale an important issue at all? This paper focuses on issues concerning the development scale of tourism and its association with the environmental problems. Discussions follow under the headings of human desire, the implication of externalities, the implication of operational efficiency, and the implication of the Environmental Protection Agency's pollution detecting/monitoring ability on development scales.

Human Desire

In contrast to manufacturing, tourists as a whole consist of a major polluting power. In aggregate, their numbers and consumptive activities form a devastatingly degrading power. Over the last decade, the tourism industry has become the largest industry in the world (WTTC Report, 1993). Facing such an unprecedented demand, one may question that if the tourists' demand is not restricted, how will alternative forms of tourism development be able to accommodate such huge numbers of demand and how can environmental problems be relieved from its degrading power?

One of the thoughts involved in sustainable development is that the earth may be sustained if people start to become aware of the delicacy of the natural environment and the possible chain reactions and inter-linkages between their daily activities and the ecosystems around them. However, some scholars have argued that there is an inherent dilemma in the concept of sustainable development: How can people carry out preservation and economic development at the same time? Their thought is that almost every consumption and production activity creates pollution either in visible or in invisible forms. Researchers with strong doubts of sustainable development proposed a

steady-state-economy approach. This approach maintains an input and output flow of the economy in a steady-state equilibrium in accordance with the earth's carrying capacity. In this economy, the rate of economic growth is zero and people devote themselves to spiritual growth.

Daly, a proponent of steady-state economic development, pointed out that "since matter and energy cannot be created, production inputs must be taken from the environment, which leads to depletion. Since matter and energy cannot be destroyed, an equal amount of matter and energy in form of waste must be returned to the environment, leading to pollution"(1993). Therefore, Daly proposed that economic growth should be in non-physical goods such as service and leisure. Nonetheless, Daly recognized that "services are included in GNP and are not in themselves physical outputs. However, increasing service outputs often requires increases in physical inputs to the service sector, so that there is an indirect physical component" associated with the service industry. Thus, while tourism demand swells, not only more physical material, such as transportation vehicles, gasoline, food, and other consumer goods will result from tourism industry, but also more environmental amenities will be explored. Thus, growth will finally transform into garbage and waste energy which deteriorate the natural environment.

Pearce (1992) reminded us that tourism demands will continue to expand if taking holidays is accepted as a legitimate right of all human beings. Thus, in societies with anthropocentric and materialistic thoughts, tourism will continue to be a cause of environmental deterioration. A steady-state economy seems to be an impossible solution in these economies, because in a steady-state economy both the supply and demand have to be curbed.

One thought suggests that technological progress can save people from this dilemma. However, technology is like the water in oceans; it can carry vessels and it can also capsize them. Human beings haven't realized the possibility of disasters that technology can create. Also, technology is not completely environmentally sound. Historically, technological progresses have foraged natural environments for centuries, significantly since the Industrial Revolution. Though technology has given human beings a better material life, technological progresses have always lagged behind the growth of human's wants. It is difficult that technology can win the race with human's desire. If human needs are not restricted, they could grow endlessly. This might be the reason why most great philosophers searched for spiritual satisfaction instead of material ones. Spiritual satisfaction can be obtained without extensive material support and its enjoyment is satisfactory. Ancient Chinese philosophers satisfied themselves by "spiritual/mind travels"; in modern terms, it is thought of as "day dreaming." Navigation in the "outer space" of human minds is pollution free.

With formidable human desire, the subsequent questions of sustainable development/tourism may be asked: How long can the world be sustained if human demand and population are not curbed?

Implication of Externalities and Strategic Behavior on Scale Size

Externalities are always an on-going topic among economists' discussions. Tourism researchers also recognize that tourism development and tourists' mindless behaviors can create externalities to the host community. Among economists, one of the preferable solutions to extrenalities is to internalize victims into action-taking or decision-making units (Bromley, 1986). Bromley pointed out that there are three categories of externalities; producer to producer, producer to consumer, and consumer to consumer. When producer to producer externalities are considered, an implication on the tourism development scale can be derived.

In order to make fair comparisons between small and large scale tourism development, a commensurate capacity assumption has to be made. The assumption states that a number of small scale development are needed to be commensurable in capacity with one large scale development; otherwise the comparison is not on the same base. To develop a certain capacity, there will be less tourism service providers in a large scale development approach than in a small scale development one. In situations where providers create externalities to each other, for example, accommodation providers' sewage cause water pollution to marinas, or the loud noise of a disco bar affects the business of nearby hotels. Then, the solution of internalizing externalities would have these different service providers combined as one decision-making unit (i.e., a coalition). So, the negative externalities can be considered by the coalition. If service providers realize that their common benefits are greater when they cooperate, then the producer to producer externalities can be solved. However, in a strategic business world, cooperation among providers is hard to maintain especially when there are many small providers whose services are similar. Also, the incentive to compete and to defect from the coalition can lessen the common benefits. Researchers have used the Prisoners' Dilemma model from the Theory of Games to describe this situation (Pearce and Warford, 1993). The prisoners' dilemma occurs when the payoff structure is such that, if everyone cooperates, then each gets a greater profit than if everyone defects. If one person defects when the others cooperate, then the defector gets a much higher payoff than if he cooperates. For those who cooperate, their payoffs are lower than if everyone cooperates. When this situation happens in the field of natural resource management, it is referred to as "the tragedy of commons" (Hardin, 1968). It always causes greater depletion to the natural environment. Therefore, in a strategic arena, a bundle of small tourism service providers in aggregate may perform worse in preserving the environment than a couple of large tourism providers. It may be easier for a few large providers to form a tourism development coalition than for many small providers to cooperate passively.

When discussing market failure caused by transaction costs, Kahn (1995) pointed out that difficulty of communication between parties are positively related to the number of participants, and the costs of communication can

be growing at an increasing rate. This implies that communication and integration among many firms are more difficult to achieve than among a few firms. The above reasoning may imply that the integrated large scale development approach may be easier to achieve and may be more environmentally sound when compared to many independent small scale developments of commensurate capacity. In the extreme, a local monopolist of tourism services can eliminate producer to producer externalities if the provider understands that its externalities can be its own cost. Farrell's (1992) study of Maui, Hawaii described a case of successful sustainable tourism development by a local monopolist--the Hana Ranch, owned by Rosewood Corporation of Dallas, Texas. Monopolistic tourism developments may not be desired by the general public as well as economists with an obsession for free competition; however, in terms of energy and resource conservation and integrative development, monopoly has merits of its own. Despite its elitist implication, monopoly, supplying less but charging more, is a way to restrict demand and preserve resources from over use. Although there are risks of changing natural environments caused by the decisions of a single firm, the monopolist's philosophy about sustainability, government's regulations on monopoly and locals' participation can reduce the misdoing of this kind of tourism development.

As for other kinds of externalities, local governments can use regulation and Pigovian taxes to correct producer to consumer, and consumer to consumer externality behaviors. Randall (1983) considered that "externality is ... and can be replaced by the more general term inefficiency with no loss of content." This argument stems from the Coase Theory which generally states that indefinite property rights can cause the market to operate inefficiently; and externalities are a type of market failure, which is that the market mechanism fails to operate properly to exhaust all possible transactions between negative externalities creators and their victims. The following section inspects inefficiency within the realm of the business operation. However, inefficiency in the following section is not of market mechanism but of energy and resource use inefficiency.

Implication of Operational Efficiency on Scale Size

In the search for alternative forms of tourism which expect to be benevolent to host communities, some scholars superficially believe that the small scale development approach can avoid the degradation which is caused by the masses. Pearce (1992) cited that Dernoi's (1988) local community-based tourism is Alternative Tourism. Lillywhite and Lillywhite (1991) quoted that "small is beautiful." This belief, if it is true, can only be circumstantial. Marginally or locally, this argument may be acceptable; however, cumulatively or globally, the belief that smaller is less harmful is arguable. In aggregate, small scale tourism development and operation can be less efficient; thus, it is less energy and resources conservative than mass tourism development.

Environmental and natural resource economists generally agree that the efficiency principle should be added to the previous biological/ecological oriented consideration of environmental and natural resources conservation. The aforementioned conflict between preservation and development needs to be resolved according to the energy and resource use efficiency principle. By acting efficiently, the world we live in may be sustained longer. Thus, recycling used material is more efficient than extracting the needed raw material from the natural environment.

Considering energy use, transporting 50 visitors to a recreational site by one bus will consume less fossil energy than if each person drives his or her own vehicle. Considering land use and preserving green, a 500-bed high-rise hotel will occupy less land than 50 farmer homes or cottages; thus, it might be that there are less trees removed for the high-rise large scale hotel development. If tourism development is trying to cater to the mass demand of tourists, then a large scale development may be more energy and resource conservative than many small scale developments with a commensurate capacity.

In aggregate, the damaging power accumulated from a number of small scale developments could be greater than that of a few large scale developments. A large tourism development may have the advantage of economies of scale, since less resources and land are directed to the development as compared to many small scale developments of commensurate capacity. Small businesses do not always have the advantage of economies of scale. If a firm has the economies of scale, it operates at a lower average cost. It is naturally more energy and resource conservative. Inefficient operations can accumulate to become a significant polluting and degrading power. However, this small pollution and degradation by small firms or individuals is too easily ignored. Households' polluting power, in aggregate, can be as great as manufacturers' degrading power. Most of the natural resources extracted from nature and produced for consumption will finally become waste in the form of heat, liquid, or solid and return to the nature environment (Pearce and Turner, 1990). Consequently, the environmental preservation agencies and governments' abilities to detect and monitor pollution and degradation of both small and large tourism providers should also be considered.

Implication of Pollution Detecting/Monitoring Ability on Development Scale

Ideally, Alternative Tourism is proposed to be environmentally friendly along with social and cultural soundness.

In practice, however, there is doubt that both the host and the guest can behave accordingly. In addition, small scale tourism development is frequently located closer to natural wilderness and remote sites. Thus, if the hosts and guests fail to abide by the environmental preservation rules, then it is likely that the small development can deteriorate a natural amenity right from its core. Long and Bandy (1994) pointed out that, although regulations exist, the authorities often do not have enforcement mechanisms for non-compliance. Like other businesses operators, tourism providers have incentive to externalize their operation costs. Researchers have frequently pointed out that

administrators have failed to manage tourism. Problems have been created by uncontrolled and mismanaged tourism developments. For example, instead of processing their waste water properly, they may use natural environment as their waste sink or porch fuelwoods to save energy bills. Butler (1992) believed that local governments and planners fall short in their ability to control and manage tourism development on a large scale as well as on a small one.

For environmental protection agencies with limited pollution detecting technology and monitoring ability, monitoring a few large scale service providers' performances rather than detecting many small scale providers' polluting movements may be preferred. If the volume of pollution is positively related to the volume of production, then the probability of detecting pollution among large scale providers is relatively higher because their production volume is relatively larger. It is easier for small scale providers to take advantage of the natural environment because their small amount of pollution is relatively hard to detect. Administrators may spend more manpower, time and resources on monitoring a number of small businesses than on a couple of large firms. The small scale approach to tourism development can increase administrators' pollution detecting and monitoring costs.

Conclusion

Tourism development scale considerations need to be concerned with the carrying capacity of an attraction and its host communities. Ryan pointed out that the management of tourist areas is not simply to promote tourism, the consideration of carrying capacity is also needed (1991). If the demand of tourism is growing and the carrying capacity of tourist resorts are ignored, small scale development as well as large scale development will equally lead to deterioration, despite that small scale development might be more socially and culturally friendly to local host communities. With depleted natural resource and degraded environment, social and cultural entities have no place to grow, regardless of their scale. The choice of a development scale should yield to the consideration of the carrying capacity of an attraction. Based on the carrying capacity of the site, choosing an efficient scale along with integrated planning and management in developing tourism facilities is desperately needed. Environmentally sound tourism development is a collaborate and elaborative work. The size of scale needs not be the major variable in the consideration of Alternative Tourism development. Large scale is not necessarily less preferable if its planning and management is well done. It is a fallacy that alternative forms of tourism development should be in small scale. Small scale development does not guarantee sustainability. Efficiency, carrying capacity, and integrated planning and management are the keys to sustainable tourism development.

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Nature - Based Tourism Planning & Development

An Empirical Investigation of Adventure-Based Incentive Travel Programs: Exploring the Relationship Between Benefits Sought, Demographic and Travel Behavior Variables, and Expected Activity Level

Kelly Bricker

Doctoral Candidate, Leisure Studies Program, The Pennsylvania State University, University Park, PA 16802

Stuart Cottrell

Assistant Professor , Leisure Studies, Christopher Newport University, Newport News, VA 23606

Peter Verhoven

Associate Professor, Leisure Studies, Christopher Newport University, Newport News, VA 23606

Abstract: The purpose of this empirical study was to examine benefits sought from an incentive travel experience prior to departure and individuals' subsequent involvement in various activities during the experience. During September-November, 1996, a California-based adventure travel company organized two incentive travel experiences to Fiji and Kenya for radio stations in San Francisco, CA and Detroit, MI. Four primary dimensions of benefits, "relaxation," "explorer," "classic," and "show me" were uncovered. Benefit dimensions were related to the expected level of participation in swimming and shopping activities. Reasons for participating in the incentive program were uncovered through open-ended interviews. Results showed that fhe feasibility of the trip was important for participation in the Fiji and Kenya programs.

Introduction

Research has shown that people engaged in an experience or the purchase of a tangible product place a "great deal of importance" on the benefits derived from them (Gitelson and Kerstetter, 1990, p. 24). Thus, many attempts have been made to describe benefits sought from a travel experience. According to Bergier (1981) people "act upon their perception of reality rather than on objective facts" and that the degree to which participation takes place depends on individual perceptions of the benefits the activity provides(p. 150). In addition, many theories have been conceptualized about the benefits sought in a number of recreational settings. Incentive travel offers researchers a chance to explore yet another branch of the tourism industry somewhat unique from mainstream travel.

Incentive travel claims a significant portion of the overall travel industry. According to Shinew and Backman (1995), incentive travel sales totaled over $17 billion during 1994, with predictions of tripling that amount in the next ten years. Incentive travel in this study is characterized by several distinct attributes: 1) clients were awarded the travel experience based on the purchase of advertising with a particular company, 2) clients did not have any influence as to the destination chosen as the award, 3) the travel program was identified as a soft-adventure which combined a trip to an exotic destination, deluxe accommodations, and a number of adventure-type activities (game-drives, scuba diving, sailing, etc.). Participants were fully aware they would be awarded a trip to a clearly identified destination. Incentive travel participants included the following: 1) key decision-makers or owners from various businesses which qualified for the trip based on advertising purchases made during an specified sales period, and, 2) sales staff and general managers from the corporation sponsoring the incentive travel program. Ideally, by creating a unique travel experience, the corporation hosting the incentive program hoped to solidify relations between their sales staff and their clients--in essence, to create client loyalty.

During October of 1996, a California-based adventure-travel company organized an incentive travel experience to Fiji for a San Francisco-based corporation. As a soft adventure experience, 32 participants spent 3 nights in deluxe accommodations on Viti Levu (Fiji's Big Island) Fiji and three nights on Castaway Island, a private island featuring diving, snorkeling, rest and relaxation. These waters were traveled by Captain Cook on his exploration of the South Pacific Islands and Captain Bligh when he was exiled after the famous "mutiny on the Bounty" incident.

One month later, during November, 1996, the same travel company organized an incentive travel experience to Kenya for a Detroit based radio station for nearly 70 participants. This trip featured 4 days viewing spectacular African wildlife. During their time amongst elephants, lions, and zebra, participants also had various opportunities that included visiting remote native villages, hiking, or camel riding. The game drives were offered three times a day: early morning, mid-day, and at dusk. The trip ended with two days at Mount Kenya Safari Club where participants had the opportunity to hike, golf, horseback ride, swim, and shop.

The purpose of this study was to examine benefits sought through an incentive travel program, and whether benefits sought differed with respect to socio-demographic and travel behavior variables, and expected activity level.

Methodology

Data was collected from a sample of 101 individuals who participated in the Fiji and Kenya incentive programs. A pre-trip survey was given to participants when they checked-in for the first flight of their journey to Fiji or Kenya. This survey contained questions related to their demographic background, benefits sought, travel behavior, and expected activity level.

Forty-five percent (n=45) of the participants responded. Sixteen surveys were collected from Fiji participants and 29 from the total number of Kenyan participants. A much

higher response rate had been anticipated; however, the trip coordinator was overwhelmed by dual responsibilities of data collection and trip operations, and many participants lost their survey by the time the trip coordinator was able to focus on survey retrieval.

The two data sets from the Fiji group and Kenya group were merged using SPSS for windows. The data analysis included basic descriptive statistics for the demographic variables, a principal components factor analysis with a varimax rotation on 26 benefit items, and analysis of variance procedures to explore the relationship between demographics, benefit dimensions, and expected activity level.

Results

A principal components factor analysis with a varimax rotation was conducted on 26 benefit items drawn from the vacation travel literature (Table 1). Although it is recognized that with such low numbers (n=45) that this procedure may be tenuous, the investigators wanted to explore how items loaded together and as such, document distinct benefit dimensions. Seven factors with eigenvalues greater than 1.0 explained 75.3% of the variance. However, two of the factors contained just one item and were eliminated from further analysis. A Cronbach's alpha was computed for the remaining 5 dimensions which ranged from .46 to .90. The dimension (Factor 5) with the .46 alpha was eliminated from further analysis. Due to low factor loadings or items loading in factors with low reliability, the following 5 items were eliminated from further analysis "Meet new people," "Go shopping," "Return to a favorite vacation site," "Be in control," and "Learn about yourself." Twenty-one items in each remaining factor (identified in Table 1) with a loading of at least .50 were considered for the formation of the scales.

Table 1. Factor scores for Fiji/Kenya participant motives/benefits sought.

Survey Statements	Factor 1 Relaxation (.90)	Factor 2 Explorer (.89)	Factor 3 Classic (.84)	Factor 4 Show Me! (.81)	Communalities
1. To relax	.91				.860
2. Get away from it all	.91				.855
3. Get recharged	.89				.825
4. Release tension	.74				.772
5. Experience solitude	.72				.738
6. Be able to do nothing	.61				.727
7. Not have to rush	.50				.692
8. View scenery		.87			.820
9. Learn new things		.86			.815
10. See interesting sights		.83			.810
11. Explore new places		.80			.725
12. Do something w/spouse		.53			.672
13. Visit with friends			.75		.809
14. Eat good food			.71		.762
15. Have privacy			.60		.792
16. Escape			.51		.756
17. Do a specific activity				.81	.769
18. Experience luxury				.67	.742
19. Do exciting things				.52	.655
20. Be entertained				.51	.712
21. Share a familiar place with others				.50	.666
# of Items	7	5	4	5	
Alpha	0.90	0.89	0.84	0.81	
Eigenvalue	8.41	4.05	1.97	1.61	
% Variance Explained	32.38%	15.59%	7.59%	6.18%	
Total % Variance Explained	32.38%	47.96%	55.55%	61.74%	

Factor 1, 'Relaxation,' included seven items and had an alpha of .90. It is unfortunate that the numbers were so low to make any generalizations beyond this data set since the alpha values were so high and 7 of 9 items loaded on this factor which has been supported in the vacation travel literature. Factor 2, 'Explorer,' included four items, most of which focused on exploring new sights. These items loaded as expected and are supported by the literature. However a fifth item, "Do something with family," loaded at .51 on this factor. If deleted, the alpha value would be .91. This item doesn't quite fit the "Explorer" theme. It is interesting to note however, that because a majority of the people traveled with their spouse, "doing things with family" was very important in terms of exploring with

regard to this particular sample; thus, with that logic in mind, the item was left in the dimension. Factor 3 included items that tended to represent a number of classic examples of incentive travel motives, thus, the investigators chose "Classic." These motives have been observed through the investigators participation in several incentive programs. Factor 4 included 5 items that involved seemingly different themes. As a result, the investigators chose "Show me" which describes the nature of the incentive travelers overall expectations for their journey.

The descriptive profile of the participants show that respondents were affluent, well educated and traveled predominately with their spouse. Table 2 presents a summary of socio-demographic characteristics. Fifty-seven percent of the participants were male and 43% were female. A combined total of 78% had a college degree or greater. Note that 27% had a graduate degree. Based on frequencies, the age variable was grouped into three categories to create somewhat even groupings. For the variable "Traveling Companion," the largest percentage of the sample traveled with a spouse. With regard to income, each sponsoring corporation targeted "key decision makers" to participate in the incentive program. Because of this strategy, most participants are business owners or CEO's--thus the average income level is quite high with 84% of the group earning over $70,000 annually. Since the numbers were so low in all the other categories, this variable was not used in further analysis.

Table 2. Demographic profile of Fiji/Kenya survey participants.

Descriptive Characteristics	N	Percent of Total
Gender (n=44) [a]		
Male	25	57
Female	19	43
Education (n=45) [a]		
H.S. Diploma	5	11
Business / Technical	5	11
College Diploma	18	40
Some Graduate School	5	11
Graduate Degree	12	27
Age (n=44)		
25-39	16	37
40-49	16	37
50-66	11	26
Traveling Companion (n=44)		
Friend, Family, & Associate	16	38
Spouse	28	62
Income (n=43) [a]		
Less than $35,000	1	2
$35,000 - $39,999	0	0
$45,000 - $49,999	1	2
$50,000 - $59,999	1	2
$60,000 - $69,999	3	7
Greater than $70,000	37	84

[a]The difference in the number of cases for each variable are due to missing values.

The relationship between the four benefit dimensions (Factors 1-4) and socio-demographic characteristics (i.e., gender, education, age, income, travel companion) was tested using one-way analysis of variance. One significant relationship was found (Table 3). The relationship between travel companion and the "Explorer" dimension was significant at the .05 level. Those who traveled with a spouse rated the "Explorer" dimension higher than those people who traveled with a non-family member. It is important to note that the majority of the participants traveled with their spouse. In interviews with participants conducted by the investigators, several individuals noted that they felt 'safe' traveling with their spouse in a group and that they were more likely to try adventure activities with their spouse while traveling as part of group than they might normally do on their own.

Table 3. The relationship between Travel Companion and the *Explorer* Dimension.

Traveling Companion	n	Explorer (Mean)
Friend, Family, Business Assoc.	16	2.76
Spouse	28	3.30
		$F = 6.04$ $p \leq .05$

Eight activities were common to both Fiji and Kenya incentive programs (Table 4). Respondents were asked to rate their level of expected participation during the trip (1 = Never; 2 = Seldom; 3 = Occasionally; 4 = Frequently). Fine dining, swimming, special excursions, and hiking were rated as the most frequent activities they expected to participate in the most, while golf and fishing represented those activities people expected to participate in the least.

Table 4. Expected activity level.

Activity	n	Never	Seldom	Occasionally	Frequently
Fine Dining	43	2%	16%	42%	40%
Swimming	42	10%	19%	41%	31%
Special	44	9%	16%	52%	23%
Hiking	44	14%	39%	30%	18%
Shopping	44	2%	25%	57%	16%
Locals	45	4%	20%	60%	16%
Golf	41	63%	24%	10%	2%
Fishing	43	58%	23%	16%	2%

Further one-way analysis of variance procedures were employed to test the relationship between expected activities and benefit dimensions. Results indicated that only swimming and shopping activities were significantly related to two of the four benefit dimensions. The respondents indicating "never" or "seldom" with regards to swimming and shopping activities were combined into one group due to such a small response in those particular categories. The results were the same after collapsing the "never" and "seldom" categories. Individuals who did not expect to swim or seldom expected to swim rated the *Explorer* dimension higher than those who occasionally or frequently planned to swim. These results are difficult to

interpret since swimming in Fiji may be considered active involving diving and/or snorkeling from a beach or boat while swimming in Kenya consisted of swimming in a pool at located in a lodge which is more passive in concept.

Table 5. The relationship between swimming and *Explorer* dimension

Swimming[1]	n	Explorer (mean)
Never/Seldom	12	3.52
Occasionally	17	2.93
Frequently	13	3.05
		$F = 3.22$ $p \leq .05$

[1] Tukey's B- test of significance was used to examine differences between groups.

Individuals who did not expect to shop or seldom expected to shop rated the *Relaxation* dimension higher than those who occasionally or frequently planned to shop. These results indicate that participants did not perceive shopping as a "relaxing" activity (Table 6).

Table 6. The relationship between shopping and the *Relaxation* dimension.

Shopping[1]	n	Relaxation (mean)
Never/Seldom	12	3.00
Occasionally	25	2.38
Frequently	7	2.84
		$F = 3.30$ $p \leq .05$

[1] Using the Tukeys-B test for significance, no two groups are significantly different at the .0 5 level.

Further exploration of individual reasons for traveling was conducted through an open-ended question. Respondents were asked to list as many reasons that came to mind for choosing travel to Fiji or Kenya. A total of 72 reasons were documented. The open-ended responses were grouped into eight categories (Table 7). While these reasons were not analyzed statistically, they are included as a comparison to the items/dimensions previously explored.

Table 7. Reasons for traveling

	% of Total Responses (n = 72)
Feasibility	19%
Escape / Relaxation	18%
Experience Something New	17%
Personal Development	15%
Adventure	14%
Activity Specific	14%
Enjoyment	4%
Relationship Building	4%

Conclusions and Implications

Four distinct benefit dimensions were found: "relaxation," "explorer," "classic," and "show me." The first and third factor dimensions, relaxation and classic, were common to other travel research studies. However, explorer and show me, the other two dimensions were somewhat unique, suggesting benefits sought through incentive travel may be different. Further research should address this issue. The open-ended comments regarding (benefits/reason for) incentive travel shed additional light on this issue. For example, respondents indicated that they travel because it is "feasible" Does this suggest that some individuals may not have strong intrinsic motivations for traveling and are simply doing so because it fits in with their schedules or is economically feasible? Secondly, individuals noted that they were traveling for "personal development." While this notion has been uncovered in research related to heritage tourism, it is still relatively new. Perhaps this finding suggests that people are looking to better themselves through travel--we as providers of services must recognize this.

None of the demographic variables were found to be significantly related to the benefit dimensions. Past research has been mixed - some research has found significant differences and some have not. Given that this is a new area of research, this relationship should continue to be studied.

The results of this study show that perhaps incentive travelers participating in the Fiji and Kenya programs were somewhat homogenous socio-demographically and that unlike some vacation travel literature, socio-demographics are not a strong predictor for benefits sought. We did however, find that some of the factor groupings were similar to the general population and these factor groupings had very little to do with the activity level participants sought. Within the open-ended responses, the top 3 categories indicated that people traveled because it was something that they were presented with and conveniently fit with their schedules. Additionally, to get away and experience something new was also emphasized. Directions for further research could be to examine the decision-making process in incentive travel and to try to further understand the importance that the actual destination has as opposed to the benefits sought. This study does imply that expectations of incentive travelers change from what they might be if they were to plan the entire trip themselves (i.e., perhaps because of the nature of the trip itself because they were given the trip and did not choose the destination).

According to Holbrook and Hirschman (1982) future research should begin to broaden the scope of our understanding of travelers by addressing issues such as "fantasies, feelings, and fun" (p. 139). When the destination is already pre-determined in incentive programs, perhaps more emphasis should be placed on integrating motives and needs with benefits offered by the destination. The degree to which participants seek a novel

experience may in part, depend on the security felt within a group as opposed to traveling individually. Some of the participants had indicated that they might never have traveled to such an exotic destination such as Kenya, if it had not been offered to them as an incentive. Further investigation into this area may reveal interesting benefits not addressed by previous travel research. Another area we feel would be worth investigating with regards to incentive travelers is that of "prestige." In our interviews with participants, some noted the importance of the destination being distinctive or notable in a variety of ways. Because of the exclusive nature of these incentive programs and the subsequent promotions associated with them, prestige-worthy tourism behavior (Riley, 1995) is another aspect of this type of program which should be addressed.

And lastly, because the number of participants in this sample was so small these results should be interpreted with extreme caution, especially as it pertains to the factor analysis procedures. We recognize the shortcomings of the methodology and suggest repetition of this study on other incentive programs which demonstrate unique characteristics from mainstream travelers.

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RELATIONSHIPS BETWEEN MOTIVATIONS, ACTIVITIES AND SETTINGS: THE RECREATION OPPORTUNITY SPECTRUM WITHIN THE DELAWARE STATE PARK SYSTEM

Hans Vogelsong

Ph.D. Candidate, The Pennsylvania State University, University Park, PA

Alan R. Graefe

Associate Professor, The Pennsylvania State University, University Park, PA

John J. Confer, Jr

Instructor/Researcher, The Pennsylvania State University, University Park, PA

Dave S. Solan

Professor, Mansfield University, Mansfield, PA

Jennifer K. Kramp

Graduate Student, The Pennsylvania State University, University Park, PA

Abstract: The Recreation Opportunity Spectrum (ROS) was first developed by the US Forest Service to classify lands available for recreation by activities, settings, and visitor expectations. This paper examines the relationship between these three criteria within the Delaware State Park System. Respondents were asked to rank the importance of 22 reasons for visiting a state park, and to report their preferences for 18 activities available at Delaware state parks. Factor and cluster analyses were used to reduce these data to general motivation factors and activity preference groups. The relationships between these new variables and the state park setting in which they occurred were examined. This study demonstrates that there is a relationship between park visitors' activity preferences, their motives for visiting a park, and the setting attributes which are available.

Introduction

The reasons behind why people choose one recreational setting over another have been the topic of much research and are important considerations for both planners and managers of recreation resources. One framework that may be useful in exploring this topic is the Recreation Opportunity Spectrum (ROS).

The ROS is a tool developed by the US Forest Service to insure that recreation visitors are provided with a spectrum of settings to meet their diverse experience and activity needs. While this spectrum is based on setting categories along a "level of development" continuum from primitive to urban, the general concept of the ROS focuses on matching visitors' desired experiences and activity preferences with appropriate recreation settings. Thus, as long as recreators have a diversity of setting types to choose from, their motives and activity preferences should dictate what setting they will visit. The purpose of this research was to determine if visitation motives and activity preferences determine what settings recreators visit within the Delaware State Park System.

Related Literature

One long standing theme of recreation research has been to explore the relationships between recreationists and the resources or settings that they choose. A spur of this topic has focused on motivational aspects of this relationship by breaking up the recreational experience into activities and desired experiences, and then matching these to settings which contain appropriate attributes (Driver, et al. 1987)

However, the ROS is not the only framework to examine the relationship between desired experiences, activities, and site selection. Clark and Downing (1985) contended that decisions on where to go are dependent on social pressures (one possible motive) as well as activity preferences.

Other research has focused on the relationship between site choice and just one of the aforementioned components. For example, Shelby (1985) found that activity preferences are strongly linked to recreation destination decision making. He found that salmon fishermen were not likely to substitute similar activities for salmon fishing, but concluded that they would switch to alternative settings where salmon fishing was available. On the other hand, Schreyer Lime and Williams (1984) contested that people choose activities and recreation destinations based on need fulfillment or their motives for going on a trip. They theorized that people would seek out activities and destinations that they perceived to be consistent with motives such as relaxation or adventure.

Conversely, a few researchers have downplayed the relationship between motives, activities, and settings. For example Williams et al. (1992) stated that place attachment may be more directly linked to destination choice than activity preferences. On the other end of the spectrum, Field and Cheek (1974) noted that site selection was more likely to be determined by social groups than by setting attributes or the specific activities for which the parks were designed.

Despite the lack of a true consensus on what the exact nature of the relationships are, past research efforts tend to suggest the existence of some relationships among user groups, activity choices, and leisure settings as postulated by the ROS management model. Further research may also be needed to determine the effect of distance and repeat visitation to destination decision making.

Methods

This study examined visitors to the Delaware State Park system and included all of the State Parks that charged

entrance fees (11 of the 13 parks). Data were collected through a combination of on-site interviews and follow-up mail questionnaires sent to a sample of those interviewed at the parks. The follow-up questionnaire was designed to collect more in depth information regarding park visitors' attitudes and characteristics.

Sampling was conducted from May through October, 1993, according to a detailed sampling schedule. Sampling was limited to weekends for the months of May, September and October. During June, July and August, each park was sampled once each weekend and one week day per week. Interviewers were instructed to conduct about ten interviews on any given sampling day. Sampling times were rotated between the morning and afternoon to ensure a representative sample of users to each park. The interviews were generally conducted at the entrance stations, where visitors who entered during the sampling periods were asked to participate in the survey after they had paid their entrance fee.

Questionnaires were sent to 1,528 of 2,577 visitors interviewed in Delaware's State Parks (59%). Following several reminder mailings, 870 completed questionnaires were received, representing an overall response rate of 57% to the mail survey portion of the study.

Data analysis procedures included factor analysis, cluster analysis, one-way analysis of variance, two-way analysis of variance, and chi square analysis. Factor analysis was used to examine the underlying dimensions within the motivation data. Cluster analysis identified distinct segments of park visitors based on the activity preference scores. Chi Square Analysis determined the relationship between the activity clusters and the settings. One-way analysis of variance examined the relation between motives and settings; and the two-way analysis of variance examined the relationship between all three variables.

Results

The first step in examining the relationship between the variables was to define the variables being used in the analysis. The development of these variables is as follows:

Motives

Respondents were asked to rank the importance of 22 possible reasons for visiting a Delaware State Park. Factor Analysis with varimax rotation was used to reduce these 22 items to the five general motivation factors shown in table 1. The factor analysis explained just under 70% of the variance in the importance ratings.

Activities

In addition to answering questions on what motivated them to visit Delaware State Parks, subjects were also asked about their activity preferences. Respondents were shown a list of 18 activities available for participation at Delaware State Parks, and asked to indicate which activities they participated in (or planned to participate in) during their visit. They were also asked to rank in order of importance the three activities that represented the most important reasons why their group had come to the state park. Cluster analysis was then used to group subjects into activity preference clusters based on how they ranked the available activity choices. A seven cluster solution appeared to be the best fit, and is outlined in Table 2.

Table 1 : Motivations for visit summary

Motive Factor	# of Items	Alpha
Escape/Solitude	8	.88
Nature/Harmony	4	.88
Nature Learning	4	.85
Fun/Recreate	2	.86
Social	4	.86

Table 2 Summary of Activity Cluster Solution

Cluster	% of Respondents
Picnickers	14%
Anglers/Boaters	12%
Misc. Pursuits	23%
Boaters/Campers/Swimmers	8%
Swimmers/Sunbathers	18%
Hikers/Walkers	17%
Other Activities	7%

Settings

Each of the 11 Delaware State Park Settings included in the sample were examined and placed into one of four park classification types based on the physical characteristics and location of each park. Table 3 illustrates this classification.

Table 3 Setting Types

Classification Type	Number of Parks
Historical	1
Suburban	3
Pond	3
Seashore	4

After the development of the variables, several tests were run to determine if visitor motives and activity preferences affect site choice. The first of these tests concentrated on examining the relationship between motivations and settings. One-way analysis of variance was used to check for differences between settings in regard to motivation scores (table 4). Significant differences were found between settings for all of the motive factors except the social factor, which is consistent with Cheek and Field's (1974) earlier proposal that settings may be interchangeable for people motivated primarily by social interaction. The largest differences were found between the historical setting and the other settings. Visitors to the historic park placed more emphasis on the nature/learning motive and less emphasis on the escape, nature/harmony, and fun motives than visitors to the other types of parks.

A Crosstab analysis was employed to explore the relationship between activity preferences and setting choice. As depicted in table 5, significant differences were

found between setting types in regard to activity preferences. Theses differences were largely as anticipated. Swimmer/sunbathers dominated the seashore parks and were absent from the historical setting. Hikers/walkers were the dominant activity group at suburban parks. And the pond settings showed a mixture of activities with no single activity accounting for more than 24% of the park users.

Table 4 Motivation Factors by Park Settings

Motives	Overall	Historic	Suburban	Pond	Seashore	F
Escape	3.6	2.9	3.6	3.6	3.7	13.6*
Nature/Harmony	3.7	3.3	3.9	3.7	3.6	8*
Social	3	2.9	2.9	3.1	3.0	1.8ns
Nature/Learning	2.8	3.4	2.9	2.9	2.7	10.7*
Fun	4.3	4.1	4.2	4.4	4.5	8.1*

* indicates significance at 0.05

Table 5 Park Settings by Activity Clusters

Activity Clusters	Historical	Suburban	Pond	Seashore	Total
Picnickers	6%	18%	24%	5%	14%
Anglers/Boaters	2%	3%	11%	22%	12%
Misc. Pursuits	59%	26%	20%	15%	23%
Boaters/Swimmers/Campers	3%	1%	17%	7%	8%
Hikers/Walkers	19%	43%	10%	4%	17%
Swimmers/Sunbathers		1%	13%	41%	18%
Other Activities	12%	9%	5%	6%	7%

$X^2 = 1323.78$ Significant at .ooo

Table 6 Motivations by Activities and Settings

Factors		F-Value	Significance
Escape	Combined	5.0	.000
	Setting	10	.000
	Activity	.90	.491
Nature/Harmony	Combined	4.0	.000
	Setting	4.3	.005
	Activity	2.3	.032
Social	Combined	3.2	.001
	Setting	.18	.908
	Activity	4.2	.000
Nature/Learning	Combined	4.4	.000
	Setting	7.8	.000
	Activity	7.5	.181
Fun/Recreate	Combined	4.7	.000
	Setting	2.3	.076
	Activity	3.2	.004

Finally, a two-way anova was used to examine the relationship between all three variables using the activity preference clusters and the settings as the independent variables and the motive factors as the dependent variables (table 6). While the overall model for each motive factor indicates a significant relationship, note that significant differences between activity preferences and between park settings depend on which motive factor is being examined. The escape and both nature-oriented motives differed significantly by setting, while the social, fun, and nature/harmony motives varied by activity. Only the nature/harmony motive showed significant differences for both activity and setting.

Conclusions

Study results confirmed the existence of relationships between motivations and activity participation among Delaware State Park users. Visitors to different types of state parks differed in their motivations for visiting as well as the packages of activities they pursued at the parks. Both settings and activities were instrumental in explaining variation in visitors' motivations. The results show that managers need to be aware that their settings are attracting visitors with specific activity preferences and expectations that may not be available everywhere.

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Park &Customer Management

BALANCING QUALITY CUSTOMER SERVICE WITH FINANCIAL RETURNS IN PRIVATIZED PARK SERVICES

Glen D. Alexander

Chief, Ohio State Parks
1952 Belcher Dr., C-3 Columbus, OH 43224

Abstract: The privatization of public facilities continues to be an issue that impacts the bottom line of many public agencies. Choosing a concessionaire or contractor involves much more that selecting the highest bidder. Examining all the variables is a necessity.

The trend in park management today is toward "privatization" of park operations. The term "privatization," in this paper means contracting with private businesses for the operation of specific park functions which have previously been, or could potentially be, operated by government employees. The sources of funds to pay the private business can come either from tax dollars or from fees for services the contractor collects from park customers. In some cases a single contract can involve both sources of funds.

In the case of the funds coming from fees for services from customers of the park, the private business contractor is usually called a "concessionaire." The concessionaire typically operates a physical plant, provided by the government entity, or provides services on site. The goal is to allow private business to provide the desired services in the government setting as a way of cutting costs to the taxpayers and improving levels of service to customers. The concessionaire may pay a flat fee to lease the government facilities or he may pay a percentage of the gross sales generated by the facility for the contract rights to them. In some cases such gross sales may not generate enough funding to cover the concessionaire's costs an operating subsidy or an additional payment to the concessionaire may be called for from tax dollars.

In the case of funds coming from tax dollars, the private business contractor is usually called just that - a "contractor." The contractor typically provides services on the site or in some cases also operates a physical plant. The goal is the same, to allow private business to provide the desired services in the government setting as a way of cutting costs to the taxpayers or of improving levels of service to customers. The contractor receives a fee under the terms of the contract for the services rendered. Any fees collected by contractors usually are fully turned over to the government entity.

As is apparent from the above the line between "concessionaires" and "contractors" gets very blurred when one begins to get creative with privatization of park facilities and functions. Many different types of leases, contracts, and other legal agreements can be used quite successfully in any of these instances. They are indeed so close that, in the author's opinion, you cannot discuss concessionaires without referencing contractors and vice-versa.

This paper is broken down into three parts:

1. A discussion of identifying and structuring the "privatization" opportunity.

2. A look at various ways of selecting the best private business operator as a concessionaire or contractor.

3. The concerns and problems with successfully managing privatized contracts once they are in place.

1. IDENTIFYING AND STRUCTURING THE PRIVATIZATION OPPORTUNITY VS. LEAVING IN-HOUSE AS A SELF OPERATION

A. Contracting opportunities which are directly paid for with tax funds most usually present themselves in the form of a function that is now performed by government employees, which could potentially be performed by private business. Such things as garbage collection in a park, guestroom housekeeping, utilities operation, the hiring of trade crafts such as electrical repairs, plumbing repairs, carpentry repairs, heating-ventilating-air-conditioning repairs, auto mechanical and body work, and the like readily lend themselves to privatization.

The concerns in structuring such opportunities lies in ensuring that logistical support, geographic distances, economies of scale, and needed specialized training, among others, are favorable to a privatization effort. The basis for the trend towards "internal competition," in which the internal operation bids competitively with external private businesses, lies in these major structural areas. In essence the structure of a given park opportunity may be such that the internal bid for a self operation by the government agency can perform these activities more cost effectively and with higher levels of customer satisfaction than an external private business.

Logistical support comes in many forms. Contract supervision is one area that deserves a careful look. If the task you are asking a contractor to perform is so specialized that you have to have one or more supervisors present at all times, it may be more cost effective to retain it as a government function. Support services a contractor may require in the way of utilities, inside facilities, access, and work areas may impose an unacceptable cost burden upon your existing staff which fails to get reflected in the contract terms and costs the taxpayer more, not less.

Geographic distances from a private business may be such that it cannot operate at acceptable costs in your park area. Too often contract terms fail to account for the distance factor, especially when the contract specifies some type of

contractor supervision of his/her own employees. The geographic distance factor too often results in unsupervised contract employees who wind up not accountable for the work being performed and very poor customer service.

Economies of scale are related to geographic distances. They are considerations for looking internally for competition for a privatization opportunity. Economies of scale are particularly applicable in situations which are weather dependent, consist of less than eight hours of work per day, or have parallels in a park situation which cannot be successfully bid out. If the park has staffing that can be easily moved to other productive duties during inclement weather or when tasks of less than eight hours are performed, then internal competition should be considered. Contractors have a hard time responding in a cost effective manner to weather changes or work load changes over the distances from outside the park. In too many instances they simply don't respond and customer service suffers.

Specialized training is another area to be careful of. Trail maintenance is an example. There are very few qualified outside businesses which possess the necessary level of expertise at the supervisory level to run a successful trail maintenance program. This is an area that is very hard to screen for when bidding. It doesn't make good sense to trade highly trained public employees for untrained private employees who produce an inferior product.

Cherry picking is the structuring of privatized bids to include only the most "profitable" or most cost effective functions in a particular bid. This leaves the park with the problem of operating the "unprofitable" or least cost effective functions at an even greater financial disadvantage to the taxpayer than before privatization.

An example of this would be to contract out the large, major, easiest accessible grass areas for mowing while leaving the small, minor, remote areas for the park staff. Certainly a contractor can do these "cherries" more cost effectively than the park because that is all the contractor has to do. In the end this costs the taxpayers money because now you have two mowing operations and the government one is very cost ineffective.

B. Concession opportunities include everything we have covered to this point plus the need to structure the opportunity so that the prospective concessionaire can make a reasonable profit. The greatest single failing in concession contracts is to load it up with so many terms that the operator in the end cannot make a reasonable profit. Regrettably many of the concessionaires who bid on park concession type contracts are not sophisticated enough to recognize situations in which they cannot reasonably make a profit. Too many times we have seen businesses go down the tubes because there is simply no way that they can make a profit. When this happens they take the park clientele with them on a very ugly ride to default.

Key to this point is a conservatively accurate statement of the prospective cash flow a concessionaire can reasonably expect and a sound statement of the risks he/she faces from weather dependent outdoor recreational opportunities. In Ohio we have discontinued a number of concession contracts which simply did not generate a cash flow sufficient for anyone to come in from the outside and make any kind of profit. In these instances we have either modified or discontinued the service or elected to self operate it at a loss subsidized with tax dollars. The penalties to the customers in poor service from staggering from one unsatisfactory concession operation to the next were simply unacceptable.

Bundling unlike services is another area to be careful of. Parks tend to contract things by geographic area. That is to get a concessionaire to operate everything at one given location or series of locations. Food service linked with other services is an example of this concern. The food service business is an extremely competitive and low margin business. The people who know what they are doing, and can make a profit, often specialize in this area. Too often we will structure contracts for marina services, beach services, or other outdoor recreational services in which the food service aspect is a secondary aspect of the contract. Once let we wonder why everyone complains about the food when we in fact have a concessionaire who has little expertise in that area. It is better to separate specialized services and bid them out to specialists, rather than bundle them to a generalist, if at all possible.

The exception to this concern occurs when you have very large facilities which generate very large cash flows that can attract very large firms who have expertise in a number of related areas.

2. SELECTING THE BEST PRIVATE BUSINESS OPERATOR:

A. Contractors are usually selected by open market bids which typically go to the lowest bidder. Most states and other government entities have very large bodies of rules and laws on how these contractors are to be selected. Nothing said here is meant to be taken to contravene any existing rules or laws we all work under. That said, however, there are many ways one can work within existing rules and laws to select good operators. These strategies depend on: a carefully written bid package focused on the exact services desired while screening out potentially unqualified bidders and a bid selection process that is capable of screening out unresponsive bids and unqualified bidders.

Financial terms beyond merely the lowest cost to the state need to be considered. If at all possible a flat payment for the contract should be avoided and payments tied to measure of performance should be utilized. In trash pickup contracts, payments for trash weight and volume combined by payments for each dumpster picked up are preferred over a flat service fee. In addition such a contract should include penalties, if possible, for failure to pickup on the schedule called for. Performance bonds are another strategy to employ if the market and your regulations permit.

Operating plans and schedules should be required submissions together with contingency plans for such things as weather problems and equipment failures. Many unqualified operators do not even have the skills to produce a financial plan or an operating plan at any level and will be unresponsive to bid criteria as a result.

Quality standards in order for the contractor's product to be acceptable should be spelled out together with the remedial actions required by contract if they are not. For example if trash is left scattered about a pickup point in a trash hauling contract a remedial action of requiring the contractor to clean up the area within 24 hours might be a contract requirement subject to financial penalties.

Experience and financial capability are critical terms of any contract. Government contract opportunities are constantly plagued by small operators who possess neither the experience nor financial capability to be successful. Yet the structure of the "lowest bid wins" provides an avenue for these kinds of operators to make a naive bid submission which happens to be lowest and which they cannot possibly fulfill. Government agencies are then stuck with poor performance until the bid runs out or the contractor defaults. Either case imposes hardship upon the taxpayer and the agency's customers. If at all possible in a particular agency's environment, "screen out" factors relating to experience and financial capability must be included in the contract bid specifications.

The contract term should be the very shortest the market will respond to. Government agencies too often err on the side of making contracts too long resulting in barely marginal operators that hang on and hang on to the disadvantage of the customers and agency alike.

B. Concessionaires' contracts need to incorporate everything above and then add the following items:

Financial terms should never allow concessionaires to operate on flat fees because it usually discourages any incentive to "grow the business." The exception may be in the leasing of facilities for a flat fee for operation. Such fees may provide a reasonable return on the taxpayer's investment and not discourage a quality operation. However, flat fees tend to result in benign neglect by the government agency.

Bids as a percentage of gross revenues are the most preferable way of competitively structuring concession bid opportunities. On larger offerings such a percentage may be bid by source of revenue, such as: food service, beverage service, and lodging revenues. Setting these percentages in the bid documents should be avoided. These percentages are the heart of a successful competitive process which nets the taxpayer the best return on the business opportunity.

Funds for maintaining the physical plant should be set aside as a required percentage of gross revenues in the contract bid and jointly controlled by the contractor and the government agency. Trying to write in maintenance specifications and getting the contractor to live up to them is not nearly as successful as controlling the funds expenditure and ensuring the maintenance gets done each year.

Up front investment is a problematic area. It is very attractive for a government agency to load a contract with a heavy up front contractor investment to take care of a physical plant's investment concern for which no public monies seem available. As a rule of thumb the larger the up front investment the longer the term of the contract to enable the contractor to amortize his costs. In effect you are granting a temporary possessory interest to the contractor in his capital investment onto state facilities. A small amount of up front is probably not a bad thing. It starts off the facility on an upbeat note and screens out poor operators who do have capital.

Maintenance of facilities is a critical area for contract bid specifications and penalties for not meeting the criteria need to be carefully spelled out. The clearest possible statement of the separation between those maintenance responsibilities to be borne by the state and those to be borne by the contractor are a key to successfully maintaining the concession facility.

Bleeding the capital facility is a favorite way concessionaires use to enhance the cash flows from their contracts. Briefly this means under performing their contractual maintenance responsibilities and pocketing the unspent maintenance funds as additional profits. This is a most insidious strategy to combat since in many cases the unperformed maintenance is not apparent to the casual observer until it builds up to the point at which the facility clearly suffers. This allows the concessionaire to bleed you in an undetected manner for some time before you even become aware of it. Bleeding the capital facility is most attractive to concessionaires near the end of their contracts because they can get away with it for a short term.

Possessory interest in government facilities is defined as the investment of private capital in structures and facilities that cannot be reasonably removed from the government owned land upon which they are located. Such an interest can, theoretically, be passed on to a new concessionaire at a price in a competitive bidding process.

The National Park Service has for eighty years granted possessory interest in the construction of customer serving facilities on federally owned land in National Parks. It has had major negative experiences with the failure of concessionaires to maintain facilities they had possessory interest in. These resulted in public buy-outs of the facilities accompanied by very critical legislative hearings and actions.

The State of Ohio has routinely kept all facilities in public ownership, although it has attempted to grant possessory interest on four occasions. Of these four, the State of Ohio was successful in only one of these attempts, which

required the contractor to complete a major marina project by providing and installing boat docks. It is believed the three other attempts were unsuccessful because of the high amounts of investment required for the projects which included major infrastructure work, and the low projected amounts of return on those investments.

The State of Ohio recognizes additional risks in granting possessory interest. Contractor default during construction may lead to the government's costly purchase of an incomplete facility after lengthy litigation. Construction can lack the quality needed for a long term operation. The amount of investment often dictates a lengthy contract, which is unattractive if the operation is mediocre. It is the author's professional experience that due to the risks which can have long term affects, possessory interest is to be avoided.

In today's cash-short public sector the attractiveness of having a private business come in and build a facility on public lands with private investment is very alluring in the short term. It is the long term problems associated with possessory interest of poor construction, bleeding of the capital facility, and inability to pass such facilities on to another contractor through the bid process that plainly indicate that possessory interest is not in the long term interests of the taxpayers.

Using non-financial selection criteria, if your governmental laws permit, in a documented process of bid evaluations is probably the possible way to ensure the most qualified contractors will be selected. The ideal we strive for is to award to the contractor who will deliver the best combination of the highest quality of services to customers and the greatest financial return to the taxpayers. The use of nonfinancial bid evaluation criteria is the key to implementing this strategy. Critical to the successful use of such criteria is to have carefully documented bid evaluation process which will stand up to the inevitable court test. We have been quite successful in Ohio with a process which is highlighted in the exhibits.

Examples of bid review criteria and condensed concessionaire contract terms are included at the back of this paper as exhibits.

3. MANAGING PRIVATIZED CONTRACTS ONCE IN PLACE

Communications and coordination with your contractors is the golden key to getting good contract results. The more you stay in touch with any contractor or concessionaire the more likely you are to have a successful relationship. Both you and your contractor know that the bid specifications and contract language cannot possibly contain all the nuances and information, especially in the constantly changing environments we both work in, to adequately provide for a mutually satisfying relationship. You have to work together productively for the contractor to get to know what acceptable contract performance is and for you to know what the contractor can perform within his financial and organizational capability.

Inspection is a significant part of this relationship. If you sit in your office and try to manage any contract by exception all you will do is wind up waiting for complaints to come in. If you employ management by abandonment you can count on getting complaints. You have to have someone out there following what the contractor is doing with a reasonable investment of time. Without the direct feedback you are at the mercy of the complaining public or employees.

What do you do when the contractor doesn't perform? The idea that any governmental agency is going to take any private business contractor to court and get him defaulted out of the contract for nonperformance is a non-starter. The governmental agency will first be advised by the legal people that it is not cost effective and that the contract language (no matter that they may have approved several years ago) isn't strong enough to make a case. Such cases always hinge on the subjective nature of contract language regarding performance evaluations. There has been no way discovered to avoid such subjective language. Secondly the agency will be advised by the elected political folks that they will not win a contest in the media that pits "a small family businessman with children to feed" against a large unknowledgeable and unfeeling governmental agency. Endless second chances will simply be imposed upon the situation.

However, there are ways you can cope. Chief among them is the use of any contract language under which the contractor owes the state money, either for penalties or for fees or pass throughs. The legal people take an entirely different view of a contractor defrauding the taxpayer of money - as opposed to just your subjective professional evaluation that he is not performing. The same view also affects the media. If the contractor fails to pay you any money under any aspect of the contract you can generally get rid of him. That means when you write the contract clearly spell out cash flows and cash penalties. Even small ones are very useful when default time comes.

Contractors work hard at putting political pressure upon agency managers. If you can get pro active in default cases you can reverse this process. Politicians do not like to be associated with a disaster. If you can convince them that the taxpayers and voting customers are getting wronged and are writing letters about it, the politicians can be your best supporters in getting rid of a defaulting contractor. Too many times government managers wait until the contractors assault them through the political process rather than being pro active and getting the facts out early and often and building support for their necessary action.

Buy outs are something that isn't done often, but that is an excellent tool. This is especially the case if you demonstrate to your legal people that a low cost buy out saves the state money from contract defaults, negative cash flows, or court action. Interestingly enough, contractors behind in their cash payments or facing a nasty fight from you over contract compliance terms will terminate their contracts for a surprisingly small amount of up front cash

or a waiver of some portion of their debt. The savings to the taxpayer is obvious.

Managers sometimes get committed to grinding the contractor down and perceive a buy out as throwing in the towel. They need to step back and refrain from viewing things as a contest and simply look at it from the taxpayers' eyes. What is the least cost way we can improve customer service and protect taxpayer investment? Sometimes that is a buy out.

In closing, privatization is just one more tool that park managers can use to provide quality customer service and be the best possible stewards of the taxpayers' investments.

KEY CONSIDERATIONS OF PRIVATIZATION

The decision to privatize must be a well informed one, which takes into consideration the following:

- Financial result of contracting/concessioning vs. self-operation
- Quality of services to be provided
- Expectations of the customers and the ability and willingness of a government agency or contractor/concessionaire to meet those expectations
- Length of contract term (the shorter the better).

A successful contract:

- is profitable to the contractor/concessionaire
- must be inclusive in its intent of all necessary requirements and provisions
- demands good communication between the parties
- allows for a system of rating the performance of the contractor
- is awarded based on multiple criteria, not just financial considerations.

BID REVIEW PROCEDURES

In reviewing bids, the following criteria, listed in descending order of importance, are used:

1. Monetary benefits to the State.
2. Financial capability of the bidder, including debt ratios.
3. Experience in the same type of operations and qualifications of key personnel.
4. Marketing plan and resources devoted to marketing Ohio.
5. Quality of operations elsewhere and experience in local area.
6. Overall operating plan.
7. .Location of supervisory office in Ohio.
8. Plan to hire in Ohio and the use of Ohio sources for supplies and materials.
9. Whether the bidder is a Minority Business Enterprise (MBE), and the bidder's use of minority owned businesses.
10. .Whether the bidder is a Female Business Enterprise (FBE), and the bidder's use of female owned businesses.
11. Experience, examples and plan for ensuring quality customer service.
12. Experience, examples and plan for ensuring cleanliness of facilities.
13. Experience, examples and plan for ensuring quality maintenance of facilities.
14. Employee hospitality training plan.
15. Equipment preventive maintenance plan.
16. Contingent liability (legal problems).
17. Table of organization for property managed.
18. Up front investment and details.
19. Proposed prices and rates.
20. Other services to be performed.

DEER CREEK RESORT REVENUE DATA AND CONTRACT SUMMARY

Resort Features:

110 guest rooms, 25 two-bedroom cabins, Harding Cabin, kitchen and dining room, meeting rooms, gift shop, lounge-bar, indoor and outdoor swimming pools, tennis courts, boat courtesy dock.

- **Contract term** - 10 years
- **Gross Revenue** - 1995: $4,758,069.02
- **State's Commission**:
  - 30.0% of Room and Cabin revenue
  - 5.0% of Food and non-alcoholic beverage revenue
  - 27.1% of Alcoholic beverage revenue
  - State's commission in 1995 = $902,560.48
- **Maintenance, Repair and Replacement Fund** - 10% of total gross revenue
- Concessionaire pays for all utilities, labor, retail merchandise, permits, licenses, maintenance costs not permitted from MR&R Fund, and all other operational expenses.
- **Advance Deposit Fund** - required to cover advance deposits held by Concessionaire; in the amount of $150,000.00.
- **Guarantee Fund** - required to ensure Concessionaire's compliance with contract terms; in the amount of $300,000.00.
- **Maintenance responsibilities of the Concessionaire** include:
  - all routine electrical, plumbing and mechanical costs, and swimming pool maintenance;
  - painting and routine maintenance of the interior and exterior of structures;
  - maintenance of roofs, gutters, downspouts, and windows; flat roof replacement;
  - snow removal and all grounds maintenance, with exception of parking lot repaving;
  - repair and replacement of all furnishings, fixtures and equipment;
  - refuse storage and removal;
  - obtaining service contracts to maintain HVAC systems, fire suppression, elevators and wood shake roofs.
  - all cleaning required to preserve the structures and equipment.

- **Maintenance responsibilities of the Department** include:
    - major structural repair, shake roof replacement, lodge boiler and main chiller replacement; and correction of extreme erosion conditions;
    - surface maintenance of parking areas, roads and drives, and snow removal from main roadways.
- **Liability insurance** - Concessionaire must maintain comprehensive general public liability insurance covering its operations; such insurance shall have a single limit of not less than $10,000,000.00.
- **Indemnification** - The Concessionaire assumes, pays and at all times indemnifies, protects, and saves harmless the Department from and against any and all claims, actions, damages, liability and expense in connection with death, personal injury, and/or damage to property.

SALT FORK RESORT REVENUE DATA AND CONTRACT SUMMARY

Resort Features:

148 guest rooms, 54 two-bedroom cabins, kitchen and dining room, meeting rooms, gift shop, lounge-bar, indoor and outdoor swimming pools, snack bar, tennis courts.

- **Contract term** - 10 years
- **Gross Revenue** - 1995: $5,309,800.79
- **State's Commission**:
    - 31.3% of Room and Cabin revenue
    - 6.0% of Food and non-alcoholic beverage revenue
    - 15.0% of Alcoholic beverage revenue
    - State's commission in 1995 = $1,145,323,60
- **Maintenance, Repair and Replacement Fund** - 10% of total gross revenue
- Concessionaire pays for all utilities, labor, retail merchandise, permits, licenses, maintenance costs not permitted from MR&R Fund, and all other operational expenses.
- **Advance Deposit Fund** - required to cover advance deposits held by Concessionaire; in the amount of $225,000.00.
- **Guarantee Fund** - required to ensure Concessionaire's compliance with contract terms; in the amount of $300,000.00.
- **Maintenance responsibilities of the Concessionaire** include:
    - all routine electrical, plumbing and mechanical costs, and swimming pool maintenance;
    - painting and routine maintenance of the interior and exterior of structures;
    - maintenance of roofs, gutters, downspouts, and windows;
    - snow removal and all grounds maintenance, with exception of parking lot repaving;
    - repair and replacement of all furnishings, fixtures and equipment;
    - refuse storage and removal;
    - obtaining service contracts to maintain HVAC systems, fire suppression, and elevators;
    - all cleaning required to preserve the structures and equipment.
- **Maintenance responsibilities of the Department** include:
    - major structural repair, roof replacement, lodge boiler and main chiller replacement; and correction of extreme erosion conditions;
    - surface maintenance of parking areas, roads and drives; tennis court resurfacing; and snow removal from main roadways.
    - **Liability insurance** - Concessionaire must maintain comprehensive general public liability insurance covering its operations; such insurance shall have a single limit of not less than $10,000,000.00.
- **Indemnification** - The Concessionaire assumes, pays and at all times indemnifies, protects, and saves harmless the Department from and against any and all claims, actions, damages, liability and expense in connection with death, personal injury, and/or damage to property.

Figure 1. Bid Evaluation Form

Bid Evaluation
Bid # _____-_____

Category	Max. Points	Bidder #1	Bidder #2	Bidder #3
Monetary Return to the State	1560			
Supervisory office in Ohio	30			
Table of Organization	30			
Whether MBE	30			
Whether FBE	30			
Hire Ohio and "Buy Ohio"	30			
Experience & Qualifications	240			
Plan of Operation	180			
Proposed Prices and Rates	30			
Other Services Proposed	30			
Marketing Plan	180			
Quality Customer Service	30			
Quality Cleanliness	30			
Quality Maintenance	30			
Equipment Maintenance Plan	30			
Employee Training	30			
Up Front Investment & Details	30			
Credit References	No Points			
Quality of Operations (Refer.)	180			
Contingent Liabilities	30			
Financial Liabilities	240			
Pro forma Projections	In Plan of Operations			
Total	3000			

_____
Glen D. Alexander, Chief Date

THE DEVELOPMENT OF A COMPUTERIZED MAINTENANCE MANAGEMENT SYSTEM AT THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Francis V. Riedy, PE

Environmental Engineer (Civil)2, NYS Dept. of Environmental Conservation, 50 Wolf Rd. Albany, NY 12233-5254

Daniel Skelton

Maintenance Supervisor, NYS Dept. of Environmental Conservation, 50 Wolf Rd. Albany, NY 12233-5254

Abstract: Every asset, old or new, requires maintenance. Buildings, bridges, roads, dams, utilities and grounds; each requires some degree of maintenance to ensure long life cycles and safe operation. Maintenance is science, art and philosophy. It is science since its execution ultimately relies on most of all the sciences; it is art because seemingly identical problems regularly demand and receive varying approaches and actions; it is above all a philosophy because it must be carefully fitted to the operation or organization it serves and, because of the way it is viewed by its users, will ultimately determine its usefulness.

Introduction

The New York State Department of Environmental Conservation (DEC) is responsible for billions of dollars worth of land, public facilities and assets. This infrastructure is more diverse and geographically decentralized than any other state department or agency. We now estimate that DEC has 2,000 facilities and 30,000 assets including for example: dams, bridges, roads, levees, offices, laboratories, boat launches, education camps, wildlife management areas, game farms, state forests, recreation trails, campgrounds, air quality monitoring stations, communication systems, fish hatcheries, hazardous waste sites and much more. (See chart one)

During the 1970s and 1980s several issues contributed to a general lack of emphasis on maintenance and an inability to adequately care for these assets.

- Maintenance was *deferred* as a cost savings mechanism
- New facilities were acquired and constructed while maintenance staffs were reduced
- Maintenance budgets did not keep up with inflation
- Low priority was given to technical training and information transfer
- Poor planning and record keeping

- The DEC executive leadership initiated, in April of 1994, a pilot Maintenance Management System (MMS) to address our maintenance problems. Our goals included:
- Improve resource utilization
- Build budgets based on what we owned and what we needed to do
- Expand employee participation in decision making processes
- Improve management organization
- Provide a basis for evaluating results

Figure 1.
DEC FACILITIES AND LANDS*1997

Facility Type	Unit
Office Headquarters	
Central Office	1 each
Regional Office	9 each
Regional Sub - Office	19 each
Field Headquarters	22 each
Program Support	
Maintenance Center	26 each
Workshop Facility	7 each
Research Station	2 each
Fish Hatchery	12 each
Game Farm	2 each
Tree Nursery	1 each
Pollution Prevention	
Air Monitor Site	116 each
Hazardous Waste Facility	9 each
Public Use	
Environmental Educ. Camp	3 each
Environmental Educ. Center	3 each
Campground	51 each
Day Use Area	5 each
Historic Area	12 each
Cooperative Area	10 each
Ski Center	1 each
Boat Launch Sites	260 each
Fairgrounds	2 each
Horse Trail Area	2 each
Public Fishing Rights Area	425 each
Estuarine/Sanctuary	2 each
Scenic Vista Area	2,100 acres
Open Space	2,700 acres
Pine Barron Preserve	8,000 acres
Canoe Area	16,950 acres
Public Access Site	17,000 acres
Unique Area	17,500 acres
Wetland Area	20,000 acres
Intensive Use Area	60,000 acres
Multiple Use Area	102,000 acres
Primitive Area	112,200 acres
Wildlife Management Area	150,000 acres
Reforestation Area	580,000 acres
State Forest Area	700,000 acres
Wild Forest Area	1,130,000 acres
Flood Control Project	92 each
Storage Facility	1 each
Radio Facility	48 each
Laboratory	3 each
Lumber Cutting Facility	4 each
Wilderness Area	1,150,000 acres

Total DEC lands
approximately 4,00,000 acres
*Sample data 1997

We chose a pilot location and designated a lead project engineer. Also, it was agreed that our development approach would be to build the MMS from the *bottom-up*. That is, we would solicit input from the people who would

be using the system and from our maintenance customers because ultimately their support would be essential to the success of the project.

While there are many *shrink-wrapped* MMSs available in the marketplace today, we chose to build rather than buy our MMS. This paper is an overview of that project including a few observations and comments.

Figure 2. Land Inventory

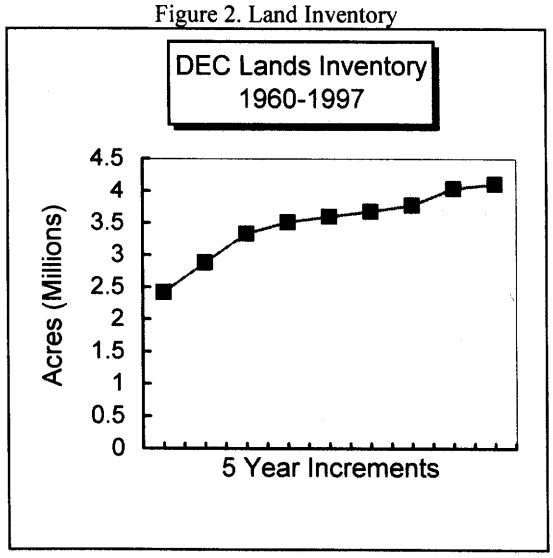


Figure 3. Operations Staff

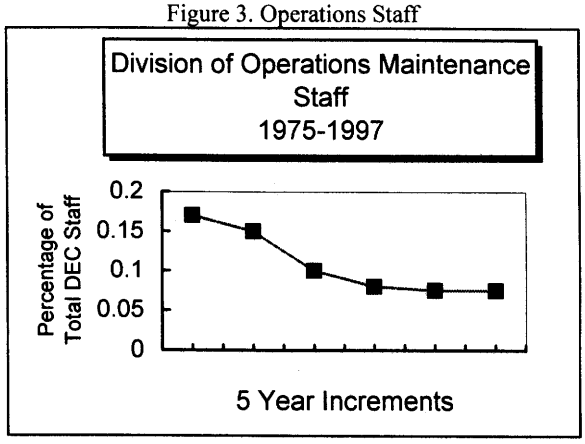
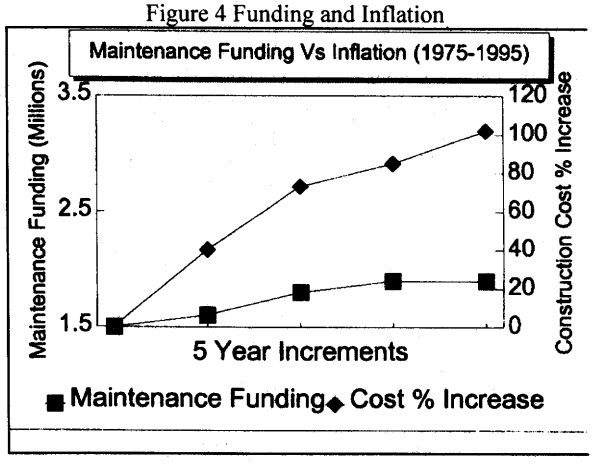


Figure 4 Funding and Inflation



Background

A large percentage of DEC's facilities were acquired or constructed in the 1960s and 1970s. Popular support for conservation programs and recreational activities resulted in substantial additions to the Department's asset inventory. Hundreds of thousands of acres of land that often included existing infrastructure assets such as buildings, roads, trails, bridges and utility systems were added. Campgrounds, boat launch sites and education camps were built and air quality monitoring and hazardous waste sites established.

Now, thirty years after the acquisition boom, it is time to pay the piper. Where maintenance had been neglected, the repair alarm was constant and loud. There was little opportunity to do anything but react to the crises. Fix it or lose it. Bridges were and are being closed, buildings abandoned, utility systems went off-line and recreational opportunities were lost. We began to realize that we needed a more organized, planned and controlled approach to manage these assets.

Steps Taken

The former Director of the Division of Operations called for a meeting to be held in the proposed pilot region. It was decided that all regional personnel would meet and jointly build their first comprehensive facility and asset inventories. These two inventories replaced the existing, multiple and usually inaccurate inventories in use at that time. They provided a starting point for the MMS team. We subsequently met individually with each regional group to continue and refine the inventory process.

We searched for other governmental agencies and private companies who had experience with MMSs and interviewed MMS managers from the United States National Park Service, Canadian National Parks, IBM, Niagara Mohawk Power Company and other NYS Agencies. Also, we evaluated twelve commercially available computerized MMSs. Their advice to us was unequivocally clear.

- Get support from upper management
- Build it bottom-up
- Communicate, communicate, communicate

Early in the data collection phase we were overwhelmed by the volume of facility and asset data coming to us; it became necessary to consider a database program to store and organize the data. We chose a simple, inexpensive, off-the shelf, ODBC database.

Building The MMS: The Bootstrap Approach

We began by reviewing our project objectives and seeking the input and participation of the regional staff. We created a set of priorities as guidelines for the development of the MMS as follows:

- Establish comprehensive facility and asset inventories (what do we own and where is it?)
- Identify maintenance activities (what do we need to do to maintain what we own?)
- Create a standard work order document
- Develop a work plan for each facility
- Structure the data for compatibility with other Department database systems

Further, we discussed associated issues such as: how much asset detail should be captured, who needs to know what, and how much time should be spent reporting work accomplishments and their costs.

Next, we built custom input, inspection, work order and work planning screens and created the links that make database tables relational. This was hardly a simple task although the object tools built into today's database programs are designed to be used by non programmers. Given the person hours spent learning the program, the many screen and table revisions and, our MMS product to date, we are satisfied that the *bootstrap* or build-it-yourself approach has been both productive and worthwhile.

We incorporated in our MMS what we considered the best features of other MMSs. Screen and table changes can be made on-the-fly rather than waiting weeks or months for the programmers to arrive. We can easily produce reports to fit any need, add graphics, tables and text documents. Additionally, the database skills learned have been applied to address other in-house needs. We have built databases for tracking the progress of design and construction projects, managing vehicle service records and organizing contract bidder lists.

Next Steps

A big debate regarding the implementation of databases is whether to provide local access at the desktop or remote access to a central computer. The advantage of local access is that the response should be faster while the advantage of central access is that there exists only one repository of information and the danger of using obsolete or invalid data is minimized.

We are presently in the local access camp, partly because our software offers limited networking features. However, we will be looking more at the central database option when those features become available.

Geographic Information Systems (GIS) are a natural extension of an MMS. Maps have historically been used to view geographic information and now with GIS we can link databases with spatial information thus creating a very powerful tool. We are beginning the process of capturing coordinate information for our facilities and assets.

Summary

This project is a work in progress. Not only are we continuing to learn more about maintenance work, computer software and hardware but also the needs of the people who depend on the tools and information an MMS provides. There are many important considerations for the successful development of an MMs, some of which we have noted previously. However, two that should be mentioned in closing are, build it bottom-up and realize that an MMS is only a management tool; it is not a solution in itself.

Forest Industry Hunt-Lease Programs in the South: Implications for Managers

Allan Marsinko

Associate Professor, Department of Forest Resources, Clemson University, Clemson, SC 29634

David Guynn

Professor, Department of Forest Resources, Clemson University, Clemson, SC 29634

Don F. Roach II

Former Graduate Student, Department of Forest Resources, Clemson University, Clemson, SC 29634

Abstract: Selected characteristics of forest industry hunt lease programs in the southern United States were evaluated for the 1994 calendar year. Results were compared with earlier similar surveys. Utilization of the leased lands by lessees has increased over the last 5 years. There were also indications that the intensity of wildlife management on these lands has increased along with increasing awareness of the economic value of leasing.

Introduction

Traditional hunt leases have become diversified and are now being considered recreational leases by many forest industry firms in the southern United States. The increase in the demand for space on which to hunt or watch birds created a viable and profitable business opportunity for private forest landowners (Busch 1987, McKee 1986). As a result, lease fees on forest industry lands have increased over the years. As this market continues to develop, the lessees are utilizing the land more intensively, which has the potential to create more opportunities and place greater demands on the landowners who lease the land.

Forest industry landowners have generally been at the forefront of management for wildlife and evolution of the recreational lease. Although only forest industry land owners were surveyed, much of the information gathered from this study should be useful to other private land owners. Approximately 90% of the forest land in the southern United States is owned by nonindustrial private and industrial forest landowners Powell et al (1994).

This study was conducted to determine the current status as well as the nature and extent of change in recreational leasing over the past 5 years (1989-1994) on forest industry land in the southern United States. It is the third survey of forest industry landowners in the south. The first collected data for 1984 and the second collected data for 1989. This study, conducted in 1995 and 1996, collected data for 1994.

Methods

A mail questionnaire developed by Busch (1987) and Stuckey et al (1992) was modified and used to determine total land base, current lease prices, cover type, wildlife management practices, value of non-monetary benefits, problems occurring on land, and trends over the past 5 years associated with recreational leasing. The mailing list for the study was an updated version of Stuckey's mailing list. In January 1995, phone contacts were attempted to 89 potential respondents. It was determined that many of these firms were out of business, had changed ownership, or did not own land. The final mailing list consisted of 59 potential respondents representing 45 forest industry firms and over 22 million acres of land. In June 1995, surveys were sent to wildlife biologists and hunt lease administrators of the 45 potential forest industry firms owning land in Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Texas, Virginia. and West Virginia. In October, follow-up letters were sent to nonrespondents.

The survey instrument and methodology were modeled closely after those used in the 1989 study. Therefore, the two studies were comparable in most instances. The earliest (1984) study differed from the others in several ways which limits comparisons among all three. Thus, findings from this study were compared mostly to Stuckey et al's (1992) findings to determine changes from 1989 to 1994.

Results and Discussion

Forty four of the 59 questionnaires (74.6%) were returned. One respondent reported that the questionnaire was at a level of detail that he was not able to provide. Therefore, the results of the survey was based on 43 (72.9%) of the total mailing list. All respondents leased land in 1994. Stuckey et al (1992) reported 10 who did not lease in 1989. Total acreage represented by all respondents was 22,728,794 acres; with the total area leased at 14,667,695 acres (64.5%). This acreage is based on 42 respondents because one respondent refused to provide acreage data.

The average lease fee reported by respondents was $2.76 per acre per year in 1994 (Table 1). This is a 28% increase from 1989 (Stuckey et al 1992). The average lease fee ranged from $1.69 per acre per year in Mississippi to $3.28 per acre per year in South Carolina. Forest industry leased 94% to hunt clubs and 6% to individuals in 1994. Combined, forest industry leased 64.5% of their land to clubs and individuals. The respondents leased 2,130,736 acres (9.4%) to state wildlife management areas (WMA) at an average lease fee of $0.66 per acre per year (Table 2). More than three fourths (78.6%) of the respondents preferred annual all-game leases, while 24% preferred multi year all-game. Seventy two percent of the respondents determine their lease fees by lease prices of surrounding lands, compared to 64% in 1989. Other methods of determining lease fees are: tax rate on forest land, corporate policy, highest bidder, and habitat species analysis.

Table 1. Summary of forest industry land leased to hunt clubs and individuals in the southern United States (1994)

State	Ave.Fee ($/Ac.)	Acres Owned	Acres Leased	Percent Leased
AL	3.11	2,744,707	1,823,400	66.4
AR	2.15	1,597,608	1,249,429	78.2
FL	3.11	3,987,284	2,425,349	60.8
GA	3.01	3,861,806	2,988,828	77.4
LA	2.76	1,143,338	665,814	58.2
MS	1.69	1,103,084	836,131	75.8
NC	2.29	1,548,719	1,385,308	89.4
SC	3.28	1,441,926	954,268	66.2
TN	2.03	877,520	159,954	18.2
TX	2.47	2,769,000	1,563,912	56.5
VA	2.01	354,302	229,502	64.8
Other.	1.90	1,299,500	385,800	29.7
Total	2.76	22,728,794	14,667,695	64.5

Table 2. Summary of forest industry land leased to state administered Wildlife Management Areas in the southern United States (1994).

State	Ave. Fee ($/Ac.)	Acres Owned	Acres Leased	Percent Leased
AL	0.00	2,744,707	77,000	2.9
AR	0.69	1,597,608	243,088	15.2
FL	1.86	3,987,284	583,762	14.6
GA	2.67	3,861,806	171,477	4.4
LA	0.24	1,143,338	109,480	8.8
NC	1.57	1,548,719	49,070	3.2
SC	2.12	1,441,926	346,159	24.0
TN	0.66	877,520	80,500	9.2
Other	0.38	5,525,886	470,200	8.5
Total	0.66	22,728,794	2,130,736	9.4

The percentage of land leased to hunt clubs and individuals (64.5%) was almost the same as that reported by Stuckey in 1989 (67.9%). The amount leased to public (WMA) programs was 9.4% which means that 73.9% of the land owned by responding firms is allocated to some type of program. Even though almost three fourths of the owned land is leased, over half (58.1%) of the respondents made available for leasing additional land that was not ultimately leased in 1994. These areas were not leased because of (from most to least important); poor access control, undesirable habitat, area too small, first time offered, target species absent, and price.

It is possible that these firms are approaching a practical limit on the percentage of owned land that can be leased. If this is the case, future gains from leasing on these lands are likely to come from more intensive management of currently leased lands and possibly the reallocation of land from public to private lease programs. Several questions on the survey provide some insight into these possibilities. There was an increase from 56% (1989) to 81%(1992) in the proportion of respondents who actively manage their land for game animal abundance. Forty three percent of the respondents indicated that their firms employ professional wildlife managers, an increase from the 39% reported in 1989. In 1992, more respondents included income from leases in economic analyses and investment decisions and more respondents attempted to monitor leases to prevent wildlife law violations and abuses of land or game populations. These are all indications of increasing intensity of management on these lands.

The percentage of land leased to public programs (9.4%) was close to the 7.1% reported by Stuckey for land leased and donated to these programs. Participants were also asked about their expectations regarding their public leasing programs over the next 5 years. About half expected fees for these programs to increase with expected increases ranging from one to 75 percent. Most (59%) expected the area made available to these programs to remain the same. However, 26% expected the area made available to decrease with decreases ranging from 5 to 50 percent.

Leasing to hunt clubs and individuals ensures control over who has access to the land. This is a benefit which has value to the landowner. Lessees serve as a police force, watching over the land and reducing trespassing. Even with this type of control, problems exist on all types of company owned lands. Respondents were asked to rank problems on lands leased to the private sector and lands open to the public. The major problems occurring on company owned lands open to the public were (from greatest to least) trash dumping, road damage, illegal hunting, fire, legal over harvest of game, unauthorized timber cutting, and livestock grazing. Problems on land leased to hunt clubs and individuals were (from greatest to least) road damage, trash dumping, illegal hunting, legal over harvest of game, fire, unauthorized timber cutting, and livestock grazing. No attempts were made to estimate the intensity or frequency of the problems.

From 1989 through 1994, 78 lease related accidents were reported on leased lands. Of these, four accidents resulted in lawsuits. To date, none of the suits have resulted in the firm being found liable. One suit was pending when the survey was conducted. The majority, 65% of respondents, required lessees to carry liability insurance at an average cost of $0.19 per acre per year and 55% of the respondents carry additional liability insurance associated with fee hunting. Accidents do not appear to be a significant problem. The main reason for the seemingly large number of accidents is that one respondent reported an unusually large number. It should be noted that 64% of the respondents reported no accidents and 14% reported one accident. Stuckey et al (1992) reported that between 1984 and 1989, 33 accidents occurred and that four resulted in lawsuits. In no case, however was the firm liable.

Respondents were asked about nonhunting activities on leased lands and about the utilization of the land over the last five years. Forty four percent of the respondents cited an increase in non-hunting activities by hunt clubs, and 38% cited an increase by individual lessees. The land is also being utilized for a greater part of the year. Fifty eight percent of the respondents cited this type of increase for hunt clubs, while 46% of the respondents have seen this

increase for individual lessees. Sixteen percent of the respondents have seen an increase of non hunters utilizing the land. These responses indicate a potential expansion of the activities on the land along with an increase in utilization of the land. Very few decreases were expected. These results are summarized in Table 3.

Table 3. Changes over the last 5 years in use of lands leased to hunt clubs and individuals

Activity	Percent citing each type of change		
	Increase	No Change	Decrease
Nonhunting activity by hunt clubs	44	56	0
Nonhunting activity by individual lessees	38	62	0
Amount of year land utilized by hunt clubs	59	41	0
Amount of year land utilized by individual lessees	46	54	0
Nonhunters as members of hunt clubs	16	81	3

Conclusions

Forest industry is becoming increasingly aware of the potential for recreational leasing. One hundred percent of the firms that responded had some form of recreational leasing program, with 74% of the total land base being leased (hunt clubs, individuals, and WMA). Forest industry landowners receive three major benefits from their recreational programs: access control, public relations, and annual revenue. The average annual lease fee was $2.76 per acre per year in 1994, which is a 28% increase from the 1989 lease lee reported by Stuckey et al (1992). Non-hunting activity has increased, along with the amount of the year the land is being utilized by lessees. These are trends that are expected to continue.

What does this imply for managers? There appear to be several factors pointing toward more intensive management of leased lands. Economic factors can have a significant impact. These firms are increasingly becoming aware of the value of leasing. Each time the survey was repeated, more firms were found to include lease revenue in their decision making process. This is an incentive for these firms to look more closely at the management of these lands. Intensity of management as indicated by increased monitoring of lessees, more firms actively managing for wildlife abundance, and more firms making the commitment of hiring professional wildlife managers appears to have increased since 1989. Finally, more intensive use of the land by lessees implies more intensive management on the part of the landowners.

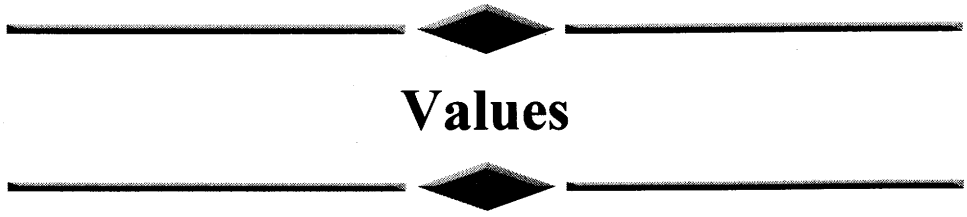
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Values

WHY STUDY VALUES?

Pamela J. Jakes

Project Leader, North Central Forest Experiment Station, 1992 Folwell Ave., St. Paul, MN 55108

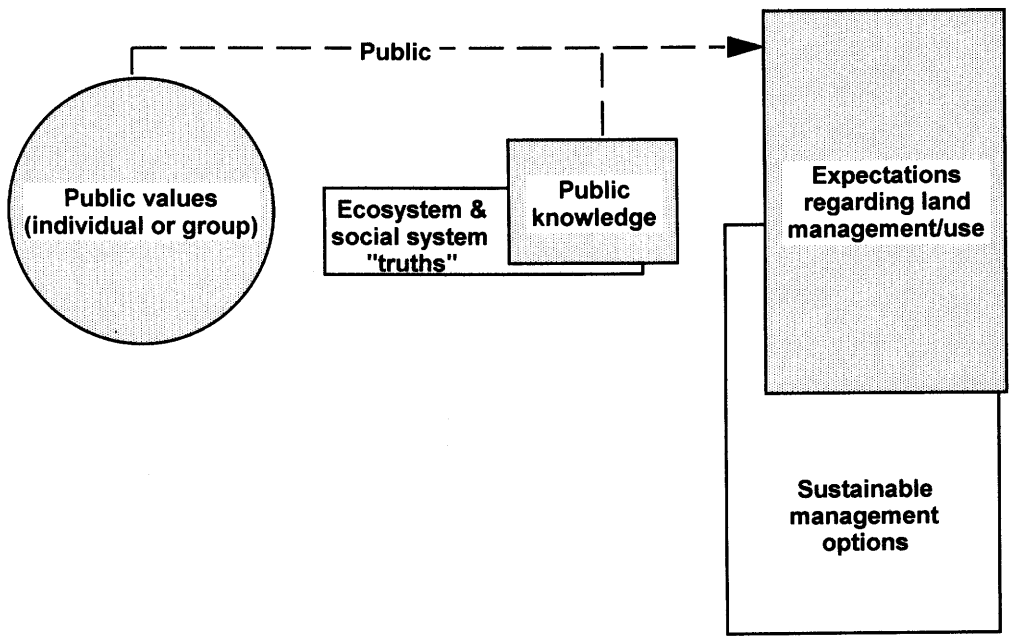
knowledge about societal or corporate values actually affect what we see on the land? This paper illustrates how information of societal values influences the outcomes of resource management and planning.

It's hard to find any discussion of the management and use of our forests and parks without seeing references to values—values are changing, we need to manage for multiple values, we need to manage for new users with different values from our traditional users. What do we mean when we talk about values? Values are "enduring beliefs that a particular mode of conduct or that a particular end-state of existence is personally and socially preferable to alternative modes of conduct or end-states or existence" (Rokeach 1968, p.550). More to the point, our values help define what we want and how we'll get it. But why should we, as public land managers and researchers, be concerned about values? The missions of many of our agencies are built on an interpretation of what the public wants and how they would like us to get there—the Department of Canadian Heritage (which includes Parks Canada) has as its mission "Building Our Future Together;" the U.S. National Park Service, "Caring for the American Legacy;" the U.S. Forest Service, "Caring for the Land and Serving People." An understanding of public values is critical to the successful implementation of our missions, in that we cannot hope to achieve them without public understanding and support for our goals and the steps necessary to reach them.

While our agencies appear to have legitimate interests in public values, let's think more generally about the importance of public values to the management and use of public lands. The model discussed here is very simplistic, and ignores many of the challenges of studying values related to natural resource management and use. However, despite its limitations, my colleagues and I at the North Central Forest Experiment Station have found this model very useful in illustrating the outcomes and benefits to be gained from a broader understanding of public values and their influence on natural resource management.

It's dangerous to talk about "the public" as if it is a homogenous group with similar values, attitudes, and behaviors. There is certainly more than one public, but for the sake of simplicity, I'll refer to the public, meaning the "owners" of the public lands. The public holds values regarding the management and use of public lands—they have criteria that tell them what these lands should look like (their end-state, perhaps desired future condition) and standards that tell them how they would like to see these lands managed to obtain these end-states (standards of action or conduct). When members of the public combine the knowledge they have about how things work (ecosystem and social system "truths") with the values they hold, they develop expectations regarding how the public lands should be managed to achieve a desired future condition. We may think their knowledge is faulty or incomplete, but regardless of our perceptions of the truth of what they know, their knowledge and values set up expectations (Figure 1).

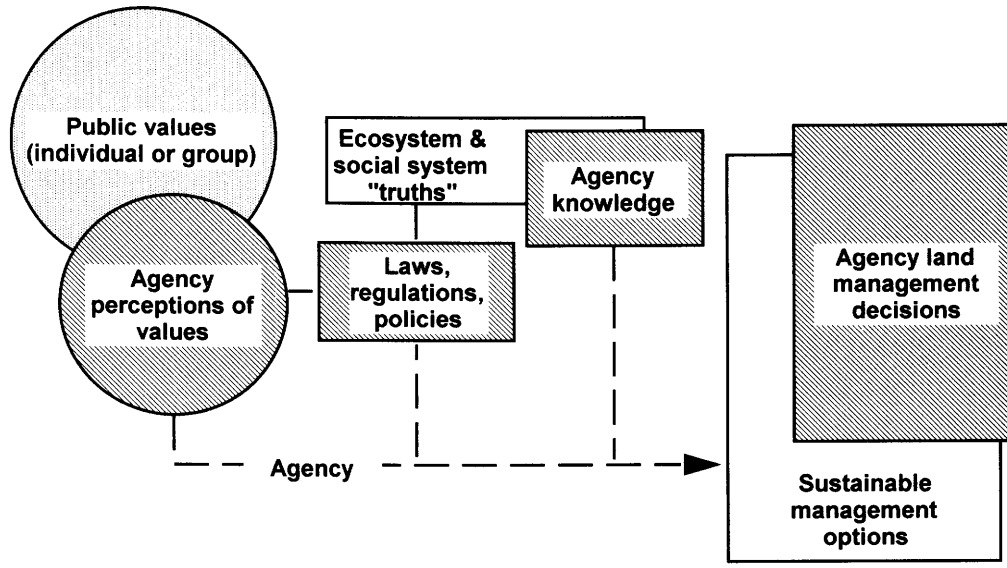
Figure 1.—When members of the public combine the values they hold with their knowledge of the ways things work, they develop expectations regarding land management and use.



Now, let's think about values from an agency perspective—perhaps a public park or forest. Agency employees have perceptions about public values, and these perceptions help them decide how to manage the public lands. Perhaps our reading of publics values tells us that the public would support a goal of restoring vegetation to pre-European conditions using management techniques that most closely mimic nature. Based on our perceptions of public values, we have selected a desired end-state for an area and a plan of action to obtain that end-state.

But we have more to consider than public values when making decisions about the management and use of the public lands. We also use our knowledge about ecosystems and social systems to help us make our decisions. In addition, as a formal institution involved in land management, we operate under a set of laws, regulations, and policies. So, we take our perceptions of public values and our knowledge about the way things work, and working within a legal and political framework we make decisions about how to manage public lands (Figure 2).

Figure 2.—Agencies use their knowledge of public values and the ways things work, and, within a framework of laws, regulations, and policies, make decisions about the way public land will be managed.



What we find, however, is that in many cases, our decisions regarding land management are not consistent with public expectations (Figure 3). This may be because the agency and the public are using different sets of knowledge. When we manage public lands, we primarily use objective knowledge, facts that we think accurately portray how ecosystems work—we use science. This information allows us to predict (with some acceptable degree of risk) how ecosystems will respond to our actions. We seldom draw on knowledge from art, literature, or religion, for example, to support our decisions. Yet the public often bases its expectations on this "less objective" knowledge. So, it's no wonder public expectations and agency management decisions don't match—we are indeed operating from different knowledge sets.

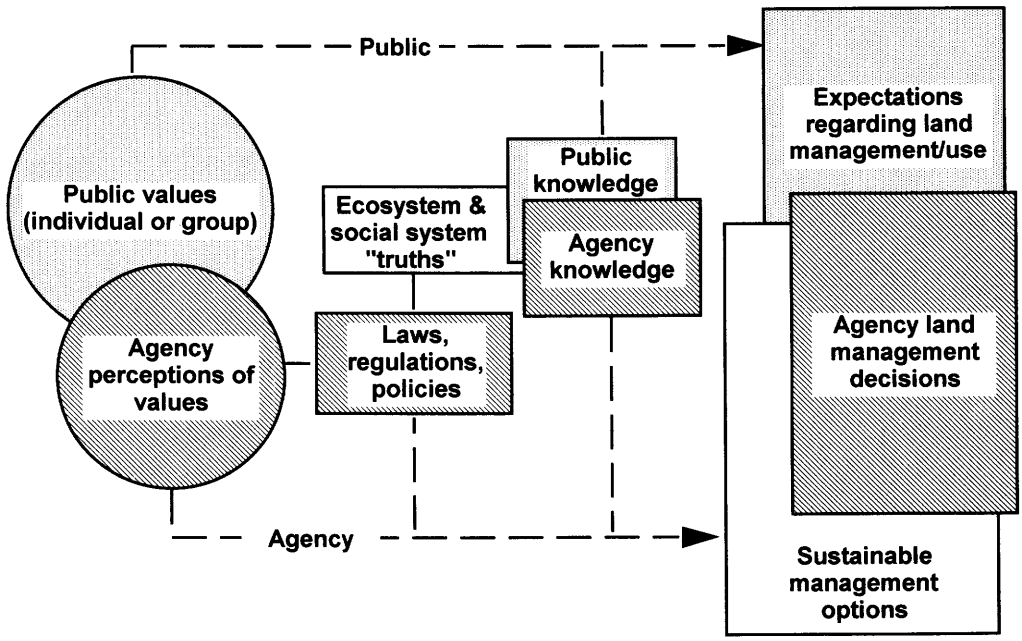
Agency staff also have less than perfect knowledge about public values. Our perceptions of public values are based on various forms of communication ranging from informal daily encounters to formal public involvement activities. Back to the example of restoring vegetation to pre-European conditions (restoration ecology). The southeastern district of the Minnesota Department of Natural Resources had identified restoration ecology as a high priority in its comprehensive watershed management plan. The had interrupted the interest of some local residents and the interest of their own staff as broad support for that activity. Yet when we conducted a survey of residents in the region we found little to no support for restoration ecology (Kelly and Sushak 1996). This does not mean that the Minnesota Department of Natural Resources can't or shouldn't do restoration ecology in southeastern Minnesota, but it does mean that to "sell" the program, they need to tie it to the values of local residents.

Finally, our management decisions may not match public expectations regarding land management and use because our options are limited by laws, regulations, and/or policies. For example, the laws relating to wilderness area management will simply not permit certain types of uses regardless of what the public wants or expects. The question is, what can we do to bring public expectations regarding public land management and use more in line with agency management options? Or, to take the alternative perspective, how can land management decisions better reflect public expectations regarding public land management and use?

One answer is public involvement (Figure 4). Through more and better communication with our partners and clients we can gain a more complete understanding of

public values. We can begin to explain our programs and decisions using criteria that are important to the public, in ways that make sense to the public. This increasing public understanding of the trade-offs critical to natural resource management and use will change their expectations of what is possible. We can increase the public's knowledge about how things work not only from a bio-physical, scientific perspective but also from a social perspective. Public involvement can also increase our knowledge about how ecosystem and social systems work by exposing us to alternative forms of knowledge that are used and valued by the public.

Figure 3.—We often find that agency decisions regarding land management are not consistent with public expectations.



A second answer is research. Research can generate some of the same benefits as public involvement—a better understanding of public values and increased knowledge about old and new "truths." Research on public values can result in tools that allow us to monitor changes in public values and the development of new values related to the environment. It can also help us develop ways to include in our decisionmaking the more qualitative, "non-scientific" data known to and used by our clients and partners.

Today, more people than ever before are living near, using, or monitoring the management and use of our public lands. These people demand more and different things from these lands. Changes in expectations regarding land management and use have resulted in conflicts, manifest in the form of lawsuits, demands for home rule, aggressive political advocacy, and appeals of land management decisions and plans. By understanding public values we can make management decisions that better reflect public expectations. But this understanding of values also helps us define and describe the trade-offs and risks of various management alternatives in terms that make sense or are relevant to the public, resulting in a shift in public expectations regarding public land management and use. Our success in balancing public expectations with resource capabilities is the key to the survival of our agencies, but more importantly to the survival of the ecosystems we are responsible for managing and the communities dependent on their health and sustainability.

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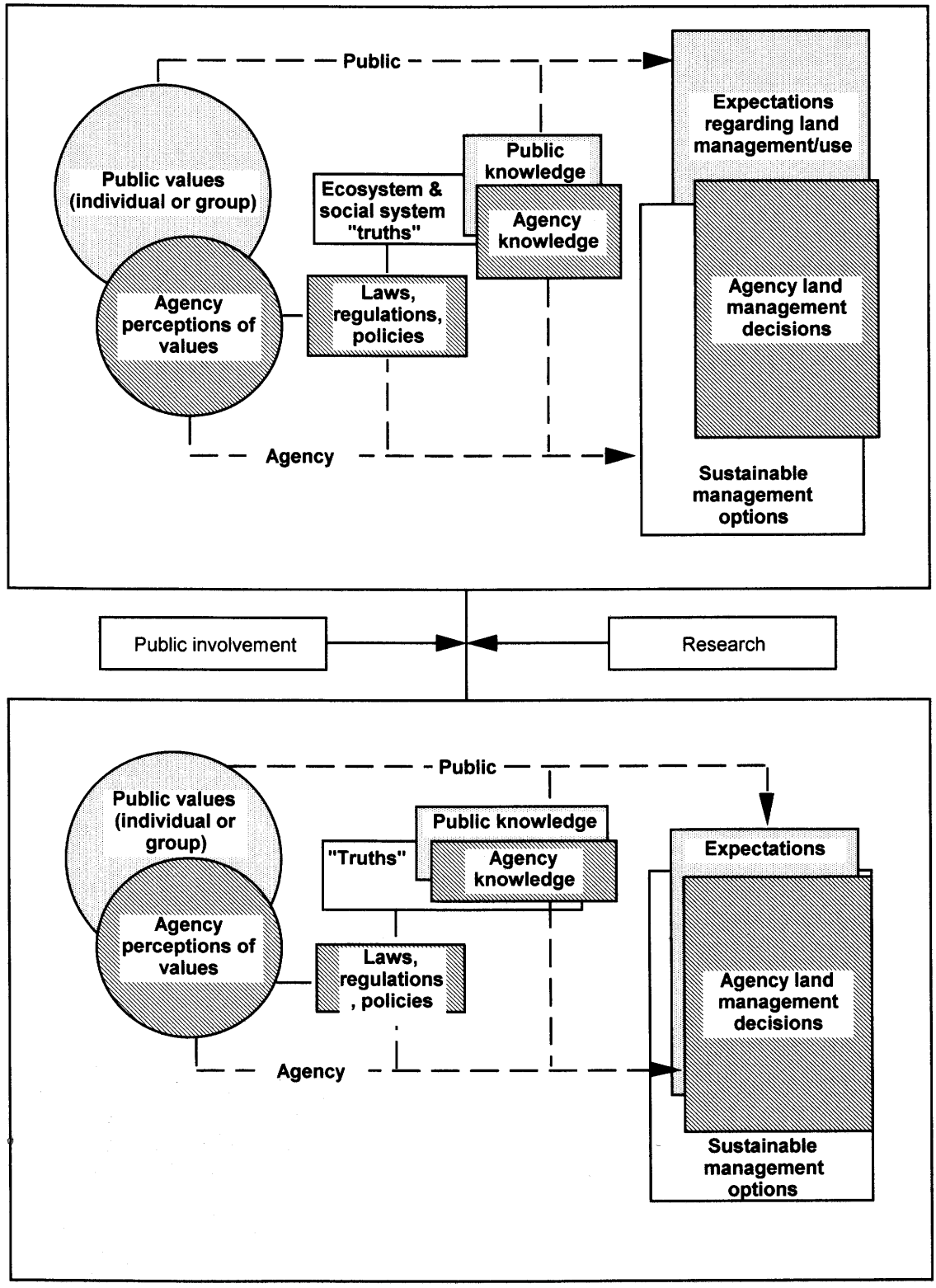


Figure 4.—Public involvement and research helps build understanding between the public and agency decisionmakers and brings public expectations regarding land management and use and agency decisions regarding land management more in sync.

VALUING WETLAND ATTRIBUTES IN THE LAKE CHAMPLAIN BASIN

Donald F. Dennis

Research Forester, USDA Forest Service, Northeastern Forest Experiment Station,
P.O. Box 968, Burlington, VT 05402

Walter F. Kuentzel

Assistant Professor, University of Vermont, School of Natural Resources,
Burlington, VT 05405

Abstract: This research explores the use of conjoint analysis to assess and understand wetland values. A conjoint rating survey was designed and mailed to landowners in the Laplatte River Basin (Lake Champlain) in Vermont. Landowners rated options to protect wetlands that varied by the wetland's ability to decrease pollutants entering Lake Champlain, value in providing food and shelter for wildlife, opportunities for outdoor recreation, surrounding land use, the presence of rare or unique vegetation, and cost to each household to protect. The analytical capabilities of the conjoint rating model are discussed.

Introduction

A high-quality water supply can enhance the biological, economic, and spiritual health of communities. Residents of the Lake Champlain Basin have become increasingly concerned about water quality in the region, and are especially concerned about how water quality can contribute to "livable" communities. Wetlands are an important component of the landscape and play a crucial role in maintaining and enhancing water quality. Wetlands filter and replenish groundwater, buffer the flow of pollutants between the land and open waters, and aid in flood control. Wetlands also provide crucial habitat for many species of fish and wildlife, opportunities for recreation and aesthetic enjoyment, as well as sites for industrial, commercial, and residential development. Landowners, anglers, birders, farmers, hunters, environmentalists, businesses, and the general public all claim status in issues concerning wetlands.

This study explores the values that landowners within the Laplatte River watershed may hold toward water quality in Lake Champlain and wetlands in the Laplatte River basin. This watershed is an appropriate site to study values and value conflict because it is a traditional agricultural region undergoing significant suburbanization pressure from nearby Burlington, Vermont--the largest metropolitan area in the state and region. An influx of new residents coupled with an expansion of different types of land use can produce a growing tension over water quality and wetland use.

Developing a cohesive policy toward wetland management requires balancing many concerns and values. In theory, the inherent efficiency of a free market economy will guide society to an optimal allocation of resources. However, many wetland values, such as aesthetics, wildlife habitat, and water purification, are not adequately represented in market transactions. These types of values are called externalities. Their presence, particularly those that result from the common property nature of wetland benefits, cause market-based decisions to be inefficient and often inappropriate. Recognizing the inadequacies of the market in allocating resources to protect wetlands, managers and policymakers seek a means to assess values associated with wetlands so that they can be duly considered in decisions and policy that influence wetlands.

In this paper we explore the use conjoint analysis to assess landowner preferences and valuation of various wetland features or attributes in the 34,000-acre LaPlatte River watershed. Conjoint analysis can provide a better measure of value than traditional methods (e.g., travel-cost, willingness-to-pay measures) because it explores multiple dimensions of value and examines more realistic tradeoffs.

Conjoint Analysis

Conjoint analysis, a technique for measuring psychological judgments, is used in marketing research to measure consumer preferences (Green et al. 1988). In conjoint studies, respondents make choices between alternative products or scenarios displaying varying levels of selected attributes. For example, when studying consumer preferences for features of automobiles respondents might be asked to choose between sample vehicles that vary in attributes such as cargo space, warranty length, price, gas mileage, acceleration, and country of manufacture. The objective is to decompose a set of factorially designed stimuli or attributes so that the utility of each attribute can be inferred from the respondent's overall evaluations. These data, which outline the preferences or tradeoffs that a respondent is willing to make, can be used to solve for the partial utilities for each attribute that are imputed from the overall tradeoffs. These partial utilities or "part-worths"can be combined to estimate relative preferences for any combination of attribute levels. Thus, the analyst obtains high leverage between the options actually evaluated by respondents and those that can be analyzed after the evaluation.

Conjoint techniques are well suited for soliciting and analyzing the preferences of stakeholders in environmental decisions. These decisions frequently entail tradeoffs between costs and benefits that are not represented efficiently in market transactions. For example, Opaluch et al. (1993) described an approach that used paired comparisons to rank potential noxious facility sites in terms of social impacts. Asking respondents to make choices between alternatives mimics the real choices that managers must make and shows stakeholders the consequences of their choices.

Choice experiments can be designed and analyzed in many ways. Respondents may be asked to reveal their preferences by choosing one of two or more options,

ranking several options, or assigning numerical ratings to each option. Numerical ratings provide the most information but may place the greatest cognitive demands on respondents. Green (1974), Green and Srinivasan (1978), Louviere and Woodworth (1983), and Louviere (1988) provide information on experimental design in the context of conjoint analysis.

The Laplatte River Watershed Conjoint Survey

A conjoint rating survey was included within a survey of 1,600 landowners in the Laplatte River Basin during the fall of 1996. Approximately 57% of the mailed questionnaires were completed and returned. The 14-page questionnaire was designed to obtain information on landowner activities and values regarding water quality. The conjoint portion of the survey addressed landowner preferences for protecting wetlands with varying levels of selected features.

In the conjoint survey, landowners were asked to imagine that their town had the option to secure the development rights to one or more parcels of land that contain wetlands and to select the types of wetlands that they would most like to see protected. Each wetland differed by one or more of the following six features: ability to decrease the effect of pollutants entering Lake Champlain, value in providing food and shelter for wildlife, opportunities for outdoor recreation, surrounding land use, presence of rare or unique vegetation, and cost to each household to protect. The following descriptions appeared on the page proceeding the rating survey shown in Figure 1.

Effect on water quality: You will be asked to choose between wetlands with a low, medium, or high capacity to decrease the effects of pollutants, such as phosphorus or lawn fertilizers, on water quality in Lake Champlain.

Vegetation: Some wetland parcels contain rare or unique vegetation.

Wildlife habitat: Wetlands provide food and shelter for wildlife like migratory birds, waterfowl, local bird populations, and some mammals. The usefulness of a wetland for wildlife could be either low, medium, or high in this study.

Surroundings: The benefits of wetlands may depend on whether they are surrounded by forests, farms, or residences. For example, the retention of phosphorous or other pollutants may be greater in wetlands surrounded by farmland or residential development. Remote wetlands may be used by more wildlife but enjoyed by fewer people than those found in more developed settings.

Recreation: Wetlands may or may not provide opportunities for outdoor recreation such as fishing, wildlife viewing, hunting, and hiking.

Cost: Protection costs may differ according to the location of the wetland and generosity or goals of the landowner. In this example, the cost to each household ranges from $0 if a landowner donated the development rights to as much as $120 (in $40 increments) if development rights were purchased by the town. Respondents were instructed to assume that town tax revenues would be used to fund wetland protection.

Respondents rated each wetland on a 1 to 5 scale (Fig. 1). Each respondent rated a different set of alternatives consisting of a base option (#1 in Figure 1) common to all respondents, and four additional options that were randomly selected from the remaining 431 possible combinations of wetland features. The base wetland had the following features: a low ability to decrease the effects of pollutants on water entering Lake Champlain, a low value for providing food and shelter to wildlife, did not provide opportunities for outdoor recreation, was surrounded by forestland, did not contain rare or unique vegetation, and would be free to protect. The base option was positioned randomly among the five alternatives.

Analytical Model

Although statistical analyses have not been completed, we will outline the basic procedures that will be used for analyzing the conjoint data as well as the types of results expected. 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 choice of the jth alternative (U_{ij}) can be represented as:

$$U_{ij} = \sum_{m=0}^{5} b_n \, x_{nij} + e_{ij}$$

where the x_{nij}'s represent values for each of n attributes of the jth alternative to the ith individual, b_n's are unknown parameters, and the e_{ij}'s are random disturbances, 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 of the J wetland alternatives is not observed but a rating (r_j) is observed that corresponds to his or her underlying utility.

Following McKenzie (1990, 1993) and others, the analytical capabilities of the conjoint rating model can be illustrated by assuming that rating (r_j) can be modeled as a linear combination of the variables representing the attribute levels:

$$r_j = a + b_1x_{1j} + b_2x_{2j} + \ldots + b_nx_{nj} \qquad (2)$$

The estimated part-worths (b_n's) measure the effect of a discreet change in the level of the associated attribute on overall preference for protecting a particular wetland. Thus, one can determine the relative contribution or reduction in desire to protect wetlands that can be attributed to a change in a particular wetland attribute or feature.

Relative overall preference for wetland protection can be determined by summing across Equation 2. By doing so, a group of wetland parcels can be prioritized by desire to protect. Similarly, the optimal mix of wetland features can be determined by maximizing Equation 2.

Figure 1. The conjoint portion of the LaPlatte River watershed survey.

Please imagine that your town can secure the development rights to one or more parcels of land that contain wetlands. Each wetland will provide different benefits, and will cost a different amount to protect. Please rate each of the five options below on a scale of 1 to 5. Use 5 for the parcel that you definitely would vote to protect, and 1 for the parcel that you definitely would not vote to protect. If you are not sure, use 2 thru 4 to indicate how likely you would be to vote for each parcel.

	WETLAND PARCELS				
	#1	#2	#3	#4	#5
Ability to decrease pollutants entering Lake Champlain	LOW	MED	HIGH	HIGH	LOW
Value in providing food and shelter for wildlife	LOW	HIGH	HIGH	MED	MED
Opportunities for recreation	NO	NO	YES	YES	YES
Is surrounded by	FOREST	FARM	HOMES	HOMES	FOREST
Rare or unique vegetation	NO	YES	YES	NO	NO
Cost to each household	$0	$40	$80	$40	$120
	↓	↓	↓	↓	↓
Please write a score from 1 to 5 for each option					

WRITE SCORES HERE USING THE SCORING SYSTEM BELOW

would definitely not vote for	would probably not vote for	neutral	would probably vote for	would definitely vote for
1	2	3	4	5

The marginal rate of substitution (MRS) is the rate at which an individual is willing to trade one good for another while remaining equally well off (Nicholson 1978). The MRS or acceptable tradeoff of one attribute for another is determined by the ratio of the marginal responses. Setting the total differential of (2) to the point of indifference and solving:

$$dr_j = b_1 dx_{1j} + b_2 dx_{2j} + \ldots + b_n dx_{nj} = 0 \qquad (3)$$

$$dx_{1j} / dx_{2j} = -b_2 / b_1$$

yields the marginal rates of substitution or the acceptable tradeoffs for the respective attributes.
If the linearity assumption is not tenable, the analyses become more complicated but the basic reasoning remains.

Summary
Conjoint techniques are well suited for soliciting and analyzing the preferences of stakeholders in decisions that entail tradeoffs between costs and benefits that are not efficiently represented in market transactions. A conjoint rating survey was used to solicit landowner preferences for protecting wetlands with varying levels of six features: ability to decrease the effect of pollutants entering Lake Champlain, value in providing food and shelter for wildlife, opportunities for outdoor recreation, surrounding land use, presence of rare or unique vegetation, and cost to each household to protect.

Although the statistical analyses have not been completed, we outlined the basic procedures used to estimate the relative contribution of different wetland features to preference for protection, a means to prioritize wetlands by the overall composition of features, and a procedure for estimating respondent's willingness to trade among wetland features and cost. Additional work will include relating preference structures to demographic, behavior, and value-related variables that were assessed in other portions of the questionnaire.

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LANDOWNER VALUES, WATER QUALITY, AND RECREATION IN THE LAKE CHAMPLAIN BASIN

Walter F. Kuentzel, 357 Aiken Center, School of Natural Resources, University of Vermont, Burlington, VT, 05405.

Donald F. Dennis, Northeastern Forest Experiment Station, P. O. Box 968, Burlington, VT, 05402.

Abstract: This study describes landowner values about water quality among resident landowners in the LaPlatte River watershed, tests whether suburbanization is producing a new mix of social values, analyzes the relationship between values and behaviors, and explores the link between recreation and water quality advocacy. Results showed that residents hold pro-environmental values, although the region is not a stronghold of environmentalism. There was a clear "flatlander" effect, with newcomers holding more pro-environmental values than long term residents. Long term residents used their land more intensively than newcomers. There was a weak relationship between values and land use behaviors, although long-term residents showed more consistency between values and behaviors. Finally, recreational preference was not related to one's values about clean water.

Water quality is an issue of widespread public concern in the Lake Champlain Basin of Vermont and Upstate New York. Ecologists, anglers, environmentalists, boaters, community officials, and other stakeholders want to improve the quality of fishing, drinking water, and recreational opportunities on the Lake. Water quality has traditionally been the domain of ecologists who treat human activity as an exogenous variable, and who focus on how people affect the integrity of natural systems. Less research, however, has analyzed the collective social processes that are linked to individual land uses that may affect water quality. This paper explores the relationship between the social values of landowners in the LaPlatte River watershed in Vermont and their land-use behaviors that may affect wetlands in the watershed and water quality in Lake Champlain. Further, no research has explored how contemporary recreational constituencies among residents in the region may influence the campaign for clean water in the Lake Champlain basin. This paper therefore explores whether social change in the LaPlatte River watershed may produce new recreational constituencies who are stronger advocates of clean water in the Lake Champlain basin.

Why Social Values?

Values and Social Conflict

Clean water in the Lake Champlain basin is a recreational amenity that has been an ongoing challenge as the region experiences social change. In the Burlington, Vermont region, large industries historically located on the waterfront have given way to green-space development and service sector development. Agriculture is giving way to increasing suburbanization in the Burlington vicinity as population growth in surrounding rural areas outpaces growth in the urban center. This change has not occurred in an environment of public consensus, however (see, for example, the Pine Street Barge Canal controversy; Burlington Free Press, 1995, 1996).

One way of understanding public controversy is by analyzing the matrix of social values among stakeholders in water quality policy (Stankey & Clark, 1991). Many observers point to fundamental shifts in the values of society as the cause of emergent conflicts over natural resource use (Brooks and Grant 1992, Salwasser 1990, Williams 1991). Controversy can arise when different constituencies value amenities like water quality differently. Anglers may desire restrictions on agricultural runoff because they value clear water that favors lake trout, whereas farmers may resent such restrictions because they value productivity and profitability more than water clarity. Similarly, birders may value a productive wetland for wildlife habitat, while some local residents may fill wet areas on their property because they value an insect-free yard. In a society that encourages and enables litigation over environmental policy, divergent social values can produce controversies where public debate is more contentious and compromise is more difficult. Understanding these divergent social values may help to smooth the policy making process.

The "Flatlander" Effect

One factor closely associated with suburbanization is the "flatlander" effect. As in most regions of the country, those who claim the "native" label do so with pride. Their lineage that goes back several generations often makes them community leaders and gives them tacit authority to define the meaning and the character of the place. Newcomers to these places are often labeled outsiders, or "flatlanders" in Vermont. They bring new ideas and points of view that may or may not be compatible with local values. In other words, they bring a new mix of social values into communities with established routines and institutions.

The LaPlatte River watershed is a particularly appropriate site to study values and value conflict. It is a traditional agricultural region undergoing significant suburbanization pressure from nearby Burlington, Vermont - the largest metropolitan area in the state and region. Additionally, real estate in parts of this watershed has become some of the most expensive in the state. The watershed may be attracting the professional baby-boomer in the height of careers and earning power. The area may also be attracting a generation of newcomers whose land-use values were prompted by the environmental movement of the last 25 years.

Values and Behavior

If the mix of landowner values in the LaPlatte River watershed is changing because of an influx of "flatlanders" who are expanding the boundaries of Burlington's suburbs, are prevalent land-use behaviors in the watershed also changing? That is, do certain social values produce certain

kinds of behaviors that may affect water quality in the watershed and in Lake Champlain? This paper explores the relationship between landowner values and their intensity of land use behaviors (lawn and garden, woods, wetlands, and agricultural) that may affect water quality in the watershed.

This causal relationship between values and behaviors may be problematic. LaPiere's study of racial attitudes and behaviors, which showed no correlation between attitudes and behaviors (LaPiere, 1934), set in motion 60 years of attitude/behavior research. Overall, the attitude literature includes two theoretical traditions that help explain the attitude/ behavior relationship. First is cognitive structure of attitudes. Attitudes are not simply isolated information bites stored in people's heads, and mechanically accessed to direct behavior. Instead, attitudes are a complex cognitive mix of values, beliefs, emotions, preferences, and intention (Heberlein, 1981; Fishbein & Ajzen, 1975). Attitudes with more elaborate cognitive structure are better crystallized (Sherif & Hoveland, 1961), more accessible, and more behaviorally relevant (Fazio, Chen, McDonel, & Sherman, 1982). Second is attitude specificity. General attitudes are poor predictors of specific behaviors (Heberlein & Black, 1976). For example, one may hold an attitude that ozone depletion is a serious problem facing the world, but this attitude may not cause that individual to drive his or her car less and take public transportation more.

Therefore, this may mean that values are even poorer predictors of behavior than attitudes. Attitudes require an attitude object, and are specifically linked to empirical objects or events in the world. Values are general orientations that provide an evaluative framework or lens to the world, and predispose one to react positively or negatively to the events. This paper therefore explores the degree to which one's wetland and water quality values affects their subsequent land use behaviors that may affect water quality.

Social Values and Recreation

Finally, this paper explores the relationships of landowner values to their preferences for certain types of wetland-related recreation activities and experiences. If suburbanization is attracting baby-boomer residents to the watershed who bring pro-environmental values, do they also prefer certain types of value-consistent recreational experiences? Do the natives, who may use their land in more traditional ways, prefer a consumptive mix of recreational experiences like hunting, fishing, and trapping? Conversely, do the "flatlanders" with pro-environmental values prefer a nonconsumptive mix of recreational experiences such as bird watching, cross country skiing, hiking, or photography? Could these outsiders also bring a stronger sense of advocacy to the clean water campaign in the Lake Champlain basin?

Methods

Study Area

This paper uses data from a survey administered during the fall of 1996 to landowners in the LaPlatte River Watershed in Vermont. This watershed includes parts of 4 townships in Northwest Vermont: Charlotte, Shelburne, Hinesburg, and Williston. The area includes classic New England towns interspersed with rolling agricultural lands. The watershed is a glaciated strip of land sandwiched between the Green Mountains to the east and the shores of Lake Champlain to the west. This glaciation left an extensive system of wetlands throughout the watershed, and rich agricultural soils.

The watershed's close proximity to Burlington has brought this area under increasing suburbanization pressure. The views of the Green Mountains to the east and the Adirondacks across the Lake to the west create high demand for real estate. Consequently, farms are being subdivided and towns are struggling with rapid development and condominiumization. Property values and property taxes in the LaPlatte Watershed are some of the highest in the state, causing difficulty for long time residents. Land in the watershed is therefore undergoing considerable pressure for change.

Mailed Survey

Researchers compiled a list of property owners from the town offices for all parcels in the LaPlatte River watershed. There were more than 2200 parcels in the watershed. The goal of the research was to survey all resident landowners, so we excluded any parcels owned by the towns, by business or industry, and by absentee owners. This created a list of 1620 property owners were sent questionnaires. We used three mailings to generate our responses: the original questionnaire mailing, a reminder post card two weeks later, and a second mailing of the questionnaire to nonrespondents two weeks following the post card mailing. There were 155 undeliverable questionnaires among the original group of resident landowners. We attempted to locate the undeliverables using a CD-Rom phone book. We were able to locate 30 of the undeliverables in this way. If they still lived in the watershed, we sent them another questionnaire. Finally, 843 returned questionnaires representing a 57.5% response rate.

Questionnaire

The questionnaire included items designed to measure the intensity of an individual's land use behaviors that could have an impact on water quality. Specifically, the questionnaire asked about lawn care, gardening, and farming practices: 1) application of herbicides, pesticides and fertilizers 2) frequency of work on lawns, gardens or farms, and 3) money spent on lawn or garden upkeep. Additionally, the questionnaire asked farmers about manure management techniques, and if they had recently changed to more conservation oriented farming practices. Finally, the questionnaire asked if landowners had managed or altered any woodlands or wetlands on their property. The woodland behaviors included 8 items that asked respondents if they had cleared trees from their property to enlarge their yard, improve their view, part of a timber sale, to "clean up" overgrowth, for safety reasons, etc. The wetland behaviors included 6 items that asked respondents if they had altered the flow of water across their property

Table 1. Comparison of utility values among long term residents and more recent residents of the LaPlatte River watershed.

VALUE STATEMENTS	Native Vermonter (n=116)	Moved From Elsewhere in Vermont (n=517)	Moved From Another State or Country (n=210)	Overall Mean	F	p
Utility Value - Wetlands are Useful Areas For:						
Site for Scientific Study	3.78_a	4.24_b	4.23_b	4.18	11.559	.000
Scenic Countryside	4.03_a	4.41_b	4.53_b	4.39	12.978	.000
Livestock Water Source	3.69_a	3.24_b	3.24_b	3.30	6.275	.002
Real Estate Investment	2.31	2.14	2.21	2.18	.904	ns
Floodwater Storage	3.96_a	4.20_b	4.33_b	4.20	6.294	.002
Improving Water Quality	4.00_a	4.29_b	4.35_b	4.27	6.180	.002
Nesting Ground for Birds	4.50_a	4.66_b	4.68_b	4.64	3.848	.022
Home for Endangered Species	4.19_a	4.47_b	4.54_b	4.45	6.746	.001
Land Use Standards - How Wetlands in VT Ought to be Used:						
The rights of landowners are more important than protection of wetlands	2.76_a	2.20_b	1.99_b	2.22	15.331	.000
Residential development around VT wetlands needs to be controlled more	3.62_a	3.78_{ab}	4.01_b	3.82	4.573	.011
Wetlands are nonproductive lands and do not deserve protection	2.25_a	1.66_b	1.52_b	1.70	20.453	.000
My land use practices have no effect on water quality in Lake Champlain	3.18	2.91	2.95	2.96	1.513	ns
It is important to maintain wetlands in their natural state - they are key to clean water	3.93_a	4.16_b	4.30_b	4.17	5.934	.003
Wetland protection should not stand in the way of agricultural productivity	2.83_a	2.22_b	1.92_c	2.23	21.834	.000
Global Environmental Values - Opinions on Water Quality Issues						
I'd make personal sacrifices to improve water quality even though the results seem insignificant	3.80	3.87	3.98	3.89	1.533	ns
Pollution is not personally affecting my life	2.16_a	1.92_b	1.85_b	1.93	3.297	.037
I would contribute time and/or money to a group that works to improve the quality of wetlands	3.15_a	3.27_a	3.54_b	3.32	5.867	.003
Humans have the right to modify the natural environment to suit their needs	2.28	2.17	2.34	2.22	1.731	ns
Environmental organizations are more interested in disrupting society than improving water quality	2.50_a	2.04_b	1.94_b	2.08	9.164	.000
The government need not regulate pollution since individuals will regulate their own behavior	2.04_a	1.57_b	1.52_b	1.62	12.630	.000

a/ Subscripts denote significant differences between groups at the .05 level.

b/ 1=strongly disagree, 2=probably disagree, 3=neither agree nor disagree, 4=probably agree, 5=strongly agree.

by landscaping, adding dry-fill dirt, installing drainage tiles, etc. These behavioral measure were then combined into four land use intensity scales: a lawn and garden scale, a farming scale, a woodland scale, and a wetland scale.

The questionnaire also included social value scales that measured value from three different theoretical traditions (Kuentzel, Tritton, Dennis, & Wang, 1995). The functional tradition defines value as the usefulness of an object for a human purpose. Value from this tradition asked respondents how useful they believed wetlands were and included items such as "for floodwater storage," "improving water quality for lakes and streams," "as a migratory bird resting area," "as scenic countryside," "a real estate investment," etc. The social utility tradition defines value as a collectively shared standard of appropriate activity where individuals embrace values in ways consistent with group membership. Values from this second tradition included items such as "it is important to maintain wetlands in their natural state because they are the key to having clean water," "wetland protection should not stand in the way of agricultural productivity," and "residential development around Vermont wetlands needs to be controlled more." Value from the third tradition is defined as a broad world view or the characteristic orientations of individuals toward the world where values act as selective lens, or frames of reference, for perceiving and dealing with objects and events encountered in everyday life. This world view tradition included items such as "I'd make personal sacrifices to improve water quality even though the results seem insignificant," 'pollution is not personally affecting my life," and "industry is trying its best to develop effective anti-pollution technologies."

This mix of value items addresses the value specificity question. The functional value statements are specific statements about utility outputs that wetlands provide people. The land use standard value items are more general than the functional value items, yet still specific to Vermont and water quality in the Lake Champlain region. Finally, the global environmental values are very broad value orientations toward the environment.

To measure people's preference for recreational experiences, we asked respondents if they felt wetlands were useful for the following types of activities: fur trapping, snowmobiling, cross country skiing, birdwatching, fishing, hunting, hiking, swimming, canoeing, and photography. These items were also measured on a 5-point Likert type scale from strongly disagree to strongly agree.

Finally, to measure the "flatlander" effect, we asked respondents if they had moved to their current residence from 1) somewhere else in Vermont, 2) from another state or country, or 3) if they had always lived at their current residence. The average years of residence for those who had always lived at their current residence was 34 years. The average years of residence for those who moved from somewhere else in Vermont was 11 years, and the average years of residence for those who moved from another state or country was 10 years ($F = 354.62$; $p < .000$).

Analysis

This study used analysis of variance to compare value differences between "natives" and "flatlanders" in the LaPlatte River watershed. It also calculated zero-order correlations between value statements and land-use intensity scales to explore the value/behavior relationship. The analysis also looked at the correlations between value statements and recreational preference statements.

Results

Values in the LaPlatte River Watershed

The results showed little variation among respondents in the utility value statements (Table 1). On average, residents agreed strongly that wetlands provided good nesting grounds for birds (_ = 4.64), are a home for endangered species (_ = 4.45), are scenic countryside (_ = 4.39), are useful for improving water quality (_ = 4.27), are good areas for floodwater storage (_ = 4. 20), and are a useful site for scientific study (_ = 4.18). Conversely they tended not to agree that wetlands make good real estate investments (_ = 2.18), and were neutral on whether wetlands provided a good livestock watering source (_ = 3.30). Standard deviations were relatively small on each of these items, and respondents uniformly recognized the usefulness of wetlands for various human and biological needs.

Table 1 also shows that respondents leaned toward wetland preservation values. They tended to agree with statements like "It is important to maintain wetlands in their natural state because they are the key to clean water" (_ = 4.17) and "residential development around Vermont's wetlands needs to be controlled more (_ = 3.82). They tended to disagree with statements like "wetlands are nonproductive lands and do not deserve protection" (_ = 1.70), "the rights of landowners are more important than the protection of wetlands" (_ = 2.22), and "wetland protection should not stand in the way of agricultural productivity (_ = 2.23). Standard deviations for these items were somewhat larger and average responses were not as extreme as were the utility value items.

Finally, respondents tended to hold pro-environmental values. They tended to agree with statements such as "I'd make personal sacrifices to improve water quality even though the results seem insignificant" (_ = 3.89), or "I'd contribute time and/or money to a group that works to improve the quality of wetlands (_ = 3.32. The sample disagreed with statements like "the government need not regulate pollution since individuals will regulate their own behavior" (_ = 1.62), "pollution is not personally affecting my life (_ = 1.93), and "environmental organizations are more interested in disrupting society than improving water quality (_ = 2.08).

Values and Suburbanization

Table 1 also shows a "flatlander" effect. Native Vermonters were significantly less likely than the other 2 groups to

agree that wetlands are useful areas for scientific study, floodwater storage, nesting ground for birds, home for endangered species, or improving water quality. Conversely, they were more likely to agree that wetlands were a good livestock watering source. Native Vermonters were also less interested in wetland preservation. They were significantly more likely than the other 2 groups to agree with such statements as "the rights of landowners are more important than protection of wetlands," "wetlands are nonproductive lands and do not deserve protection," and "my land use practices have no effect on water quality in Lake Champlain." Conversely, native Vermonters were less likely than the other groups to agree that "residential development around Vermont wetlands needs to be controlled more," and "it is important to maintain wetlands in their natural state because they are the key to clean water." Finally, native Vermonters were not as pro-environmental as the other 2 groups. They were significantly less likely to "contribute time and/or money to groups working to improve the quality of wetlands." Conversely, native Vermonters were more likely to agree that "pollution is not personally affecting my life," "environmental organizations are more interested in disrupting society," and "the government need not regulate pollution since individuals will regulate their own behavior." Overall, there were strong value differences between long-term residents of the LaPlatte River watershed all their lives and newcomers to the watershed.

Table 2. Comparison of the intensity of land use behaviors among long term residents and more recent residents of the LaPlatte River watershed.

LAND USE SCALES	Native Vermonter (n=116)	Moved From Elsewhere in Vermont (n=517)	Moved From Another State or Country (n=210)	Overall Mean	F	p
Lawn and Garden Use Scale	38.58	41.67	52.63	43.98	.859	ns
Woodland Use Scale	8.91_a	3.05_b	1.71_b	3.52	7.765	.000
Wetland Use Scale	14.93_a	2.71_b	1.30_b	4.04	4.098	.017
Farm Use Scale	19.40_a	1.73_b	1.20_b	4.02	19.513	.000
Total Land Use Intensity Scale	77.98_a	48.88_b	45.90_b	52.15	3.655	.020

a/ Subscripts denote significant differences between groups at the .05 level.

Suburbanization and Land Use

The pressures of suburbanization also lead to different land uses behaviors in the LaPlatte River watershed. Table 2 shows that long-term residents of the watershed used their land more intensively than more recently transplanted residents of the watershed ($F = 3.65$; $p = .02$). Native Vermonters were significantly more likely to clear trees on their property, fill wet areas or alter the flow of water across their property, and use their land for agricultural purposes. There were no significant differences between the 3 groups in the intensity of lawn and garden use of their land.

Values and Land Use

Table 3 shows that values were not a powerful predictor of land use behaviors among landowners in the LaPlatte River watershed. Roughly a third (32.5%) of the correlations between values and behaviors were statistically significant. The results shows virtually no correlation between one's values and the intensity of their lawn and garden practices. There was a weak relationship between respondent values and the use of woodlands and wetlands on their property. Those who used their woodlands and wetlands more intensively were less likely to agree that wetlands are good areas for scientific study and a nesting ground for birds. They also were less likely to agree that wetlands were scenic resources. Similarly, those who used their woodlands and wetlands more intensely were more likely to agree that "wetland production should not stand in the way of agricultural productivity", and "the rights of landowners are more important than protection of wetlands." Conversely these woodland and wetland users were less likely to agree that "it is important to maintain wetlands in their natural state because they are the key to clean water." However, the more important message from these results is that one's values are not strongly related to the intensity of woodland and wetland uses by property owners.

Finally, values were more strongly related to agricultural uses of land in the LaPlatte River watershed. Those who used their land for farming were significantly less like to recognize the utility of wetlands for scientific study, for scenery, for floodwater storage, for improving water quality, as a nesting ground for birds, and as a home for endangered species. Similarly, they were significantly less interested in wetland preservation, and slightly less interested in pro-environmental causes.

The results in Table 3 also give some credence to the specificity argument. The more global environmental value statements were significantly correlated with only 2 out of 24 of the respondent's land use intensity scales. Conversely, a third of the utility value statement were significantly correlated with the land use behavior scales, and half of the land use standard statements were significantly correlated with the land use behavior scales (Table 3).

Overall, value statements were weakly correlated with land use behaviors. Values were more strongly correlated with more specific value statements. They were also more strongly correlated with agricultural practices.

Table 3. Zero-order correlations between value statements and scales measuring the intensity of land use behaviors.

VALUE STATEMENTS	Lawn & Garden	LAND USE INTENSITY Woodland	Wetland	Farm
Utility Value - Wetlands are Useful Areas For:				
Site for Scientific Study	.006	-.091**	-.055	-.140**
Scenic Countryside	-.015	-.112**	-.106**	-.202**
Livestock Water Source	-.016	.013	.014	.022
Real Estate Investment	.009	-.033	.008	-.052
Floodwater Storage	.019	-.024	-.049	-.076*
Improving Water Quality	.021	-.035	-.052	-.096**
Nesting Ground for Birds	.020	-.083*	-.088*	-.077*
Home for Endangered Species	-.007	-.091**	-.059	-.140**
Land Use Standards - How Wetlands in VT Ought to be Used:				
The rights of landowners are more important than protection of wetlands	.005	.082*	.086*	.150**
Residential development around VT wetlands needs to be controlled more	.000	-.058	-.048	-.103**
Wetlands are nonproductive lands and do not deserve protection	.011	.030	.112**	.115**
My land use practices have no effect on water quality in Lake Champlain	.047	.021	-.009	.035
It is important to maintain wetlands in their natural state - they are key to clean water	.016	-.090*	-.084*	-.139**
Wetland protection should not stand in the way of agricultural productivity	-.030	.092*	.086*	.179**
Global Environmental Values - Opinions on Water Quality Issues				
I'd make personal sacrifices to improve water quality even though the results seem insignificant	-.032	-.022	-.029	-.058
Pollution is not personally affecting my life	-.022	.004	.030	.048
I would contribute time and/or money to a group that works to improve the quality of wetlands	.046	-.042	-.062	-.113**
Humans have the right to modify the natural environment to suit their needs	.017	.011	.037	.058
Environmental organizations are more interested in disrupting society than improving water quality	-.041	-.024	-.012	.023
The government need not regulate pollution since individuals will regulate their own behavior	-.028	.041	.059	.112**

a/ * - significant at < .05; ** - significant at < .01

Recreational Preference

Table 4 shows that the matrix of social values in the LaPlatte River watershed does not have a strong effect on recreational preference among residents. "Flatlanders," who hold stronger pro-environmental values are less likely than native Vermonters to perceive wetlands as an area for trapping, and more likely than native Vermonters to perceive wetlands as a place for birdwatching. There was not, however, a consumptive recreational emphasis among native Vermonters and a nonconsumptive recreational emphasis among "flatlanders."

Discussion

This has been an exploratory analysis of the relationship of landowner values and land use behaviors in an area of the Lake Champlain basin undergoing change through suburbanization. The data make four points that warrant further investigation.

First, on average, residents of the LaPlatte River watershed hold values that are environmentally favorable. They typically recognize the benefits wetlands provide for people and for ecosystems. They are generally in favor of wetland protection in the state and in the LaPlatte watershed. Finally, they generally hold pro-environmental attitudes and are attuned to the potential for human impacts on natural systems. These values among LaPlatte River watershed residents are consistent with a state that has a strong record of environmental protection, and consistent with a region of the state that has a history of environmental advocacy. The area, however, is not an environmentalist stronghold. There are enough long term residents who use the land in more traditional ways. There were 18 people among the respondents whose primary income still comes from farming. There were also several residents who expressed clear "property rights" values in comments written in the margins. Therefore, this

Table 4. Comparison of the recreational preferences in wetland regions among long term residents and more recent residents of the LaPlatte River watershed.

RECREATIONAL ACTIVITIES	Native Vermonter (n=116)	Moved From Elsewhere in Vermont (n=517)	Moved From Another State or Country (n=210)	Overall Mean	F	p
Fur Trapping	3.17_a	2.66_b	2.75_b	2.76	6.047	.002
Winter Sports (Snow Mobile, XC ski)	3.54	3.30	3.47	3.37	2.455	ns
Birdwatching	4.33_a	4.49_b	4.59_b	4.49	4.251	.015
Fishing and Hunting	4.00	3.77	3.85	3.82	1.935	ns
Summer Sports (Hiking, canoeing)	3.78	3.96	3.97	3.93	1.276	ns
Gathering Plants	3.53_a	3.29_b	3.26_b	3.32	2.245	ns
Photography	4.05	4.18	4.16	4.16	1.006	ns

a/ Subscripts denote significant differences between groups at the .05 level.

suburbanizing region of the state is not an outlier in pro-environmental values, but instead contains a variety of values toward wetlands and water quality.

Second, there was a clear "flatlander"effect. Newcomers to the LaPlatte River watershed have brought different values to the area. These different values are indeed more pro-environmental. Conversely, native Vermonters who use their property in more traditional ways and who use their land more intensively hold values that are less consistent with contemporary environmental values. These native Vermonters were generally more opposed to regulatory solutions to water quality, and somewhat more mistrustful of environmental initiatives that would change their land use behaviors or threaten their profitability. As suburbanization continues, and former farmland continues to be subdivided, the values of native Vermonters and their traditional land uses may encounter increasing challenges.

Third, the relationship between values and land use behaviors was generally weak. Specifically, there was no relationship between lawn and garden use of land and one's value scores. Respondents generally did not make the link between water quality values and lawn care practices such as herbicide and/or fertilizer treatments. There was a moderately stronger relationship between values and woodland, wetland, and farming practices. Those who agreed less with pro-environmental statements were slightly more likely to use their woodlands and wetlands more intensively. Similarly, farmers were less likely to hold pro-environmental attitudes. This may mean that values are consistent with behaviors among more traditional types of land uses. Farmers and others who use their land more intensively may be more aware of their affects on the landscape and on water quality and therefore may be justifying their behaviors with appropriate value statements. For example, farmers must keep close track of fertilizer inputs and manure management systems because of their concerns about profitability. They may be more cognizant of their effect on water quality and must weigh the costs of water purity with economic survival. Conversely, values may be less consistent with the behaviors of new suburban residents in the watershed. Those who use their land for primarily residential purposes may be less aware of how their specific behaviors affect water quality in the region. Water quality values appear to predict behaviors better for subsistence types of land uses, but values are less capable of predicting behaviors for residential land uses in the LaPlatte River watershed.

The results also confirmed that more global value statements had little to do with behaviors. The items that measure one's global orientation to the environment were correlated significantly with only 2 out of 24 items. On the other hand, items that measured specific wetland conservation initiatives and specific wetland utilities generally had more significant correlations with behaviors.

Finally, water quality values were not strongly related to recreation preference. The results offer little evidence that the new suburbanites are also the new non-consumptive recreationist who prefers birdwatching, wildlife photography, canoeing, or hiking, while long term resident are consumptive recreationists who prefer hunting, fishing or trapping. Part of this may have been due to the questionnaire design. Respondents were not specifically about the recreational activities they participate in and their recreational lifestyles. Instead they were asked if they thought wetlands were useful areas for a variety of differing recreational activities.

The results do suggest that recreation may not be the primary force in the call for improved water quality. In other words, it may not be the pro-environmental sailors who are leading the call for clean water in the Lake Champlain basin. Nor is it necessarily the traditional consumptive anglers who are the primary advocates for clean water in the basin. Recreationists may value clean water, but the movement toward improved water quality in the Lake Champlain basin probably has a much broader constituency than recreationists. Clean water advocacy is perhaps more closely linked to quality of life issues rather than to recreational preference.

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Spiritually Beneficial Aspects of Wilderness Recreation Experiences

Laura Fredrickson

Assistant Professor of Environmental Studies
St. Lawrence University, Canton, NY 13617

Abstract: Research on outdoor recreation and leisure concepts has traditionally focused on activities and corresponding behaviors. However, outdoor settings are not merely places for recreational behavior, particular settings may have the ability to produce opportunities for individuals to attain both emotional and cognitive benefits. Some of these opportunities may be considered spiritually inspirational and beneficial. Moreover, some may have the capacity to manifest into numinous or "bliss" experiences, literally transforming individuals who have had such experiences. Prior research indicates that certain landscapes have the capacity to instill in people a meaningful "sense of place", conveying a certain sense of inner peace and connectedness to the land itself. Somewhat discernible within these landscapes are the rewarding experiences that people have, and the associated benefits they realize from visiting such areas. A qualitative cross-case comparison study approach was used to explore 'place' as the source of spiritual inspiration and how it may influence the overall beneficial aspects of the recreational engagement; and in particular relates those findings back to the setting itself. Data was collected from twelve key informants through participant observation, self-report journals, and personal in-depth interviews. The Boundary Waters Canoe Area Wilderness of northern Minnesota and the Grand Canyon of northern Arizona were chosen as study sites and were selected based on their distinctive climatic and geographic features.

Spiritually Transformative Aspects of Place

"The journey of a thousand miles begins with one step" -- the words of Chinese mystic and philosopher Lao Tzu holds great meaning when considering the individuals' life in terms of it being a spiritual journey as well as the physical passage of one's body through the dimensions of time and space. Trained in the art of spiritual guidance and holding two graduate degrees in education and the social sciences, I have become utterly fascinated with exploring the more subtle aspects of intimate person-nature interactions. More specifically, how different individuals perceive various outdoor places, and whether or not this interaction between 'person and place' holds spiritual significance for the individual, and if so, why?

Currently, I teach courses in environmental studies at a small, liberal arts university in upstate New York. Having previously worked in the field of experiential outdoor education, I came to this teaching position firmly convinced that one of the strengths of experiential learning is that it engages all of the individual in the learning process -- mind, body, and soul or psyche. Therefore, much of what I teach in the classroom setting about environmental attitudes and values rests heavily on using the outdoor classroom to help facilitate student learning. Moreover, I consistently challenge students to go out and truly experience the out-of-doors in their on-going search for self-understanding. If presented in a broad enough context, discussing environmental values in the outdoor setting encourages the individual to think critically about how they interact with, and more importantly, impact the environment. Moreover, by encouraging my students to actively experience the out-of-doors, in a sense, pushes them to examine their own personal values and corresponding behaviors in light of larger global environmental issues.

Furthermore, my fascination with 'place' combined with my spiritual guidance training and innate passion for wilderness exploration led me to investigate the concepts of "sense of place" and "sacred space" as it relates to the various benefits people accrue from outdoor recreational experiences. More precisely, those that could be considered spiritually significant or subtly transformative.

The following monograph is a reflection on the spiritually significance aspects of 'place' that is based on a body of research that I conducted over the summer of 1995. The intention of this article is not to simply recount (in an academic sense) the particulars of my research. Rather, the goal of this exposition is to reconstruct for the reader, in a more gestalt-like fashion, how twelve women who previously didn't know one another came together and traveled through wilderness together, coming away from their experiential adventure, literally, quite transformed. Moreover, it is my intention to let verbatim narratives taken from several in-depth, follow-up interviews with trip participants convey to the reader the power of their wilderness experiences.

Conceptions of Place and Wilderness Experience

The questions that guided me throughout all phases of this research essentially centered on reaching a deeper understanding of what it is about particular places that move the individual to a degree of spiritual inspiration -- perhaps even invoking a certain profound personal transformation? In effect, what is it that brings about a certain 'mindfulness' if you will -- a certain heightened awareness to one's own perceptions and associated feelings, that encourages the individual to fully bring oneself into the present moment? Is it the way sunlight glints across the shallow azure water, or the sound of wind as it whispers through sparse branches of a solitary pine perched atop a hill? Or perhaps, it has more to do with the rewards of exposing oneself to the challenges of wilderness, allowing the individual to test one's physical and mental abilities against the vicissitudes of raw nature. But then again, perhaps it is the opportunity to engage in deeply meaningful conversations about life with one's wilderness companions. More than likely, it is a combination of all of these factors -- the biophysical

elements that make up or characterize a particular place coupled with good old physical exertion, plus the somewhat unusual social interactions that typically occur when exploring unfamiliar places with others.

Certainly, particular outdoor places provide unique opportunities for certain types of physical activity and group interaction, such as canoeing the vast maze of interconnected waterways that make the Boundary Waters Canoe Area Wilderness (BWCAW) in northern Minnesota. But also, in somewhat of a subliminal way, the natural features themselves might work more subtly on the individuals' senses and perceptions, thereby increasing the likelihood of achieving this state of mindfulness as previously described.

Various scholars and academicians within the fields of landscape architecture and geography have written about landscapes imbued with meaning, attempting to describe what has often been referred to as a "sense of place" (Brill, 1986; Relph, 1976; Tuan, 1974, 1977). Similarly, it has been inferred that within this sense of place one may find elements of the sublime that act on one's sense of spirit, thereby enhancing and enriching one's spiritual understanding and psychological growth (Nye, 1994). Additionally, much has been written to convey the notion that place is not just the backdrop against which a cast of characters come in and successfully engage in the act of 'play'-- acting out their own personal scripts, Rather, 'place' itself is a meaningful phenomenon, and correspondingly, bestows deep meaning on the individual who ventures out onto the stage. Relph (1976) further contends that place is not just the "where" of something but that the landscape itself, or rather the 'place' itself embodies deep meaning. More precisely, there are certain places that hold significant meaning for the individual because of some deep interaction that has occurred between the person and the place. In that, the particulars of a place affect the deeper levels of one's sub-conscious, thereby encouraging the individual to not only explore the 'outer' reaches of his or her physical world, but moreover, to explore the 'inner' reaches of one's soul.

Highly distinguished 'place' authors Scott Russell Sanders (1993) and Kathleen Norris (1993) have also written extensively about the spiritual significance of certain places. In particular, places that embody a certain spiritual richness -- conveying to the individual a sense of being grounded and deeply connected to the land itself, committed if you will. In like manner, I too, have attempted to explore the more spiritually transformative aspects of place. And although Sanders and Norris use their literary voices to describe in a much more poetic way than I the ineffable qualities of certain places that render them spiritually significant or inspirational, I, in my own way have attempted to explore the more subtle and somewhat indefinable aspects of 'place'. I suspect that the more subtle aspects of place act somewhat as a catalyst -- calling the individual to enter into periods of deep introspection -- perhaps leading to profound self-awareness and self-understanding. Moreover, I suspect that certain places have the power to bring about deeply personal spiritual transformation. Similarly, as suggested by experiential educator Elizabeth Roberts (1996), when one fully experiences the heartbeat of a place one gains a life full of quality and meaning -- for it is through our interactions with the unnamed details of a place that we create our own identity and figure out our life's deepest values and meanings.

'Mindfulness' and the Wilderness Experience

As previously mentioned, my academic interests in person-place interactions combined with my interest in spiritual growth led me to explore the belief that particular places themselves invoke in individuals a certain 'mindfulness' -- providing the individual with opportunities to fully engage all of oneself in exploring the 'outer' aspects of wilderness while at the same time encouraging the individual to explore the 'inner' recesses of wilderness within. More precisely, this inner exploration involves asking the difficult questions one typically asks themselves when faced with significant life-changes such as the death of a loved one, being diagnosed with a terminal illness, negotiating a mid-life career change, or separating from a long-term partner. Frequently, when confronted with significant life-changes the individual feels compelled to contemplate life's deeper meaning, and oftentimes come through this period of introspection with a clearer perspective on why they have been faced with such a challenging situation.

Furthermore, provided with an opportunity for this physical and psychological 'inner-outer' exploration, the individual may come away from such an experience as transformed or deeply changed, if you will. Coming through such an experience may change profoundly the way the individual perceives future difficult life-changes. Instead of viewing change as something to be avoided and feared, difficult life-changes could be re-interpreted as prime opportunities for personal and spiritual growth. In essence, journeying into one's own inner depths is actively engaging in the sometimes difficult process of self-discovery. Ultimately, this process lead to discovering one's own individual power, as well as limitations. Moreover, once the individual embarks on this journey -- even though at times it may be difficult -- the individual frequently comes to see their own life circumstances as a incredibly remarkable opportunities for spiritual and psychological growth. In effect, life with all its inherent challenges and pitfalls is more fully embraced by the individual and soulfully experienced for all the richness it has to offer the human spirit.

Mindfulness is part of the overall fabric of Buddhist philosophy and to play with this notion of 'mindfulness' a bit more, Sogyal Rinpoche (1992), defines it as the practice of living fully in the present moment. Rinpoche further suggests that individuals create such pervasive awareness by way of focused meditation or reflective non-activity. In essence, the practice of mindfulness is the attempt to "bring the scattered mind home, thereby heightening one's perceptions, healing one's relationship with the self and

others, defusing negativity, and eventually unveiling the wellspring of compassion for the world and all its inhabitants." (pp. 56) In this regard, practicing the art of mindfulness empowers the individual to reinterpret challenging life-changes and transition not merely as the ending of one situation simply giving way to yet the beginning of another phase of one's life. But rather, embracing the notion of mindfulness enables the individual to interpret significant life-changes as rich, abundant opportunities for inner-exploration and self-reflection.

Women's Wilderness Experiences

The literature is rife with examples of how an individual's self-esteem and self-confidence is positively enhanced as the result of physically challenging oneself and succeeding in the pursuit (Ewert, 1983; Kaplan & Kaplan, 1983; Kaplan & Talbot, 1983; McDonald, 1983; Young & Crandall, 1984).Yet overcoming physical challenge is not the only thing that can build positive self-respect and self-esteem, leading to feelings of empowerment.

There is a growing body of literature that suggests that women tend to feel more comfortable pursuing recreational activities while in the company of other women. Henderson, et al. (1989) and Colley (1984), found that women tend to feel inhibited and physically incompetent in mixed gender groups while engaged in various forms of outdoor recreation. Moreover, a significant number of women expressed the importance of feeling nurtured and cared for while engaged in the act of recreation indicating a certain need to feel emotionally safe before one begins to experience other aspects of the recreational experience (Henderson, et al., 1989; Colley, 1984).What this suggests is that once the individual feels comfortable and safe in her social surroundings she will most likely fully engage herself in interacting with the physical environment as well.

Experiential Adventure: 'Inner - Outer' Wilderness Exploration

Ironically, all twelve women who had come together with the sole intention of adventure travel through wilderness with other women were also all dealing with significant life-change (i.e., death of a loved one, major career change, separation from a long-term partner, and so on). Through their shared experiential adventure this group of women learned a great deal about themselves and each other. They learned about their own personal strengths and weaknesses -- both in terms of physically and emotionally -- and through their shared struggles and triumphs each of these women came away from the experience feeling deeply empowered. In essence, it was through the act of fully encountering the 'outer' wilderness, or rather, the specifics of a particular place, did these women learn how to navigate the turbulent waters of the 'inner' wilderness as well.

Moreover, the goal of their wilderness adventure was not to see how much ground could be covered in a day, but rather, the goal was to explore wilderness in the shared company of other women, and furthermore, to explore the more "contemplative" aspects of outdoor recreational experiences. Ultimately, the majority of these women came away from their wilderness experience able to deal more constructively and assuredly with the difficult life situations facing them at home.

Research Overview

There were a total of twelve women who participated in this study. Six women canoed through the pristine waters of northern Minnesota's Boundary Waters Canoe Area Wilderness (BWCAW) and six women backpacked across the desert floor of the Grand Canyon in northern Arizona. These two areas were specifically chosen as potential study sites. In that, they differed greatly both in terms of the regional geology, climatic conditions, vegetative mix, and types of wildlife present.

Essentially, two different wilderness areas were selected as study sites based on the tentative assumption that there were an array of environmental features or characteristics that rendered each area as potentially significant in terms of it being spiritually inspirational. Moreover, the idea was to see if there were environmental attributes -- including biophysical, social, and managerial attributes that were common to both areas, and that gave rise to a certain "sense of place" or "sacred space". More precisely, these two areas were chosen as study sites not so much in an effort to prove, per say, that a specific mix of biophysical features coupled with particular managerial activities produce various psychological states, which then lead to spiritually transformative experiences. This would be a considerably daunting task! In that, there are simply far too many variables one would need to consider if the goal of this research was to search for axiomatic proof. Rather, the goal was simply to further the on-going investigation of the elusive qualities that invoke a certain "sense of place" or engender particular places as "sacred space".

In addition, the wilderness areas of the Grand Canyon and the BWCAW offer different levels of physical challenge for those people traveling through them. For instance, when traveling through the BWCAW one must rely primarily on canoe for transportation. There is virtually no established trail system other than the relatively short portage trails that lead from one lake into an adjacent body of water. When crossing the desert landscape of the inner gorge of the Grand Canyon one has two different options -- traveling by pack mule or carrying one's belongings in a backpack and traversing the challenging terrain by foot. It was suspected that the mode of transport might also contribute to, or influence, how the individual actually experienced the place they were visiting.

Woodswomen, a leading outdoor adventure organization with a mission of providing high-quality outdoor experiential adventures for women and groups of women and children provided the logistical support for both trips. This highly acclaimed outdoor adventure organization has an international reputation of providing participants with a physically safe and emotionally supportive adventuring environment. Women who guide for the organization are not only accomplished outdoorswomen who possess

superlative technical skills, but they are also trained in group facilitation, focusing specifically on developing positive interpersonal communication and trust building.

It was not by pure chance alone that these two separate groups of women came together to explore wilderness while in the shared company of other women. The two trips were advertised by *Woodswomen* as being more "contemplative" in nature. Furthermore, in addition to providing women with a safe-space to learn basic outdoor skills, part of *Woodswomen's* mission is to also focus on the more spiritual aspects of the outdoor recreational experience -- introducing trip participants to the more subtle,
self-reflective qualities that characterize many outdoor recreation experiences.

Research Findings

These twelve women were given an exceptionally unique opportunity to feel "safe" in exploring the more philosophical and spiritual aspects of their current life situations while out in wilderness. In a sense, all of these women were presented with an opportunity to more fully explore the emotional and psychological dimensions of their own inner wilderness, if you will, while at the same time regaining a sense of what it meant to be physical. In effect, each of the two trips gave them the time and space to fully reflect upon and integrate the changes that were occurring in their life's lived elsewhere.

Moreover, these particular woman expressed a certain spiritually renewing quality about their wilderness experience, and mentioned that it was primarily due to the fact that they were in wilderness, per say. For many, there was something particularly transformative about being exposed to the raw and unpredictable powers of nature -- far removed from the trappings of modern day civilization. In part, it was the opportunity to attune themselves once again to the basic circadian rhythms life, focusing more completely on 'being' in the present-moment, which led to a degree of mindfulness. The following are excerpts taken from two of the follow-up in-depth interviews:

> *And there I am, sitting out in the woods, in the rain with all the power crashing around me and the lake lighting up with lightening and I'm seeing this incredible landscape with almost x-ray vision, and the rain is coming down, and I'm just encapsulated there. I'm not wet, I'm not cold, I glance around and shake my head in awe at the natural processes that are raging on all around me. And what's even more* [surprising] *is that I don't feel the least bit threatened, instead I feel comforted and truly alive! I sense a power that is really hard to explain and just know that I need more of this in my life -- exposure to the raw powers of nature, and interactions like these with other women in the wilderness. It was spiritual, truly a spiritual experience.*
>
> Trip Participant - Boundary Waters Canoe Area Wilderness

> *I think it's because we get away from the electricity and the phones. It is the simplicity, the daily chores. You develop a certain pride in being able to gather the wood and boil the water and cook your own food. And I say to myself, 'Yeah, I can survive this way out here' and I love it. And so maybe I can extend this and survive* [with simplicity] *when I go back home.*(slight pause) *There seems to be an extrapolation that you can make from the wilderness to civilization... at least I can. Well, you go back to the basics and there's a certain degree of comfort you get. You know what I'm saying? There is this pure simplicity, this is what it is to be spiritual, to be living the spiritual life. Every time I come out here and experience this* [simplicity] *I feel clear and aware, almost electrically charged. I think I am beginning to understand why some people lead the monastic life in nature.*
>
> Trip Participant - Boundary Waters Canoe Area Wilderness

The Power of Physical Challenge

The physical challenges associated with each wilderness environment were at times extremely exhausting. For example, carrying a fully loaded backpack for several miles through intense heat and challenging desert terrain, or sitting out a tremendous thunder storm all alone, crouched down kneeling on one's life preserver, taught these women much about their physical and mental limits. In essence, most of these women experienced a reawakening to their physical capabilities and a renewed awareness of their bodies. This physical "alive-ness" was something that many had lost sight of in the busy-ness of their everyday lives. When asked to comment on the most meaningful aspects of her experience, one participant responded:

> *I can't even fully capture in words what has happened to me since I've been out here. The first day, when I looked out over the lip of the canyon and saw the trail that we were headed down, knowing that my knees were weak, and my spirit as well, I thought to myself, 'There's no way I can do that.' And yet, five days later, my body incredibly tired, I feel more alive, more ready to face the challenges that are at home waiting for me.* (brief pause) *But it's not just that I feel physically healthier, I feel emotionally more balanced, like there is a spark burning deep within me. I haven't remembered feeling that spark since I was a young girl. I suppose its the spirit burning deep inside me, urging me to look at life a little differently from this day forward.*
>
> Trip Participant - Grand Canyon

The Power of Emotional Support

Furthermore, for most of these women this was their first foray into wilderness, per say. All but three of the women had never traveled in wilderness before; and of the three who had previously traveled through wilderness none of the three had ever been part of an all women's' group. In essence, this was an experience that was quite foreign to

most of the women. In fact, this was the first time that many of them had traveled with a group of people they did not know, while at the same time they engaged themselves in an activity (canoeing, backpacking) that they knew very little about. Therefore it seems completely appropriate that some might have a degree of fear and apprehension about their wilderness adventure.

When specifically asked why they had chosen this particular trip, all twelve participants cited the fact that they knew that they would be in the "safety" of other women while out in the wilderness. What this suggests is that some of these women had the predisposed notion that being in the shared company of other women would provide them with a nurturing and caring environment -- something each women admitted to needing when having casual discussions with one another on the trip itself. All twelve women agreed that it was the unique combination of being in a *bona fide* wilderness area coupled with the unprecedented level of trust and companionship they felt with one another that most heavily impacted their overall trip experience. The significance of this is that all twelve women came away from their wilderness trip experience feeling fully empowered --- sufficiently able to deal more effectively with the extreme challenges that life had presented them. The following excerpt conveys the power of emotional support:

> *For so long I had wanted to be with other women in the wilderness, even though I wouldn't necessarily know them. I had a sense that all the artificial differences in our backgrounds would simply fade away and we could just relax and be together sharing our experience. It's different that way. You know, when it's a bunch of women together you can usually count on it being free and easy. And with this group* [women] *I am still in awe of how we worked so well together. There was no competition. There didn't need to be. We consistently helped one another out.* (slight pause). *Its the first time in years, literally, that I can remember feeling so comfortable. Comfortable in a group of other people and comfortable in my own skin if you know what I mean. I hadn't even recognized that these past few years that I've felt like I've been buried... You know, buried under all the things that I am to other people -- wife, mother, child, friend, volunteer. I mean, its taken this trip for me to feel some sort of balance and harmony again. It's as if getting out here, breathing clean fresh air, walking around for miles every day fully loaded down with a pack on my back, feeling my muscles talking to me at the end of the day* (slight pause), *sharing life stories with these other women, it's given me the freedom to pick myself up and dust myself off and think about what I really want in my life from here on out.*

The Power of Wilderness Experience

Throughout time philosophers, environmentalists, theologians, experiential educators, nature writers, and wilderness lovers have all tried to capture in words the power and transformative qualities of a wilderness experience. Many have written personal accounts espousing the notion that the wilderness experience is oftentimes a watershed life event. An experience where the individual experiences a certain clarity of perspective, a certain attunement with the environment that surrounds them, often resulting in a particularly illuminating experience. Oftentimes, the wilderness adventure traveler is afforded the opportunity to contemplate life's most deeply perplexing and profound questions such as *"Why am I here?"* and *"What is my purpose in life?"* Questions that many times get overlooking in the frenzy of fulfilling one's personal, professional and familial responsibilities.

Personal testimonies taken from several of the women described a certain tacit or felt knowledge that the wilderness experience is something set wholly apart from daily reality -- "sacred" if you will. This tacit knowledge of wilderness as having the potential to imbue visitors with a certain spiritual significance or sacredness has come to be recognized by many outdoor enthusiasts as one of the premier reasons for seeking out experiential adventures in the wilderness setting.

> *Absolutely not! When I am out here, amidst the tall trees, soaking up the morning mist while sitting quietly on a rock by waters edge, listening to the cry of a loon, I am in perfect rhythm. A rhythm that I don't think reaches me when I am back at home, even though I go outside on a daily basis when I'm there. There is something different about being here... It's the absolute stillness in the middle of the night, the inaudible support and comfort I feel when sitting around the cook stove at night, sharing my feelings with someone I know[emphasis] understands. Its the knowing that no other human being is within miles around me -- about being truly exposed to the rawness of the natural elements and trusting that whatever comes is as exactly as it should be. <u>This</u> is when I am in touch with what I know as God.*
>
> Trip Participant - Boundary Waters Canoe Area Wilderness

Future Implications: Enhancing Mid-Life Transition

The experiences that this group of twelve women encountered should not be underestimated considering the relatively recent interest in the human-potential movement, and coming to understand oneself throughout the various stages of one's life. Ten of the twelve women who participated in this research were over the age of forty-five, and as previously mentioned, all twelve were experiencing some degree of major life-change. In essence, many of these women were entering mid-life, which for many adults is a time to reorganize or rethink one's roles and responsibilities not only to one's family members, friends, employers, and so on. But moreover, this mid-life transition is for many people a time to reestablish an intimate relationship with oneself.

For many women this is a time that is rife with self-reflection and soulful introspection about life's successes and failures. A time to reevaluate one's lifelong goals and

dreams, discarding those that no longer fit, and dreaming of the endless possibilities of a future that has yet to unfold. It has become widely recognized that this notion of self-discovery -- or rather re-discovery -- is quite common among individuals faced with some degree of life-change. Furthermore, that the on-going process of self-discovery and self-empowerment may be quite essential in maintaining a positive self-image throughout the second half of one's life.

For many people, the out-of-doors provides a mechanism for escape from regular daily pressures, and quite literally, the outdoor environment is the place of *re-creation.* Moreover, as the aforementioned testimonies suggest, wilderness experiences offer a unique opportunity for the individual to experience not only the 'outer' wilderness of the natural world, but the 'inner' wilderness as well -- the wilderness within one's own mind and soul. In effect, this type of wilderness experience offers the individual the opportunity to contemplate both the sacred and profane aspects of life. In a sense, the opportunity to come face to face with the very essence of life itself. For many this experiential encounter with the self amidst the resolute powers of nature is essentially the pathway to discovering a personal 'sense of place' or 'sacred space', if you will, leading to an unprecedented spiritual richness and self-understanding.

What this research suggests is that wilderness experiences have much to offer individuals who may be experiencing significant life-changes, and in particular, women in mid-life transition. What better place to gain a new perspective on the meaning of one's life than out in the open desert, sleeping under a canopy of brilliantly shining stars, or nestled snugly amidst the tall majestic pines, smelling the sweet scent of the ground after it rains? These places, these sacred spaces, if you will, are places where we get to know ourselves on a deeper, more spiritual level. And perhaps more importantly, through exploring the outer wilderness while at the same time exploring the inner wilderness, the potential for developing the "whole" individual is heightened.

End Note

This research offers no concrete conclusions, but rather, opens a series of research vistas to further explore in the future. I cannot say with absolute certainty that 'place' is merely a backdrop for the playing-out of one's semi-conscious spiritual yearnings. On the contrary. In fact, what this research suggests is that 'place' itself work in silent, yet powerfully transformative ways on the individual's sense of self, particularly enhancing one's sense of self in relation to a transcendent dimension. A transcendent dimension that many call god. It is neither my intention nor inclination to search for a definitive on what is, or is not "god" to any particular individual. Rather the results of this research suggests that the potential for developing a more balanced and harmonious individual is awakened through the more experiential aspects of wilderness travel. These types of transformative experiences leave the individual with a keener sense of spirit and a keener sense of place and self, thereby enabling the individual to reconnect with other people and life's challenges in a more responsive and creative way. In effect, encounters with nature teach us to know, and, in knowing, to love -- both the outer world and the inner world of the self. I end with one final closing thought taken from author, poet, and naturalist Stephanie Kaza (1993):

Each tree, each stone, and rock face discloses its own story, its own beauty, revealing the beholder's as well.

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Historic, Heritage, And Cultural Tourism

WALKING THROUGH TIME: HERITAGE RESOURCES WITHIN THE APPALACHIAN TRAIL CORRIDOR

David M. Lacy

Forest Archaeologist, Green Mountain National Forest, 231 North Main Street, Rutland, VT 05701

Karl Roenke

Forest Archaeologist, White Mountain National Forest, 719 Main Street, Laconia, NH

Abstract: Parts of the Appalachian Trail (and nearly half of Vermont's Long Trail) are located on New England National Forests, and managed in partnership with the Appalachian Trail Conference, Green Mountain Club, and other volunteers. Since the Trail corridor is a linear, if serpentine, sample of northern Appalachian highland environments it's not surprising that it often runs on, over, along and/or through a variety of Heritage Resource sites reflecting the rich land-use history of the region. These sites range from Native American quarries and early Euro-American toll roads, to 19th century logging camps, settlements and mines, to historic recreation structures, CCC-erected fire towers and more recent ski areas. While there is some inherent potential for conflict between trail management priorities and historic preservation, the White Mountain and Green Mountain National Forests have been sensitive to both sets of needs through awareness, data collection and planning. Preservation of significant Heritage sites within this National Scenic Trail corridor is a baseline. We also identify the enhancement of the hiking/recreation experience through interpretation of some of these resources as a worthy and feasible goal in the near future.

Introduction

The evocative description of Vermont's Long Trail as a "footpath in the Wilderness" reflects the *recent* history and condition of much of the area traversed by both the Long and Appalachian Trails. Hidden from view and memory are many of the effects of historic activities on the landscape. People have transformed the "wilderness" into active, vital portions of the larger working environment throughout history. So as one of the authors was accurately, but perhaps unfortunately, quoted in the Burlington Free Press last summer, "It's really a footpath-through-the-*re-growth*" (Pollak, 1996).

The physical remains of activities within the Trail Corridors -- evidence of hunting, farming, mining, logging; travel, worship, recreation -- are largely the realm of archaeologists today. These Indian sites, cellar holes, logging camps, fire towers, abandoned travelways, and other physical, vegetative, and sometimes spiritual "artifacts" are our guides to the past. Preservation of significant sites promotes greater understanding of the past uses and conditions of the trails' environments, and an appreciation of the lives and values of our forebears.

As Forest Service archaeologists, we wanted to share a success story about how the management of one special area -- the AT/LT corridor -- has accommodated the needs of more than one resource area and user group at the same time: in this case, the hiking, recreation and heritage constituencies. The combination of a good data base, a mutual understanding of project impacts, an awareness of pertinent laws and regulations, and a reasonably advanced planning cycle resulted in "win-win" management.

Regulation

The National Scenic Trails Act, National Environmental Policy Act (NEPA), and National Historic Preservation Act (NHPA) were all passed in the late 1960's. Within New England's National Forests (and under Park Service administration of much of the Trail Corridor), the application of NEPA and Section 106 of the NHPA to Trail management activities appears to have been a hit-or-miss affair until the mid- or late-1980's. Certainly on the Green Mt NF, the only trail activities subject to regular archaeological review were re-routes of significant stretches of trail (i.e., instances of completely new ground disturbance). Small relocations, reconstruction, and maintenance projects were not reviewed. During the 1980's there was a push to have more inter-disciplinary environmental review (that is, compliance with NEPA) for all types of Recreation projects -- on a par with the scrutiny that Timber and Engineering projects traditionally received.

Inventory Efforts

The combination of this trend toward more environmental review of trails projects, the transfer of AT administration from the Park Service to the Forest Service, and a one-time "President's Initiative" grant, gave the authors the opportunity to sponsor and conduct an "LT/AT Corridor Inventory" starting in 1992. Our goal was to be better able to predict which projects needed field work. The Vermont portion of the survey, completed in 1993 (Lacy and Bowman, 1993), covered 200 miles -- all of the AT within Vermont, and the Long Trail north to Mt Ellen. We documented 57 historic archaeological sites, 25 locations sensitive to prehistoric use, and photodocumented 30 Long Trail shelters. Based on our methods, track record, and subsequent experience, we believe we accounted for ca. 90% of the historic sites within the corridor, and a majority of the areas sensitive to prehistoric use. Collection and synthesis of site data for the White Mountain National Forest is on-going.

Sites Types

As a baseline it is necessary to recognize, in contrast to most of our popular understandings, that the summit regions of Grey Lock (named after an Indian chief), Stratton, Killington, Moosilauke, Mt Washington and other mountains along the way to Katahdin, all the way at Trail's

End, are considered sacred and/or spiritually powerful places by the Indian groups who did and still live here (see Engle, 1993; Lacy, Moody and Bruchac, 1992). This special character is not necessarily reflected in "sites" containing artifacts, but exists as a status of "place" and is established through oral history and continued use. Other, more mundane, activities -- hunting, camping, quarrying -- commonly took place elsewhere within even the most mountainous portions of the corridor and are represented by frequent, small (with significant exceptions, such as rock quarrying locations), archaeological sites (Lacy, 1994). These sites are generally near the surface (since there is little or no soil development to cover them at these elevations) and predictably consist of stone tools and the byproducts of their manufacture (the organic materials once present having long since decomposed). Given the probable small size and buried nature of these sites, they are essentially invisible to most people, thus making them especially vulnerable to unintended impacts.

Evidence for historic (i.e., 18th to mid-20th century) land-use and settlement tends to be more diverse and visible to the uninitiated. Home- and farm-steads leave tell-tale signs such as cellar holes, barn (and other out-building) foundations, field stone piles and stone walls (now running through maturing forests), wells, drives & roads, and, on occasion, instructive landscapes and altered vegetative mosaics. In addition, the remains of more "industrial" activities are quite visible and numerous -- for example, railroad beds, mill ruins (e.g., raceways and dams) and, especially along the VT portion of the Trail, the remains of kilns for producing charcoal for the iron industry.

More recent remains reflect the evolution of recreation activities in New England, from the AMC Huts in the high elevation areas of the White Mountains (Roenke, 1991), to the CCC-constructed campgrounds on both National Forests and the even more recent proliferation of downhill and cross-country ski facilities throughout the area.

Last, but not least, the CCC-erected fire towers reflect both the social and environmental dimensions of our economic history, built to address fire concerns created by an unregulated timber industry by labor drawn from the massive ranks of the unemployed during the Great Depression.

Potential Impacts

By and large, archaeological sites inform us best if (a) as much of the "stuff" -- artifacts, features, structural evidence -- as possible is still there; and (b) the spatial relationships between all that stuff -- where it was originally deposited -- is still intact. Therefore, activities like trail relocation and construction, some reconstruction, digging new waterbars (and determining where they are aimed); borrowing soil and or stones (e.g., from "conveniently" shaped squares?) to build steps, water bars or other trail features; creating new camping spots which have key characteristics (level, well drained spots with access to water and travelways have ALWAYS been popular); siting a new shelter or outhouse; and/or other soil disturbing activities all have potential to impact sites.

Adverse impacts to standing structures along the Trails tend toward (a) neglect and vandalism, (b) removal or elimination, or (c) ill-considered replacement of the old with the new (e.g, shelters). The frequency with which these kinds of impacts occur can be dramatically reduced if site inventories are conducted and site evaluations completed. Sites determined eligible for the National Register of Historic Places ("NHRP": a legal roster of "significant" sites compiled through application of criteria established by the NHPA) generally receive management befitting their status, once recognized. Examples along the AT/LT include the known prehistoric sites along the AT; high altitude Appalachian Mountain Club Huts in the White Mountains; both the Smarts Mountain (NH) and Stratton Mountain (VT) CCC-era Fire Lookout Towers; and structural features of the Long Trail (primarily shelters, and landscape and "character" features) which are significant "by association" since the LT itself was determined eligible for the NRHP.

It is good to remember, however, that it is also true that different activities in different locations will not be equally critical. So, for example, a new outhouse in an area of low-site potential is not a problem, nor are most regular maintenance activities, even if they take place in the vicinity of a significant site. In addition, replacing components of historically significant huts and shelters, bridges or fire lookouts, with in-kind materials, methods and style makes perfect sense in cases of deterioration.

Management

The good news, and the reason for this paper, is our conclusion that with a little planning and sensitivity the Trail and Heritage communities make great partners. By understanding the nature and range of project impacts and having an inventory of sites (lacking this, a good predictive model is very useful), archaeologists can narrow the scope of their review. By being aware of the presence and fragility of archaeological and historic sites, trail managers can make their NEPA planning more timely and comprehensive (e.g.,, they can ensure that an historic preservation specialist is involved). Both Trail and Heritage specialists have a role to play in seeking reasonable alternatives (or palatable compromises) in cases where there is conflict between trails and sites, and first hand experience has on our Forets has shown that this is a simple matter of communication. Archaeologists have an additional responsibility to raise the awareness of trail crews, volunteers and users as to what to look for -- and why these resources are meaningful. It has been the authors' experience that it is the rare exception to encounter folks in any line of work who intentionally destroy historic sites; rather, it is a lack of awareness which leads to accidental and unintentional impacts.

Conclusion

The Appalachian and Long Trail corridors contain evidence of land-use histories documenting changing ecosystems from several thousand years ago to the Great Depression. By investing in baseline inventory data, having a mutual understanding of potential project impacts, and

implementing the NEPA planning process, both the hiking and preservation agendas can be served, as has been demonstrated on New England's National Forests.

Finally, Heritage sites are increasingly popular, and often accessible, enhancements of the recreation experience (or in some cases are destinations in and of themselves). It has been our experience that trail users frequently think it's fascinating to know about the past land-use of the area they are hiking through or camping in. Our next step is to do a better job informing Trail users and managers about what these histories tell us about the ecosystems through which the Trail passes. We are at a point where it makes sense to connect the well-developed, environmentally sensitive Trail constituency with the Heritage Tourism boom that has been sweeping the country. To this end, the senior author has received a small grant from the Eastern National Forests' Interpretive Association to develop and produce proto-type trail head posters on the Green Mountain National Forest. Please join us at NERR's 1998 poster session to see what we've come up with!

Acknowledgements: Our thanks to Eric Bowman and David Mayhew for their dedicated field work

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THE EFFECTS OF SUMMER EMPLOYMENT WITH PARKS CANADA ON STUDENTS' AWARENESS OF HERITAGE.

Andrew Leuty

Research Officer, Economic Research Group,
Department of Canadian Heritage,
25 Eddy Street, Hull, Quebec, Canada K1A 0M5.

Dick Stanley

Chief, Economic Research Group,
Department of Canadian Heritage,
25 Eddy Street, Hull, Quebec, Canada K1A 0M5.

Abstract: A poll of summer students hired in the summer of 1996 by Parks Canada reveals positive changes in the students' awareness of Canadian identity. The larger improvement came from students who travelled away from home versus those who worked near home and from those who worked in a park rather than at an historic site. An examination of the results on a question by question basis reveals the source of many extreme outliers among the results. Almost all of the outliers resulted from the same small number of questions.

Introduction

In the summer of 1996 the Government of Canada initiated "Young Canada Works", a youth employment program for students aged 16 to 19. Under this program approximately 350 students were hired by Parks Canada to work with a variety of professionals at historic sites and in parks. Parks Canada managers approached Strategic Research and Analysis and requested our assistance with the evaluation

The goals of the program were as follows:

- to provide an employment opportunity for Canadian youth;
- to give students an opportunity to work with a variety of professions in the conservation field; and
- to enhance the students' awareness of Canadian identity.

Managers at Parks Canada felt that working at a heritage site, such as a National Park or a National Historic Site, offered a unique opportunity to increase student's awareness of their heritage and enhance their awareness of Canadian identity. These managers wanted to evaluate the impact under program goal number three, that employment with Parks Canada had on students "to enhance the students' awareness of Canadian identity".

Methodology

We suggested the Parks Canada managers use a two stage survey of all students. The survey was designed to measure the changes in the students' attitude and level of awareness over the summer by administering two virtually identical questionnaires, one at the start of work and another at the end and comparing individual responses to each question on the first and second questionnaires they would have an indication of their programs impact.

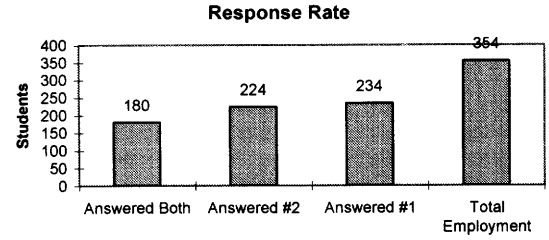
We prepared a dozen questions asking students to indicate their level of agreement with the statement in the question. The students were asked to pick from a ten point scale where one indicated "strongly disagree" and ten indicated "strongly agree". A positive change from most students would indicate that the program had a positive effect on the students' awareness of other Canadians and their heritage.

The Parks Canada managers also drafted a dozen questions. We decided to try both sets of questions and settled on a longer questionnaire with three sections. Section one (Questions 1 -3) gathered data for a brief demographic profile, section two (Questions 4 -14) contained their original questions and section three (Questions 15 -28) contained our suggested questions. In the analysis that follows we have labelled the results of their section of the questionnaire as "Awareness" and the results of our own as "Attitude".

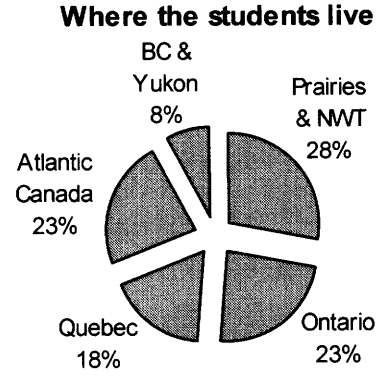
Results

Demographic Profile

A total of 354 students were employed under the program, 234 students responded to the first questionnaire and 224 responded to the second questionnaire. This analysis was performed using only the 180 respondents who answered all questions on both questionnaires.

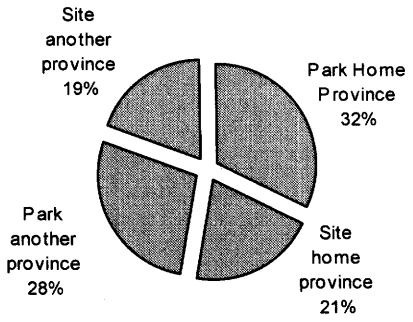


The students were from all across Canada, 23% from Atlantic Canada, 18% from Quebec, 23% from Ontario, 28% from the Prairies & North West Territories and 8% from British Columbia and Yukon.



The programs goal of equal participation from local and out of province youth roughly achieved, 53% worked in their home province and 47% worked away from their home province. Of these respondents 2% worked in a regional office, 38% worked at a historic site and 60% worked in a park.

Where the Students worked



A

wareness and Attitude

The Parks Canada managers had preferred their own questions and they preferred their own initial result.

Section	Average change on the ten point score
Their questions "Awareness"	2.447
Our questions "Attitude"	-0.307

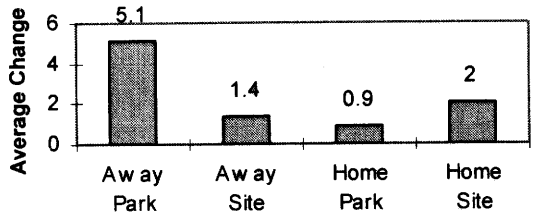
The results of their questions showed an over all improvement of almost two and a half points on a ten point scale while ours showed a decline of almost half a point. The results where very widely distributed and there were some extreme outliers. The results ranged from -27 to +32 for their questions and from -36 to +52 for ours. We wanted to explain the large variance so we examined the demographic profiles. The students home province and mother tongue were not important factors, but where the students worked was important. There were clear differences between those who worked in their home province and those who worked away from home and between those who worked in a park and those who worked at a historic site.

For purposes of further analysis the respondents were divided into the following groups:

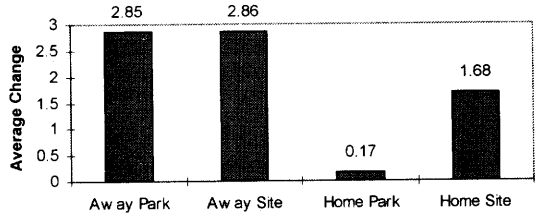
- Those who worked at a park away from their home province (50 students);
- Those who worked at a site/regional office away from their home province (35 students);
- Those who worked at a park in their home province (58 students);
- Those who worked at a site/regional office in their home province (37 students).

The students who worked away from their home province in a park had an average change of 5.1 on the 10 point Awareness scale and 2.0 on the Attitude scale. The students who worked away from their home province at a historic site had an average change of 1.4 on the 10 point Awareness scale and -2.6 on the Attitude scale. The students who worked in their home province in a park had an average change of 0.9 on the 10 point Awareness scale and 1.4 on the Attitude scale. The students who worked in their home province at a historic site had an average change of 2.0 on the 10 point Awareness scale and -4. on the Attitude scale. Once again for each group the results where very widely distributed and there were some extreme outliers in every group.

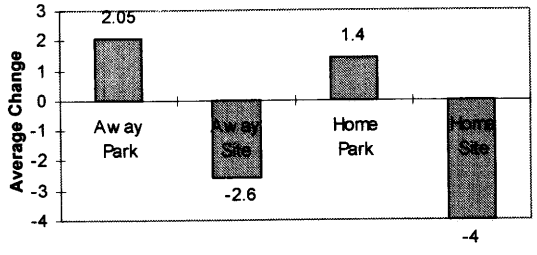
Awareness Raw data



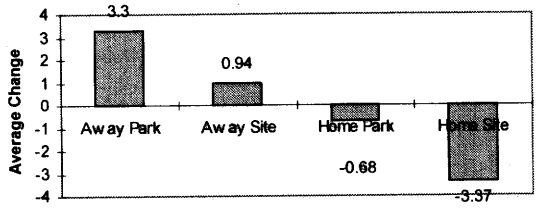
Awareness Clean Data



Attitude Raw Data



Attitude Clean Data



One benefit of a relatively small number of returns is that you can quickly check for data entry errors, there were several cases where a (1) was entered that should have been a (10) and several other small errors, but not enough

to explain the high level of variance. Correcting the data entry errors yielded the following results. The students who worked away from their home province in a park had an average change of 2.5 on the Awareness scale and 3.3 on the Attitude scale. The students who worked away from their home province at a historic site had an average change of 2.86 on the Awareness scale and 0.94 on the Attitude scale. The students who worked in their home province in a park had an average change of 0.17 on the Awareness scale and -0.68 on the Attitude scale. The students who worked in their home province at a historic site had an average change of 1.68 on the 10 point Awareness scale and -3.37 on the Attitude scale. Again for each group the results where very widely distributed and there were still some extreme outliers.

An examination of scores for each question revealed that a lot of the variance was due to a few questions. A look at the these questions revealed three basic problems.

Several of the "Awareness" questions such as Question 8 called for an obvious answer many students rated them ten out of ten both times.

The students who worked away from their home province in a park had an average change of 5.1 on the 10 point Awareness scale and 2.0 on the Attitude scale. The students who worked away from their home province at a historic site had an average change of 1.4 on the 10 point Awareness scale and -2.6 on the Attitude scale. The students who worked in their home province in a park had an average change of 0.9 on the 10 point Awareness scale and 1.4 on the Attitude scale. The students who worked in their home province at a historic site had an average change of 2.0 on the 10 point Awareness scale and -4. on the Attitude scale. Once again for each group the results where very widely distributed and there were some extreme outliers in every group.

One benefit of a relatively small number of returns is that you can quickly check for data entry errors, there were several cases where a (1) was entered that should have been a (10) and several other small errors, but not enough to explain the high level of variance. Correcting the data entry errors yielded the following results. The students who worked away from their home province in a park had an average change of 2.5 on the Awareness scale and 3.3 on the Attitude scale. The students who worked away from their home province at a historic site had an average change of 2.86 on the Awareness scale and 0.94 on the Attitude scale. The students who worked in their home province in a park had an average change of 0.17 on the Awareness scale and -0.68 on the Attitude scale. The students who worked in their home province at a historic site had an average change of 1.68 on the 10 point Awareness scale and -3.37 on the Attitude scale. Again for each group the results where very widely distributed and there were still some extreme outliers.

An examination of scores for each question revealed that a lot of the variance was due to a few questions. A look at the these questions revealed three basic problems. Several of the "Awareness" questions such as Question 8 (How important is it to protect Canada's natural heritage (for example national parks)? (1=Not Very, 10=Very)) called for an obvious answer many students rated them ten out of ten both times. The net effect of most students answering strategically and a few perversely was that for questions like Question 8 the overall impact was close to zero. A few students moved either from ten to one or from one to ten and had individual changes of either - 9 or + 9 causing some of the extreme outliers.

Several other "Awareness" questions such as Question 5 (How would you rate your own knowledge of Canada?) are really two questions. In this question either the student's level of knowledge or the students opinion about their own level of knowledge could change. Eg, the students learned just enough about Canada to realise how little they knew (a negative change of opinion) or they learned a lot about Canada (a positive change of knowledge).

Finally some straight forward questions in both the "Awareness" and the "Attitude" sections appear to have been answered perversely by some students. These outliers were not removed for two reasons: They were not coding mistakes and they tended to cancel each other out.

Conclusions

Under goal number three of the Government Of Canada's Young Canada Works Program, Parks Canada's managers could demonstrate some enhancement of the students' awareness of Canadian identity.

On average students who travelled benefited more than those who worked in their home province and on average students who worked in parks benefited more than those who worked at historic sites. More of the mid range or less extreme outliers were negative and more of these data points represent students who worked in their home province.

The managers at Parks Canada have reviewed these results with site and park superintendents and in their discussions they confirmed these conclusions and offer some explanations:

- out of province students working in parks tended to live communally in bunk houses that offered students more opportunities to socialize with students from other regions of the country;
- students working at historic sites tended to be billeted in private homes that did not offer similar opportunities;
- local students at sites and parks tended to live at home and socialize with their family and friends;
- at some sites and parks certain local students were a source of problems.

Results

Using our analysis of the survey data the Parks Canada managers could demonstrate the benefits of travel as a

result more of the students will be travelling to other provinces and those who do not will be encouraged where possible to share living accommodation with the other students.

Using our analysis of the results for individual questions on the questionnaire, we have persuaded the Parks Canada managers to substantially redraft the questionnaire for next summer's survey.

Other sectors of our department have heard about the survey results and have approached Strategic Research and Analysis for our assistance in developing similar surveys.

BEHAVIORAL PATTERNS OF MUSLIMS AND CHRISTIANS AT THE 1992 KARMEH FESTIVAL: THE CASE OF LEBANON

Houssam Chaar

Graduate Student, The Pennsylvania State University, University Park, PA

Alan Graefe

Associate Professor, The Pennsylvania State University, University Park, PA

Abstract: In this paper, we investigate the behavioral and socio-demographic profile of individuals attending the 1992 Karmeh arts festival, and explore the perceived impact of the festival on promoting harmony between Muslims and Christians as an alternative to traditional political mechanisms for facilitating peace. The methodology used was intended to be widely applicable for studies of short- term events among Muslims and Christians in the country of Lebanon. Data were collected via personal contacts with a random sample of subjects at the only pedestrian crossing point into the festival. Subjects were identified as either a Muslim or a Christian through their names. A total of 213 subjects were interviewed with 143 (67%) completing follow-up interviews one month after the festival, resulting in a sampling error of plus or minus 8 percent. The attendees' characteristics and their behavioral patterns were determined. Christians and Muslims were found to have similar behavioral patterns. The only statistically significant differences between the two groups were in relation to attending the festival with children, buying jewelry, and listening to the singer Tony. A discussion on special events as a force for peace was presented.

Introduction

Tourism involves interaction between human beings and is a cause of relaxation of travel barriers for the sake of mutual understanding and friendship between ethnic groups and world peace. Tourism is an institution that does not prosper in the absence of peace (Burnett and Muzaffer, 1990). Tourists will think twice before considering a trip to a place where violence is in control, like Lebanon in 1975, where troops were armed and ready for a serious confrontation with each other (Colella, 1987). D'Amore (1988) stated that "tourism is potentially one of the most important vehicles for promoting understanding, trust, and good will among people of the world."

Festival or Hallmark events generally are viewed by their organizers and host communities as being social or cultural celebrations. These events can remove confrontations and barriers between people by bringing a happy relaxed atmosphere and togetherness (Goeldner, 1989).

The country of Lebanon has long been famous for its short term events, which were held in different parts of the country until the time when civil war broke out in 1975. This study focuses on The Karmeh Festival (started in 1969) which was held sporadically during the war years. Since the end of the worst part of the hostility in 1990, the organizers of the Karmeh Festival started thinking about the possibility of adopting new ways to attract people of different ethnic backgrounds to meet, socialize and get together in a peaceful manner.

This paper discusses the contribution of tourism as an alternative to political approaches to promoting peace in Lebanon. Finding how effective festivals are in promoting peace in a region is the aim of this study. The Karmeh Festival provides an opportunity for Muslims and Christians to interact in a non-threatening and enjoyable situation. As such it has the potential to increase understanding between the two groups. This study looks at the 1992 Karmeh Festival in terms of the following characteristics of these two groups: a) Attendance patterns, b) Group composition, c) Type of crafts bought at the festival and d) Levels of satisfaction with various aspects of the Festival. In addition, the study explores the perceived impact of the festival on providing a setting that is conducive to promoting harmony between Muslims and Christians. It is assumed that if the behavioral patterns are similar between the two groups, the opportunity for interaction is maximized.

Background

Wars and conflicts between Muslims and Christians have been going on since the 16th century. The crusaders trying to conquer the middle east have fought many wars against Muslims. The constant conflicts between the two groups have set the ground for the continuing struggle in Lebanon. Christians, who account for 43% of the total population, decided to have a separate political entity with the help of an external backer, France, who promised them a political self fulfillment (Europa book, 1993-1994). The Christians failed to be the majority and became one minority in a country of different ethnic minorities. An agreement was reached in 1963 which states that the presidency will be held by a Christian, and the second most important position will be held by a Muslim. Once this compromise was completed, the two communities formed a coalition to underwrite the system, which enabled Lebanon to remain united in the face of internal and external pressures, until 1975. That's when the civil war erupted and lasted until 1990, when president Hrawis' partial implementation of his political plan allowed for political reforms and withdrawal of the various militia from greater Beirut.

Festivals and Hallmark events

Ritchie (1984) has defined hallmark events as follows: "Major one-time or reoccurring events of limited duration, developed primarily to enhance awareness, appeal and profitability of tourist destinations in the short and long term." As for the Karmeh Festival of Arts, it is just one of the many summer festivals that are held in Lebanon. This festival is hosted by the city of Zahleh in the Bekkah Valley in north Lebanon. Attendees come to the festival from around the country of Lebanon and some come from

Syria and Europe. They are either Christians or Muslims, and what contributed to this integration was the stable political climate that Lebanon has been enjoying for more than three years prior to the study.

The atmosphere of celebration and happiness makes people feel relaxed and comfortable with each other, and helps promote trust, and good will (D'Amore, 1988). Festivals events have promoted community cohesion and stimulated tourism (Wall and Mitchell, 1989). Furthermore, facilitating ethnicity or cultural cohesiveness is one of the potential contributions that tourism can make as an agent of political socialization (Ritcher, 1983).

Festivals and tourism as a force for peace

The open-air venues used for festivals encourage a casual and relaxed atmosphere, while the close proximity of performers often results in members of the audience joining in with the dancing, clapping, or singing (Hall and Zeppel, 1990). The common interest of all attendees is sharing and experiencing an authentic culture.

Writing about tourism and peace, Davidson and Montville (1981-1982) suggested that two tracks of diplomacy exist. Track one diplomacy runs through the official channel of communication or the government. This track requires diplomats to make worst case assumptions about an adversary's intentions in order to defend their people's interest. This, no doubt, will lead to distrust. The unofficial channel of people to people relations is noted as track two diplomacy, which includes "unofficial, non-structured interaction. It is always open-minded, often altruistic and strategically optimistic, based on the best case analysis." What track two is stating is that conflict can be resolved or eased by appealing to common human capabilities to respond to good will and reasonableness (Davidson and Montville, 1981-1982).

The operation of tourism is based on track two diplomacy, where information on the different ethnic backgrounds is exchanged directly from one person to another. The political efforts to negotiate peace and cohesiveness among Lebanese have been limited to track one diplomacy and have failed. The main purpose of this study is to show that track two diplomacy has a better chance to succeed than track one.

Methodology

Located in the southwestern part of Asia at the Eastern end of the Mediterranean Sea, Lebanon is about 3 times the size of Rhode Island. Lebanon is bordered by Syria to the north and east, and by Israel to the south. Zahleh is within a 1 hour drive of Beirut, the heart of Lebanon and its capital, and is 2 to 3 hours from most of Lebanon including Tripoli, which is considered the second major city after Beirut. Zahleh has been called the Bride of the Bekkah Valley for a century now. Casinos, theaters, and short-term events are constantly taking place every day in different parts of the city. The Karmeh arts festival is an annual event held in Zahleh, during the 3rd week of August. The 1992 Exhibition was held from Friday, August 21 until Sunday, August 23. Art work is exhibited and sold on the sidewalk, usually between 11 o'clock in the morning and 8 o'clock in the evening. The performing arts are held between 11 a.m. and midnight. Most of the volunteers involved in this event are college students that help in setting up booths, food services, public relations, parking, security, and clean up after the event.

Attendee profile and instrumentation

People from all over the country (Muslims and Christians) attend the Karmeh Exhibition and most of the attendees are from the Beirut area. In order to obtain information necessary for this study, a research instrument was constructed. The instrument included an on-site interview and a follow-up interview conducted with the prospective attendees a month from the time the on-site interview was conducted. The first interview provides immediate feedback about the current activity (Hyman, 1965). Interviewing is generally the most appropriate method for collecting data because it sets the ground for interviewers to get information through face-to-face interaction (Moser and Kalton, 1974). The interview included questions about attendees' status, party composition, behaviors, and attitudes toward the event and how much an individual plans to spend. One thing to be noted is that it was not appropriate to ask the subjects what religion they are, but it could be figured out from their names.

It is important to look at some variables in order to come up with a socio-demographic profile of an attendee. These variables include: group composition, distance of travel, length of stay, number of visits, purpose of visit, expenditure pattern, and ethnicity. These variables give an idea about how willing the attendees are to attend different places and interact with groups of different backgrounds, setting aside all the hostile feelings for a while and enjoying a relaxed, secure atmosphere. The follow-up questionnaire was done at a later time to get a later reaction and more detailed information about the attendees themselves, what they've done, and how satisfied they were. The questions were the same on the second questionnaire with a minor expansion of questions relating to sex, age, ethnicity, length of stay, and numbers of previous visits. One part of the questionnaire was administered in relation to expenditure patterns, and another part dealt with satisfaction towards the festival and perceptions of the extent to which the festival was a force for peace. The selection of the subjects was as follows: Two members of the research team were positioned on both sides of the only entrance to the festival grounds. They were told to pick every 20th person and interview him or her.

The attendees were selected randomly at the entrance without regard to group size, sex, or the way they dressed. The selected subjects were informed briefly about the study and asked if they a) had participated in the study; and b) were age 18 years or older. If an attendee answered no to the first question and yes to the second, he or she was invited to participate in an interview. If the person did not meet the requirements, no interview was conducted.

The research questions for the study focus on whether there are similarities in the behavioral patterns of Muslims and Christians and whether these similarities will lead to promoting peace between the two groups. Muslims' and Christians' responses were statistically compared using Chi-Square analysis at a level of significance of 0.05.

Results

The total number of on-site interviews was 213, with 143 completing the second part of the survey. A number of respondents lived outside the country (70 subjects) and could not take part in the follow-up personal interviews. The tables and figures shown in this paper give some highlights about the significance of some of the variables and what they meant.

The number of Christians sampled at the festival was 57 (39%) and the number of Muslims was 86 (61%) out of the total of 143 participants who completed the interviews. The portion of Christians in the sample was lower because of the bigger and more dominating Muslim population. The majority of attendees were with spouses or children, and relatively few (13-21%) attended alone. One significant difference that was observed was that 67% of Muslim attendees attended with children, versus 51% for Christians (table 1).

Table 1. Group composition of Christians and Muslims attending the Karmeh Arts Festival.

Type of Group	Christians (n=57)	Muslims (n=86)	Chi Square
Alone	21%	13%	1.7
With Spouse	58%	71%	2.6
With Children	51%	67%	3.9*
With Friends	40%	35%	0.4
With Relatives	33%	40%	0.6
With Anybody Else	5%	7%	0.2

* Significant at the .05 level.

Festival visitors purchased a variety of types of arts and crafts, with the vast majority of both Muslims (93%) and Christians (90%) reporting some purchase. There were no significant differences between Muslims and Christians as far as buying goods from the stands, except for buying jewelry. Muslims (63%) were more likely than Christians (44%) to purchase jewelry at the festival (Table 2).

Table 2. Percentage of Christians and Muslims making various types of purchases at the Karmeh Arts Festival.

Type of Purchase	Christians (n=57)	Muslims (n=86)	Chi Square
Crafts	46%	44%	0.0
Jewelry	44%	63%	5.0*
Painting	33%	23%	1.8
Wooden crafts	32%	29%	0.1
Photographs	30%	22%	1.1
Glass	46%	57%	1.8
Pottery	19%	14%	0.7
Leather	33%	37%	0.2
Antiques	63%	65%	0.1
Folkclothes	21%	22%	010

* Significant at the .05 level.

The majority of festival attendees attended some musical performances (Table 3). It is interesting to note that Muslims were more likely (43% versus only 25% of Christians) to attend the concert by the singer, Tony, who is a Christian.

Table 3. Percentage of Christians and Muslims listening to various performers at the Karmeh Arts Festival.

Performer	Christians (n=57)	Muslims (n=86)	Chi Square
Attended Concerts	86%	92%	1.3
Majidah	75%	72%	0.2
Rabih	68%	63%	0.5
Sabah	63%	52%	1.6
Tony	25%	43%	5.1*
Diab	53%	48%	0.3
Fatouh	35%	48%	2.2

* Significant at the .05 level.

Other than these significant differences, there were many similarities in habits for both groups. For example, attending the festival was the primary reason for visiting the area among both Muslims (69%) and Christians (67%). The majority of subjects have attended the festival more than once (table 4), which leads to the conclusion that festivals have strong potential in attracting and encouraging people to attend and interact.

Table 4. Number of previous visits to the Karmeh Arts Festival.

Number of Visits	Christians (n=57)	Muslims (n=86)
One time	42%	44%
Two times	48%	46%
Three times	3%	5%
Four or more times	7%	5%

Chi square = .06 (not significant)

Most festival visitors reported that they felt the festival had some effect in promoting better relationships between Christians and Muslims, although the majority felt the amount of influence was "very little" (Table 5). About 40% of both Muslims and Christians felt that the amount of influence was "somewhat" to "a significant amount." Again, the differences between Christians and Muslims were not significant.

Table 5. Visitors' perceptions of the extent to which the Karmeh Arts Festival helps promote better relationships between Christians and Muslims.

Influence of Festival	Christians(n=57)	Muslims(n=86)
Not at all	4%	4%
Very little	56%	59%
Somewhat	39%	26%
A significant amount	2%	12%

Chi square = 6.3 (not significant)

Conclusion

Results of this study showed that the festival was not only an event that brought people of different ethnic backgrounds together, but also served as an attractive

profitable event for local residents. Generalization of the behavioral patterns of this study could be made with caution to most festivals and Hallmark events in the country.

The contribution of tourism or hallmark events to facilitating ethnic cohesiveness has had a large impact on the Lebanese community in general. The war, anger, and hostile feelings seemed to be put aside at the Karmeh festival, and Lebanese people seemed to be brought closer through understanding environments and heritage. Although results confirmed that a single festival probably would not have a large effect in reducing hostilities or promoting peace, the combined effects of festivals throughout the country and over a period of years may yield considerably more potential as a force for peace.

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The Effects of Festival Attributes Upon Perceptions of Crowding

Matthew Anderson

Masters Candidate, Leisure Studies Program, The Pennsylvania State University, University Park, PA 16802

Deborah Kerstetter

Assistant Professor, Leisure Studies, The Pennsylvania State University, University Park, PA 16802

Alan Graefe

Associate Professor, Leisure Studies, The Pennsylvania State University, University Park, PA 16802

The primary purpose of this study was to explore the relationship between festival attributes and perceived crowding at a festival site. Visitors to the Northwest Folklife Festival in Seattle, Washington, were chosen by a systematic sampling method to complete an on-site and follow-up survey. These surveys included questions which addressed the determinate attributes in choosing to come to the Festival, including programmed and social/experiential attributes. Additional items included on the follow-up survey included service quality and environmental attributes, as well as questions related to crowding.
Multiple regressions were run to test which attributes were related to perceived crowding. Depending on the regression model, "opportunity to relax" and "opportunity to people watch." were found to be significantly related to perceived crowding. The "uniqueness of the festival" approached significance in both regression models.

Introduction

A great deal of research related to perceived crowding has been conducted within the outdoor recreation setting (cf., Ditton, Fedler, & Graefe, 1983; Hammitt, 1983; Knopf, 1987; Kuentzel & Heberlein, 1992; Shelby, Heberlein, Vaske & Alfana, 1983). Manning (in Westover, 1989, p. 258) stated that this research has typically treated crowding as a negative phenomena. However, in situations where people are expecting, if not desiring crowds as part of their experience, this model does not suffice (Eroglu & Harrel, 1986). For example, in retail settings, crowding has been found to be one of the factors that may provide consumers with a sense of excitement and stimulation (Foxall & Goldsmith, 1994; Geller, 1980; Saerget, 1973). A model based on this premise was developed by Harrel and Hutt (1976). It consisted of the antecedents to a purchase, the perception of crowding, the adaptation strategies implemented by individuals, and the outcomes the individuals chose. Eroglu and Harrel expanded upon the model by adding the concept of *functional density,* which has approximately the opposite definition of perceived crowding. Functional density is a term for "good crowding," or when crowding can actually augment an experience. According to the authors, the antecedents or attributes of an experience contribute to the generation of perceived crowding or functional density.

Based upon this approach to crowding, the researcher developed five items forming a perceived crowding/ functional density scale. This and other relevant items were tested at the Northwest Folklife Festival, an annual event held on Memorial Day weekend at the Seattle Center just north of the main metropolitan area of Seattle. The Northwest Folklife Festival provides to its community a wide array of ethnic and regional performers, special exhibits and workshops, street performers, crafts and imports, as well as a variety of ethnic foods. Although the Festival is highly organized in its management and structure, spontaneity is valued as a form of expression at this unique Festival. The cultural theme of the 1996, 25th anniversary festival was *Mabuyah Pilipias!,* or "Long Live the Philippines."

The purpose of this study was to examine the relationship between festival attributes and perceived crowding.

Methodology

In developing the survey instrument, five perceived crowding questions were included to test for both the positive and negative effects of crowding at the Festival. A list of attributes of the Festival was also generated through referencing the literature and discussions with the management of the Festival. The resulting attributes fell into four major categories: 1) integral programmed components of the Festival, 2) aspects of the event that provided social or experiential qualities, 3) the physical environment of the Festival grounds, and 4) the service quality provided by staff and volunteers. For the purpose of this paper, only the integral programmed components and the social or experiential qualities of the Festival were addressed.

In administering the survey, a systematic sampling method was utilized to administer 673 on-site questionnaires to Festival attendees as they entered the grounds of the Festival. This sample size was deemed acceptable at the 95% confidence level $\pm$3%. The investigator and trained volunteers were strategically positioned at four entry gates each of the four days of the Festival. Based on daily attendance estimates, surveys were administered proportionally to obtain as representative a sample as possible. In addition, surveys were administered throughout the day in an effort to eliminate bias.

Individuals were interviewed on site and, if they agreed, were asked to complete a follow-up questionnaire once they returned home. All respondents received a follow-up thank-you/reminder post-card and one additional mailing was made to non-respondents. The overall response rate was 60% (n=406).

The data analysis included descriptive statistics of the demographic background of the sample, and a series of five

multiple regression analyses that explored the relationship between Festival attributes and the perception of crowding.

Results

Table 1 provides a descriptive profile of the Festival sample. Respondents tended to visit the Festival with friends and relatives, and were predominantly local, female, and well educated. Income levels were evenly distributed among the respondents.

Table 1: Overall profile of respondents

Descriptive Characteristics	Percent of Total
Group Composition (n=335)	
Friends/relatives over 18	63.6%[a]
Spouse or partner	46.7%
Own Children	17.9%
Children of friends/relatives	17.3%
Other	5.7%
Visitors' Home Residence (n=399)	
King County	66.9%
Outside King County	33.1%
Gender (n=395)	
Male	36.2%
Female	63.8%
Total Household Income (n=368)	
Under $24,000	20.9%
$24,001-$35,000	8.5%
$35,001-$50,000	21.7%
$50,001-$75,000	21.7%
$75,001 and above1	7.1%
Education Level (n=400)	
Less than High School	2.8%
High School Graduate	6.0%
Trade/Vocational School	3.3%
Some College	23.3%
College Graduate	34.3%
Graduate School	29.5%
Other	1.0%

[a]Individuals could respond to all of the categories that applied; thus, the percentages will exceed 100%.
Note: Percentages may not add up to 100% due to rounding.
The total n of each category does not match as a result of missing data.

Individuals' perception of crowding at the Festival was obtained through five different questions. The first question required respondents to indicate whether other Festival attendees detracted or added to their experience. Most attendees (79%) indicated that to some degree the other attendees added to their experience. The second question addressed whether sights, sounds, and movement within the Festival were "very un-enjoyable" to "very enjoyable." Approximately 92% of the respondents indicated that this dimension was to some degree enjoyable. The next question, which addressed the notion of physical density, directed respondents to indicate if the Festival would have been enjoyable with "many fewer people" to "many more people." Only 11% of the respondents indicated that they would be happier with more people, the majority (52%) were neutral on the issue. The final two questions focused on waiting in lines. Approximately two-thirds of the respondents felt that the lines for food and souvenir vendors as well as performances were tolerable. To provide an overall measure of perceived crowding, an index was generated by summing the means of the responses to the five questions and dividing by five. The reliability of the index, using the Chronbach alpha statistic, was .71.

In order to test the relationship between Festival attributes and perceived crowding, multiple regression procedures were employed. Two models, an importance/performance model and a performance only model, were adopted in an effort to determine: (a) which attributes proved to be significantly related to perceived crowding, and (b) which model accounted for the most variance in the dependent variable, crowding. Further, given the fact that very little research has been done in the festival setting, it was hoped that multiple analyses would provide further insight to individuals' perceptions of crowding. The first model is similar to one proposed by Crompton and Love (1995). To test this model, z-scores were formulated to equalize the importance and performance scales. The importance scale was originally a five-point scale and the performance scale was originally a seven-point scale. The values derived from this model were created by subtracting the z-score values of the performance scores from the z-score values of the importance scores. The resulting values represented the degree to which expectations of each attribute were or were not met.

Table 2: Results of multiple regression of attributes of the Festival on Perceived Crowding: The importance-performance model

Attributes r	Bivariate r	Standardized Coefficient
Music and dance perfomances	.130***	.054
Street performers	.107*	.024
The food	.122**	.065
Crafts and imports shopping	.141**	.055
Opportunity to be with family/friends	.092*	.007
Opportunity to be outside	.141**	.025
Opportunity to people watch.	.127**	.028
Uniqueness of the Festival	.211***	.134
Opportunity to relax	.222***	.137*
Opportunity to socialize	.186***	.070
Opportunity to try new things	.136**	-.010
Opportunity to experience the unexpected	.119**	-.033

R^2 = .092 P=.006 n=295
* significant at the .05 level ** significant at the .01 level
*** significant at the .001 level

Initially, a multiple regression procedure using a listwise deletion was adopted for Table 2. However, the total n on the initial run was 16. Because this did not provide an adequate representation of the sample, programmed attributes with a large percentage of responses indicating "Did not experience" were deleted from the multiple

regression procedure. After deleting these variables from the regression and running a pairwise deletion, the R squared for the remaining 12 variables was .09. The total n for the regression was 404. Pairwise multiple regressions were used for the remaining analyses.

The results shown in Table 2 indicate that on a bivariate level, all 12 independent variables were significantly correlated with the dependent variable. The strongest was "opportunity to relax" (r= .22), followed by "uniqueness of the Festival" (r= .21), and "opportunity to socialize" (r= .19). The multivariate analysis revealed one item, "opportunity to relax," was significant at the .05 level. "Uniqueness of the Festival" approached significance with a significance level of .058. Nine percent of the variance in crowding was accounted for by the importance-performance model.

Individuals were asked to indicate how well the Festival performed on the integral programmed components and the social or experiential qualities of the Festival. The second model, the performance only model, is limited to these performance values. The results shown in Table 3 of the performance only model document that on a bivariate level all the independent variables were significantly correlated with the dependent variable, perceived crowding. The strongest correlations were with "opportunity to relax" (r= .33) and "opportunity to experience the unexpected" (r= .32). The multivariate analysis again revealed that "opportunity to relax" was significant at the .05 level. However, "opportunity to people watch" was also significant at the .05 level in this model. The "uniqueness of the Festival" again approached significance with a value of .052. Just over 24% of the variance in crowding was explained by this model.

Table 3: Results of multiple regression of attributes of the Festival on Perceived Crowding: The performance only model

Attribute	Bivariate r	Standardized Coefficient
Music and dance performances	.248***	.065
Street performers	.232***	.094
The food	.245***	.091
Crafts and imports shopping	.257***	.074
Opportunity to be with family/friends	.199***	.017
Opportunity to be outside	.269**	.033
Opportunity to people watch	.300**	.126*
Uniqueness of theFestival	.302***	.118
Opportunity to relax	.332***	.162*
Opportunity to socialize	.309***	.069
Opportunity to try new things	.248***	050
Opportunity to experience the unexpected	.316***.	075

R^2 = .245 P=.001 n=315

* significant at the .05 level ** significant at the .01 level

*** significant at the .001 level

Conclusions and Implications

Overall, people had a positive perception of the "crowd" at the Festival. More than three-fourths of the respondents indicated that to some degree other people added to their experience. A much greater percentage (92%) suggested that the sights, sounds, and movement within the Festival were quite enjoyable. This finding contradicts much of the research to date in the recreation field. Most studies indicate that crowding is a negative. The findings of this study suggest the opposite.

Both regression models documented that two of the social/experiential variables, "opportunity to relax" and "opportunity to people watch" were positively related to perceived crowding. It seems ironic that one would seek relaxation in an environment with such high density and stimulation. But, as Baum (1991) asserted, for many individuals outdoor natural environments provide relaxation, but for others, an urban environment can also reduce stress. He claims that it is a common bias in research to consider every man made environment one which encourages stress. Relaxation in this context may be seen as an overall release of a daily routine rather than exclusively a low stimulation experience. Further, the fact that "opportunity to people watch" was found to be significant may be linked to the novelty of the Festival, as the Festival provides an abundantly garish atmosphere.

The near significance of the attribute, "uniqueness of the event," is undoubtedly linked to the character of the Festival. Botterill (1986) asserted that novelty is the primary reason for indulging in a touristic experience. In this touristic setting, the novelty of the event is very influential in how one perceives crowding on-site. Further research should address the novelty-crowding relationship.

The varying results between the two regression models suggest that we must be very careful what types of regression models we use when analyzing data and implementing policy based on data. Results on a bivariate level indicated that all of the attributes tested in each regression model were significant, yet when tested in a series of multiple regressions, fewer variables were found to be statistically linked to perceived crowding.

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PERCEPTIONS AND STATUS OF MICHIGAN AS A HERITAGE TOURISM STATE: RESULTS OF AN ELEVEN-MONTH TELEPHONE SURVEY

Gail A. Vander Stoep

Assistant Professor, Department of Park, Recreation and Tourism Resources, Michigan State University, 131 Natural Resources Building, East Lansing, MI 48824-1222

Cultural and heritage tourism have gained increasing attention as a type of tourism in recent years. Through a telephone survey of midwest residents (six states and one Canadian province), respondents were asked about their image of Michigan as a destination for heritage and cultural tourism experiences, about their visits to museums, halls of fame, historic and other heritage sites. Michigan, traditionally a natural resource tourism destination and maintaining a strong image as such, receives far fewer visits to heritage and cultural sites than do other states or regions. If Michigan chooses to expand its potential as a heritage/cultural tourism destination, it must engage in a variety of development, promotional, and collaborative efforts.

Introduction

In recent years, tourism industry professionals and researchers have segmented, labeled, studied and promoted various "types" of tourism. This has occurred partially in response to shifts in tourism markets and traveler preferences/demands. While much travel in the 1980s and before was heavily influenced by a desire for "escape and relaxation," travel motivations in the 1990s has begun to shift to include more interest in education and enrichment. "In the '80s cultural, historical or archaeological treasures were important to 27% of frequent travelers compared to 50% in the 1990s. Understanding culture was important to 48% in the '80s compared to 88% in the '90s" (Lord, 1996). Other reasons for identifying specific "types" or categories of tourism include 1) to better understand tourism decision making and travel behavior, and 2) to use in tourism promotion strategies. Among relatively recently labeled tourism "types" are ecotourism, nature-based tourism, agriculture or farm tourism, heritage tourism, industrial tourism, and cultural tourism. Depending on the context and who is using the terms, their meanings may vary slightly, sometimes resulting in confusion or misunderstanding, particularly for potential travelers. Additionally, tourists seldom label themselves as one type of tourist or another. In fact, more often than not, they are engaged in a variety of experiences during any given travel experience and may engage in different "types" of tourism activities across various trips. Nevertheless, it is useful--for understanding tourist destination choices and travel patterns, for developing attractive travel packages and attractions, for designing and implementing effective promotional strategies, and developing appropriate information and interpretation for travelers--to segment markets and identify the activities, attractions and services preferred and sought by tourists, as well as to understand their perceptions of specific areas and how those perceptions influence their travel choices. It is those perceptions or images, regardless of how closely they match reality, that affect traveler destination selection (Gunn, 1988). In Michigan, as seems to be the case for most of the United States, tourism is becoming an increasingly important industry for economic development. Thus it is critical for state legislators, tourism decision makers (e.g., state travel bureau), local communities, regional tourism organizations, and tourism businesses to understand the nature of tourist behavior, decision making, existing images of the state as a travel destination, and trends in travel patterns and attractions.

Heritage and cultural tourism. "Heritage Tourism is Hot." So proclaims the title of an article in the Business Reports section of the September 1996 issue of American Demographics. In a 1993 issue of History News, Kathleen Brown identifies heritage and cultural tourism emerging as the fastest growing segment of the tourism industry. In a companion article, T. Allan Comp (1993) encourages individual historic sites to connect with other sites and activities (including historic, cultural, scenic and recreational) in their area or region to offer quality, integrated interpretive experiences for increasingly sophisticated tourists who seek such experiences.

Since the early 1990s, focused attention has been given to heritage and cultural tourism. Not only has the tourism industry recognized the important role of historic and cultural resources and events in tourism, but historical and cultural institutions increasingly are recognizing and trying to take advantage of that role. The National Trust for Historic Preservation has implemented a Heritage Tourism Initiative. As part of this initiative and in cooperation with American Express, it has produced a publication (Green, 1993), titled *Getting Started: How to Succeed in Heritage Tourism*, to help communities and historic/cultural organizations better understand travel behavior and the tourism industry, and provide guidelines or suggestions for how to engage actively in tourism. A report on cultural tourism, titled *Exploring America through its Culture* and commissioned by the President's Committee on the Arts and the Humanities, was prepared for the 1995 White House Conference on Travel and Tourism. Reasons for interest in heritage tourism, as identified in both publications and using citations from numerous studies, include:

- a large percent of travelers (statistics vary from area to area and among different studies) visit at least one historic site, district or building;
- visitors to historic sites tend to stay longer in an area and spend more money than those who do not visit historic sites;

- historic sites can create a "hook" to attract people to an area; tourists provide additional dollars to both the historic sites (via entrance fees and gift shop purchases) and the local area (for food, lodging, shopping, other entertainment);
- tourists who visit heritage sites tend to have higher incomes and education than other tourists;
- tourists who visit heritage sites are more likely to stay in hotels and to shop than do other tourists;
- heritage tourism provides an economic reason for communities to preserve historic resources;
- heritage tourism diversifies local economies; and
- heritage tourism provides the opportunity for visitors to gain an understanding of a previously unknown place, time or culture, hopefully broadening personal perspectives and understanding as well as contributing to development of an historic stewardship ethic.

While several characteristics of travelers who visit historic sites are different from those of non-historic site visitors, it should be remembered that not all historic site visitors have the same motivations or visitation patterns. Lord (1996) explains four degrees of consumer motivation for heritage or cultural tourism. Level one cultural tourists, those most highly motivated by cultural tourism, are those who choose a destination specifically because of its heritage sites or festivals. Level two cultural tourists are those partially motivated by historic and cultural opportunities and partly by some other factor. Level three cultural tourists are those who choose trip destinations or activities based primarily on some other characteristic but who plan, as an adjunct activity, to visit an historic site or participate in a cultural event. The final group, dubbed "accidental cultural tourists," are those people who do not plan to participate in heritage tourism, but do so for some other reason (e.g., their hosts decide to take them to a historic site; inclement weather spoils their planned outside activities so they find an alternative).

In Michigan, cultural institutions and organizations are expressing interest in collaborating and working more directly with the tourism industry. The Upper Peninsula Travel and Recreation Association sponsored conference presentations on historic preservation and the roles of interpretation and museums in tourism in October 1996. During the same month, the Midwest Museums Association requested a presentation on the tourism industry, tourist behavior, and strategies for establishing direct linkages with the tourism industry. The Michigan Museums Association currently is developing several heritage tourism initiatives, including a survey, publication and heritage tourism training. Through Michigan State University Extension, workshops in community-based tourism, which include a strong emphasis on heritage tourism opportunities, have been conducted in the past two years. The Michigan travel bureau, *Travel Michigan*, changed its slogan and logo in the spring of 1997 to "Great Lakes, Great Times," intentionally incorporating both natural and cultural resources in the image (see Figure 1.)



Figure 1. The new Michigan tourism logo and slogan reflect both the state's natural and cultural heritage.

Image and Perceptions. Travel choices are made based on a variety of factors, including individual or group preferences, expectations and motivations for a given trip, barriers and constraints (including cost, distance, time available), and image. Image, because it is such a critical component of the decision making process regarding selection of a travel destination, has been studied extensively. According to an early definition by Crompton (1979), image results from a blending of all the beliefs, perceptions, ideas, and impressions that a person has acquired about any object, place, event, or behavior. Matthieson and Wall (1982) include image as an important component of tourist decision making--that it is, in fact, a decisive factor in choosing between two or more travel opportunities. However, they caution that invalid images may create problems. "The larger the difference between image and reality, that is between expectations and experience, the more likely is the tourist to be dissatisfied" (Matthieson and Wall, 1982, 31-32).

Exactly how the elements blend in a person's mind to form an image may not be definitively understood, but three specific components are involved in development of a destination image: cognitive, affective, and conative (Gartner, 1996). The cognitive component is based upon information or fact and includes the individual's understanding of and attitudes about those facts. Sources for the information can be numerous and varied, including both promotion and marketing efforts about the destination (termed "induced" information by Gunn, 1972) and general impressions or information about a place gained, often as background to other messages, from sources such as news media, entertainment media, and discussions with other people (termed "organic" information by Gunn, 1972). The affective component relates to how a person feels about and values a specific object or place. Individuals are different and, because their psychological make-ups, or "sets to respond," are different, they may value and react differently to the same image or set of beliefs about a travel destination (Gunn, 1988). The conative component could

be referred to as the resultant behavior, such as the act of making a specific trip based on the decision.

In the cognitive component of image development, people may have information in addition to "induced" and "organic" information--information based on personal experiences with a specific region or site. Personal experience information (termed "primary" by Phelps, 1986), when available, combines with "secondary" information from a range of induced and organic sources to create an image of a place, such as a specific travel destination. Consistency of messages and source credibility affect the extent of influence on an individual's image development of the place. This image, evolved in a person's mind about a given place, directly influences the travel decision. The tourism industry, if it hopes to attract visitors to a specific destination or region, must identify images people have about the destination and attractions, understand the match or mismatch between those images and what really exists at a site or destination, understand the match or mismatch between the image and travelers' preferences and motivations, and then work to reinforce or change those images, as needed, in ways to influence positively future travel destination decisions.

Study Context

Michigan has long been a tourist destination, with many of its early attractions based on natural resources, often water-based. In the early 1870s, the railroad opened many inland areas of Michigan, including to Grayling (middle lower peninsula) and the Au Sable River. Native grayling became a target of recreational anglers. Soon after, private individuals began introducing rainbow and brook trout; responding to this interest, the State of Michigan began stocking brook and, eventually, brown trout (Williams, 1997). Specially designed shallow draft boats were constructed to support this resource-based recreational activity. In the late 1800s and early 1900s, fishing camps, hunting camps, and resorts were developed throughout Michigan, especially in northern areas, along shorelines, and on Isle Royale. Passengers boarded excursion steamers for holidays on the Great Lakes. Despite this early emphasis on natural resource-based recreation and tourism development, cultural and historic attractions have been components of tourism in Michigan for many years. For example, Mackinac Island, designated Michigan's first state park in 1895 and always been for its quiet (motorless) natural island environment and extravagant resort amenities boasts one of Michigan's most well known attractions, Fort Mackinac, a fort founded in 1789, given to Michigan in 1895, and now portraying military life of the 1880s to visitors.

Michigan has several interesting characteristics that make it unique among other areas of the United States. First, it is comprised of two peninsulas (upper and lower peninsulas), finally linked physically in 1957 with completion of the Mackinac Bridge. As a peninsular state, Michigan has nearly 3,300 miles of Great Lakes shoreline--more than any other state except Alaska--and almost 97,000 square miles of Great Lakes surface area within its borders. Adding to its extensive water resources are hundreds of inland lakes (totaling approximately 1,000 square miles), 36,350 miles of rivers, more than 150 waterfalls (D'Itri, 1995), and 12 existing or proposed underwater preserves (Nelson and Childs, 1996). Thus, water-based travel and recreation opportunities annually attract thousands of recreational visits by residents and visitors from across the country. Among them are thousands of boaters. For years, Michigan has been identified as one of the top two or three states for boating activity, which is supported by nearly 90 harbors with Great Lakes access (Talhelm and Vrana, 1995).

Additionally, Michigan is rich in forested land, having four national forests (more than 2.7 million acres), six state forests (3.9 million acres), 57 state game and wildlife areas (covering almost 300,000 acres), four National Park Service units, and 96 state parks (Nelson and Childs, 1996). Some of the areas (e.g., Sleeping Bear Dunes National Lakeshore, Pictured Rocks National Lakeshore, Isle Royale National Park) incorporate both spectacular land and water resources, providing varied opportunities for visitors.

Because of its location--northern United States, water-surrounded--Michigan has a relatively short summer travel season. Even summer weather, while often hot, can be cool and rainy. Winters can be cold, long and full of snow, particularly in the upper peninsula. Thus, some might believe the climate to be a constraint to the length of the tourist season. However, fall colors, winter attractions and activities (e.g., crosscountry and some downhill skiing, snowmobiling, winter carnivals), and spring maple sugaring activities can extend the natural resource-based tourism season. It is within this heavily natural resource-based context that heritage and cultural tourism are striving to develop.

Despite, and more realistically because of, these extensive and varied natural resources, Michigan does have a long history of human habitation. Accordingly, it has numerous historic and cultural attractions and stories, reflecting both prehistoric times (e.g., Paleo Indian copper mining on Isle Royale, Native American trade routes across the southern portion of the lower peninsula and along waterways) and development since European contact. Military activity, such as at Colonial Michilimackinac, a fur-trading village and military outpost established in 1715 and at Fort Mackinac in the late 18th and 19th centuries, contributes to Michigan's colorful history. Little recognized is the extensive involvement of Michigan troops in the Civil War. In addition to military influence, much of the state's post-European contact history has resulted from economic development of the state's natural resources: copper and iron mining, fur trade, commercial fishing, lumbering, transportation along the Great Lakes...and recreation and tourism.

Purposes of the Study

The purposes of this study are to 1) describe the perceptions (or image) of Michigan as a travel destination, specifically with regard to heritage and cultural tourism, held by residents of six midwestern states and one Canadian province, 2) identify traveler visitation to historic, heritage and cultural sites, and 3) compare characteristics of heritage tourists with those of non-heritage tourists.

Methods

This study is part of a much larger, three-year household telephone survey assessing travel patterns, choices, and perceptions of residents in the midwest. Developed in cooperation between the Michigan Travel, Tourism and Recreation Resource Center (TTRRC), the Michigan Travel Bureau (now Travel Michigan), and CERTEC consulting firm, a 140-item questionnaire, structured in several blocks, was developed to assess residents' 1) awareness of tourism promotional materials (for Michigan and the other states and province), 2) image of Michigan, 3) pleasure travel patterns, in general and specifically to Michigan, for the past 12 months, 4) influence of advertising on destination choices, 5) trip expenditures, 6) future travel plans, in general and specifically to Michigan, and 7) personal and household characteristics.

The larger study, containing a core of questions to be used across all three years, was structured to incorporate a different set of special topic area questions during each of the three years. The special areas identified are 1) cultural/heritage tourism, 2) natural resource-based tourism, and 3) special attractions and festivals/event tourism. Thus, during the first year (the time frame of this study), a series of questions related to travelers' perceptions of Michigan as a heritage tourism state and about their specific travel behavior related to visits to museums, halls of fame, historic sites and buildings, and other heritage tourism attractions was asked. It should be noted that, while festivals and special events contribute significantly to heritage and cultural tourism, they are not specifically included in this study because they will be addressed along with special attractions in the focus segment during year three of the larger study.

Initially the survey contained nearly 200 items. During pilot testing it was determined that the time it took to complete a survey was too long for the telephone interview format. Therefore, numerous questions were dropped or revised, resulting in a 140-item questionnaire. In this reduction, heritage tourism-related questions dealing with motivations, satisfaction, and detailed heritage experience preferences were deleted. The remaining questions related to heritage tourism were primarily descriptive, dealing with travel behavior. A few questions in the larger survey that addressed seasonal issues (e.g., boating in the summer, snowmobiling during the winter) were changed depending on the season in which the interviews were conducted. However, those changes are not relevant to the heritage tourism part of the study.

During an 11-month period (October 1995 through August 1996), a sample of 6,073 residents was selected for participation in a household telephone survey. The study area included Michigan, five nearby midwestern states (Ohio, Indiana, Illinois, Wisconsin, and Minnesota), and the province of Ontario, Canada. Residents/respondents were randomly selected through random digit dialing.

Administration of the survey was conducted in the TTRRC's CATI (computer-assisted telephone interview) lab via a bank of computer-supported telephone stations, from which trained interviewers contacted and interviewed respondents. Some of the respondents (if they had not traveled in the previous 12 months) received an abbreviated form of the survey, providing only household demographics, while others (if they had traveled in the previous 12 months) were asked to participate in an extensive version (approximately 140 items) of the survey. In completing a full interview, responses to specific questions might direct the interview to designated blocks of questions, resulting in skipping of irrelevant questions for respondents. When the same questions were incorporated in alternative blocks, responses from both were included in the analysis. The mean time required to complete an interview was 12 minutes, with a maximum interview length of about 20 minutes. Outright refusals by residents to participate in the survey are not indicated here. In some cases, respondents chose to terminate the interview prior to completion. Also, on occasion, respondents may have chosen not to answer specific questions. Therefore, the sample size for any specific question may not be 6,073. For this reason, results are presented as valid percents based on those who responded to the given question rather than actual percents of the entire sample (the "n" for individual questions will be indicated when other than 6,073). Additionally, the data are weighted proportionally based on the relative total household numbers in each state and Ontario to account for uneven sampling across the sampling areas. The number of respondents from each state is indicated in Table 1.

Table 1. Sample sizes by state or province.

State or Province	Original Sample Size	Weighted Sample Size
Michigan	1,292	979
Ohio	904	1,174
Indiana	702	599
Illinois	765	1,205
Wisconsin	828	528
Minnesota	782	478
Ontario, Canada	800	1,110
TOTAL	**6,073**	**6,073**

Questions dealing with image allowed respondents to rate places based on a 10-point Likert scale, with 10 being the most positive rating. In open-ended questions, respondents were allowed a maximum of three responses each about their positive and negative impressions of Michigan. For questions describing travel destinations and activities, lists were provided, but in most cases an "other" category was

provided. Due to the lengthiness of the survey, the majority of questions were close-ended. However, respondents were able to provide open-ended responses for some questions (e.g., "What did you enjoy most [or least] about this trip?").

Results

General travel patterns. Of the total 6,073 respondents, 69.5% had taken a trip of some kind in the previous 12 months. Of the 3,852 respondents who answered the question about having taken a pleasure trip anywhere in the previous 12 month, 93% responded positively. Thirty-nine percent (of 4,125 responding) indicated they had taken a pleasure trip to Michigan in the previous three years. (Notes: The smaller percent of travelers to Michigan will affect the overall "n" used in describing destination choices and activities related to heritage tourism in Michigan. Detailed questions about activities during a specific trip are restricted to a pleasure trip within the previous 12 months.)

Image of Michigan as travel destination. Thirty-seven percent of respondents rated Michigan high (8, 9 or 10 of 10 points possible) as a popular pleasure trip destination, which places Michigan in a first place ranking when compared with the other states in the study. Only Ontario received a higher percent (47%) of 8, 9 and 10 ratings. For comparison, this places Michigan and the other midwest states lower than states generally perceived to be major tourism destinations: Colorado and Florida, each receiving an 8, 9 or 10 rating by 60% of the respondents. (See Table 2.)

Table 2. Percent of respondents rating each state/province 8,9, or 10 as a desirable tourism destination

State or Province	Valid Percent	# Respondents Answering Q
Florida	60	3,015
Colorado	60	2,703
Ontario, Canada	47	2,714
Michigan	37	2,927
Wisconsin	32	2,692
Minnesota	26	2,593
Illinois	24	2,923
Ohio	22	2,667
Indiana	15	2,728

When asked about their image of Michigan as having interesting museums, 36% (n=2619) gave Michigan a rating of 8, 9 or 10, which is comparable to the percent of respondents indicating Michigan as a popular destination. However, far more respondents gave Michigan a rating of 8, 9 or 10 for recreation or travel opportunities related to natural resources: 69% for "great scenic appeal" (n=3524), 68% for "great summer outdoor recreation" (n=3480), and 66% for "great winter outdoor recreation" (n=3177). Michigan residents (63%), more than residents of other areas (ranging from 33% to 48%), were more likely to rate Michigan high (8, 9 or 10) as having interesting historic sites. They also were more likely than residents of other areas to rate Michigan high (8, 9 or 10) as having many interesting museums (52% of Michigan residents, 46% of Ohio residents, 37% of Indiana residents, and 19-30% of respondents from other states/province in the survey).

When asked in an open-ended question to identify specific things contributing to Michigan as a popular tourism destination, respondents were allowed to identify a maximum of three things. A total of 3,769 individuals responded to this question, providing a total of 6,277 responses. Thirty-four percent of the respondents indicated, as one of their top three "positive impressions," lakes, lakeshores or other water-related elements" (including marinas, boating, swimming). Nearly 14% indicated general scenery, 11% indicated woodland-based nature (trees, woods, forests), 10% indicated Upper Peninsula/north country, 7% towns and cities, and nearly 7% indicated elements of the Mackinac Straits area. Fishing and seasonal climate were the only other elements identified by at least 5% of those responding to this question. By far, the strongest "positive impression" elements are related to Michigan's water and other natural resources, including associated outdoor activities. On the other hand, when asked about elements contributing to a negative image of Michigan (3,734 people responding with 4,243 items), respondents most often identified "Detroit," "violence in Detroit," or "crime and violence" in general (combined, identified by 23% of the respondents).Nearly 13% identified climate as a negative element and 4% identified infrastructure problems, most notably poor road conditions. (Forty-six percent of respondents said they had no negative impressions of Michigan.)

Travel related to heritage tourism. Respondents' actual travel behavior showed less support of Michigan heritage sites than did their image ratings. While 59% of travelers stated they had visited a heritage site during any recent pleasure trip, only 15% had visited heritage sites in Michigan. Nevertheless, travelers did visit heritage sites in Michigan. Of those who had visited Michigan in the past 12 months (n=941), 27% (n=256) had visited some kind of museum or historic site. However, the types of heritage and cultural sites visited most often were a bit different from sites visited elsewhere. Visits to historical museums (35%), art museums (30%), science museums (14%), and natural history museums (11%) were identified most often when they visited locations outside of Michigan. Between five and 10% of those visiting some type of heritage site also visited historic homes, halls of fame, historic towns and battlefields. Those who visited heritage and cultural sites in Michigan (n=256) also visited historical museums (39%) and art museums (16%) most often, but they were much more likely to visit forts (13%), historic towns (9% in Michigan vs. 6% elsewhere), lighthouses (8%) and maritime museums (5%) in Michigan than elsewhere. Ships (3%) also were visited slightly, though not significantly, more often in Michigan than elsewhere.

Demographics. Information requested in the personal/household characteristics block included: city,

state, county and zip code of residence; total number of persons living in the household; inclusion of pre-school child, school-age child less than 18 years old, senior citizen or handicapper person in the household; number of full-time wage earners in the household; employment category; racial/ethnic group; and household income. Some characteristics of groups that visited heritage sites were similar to those of other travelers. However, two group characteristics of those who visited heritage sites were different than for other travelers, using α=.05, and another if less rigorous significance level (α=.1) is used. Visitation to heritage sites increases as income increases (of those who visited museums, 38% had annual household incomes of more than $50,000, 33% had incomes between $31,000 and $50,000, and 29% had incomes of $31,000 or less). This annual income is significantly higher (P=.000) than for those not visiting museums or historic sites. Groups or families with preschool children were significantly less likely to visit heritage sites than those without preschool children (P=.001). Groups including a senior citizen were slightly less likely to visit a heritage site than groups without a senior citizen (P=.07). While households including a person with disabilities were no more or no less likely to visit a museum or historic site, very few respondents (3.7%) indicated having a person with disabilities in the household. It is not possible to make any comparisons of visitation to heritage sites based on race and ethnicity. This is in part due to difficulties in clearly identifying race (as the open-ended question was worded) because responses included a mix of race, ethnic background and nationality. Even with this variety of responses, an overwhelming majority of respondents (80%) identified themselves as white, Caucasian or Anglo.

Discussion and Recommendations

Michigan has a wealth of existing and potential heritage and cultural resources, attractions and stories. Yet, though over one third of all respondents who had traveled anywhere in the past 12 months rated Michigan highly as having many interesting museums and historic sites, a much smaller percent of people who have visited Michigan in the past 12 months included a visit to a historic site or museum. Comparing this with national data collected by the Travel Industry Association of America (TIAA) from adults planning to take a pleasure trip in 1996, Michigan receives considerably fewer visits to historic or cultural sites. In the TIAA study, 45% planned to visit a historic destination and 41% planned to visit a cultural destination (Dickinson, 1996). Michigan heritage site visitation also is less than that indicated by respondents in a study of inbound international travelers to the United States in 1994. Results of that study indicated that 30% of those travelers planned to visit historical places and 23% planned to visit museums and art galleries, thus ranking historic site visits fifth and museum visits seventh of all planned activities, including shopping and dining (Moskin and Guettler, 1996).

Despite its abundance of historic stories, Michigan falls behind national travel patterns with regard to visits to heritage and cultural sites. Perhaps this is due partly to strong perceptions of Michigan as a natural resource-based tourism destination as well as the traditional travel to Michigan being for outdoor activities and other natural resource-based experiences. Perhaps Michigan is lacking (or perceived to be lacking) in accessible, quality historic and cultural resources in some parts of the state. Perhaps the cultural and heritage sites are not well connected with other local or regional tourism businesses and attractions. Whatever the reasons, if Michigan wants to expand its tourism development efforts with heritage and cultural tourism, and if it hopes to compete with other states and international tourism regions for tourists interested in heritage and cultural tourism, it must actively work to change the image and promote its heritage and cultural attractions. Some recommendations include:

- Heritage and cultural attractions must be identified and assessed for their potential (e.g., location, quality, proximity to tourism infrastructure and amenities) as tourist attractions.
- Individual heritage and cultural attractions, as well as the communities within which they exist, must decide if and to what extent they choose to be involved with tourism development.
- Professionals in museums, historic sites, and other heritage and cultural resources must work closely with local, regional and state organizations (e.g., convention and visitors bureaus, public officials, travel organizations, other tourism businesses, and other destination marketing organizations) involved with tourism development.
- Tourism training should be provided for professionals in museums, historic sites, and other heritage and cultural resources. Likewise, tourism professionals should become more familiar with the role museums and heritage sites can play in tourism.
- The image of Michigan as a tourism destination must change or expand to include heritage and cultural sites. This includes an effort to actively promote these sites in ways to make them attractive to potential visitors. (To avoid dissatisfaction based on differences between image/expectations and experience reality, the promotions must be accurate.)
- Heritage and cultural sites should be integrated with various tourism packages: bus tours, community walking tours, highway or waterway heritage routes, promotional packages, discounted multiple site/single fee ticket sales.
- Communities might become involved in integrated heritage tourism development by creating historic districts or cultural landscapes, making efforts (through publicity, collaborative efforts, tax incentives, grant opportunities, etc.) to encourage preservation of the historic and natural settings of the community.
- The state's travel promotion efforts should more actively incorporate heritage and cultural images, including through its logo and slogan.

- If groups with young children and senior citizens are to feel welcome at heritage and cultural sites, there must be changes in programs (to entice and engage children), facilities (structural modifications and communication systems to accommodate senior citizens), organizational culture and promotion of those sites (to overtly welcome and encourage visitation by *all* people, regardless of age or physical capabilities).

Results of this study further support those of numerous other studies which note that visitors to heritage and cultural sites tend to have higher incomes and education, tend to take longer trips, are more likely to stay in hotels (a source of "bed" or other taxes that often support local tourism efforts), and have more interest in shopping than visitors who do not visit these sites (Moskin and Guettler, 1996). While a goal of cultural and heritage institutions may be to become more accessible *all* people, including those not traditionally visitors of such places, the tendency for more educated, more wealthy visitors to participate in heritage tourism makes them attractive to tourism developers. Thus, it is in the interest of tourism developers, communities and the state to support development and promotion of heritage and cultural sites. Suggestions provided above offer considerations for further development of heritage and cultural tourism, both in Michigan and elsewhere. It should be noted that Michigan already has begun these efforts, as is evident by its new logo (containing a lighthouse and water scene), new slogan (Great Lakes, Great Times), and identification of cultural tourism as one of four tourism product categories for which it believes the state has a distinct competitive advantage (Travel Michigan, 1997). Additionally, as indicated in the introduction of this paper, cultural institutions and professional organizations within Michigan already have begun a series of initiatives to further the cooperation between cultural/heritage institutions and the tourism industry. To determine the impact of these efforts, consistent and regular monitoring should be implemented.

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AN OVERVIEW OF CONTEMPORARY AMERICAN RODEO

Gene L. Theodori

Research Assistant, Department of Agricultural Economics and Rural Sociology, Penn State University, 301 Armsby Building, University Park, PA 16802

Abstract: Impromptu roping, riding, and racing affairs and western pageantries whetted public appetites for a competitive cowboy sport. Despite its increasing popularity and types, American rodeo has received little attention from social scientists. This paper discusses seven different types of contemporary rodeo—professional, women's, collegiate, high school, senior, gay, and military—and their common historical origin. The popularity of rodeo in contemporary society is attributed to prevalent agrarian beliefs and the rural mystique among the public and to a long line of promoters and organizers who have increasingly commodified it.

Introduction

Rodeo is one of America's fastest growing sports. Because of its sociological and economic significance, rodeos have been held in all 50 states. Today, the PRCA is the most dominant association in rodeo, with nearly 10,000 members, including contestants, stock contractors, bullfighters, and other non-contestant members (PRCA Media Guide 1995). In 1994 the PRCA sanctioned 782 rodeos in 46 states and 4 Canadian Provinces, in which a total of 9,761 PRCA card holders and permit holders competed for $23,063,793 in prize money (PRCA Media Guide 1995). In 1990, according to Weisman (1991), the PRCA and the International Professional Rodeo Association (IPRA) together sanctioned 1,100 rodeos, which attracted 18 million spectators and produced $80 million in ticket sales. Like other professional sports, PRCA rodeo, and to a lesser degree IPRA rodeo, has become recognized in the athletic mainstream due to an increase in media exposure and major corporate sponsorship. However, many other rodeo associations hold thousands of rodeos each year of which social scientists know little about.

Contemporary American rodeo has many organizational types (i.e., professional, collegiate, high school, youth, women's, gay, black, Indian, senior, prison, military, ranch, and others). With the exception of LeCompte's (1989a, 1989b, 1990, 1993) studies on the Women's Professional Rodeo Association and Dubin's (1989) ethnography of Native American rodeo, types of rodeo other than PRCA rodeo have been ignored in the scientific literature. The types of rodeo examined here include: women's (Women's Professional Rodeo Association/Professional Women's Rodeo Association), collegiate (National Intercollegiate Rodeo Association), high school (National High School Rodeo Association), senior (National Senior Pro Rodeo Association), gay (International Gay Rodeo Association), and military (Military Rodeo Cowboys Association). These associations were selected for two reasons. Although each is the only national or international organization of its kind, none has been systematically studied. Also, the emergence of these associations appear to have paralleled important societal changes that have occurred since the turn of the century.

This paper extends work on rodeo begun by anthropologists. It identifies and describes the organization of different types of contemporary rodeo in terms of its participants, structure, and activities (Olsen 1968). It also examines the functions (i.e., the contributions rodeos make to the communities in which they are staged) and possible dysfunctions rodeos perform. The history of rodeo is discussed first, followed by an identification and description of the organization of various types of rodeo. Lastly, ideological, economic, and social functions of rodeo are discussed.

Data for this study were collected using archival and historical investigation, document analyses, and in-depth interviewing of representatives of selected rodeo associations and unique types of rodeo. Furthermore, community-level data (e.g., economic impact estimates) were obtained through telephone conversations with representatives of chambers of commerce and professional organizations in communities that conduct a rodeo association's finals or championship rodeo.

Origins of rodeo

Lawrence (1982) and Fredriksson (1985), among other rodeo writers, assert that the origin of rodeo and its contemporary types is rooted in a combination of elements traceable to two post-Civil War era activities: (1) the roping, riding, and racing exhibitions staged among working cowboys for entertainment, and (2) the wild west shows.

Rodeo evolved as a natural result of the cowboy's need for play and recreation (see Deaton 1952; Kegley 1942; Norbury 1993). After months of strenuous labor moving cattle throughout the country, cowboys would get together and celebrate. For amusement at the end of the trail, cowboys would gather and compare their roping and riding skills. These early celebrations were exhibitions; they were a place where cowboys could show off the skills they had acquired on the range. Soon afterwards, though, these exhibitions turned into competitive matches, staged among both intra-ranch and inter-ranch cowboys. Impromptu competitions became commonplace as cowboys competed for their share of the prize pot, or at other times simply "just for the hell or glory of it" (Durham and Jones 1965: 206). As Lawrence (1982) noted, these early contests were one element in the dual origin of American rodeo.

The other element in the genesis of American rodeo was the development of the wild west show. William F. Cody, better known as "Buffalo Bill," introduced the public to a new type of outdoor entertainment. After a decade as a

producer and star of Western melodramas, Cody returned to his hometown of North Platte, Nebraska, in 1882. Upon hearing that nothing was planned in observance of Independence Day, Cody arranged to hold an "Old Glory Blowout" on the Fourth of July. He persuaded local business owners to offer prizes for roping, shooting, riding, and bronco breaking exhibitions, and sent out 5,000 handbills inviting local cowboys to partake (Russell 1970). Cody projected that he might get 100 cowboy entrants; however, he got 10 times that number (Russell 1970). In May of the following year, Cody staged an even larger extravaganza in his home state at the Omaha Fair Grounds. This two-day Rocky Mountain and Prairie Exhibition attracted eight thousand spectators the first day and nine thousand the second (Fredriksson 1985). After his second successful performance, Cody decided to turn this new form of live entertainment into a commercial enterprise, and announced that he was taking his show on the road (Fredriksson 1985).

Cody sold his Wild West to U.S. and European audiences as an authentic representation of life as it existed on the vanishing American frontier. His show included a cast of Indians, homesteaders, skilled sharpshooters, stagecoach drivers, scouts, trick riders, rough riders, and a mounted cavalry. Audiences were thrilled with exciting exhibitions such as an attack on the Deadwood stagecoach, a Grand Hunt on the Plains, and the crowd pleasing "Cow-Boy Fun" events, the roping and riding exhibitions by daring cowboys (Harris 1986). Other entrepreneurs also saw economic advantage in staging similar shows. Such shows were aimed primarily at Eastern city dwellers and Europeans who were unfamiliar with the "cowboy culture" of the West. By 1885, the number of traveling shows totaled more than fifty (Fredriksson 1985). Russell (1970) identified 116 wild west shows that existed between 1883 and 1944, yet noted that his list might be incomplete.

Early informal cowboy exhibitions and contests and the wild west shows were closely related. Accordingly, Westermeier (1947: 37) asserted that "[t]he riders of those early shows were, or had been, working cowboys..." By the late 1880s, with changing practices in the range-cattle industry, many working cowboys were becoming seasonal ranch employees. During the winter months, out-of-work cowboys found employment as bartenders, butchers, or blacksmiths (Forbis 1973; Harris 1986). Others found employment with the traveling shows (Fredriksson 1985). For approximately forty years, until their demise after World War I, the wild west shows employed out-of-work cowboys.

Early organization

In the early 1900s, interest in the wild west shows began to wane. Conversely, at that time the popularity of rodeo exploded. The 1920s was a period of rapid growth for rodeo, as producers began staging contests in cities and towns throughout the country. With this tremendous expansion came a period of rampant disorganization. Fraudulent producers failed to pay the winning contestants; rules and events lacked uniformity. Furthermore, touring groups, complete with producers, announcers, livestock, and an assortment of cowboys and cowgirls, began staging fake rodeos, simply rotating the victories among themselves (LeCompte 1993). The combination of these elements quickly began to undermine the status of legitimate producers and rodeos. If rodeo was going to maintain its popularity, some type of organization and coordination among rodeo committees was necessary.

Historical data revealed that the sport of rodeo lacked centralized control throughout the early decades of the twentieth century. Each rodeo was conducted individually with its own rules and regulations, and there was no assurance beyond the spoken word of organizers that the winners would be paid. As a response to these and other extant concerns, rodeo managers formed in 1929 the Rodeo Association of America (RAA) to standardize rules and the conditions under which rodeos were held. Rodeo cowboys organized in 1936 the Cowboys Turtle Association (CTA) to further safeguard the interests of the contestants.[1] Through the efforts of both the Rodeo Association of America, which no longer exists, and the Cowboys Turtle Association, rodeo became solidly established. The CTA reorganized on March 15, 1945, and became known as the Rodeo Cowboys Association (RCA), which in 1975 changed its name to the Professional Rodeo Cowboys Association (PRCA).

Current rodeo

The efforts by the cowboys to protect themselves from fraudulent producers and promoters, to collectively represent their interests, and to improve their standard of living paralleled similar demands made by past American labor movements (Dulles 1949; Lieberman 1986; Rayback 1966; Taft 1964). Since the formation of the parent contestants' organization, various non-mainstream rodeo associations have formed on local, state, regional, national, and international levels. An analysis of the evolution of the various types of rodeo from an epigenetic perspective (Etzioni 1963) showed that each had functional elements that distinguished it from its mainstream professional counterpart (Theodori 1996). The "initiation" and institutionalization of each type of rodeo is marked by outward and visible signs closely resembling those of the women's movement (Deckard 1983; De Leon 1988; Howard 1974), the gay liberation movement (Adam 1995; De Leon 1988; Howard 1974; Marcus 1992), the senior or "gray" movement (De Leon 1988; Wallace and Williamson 1992), and the growth of recreation and leisure time in contemporary society (Dulles 1965; Rader 1990; Swanson and Spears 1995). Several types originated to combat the latent issues of age, racial, ethnic, and gender discrimination in early rodeo. Others developed to satisfy the urge to compete and/or encourage participation in the sport by particular groups in society.

Members of the Professional Women's Rodeo Association (PWRA) compete in 5 standard events which include

[1] *The cowboys called themselves "Turtles" because they were 'slow but sure' to organize.*

bareback bronc riding (6 second ride), bull or steer riding (6 second ride), breakaway calf roping, tie down calf roping, and team roping. Goat tying, steer undecorating, and steer stopping may be included in PWRA rodeos as optional events. The PWRA annually takes the top 15 point earners in each of the 5 standard events to the PWRA National Finals.

There are 9 standard events in National Intercollegiate Rodeo Association (NIRA) rodeo competition for which points are awarded—five men's events, three women's events, and one men's/women's event. Men's events include: bareback bronc riding (8 second ride), saddle bronc riding (8 second ride), bull riding (8 second ride), calf roping, and steer wrestling. Women's events include: barrel racing, breakaway calf roping, and goat tying. Team roping is the one event in which men and women can compete together. At the end of the school year, qualifying teams and individuals meet at the College National Finals Rodeo (CNFR) to determine national champions. In order to qualify for the team competition at the CNFR, teams must place either first or second in the final regional standings, based on the total points accumulated at the ten regional rodeos. Individuals also must have placed first or second in the final standings in an event or the all-around to qualify for the CNFR. Both team champions and individual champions are determined by points won at the CNFR. Currently, the NIRA is divided into 11 regions (Theodori 1996). At the end of the 1994-1995 academic year, individual student membership in the NIRA totaled 3,196, among 133 participating collegiate rodeo clubs. Basic membership requirements include: attending an accredited institution of post secondary education, enrollment in at least 12 credit hours each semester (9 of which must be academic credits), and maintaining at least a 2.0 grade point average. Students are eligible to purchase four NIRA membership cards over a six-year period from the date of their high school graduation.

There are 12 standard events in the National High School Rodeo Association (NHSRA)—five boys' events, five girls' events, and two coed events. Cowboys' events include: bareback bronc riding (8 second ride), saddle bronc riding (8 second ride), bull riding (8 second ride), calf roping, and steer wrestling. Cowgirls' events include: barrel racing, pole bending, goat tying, breakaway roping, and the queen contest. The coed events include team roping and cutting. The top four contestants in each event at the state or province level qualify for the National High School Finals Rodeo (NHSFR). In the queen contest, however, only one contestant from each state or province can qualify for the NHSFR. The NHSRA does not offer cash awards to event winners. Instead, students compete for scholarships and prizes donated by major corporate sponsors. Each year at the NHSFR, students compete for college scholarships totaling in excess of $106,000.

Senior rodeo contestants compete in 8 standard events—six of which are for men, one for women, and one for both men and women. Men's events include: bareback bronc riding (7 second ride), saddle bronc riding (7 second ride), bull riding (7 second ride), steer wrestling, calf roping, and team roping. Women compete in the ladies barrel race, and with men in ribbon roping. In the bareback bronc riding, saddle bronc riding, and bull riding events, all contestants compete in one age category, 40 and over, for the same prize money. Points, however, in those three riding events are awarded to the top six contestants in two age groups: 40-50 and 50 and over. Contestants in the steer wrestling event compete for prize money and points in two age groups, 40-50 and 50 and over. The remaining four events consist of three age categories: 40-50, 50-60, and 60 and older. Purse money is divided equally among the age groups, and points are awarded to the top six contestants in each category. At the end of each rodeo season, the National Senior Pro Rodeo Association (NSPRA) holds the National Senior Pro Rodeo Finals (NSPRF) to determine event champions and name a men's and women's all-around champion in each age category.[2] The top 30 contestants in the standings of each age category in the timed events, with the exception of steer wrestling which is limited to the top 20, and the combined top 20 contestants in the riding events are eligible to enter the finals, provided certain requirements have been met. Requirements include participation in at least five sanctioned rodeos and the accumulation of at least ten points over the course of the season.

A standard International Gay Rodeo Association (IGRA) rodeo includes 13 events divided into four categories—rough stock, roping, speed, and camp events. Rough stock events include: bull riding (6 second ride), steer riding (6 second ride), bareback bronc riding (6 second ride), and chute dogging. Roping events include: team roping, mounted breakaway calf roping, and calf roping on foot. Speed events include: barrel race, flag race, and pole bending. Camp events include: steer decorating, goat dressing, and wild drag race. Males and females compete together in all events. However, they are judged separately in all events except in team events, which includes the three camp events and team roping. At the end of the rodeo season, the top 5 contestants in each Division (Theodori 1996) in each event are invited to compete in the IGRA Rodeo Finals. Event champions and both the all-around cowboy and all-around cowgirl are determined based on points earned at the IGRA Rodeo Finals.

Contestants must be members of the Military Rodeo Cowboys Association (MRCA) and have active duty status, active reserve status, retired from active duty, or be a dependent of any active duty or retired member of the Army, Navy, Air Force, Marine Corps, National Guard, or Coast Guard to compete in a MRCA rodeo. Standard MRCA events include: bareback bronc riding (8 second ride), saddle bronc riding (8 second ride), bull riding (8 second ride), calf roping, steer wrestling, chute dogging, team tying, and barrel racing. Women can compete in all events; however, they generally participate only in barrel racing.

[2] *Points won by men in ribbon roping do not count towards the all-around title.*

Discussion

Ideological, economic, and social functions permeate contemporary American rodeo. The symbolic content of rodeo is embedded in an agrarian ideology rooted deeply in American culture. The dissemination and mobilization of the agrarian value system in America is credited to the writings of Thomas Jefferson. Jefferson's articulation of the agrarian creed nourished a belief system advocating that there is a morally virtuous quality attached to agriculture, and that *rural* life is the natural and good life (see Dalecki and Coughenour 1992). Although the United States has become increasingly urbanized throughout the twentieth century, the American public continues to identify with and endorse fundamental agrarian principles. Several studies (e.g., Buttel and Flinn 1975; Dalecki and Coughenour 1992; Flinn and Johnson 1974; Molnar and Wu 1989) have found that an agrarian ideology continues to be widespread among the American public.

In a study of popular images of rurality among Pennsylvania residents, Willits et al. (1990) concluded that people tend to associate positive images with rural life and reject negative images of rurality. They termed this imagery the *rural mystique* "because it involves an aura of treasured and almost sacred elements" (1990: 575). Rodeo is part of the "rural mystique" and serves to preserve America's rural Western narrative. To a degree, the rural rodeo meta-narrative symbolizes what the West was, and concomitantly what our contemporary urban, industrialized society idealistically and romantically wishes it could continue to be. As a ritual (see Stoeltje 1989, 1993), rodeo perpetuates the late nineteenth-century Western frontier ideology in contemporary American society. At a deeper level, symbolic themes, such as control and lack of control over nature and the conquest of the "wild" West by an industrializing culture, are manifest in rodeo (Boatright 1964; Errington 1990; Lawrence 1982).

What began as athletic exhibitions and contests of nineteenth-century range cowboys quickly became transformed into a marketable commodity. During the second half of the 1800s, as commodification occurred in grain, lumber, meat, and other trade goods (Cronon 1991), Buffalo Bill and other wild west capitalists commodified gloriously romantic and glamorous versions of the American frontier. These entrepreneurs packaged the culture of the nineteenth-century rural American West and sold their frontier-Americana fabrications, complete with longhorn cattle, savage Indians, and heroic cowboys, to ranchless metropolitan markets on the east coast and in Europe.

In the early 1900s, the popularity of this indigenous form of American entertainment began to decline. Factors such as vaudeville, Hollywood, and new forms of transportation contributed to the demise of the Wild West Shows (Johnson 1994). At the same time, interest in rodeo exploded. Cowboy contests were staged at Fourth of July celebrations and county and state agricultural fairs throughout the West. As industrial attributes from the East infiltrated and affected Western cow towns, rodeo, with its blend of fact and imagination, was one element that linked them to their cultural heritage in a rapidly changing society. By the early 1920s, rodeo surpassed the stage of being a small-time attraction in rural Western communities, as producers and promoters, driven by economic motives, removed the cowboy sport from its regional origins and, like the wild west entrepreneurs, wrapped the rural Western epic into a marketable commodity and sold it to eastern urbanites in Boston, Philadelphia, and New York.

Contemporary rodeo is big business. In fact, as early as 1936, the terms "Big-Time Business" and "Big-Time Sport" were applied to rodeo (see Clinton 1936). Professional contestants, contract personnel, arena workers, and concessionaires depended wholly or partially on rodeo for their earnings. Moreover, rodeo stimulates economic growth in other economic sectors (e.g., the western apparel and the Quarter Horse industries). While most organizers have not assessed the total economic impact of rodeos on their community, several communities that host a finals rodeo have estimated its economic impact. Las Vegas estimated in 1995 that the PRCA's National Finals Rodeo produced a $24.0 million economic impact, up slightly from a $23.4 million economic impact in 1994 (telephone conversation with Terry Jicinsky, Las Vegas Convention & Visitors Authority). In 1995, Oklahoma City estimated that the IPRA's International Finals Rodeo produced a $3.0 million economic impact (telephone conversation with Stanley Draper, Jr., Oklahoma City All Sports Association). The estimated economic impact of the 1995 College National Finals Rodeo on Bozeman, Montana, was between $1.5 million and $2.0 million (telephone conversation with Racene Friede, Chamber of Commerce, Bozeman, Montana). Obviously, not all communities that produce rodeos experience the level of economic impact associated with a finals rodeo.

The site for social action at a rodeo is the arena. Although the construction and location of arenas vary from community to community, they provide actors (i.e., participants, employees, and spectators) with a setting to perform actions and form associations (Parsons 1951). So what motivates people to attend a rodeo? Among numerous manifest reasons, the participants may be there for the sport or athletic competition, the employees may be there out of economic necessity, and the spectators may be there for the entertainment. On the other hand, rodeos serve several other functions. For example, rodeos allow people of different socioeconomic statuses to come together momentarily and collectively identify with each other. In short, although all rodeos share similar social functions such as sport/athletic competition, recreation/leisure, and entertainment, each type maintains a functional niche that distinguishes it from its mainstream professional counterpart.

Closing comments

Contemporary rural society is in a state of change. American rodeo, which evolved from the athletic exhibitions and contests of the nineteenth-century range cowboys and the wild west shows, is one institution that

fills the void in society created by the rural to urban transformation in the United States. Although the days of free riding, open ranges, great cattle drives, and unexplored frontiers have long past, positive images about agrarian values, rural living, and the cowboy lifestyle have maintained a firm grip upon the minds and emotions of the American public. What does this mean? What does the nostalgia of a supposedly simpler, more harmoniously, pastoral way of life say about present-day American society?

The challenge of the wild American West was once real. However, commodities such as dime novels, wild west shows, folk songs, western movies, dude ranches, and rodeos have contributed to the widespread acceptance and perpetuation of a rural American mystique. This mystique is embellished by contemporary rodeo which packages realistic notions and romantic sentiments of the Old West, and sells the "frontier ethos" in small rural towns and major urban centers across the country. The western frontier has ceased to exist, but cowboys and rodeos remain a vibrant part of the rural landscape.

In closing, the purpose of this paper has been to provide an overview of contemporary American rodeo. The foregoing analysis shed some insights into the structure, functions, and possible dysfunctions of the various types of rodeo. Nevertheless, many questions remain. A more thorough examination of the relationship between former societal movements and the institutionalization of the different types of rodeo should be conducted. Likewise, in-depth case studies would provide valuable information on the symbolic and functional utilities of each type.

Additional studies should also address such important sociological issues as the demographics of rodeo contestants, the socioeconomic characteristics of rodeo contestants, supporting participants (i.e., announcers, clowns, bullfighters, arena workers, specialty-act performers), and spectators. An overwhelming majority of people who participate in rodeo do so as hobbyists or part-time rodeo contestants. Surveys could collect data on place of residency (rural/urban), primary occupation, annual income, educational level, and motivation of rodeo participants and spectators. Furthermore, research addressing the publicity, attraction, and kind of corporate sponsorship and the influence that these sponsors have upon the decisions and choices of individuals in the rodeo marketplace is needed. Economic impact studies on rodeos other than finals rodeos could provide valuable community-level data regarding ways that rodeo contributes to the viability and sustainability of rural communities. Lastly, the specific manner and degree in which contemporary rodeo relates to fundamental agrarian attitudes and values in our society needs elaboration if rural sociologists are to more fully understand the symbolic meanings and mechanisms that the public attaches to the rural mystique.

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OUR WILDERNESS HERITAGE: A STUDY OF THE COMPATIBILITY OF CULTURAL AND NATURAL RESOURCE MANAGEMENT

Karl Roenke

Forest Archaeologist, White Mountain National Forest, 719 Main Street, Laconia, NH 03246

David Lacy

Forest Archaeologist, Green Mountain and Finger Lakes National Forests, 231 North Main Street, Rutland, VT 05701-2417

Abstract: The Wilderness Act of 1964 recognizes the value of Cultural Resources yet we often struggle with how to address these values in the management of specific Wilderness Areas. This paper will discuss how Heritage Resource Values compliment and enhance the wilderness experience. It strives to provide a broader understanding and appreciation of the role of land use history in developing management plans for designated Wilderness Areas.

Introduction:

The Wilderness Act of 1964 states that wilderness is an area "where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain." It goes on to say that it is "an area which retains its primeval character and influence, without permanent improvements or human habitation."

While the Act goes on to specifically include "features of scientific, educational, scenic, or historical value" as important aspects of Wilderness characteristics, it is the idea of separation of man and his works from nature that seems to have become the primary focus of many Wilderness managers over the years. This is especially interesting considering the passage of The National Historic Preservation Act of 1966. This legislation directs Federal Agencies to manage cultural sites on Federal lands, including Wilderness Areas, which have been determined to be significant parts of national, regional, or local history.

The Wilderness Act and the National Historic Preservation Act represent Congress's recognition of two equally important and inherently compatible resource values according to Mike Beckes, Regional Archaeologist for The Northern Region of The U.S. Forest Service (Beckes 1994). "Neither act supplants or replaces the other; and the challenge to the Forest Service is to meet our responsibilities under both in a sensitive, thoughtful, and informed manner." He goes on to say that he believes the Forest Service has moved past the stage of unproductive philosophical arguments on the "pure preservation" of either resource at the expense of the other, and is making rapid progress towards balanced management (Beckes 1994). Unfortunately while there are many examples of balanced management there are just as many examples of imbalance. The exclusion of human influence from our national view of what makes nature or Wilderness what they are, is still widespread. It is not only the complimentary aspect of these two laws which needs to be emphasized, but the place of humans as important contributors too, rather than detractors of, the very essence of what Wilderness values are. If we look at the long history of human land use and land management which is at least 12,000 years old, it becomes strikingly clear the role humans have had in helping to shape what we call Wilderness. It has only been in fairly recent times that "modern humans" have chosen to emphasize human history apart from nature.

If we look closely at land use history we might find that most, if not all, of the areas set aside as Wilderness have been "subjected to" human influence since at least the sixteenth century (McCorvie and Welch 1996).

> The designation of wilderness areas reflects society's need for places of solitude and inspiration. The 1964 Wilderness Act culminates centuries of land use and ethics, from the Native Americans through the settlers, developers and conservationists. If a cultural landscape is defined by its layering of historical periods-as places that have been settled, controlled, manipulated, or altered for many generations-then wilderness, and particularly eastern wilderness, should qualify as cultural landscapes.
>
> (McCorvie and Welch 1996:5)

Conclusions:

Every wilderness has a heritage and the phases of its prehistory and history provide a framework upon which defensible Wilderness Management plans can be developed

Human land use history plays a principal role in shaping the ecosystem or Wilderness setting. That setting, to a large extent, is the Wilderness experience we have today.

Few if any, Wilderness Areas in America are primeval or pristine. They are, however, dynamic natural settings influenced by natural-including human-actions over thousands of years.

It is time to rethink how people interact in nature. To once again view ourselves as a part of, not separate from, the natural environment. It just might be an important step towards making sound Natural Resource Management decisions as we approach the Twenty First Century.

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Volunteers And Partnerships

ACHIEVING SUCCESS IN TRAIL RELATED PARTNERSHIPS: THE MICHIGAN STATE FOREST EXPERIENCE

Joel A. Lynch, Ph. D. Student

Department of Park, Recreation, and Tourism Resources, Michigan State University, 131 Natural Resources Building East Lansing, MI 48824-1222

Charles M. Nelson, Assistant Professor

Department of Park, Recreation, and Tourism Resources, Michigan State University, 131 Natural Resources Building East Lansing, MI 48824-1222

Abstract: Management of trails has become challenging as funding for their operation and administration has decreased. To contend with shortfalls, resources managers are forming partnerships with stakeholders to meet these challenges. An investigation of two trail programs in Michigan is used to illustrate the benefits of partnerships, key elements related to success, and challenges associated with partnerships.

Introduction

Federal and state lands support an extensive system of trails for hiking, horseback riding, mountain biking, cross country skiing, snowmobling, and off-road vehicle riding. These trails are also used by birdwatchers, photographers, hunters, anglers, and others to access resources. Yet, beyond just facilitating recreational activities, trails provide benefits to both the users and the communities which surround them. For the users, trails offer contact with nature, as well as opportunities for socializing and solitude. Moreover, participation in trail based activities can improve the physical fitness of an individual. Trail users also contribute to local and state economies.

On the whole, trail based recreation activities are among American's most popular outdoor recreational pursuits (Hardt, 1995). Nationwide, participation in trail activities has increased over the past two decades (Hardt, 1995) across all types of settings (Moore and Roberds, 1995). Hiking, walking, and backpacking are considered to be some of the fastest growing outdoor recreational activities nationwide (Cordell et al., 1995). These national trends are mirrored in the northeastern United States. Participation in hiking, backpacking, and cross country skiing has increased from 1979 to 1993 and will likely continue to increase (Warnick, 1995). Mountain biking has also grown in popularity (Ruff and Mellors, 1993) with an increasing number of enthusiasts riding on trails.

With the increased participation in trail based activities, management of trails has become increasingly more challenging. In a 1993 nationwide survey, State Trail Administrators considered adjacent landowners opposition, conflicts among users and uses, and fiscal constraints as some of the most significant trail issues (Moore and Roberds, 1995). In particular, shrinking recreation budgets compound these and other challenges trail managers face such as maintaining adequate safety levels and facilities and protecting resources. As a result, public land managers have increasingly turned to cooperative alliances, referred to as "partnerships," with various stakeholders (Warnick, 1995; Selin and Darrow, 1995).

Partnerships

While the purpose and type of partnerships in natural resource management vary considerably (Selin and Myers, 1994), they are often described as a cooperative arrangements between an agency and group(s) to achieve a collective goal (Uhlik, 1995). The groups may range from profit driven businesses to non-profit organizations and may involve one or more organizations. Partnerships have been formed at national, state, community, and site levels in a wide variety of recreation resource settings (Selin, 1995). The purposes of partnership arrangements in natural resources are extremely broad, including development and maintenance of facilities, fundraising, gathering data, marketing activities, and many others (Selin and Myers, 1994).

Trails have been one of the many recreational programs that have benefited from the development of partnerships (Selin, 1995). The types of trail related partnerships formed range from conflict resolution to construction, development, maintenance, and planning of trails (Moore and Roberds, 1995). As a result of these partnerships, Selin and Darrow (1995) assert that operational efficiency has been greatly improved, services have been expanded to meet constituents' needs, safety standards have been meet, and many other benefits have been realized.

While partnerships have proven to be a beneficial and effective mechanism for improving recreational situations, there are many challenges associated with forming and maintaining successful partnerships. Many researchers have explored the characteristics of a successful partnership and have offered a number of principle elements associated with success. However, few of these studies focus specifically on trail related partnerships. Consequently, the goal of this paper is to illustrate some of the benefits, challenges, and elements of successful trail related partnerships. A recent assessment of the Off-Road Vehicle and Non-Motorized Trail Programs on Michigan's State Forests conducted by the authors will be used to illustrate these points.

Michigan State Forest ORV Trail Programs and Non-Motorized Pathways

The Michigan state forest system encompasses 3.9 million acres. It is also the largest provider of trail based recreational opportunities in the State. Within the state forest system, the Michigan Department of Natural Resources (DNR) Forest Management Division (FMD) maintains 3,600 miles of ORV trails for motorcycles, three and four-wheeled all terrain vehicles (ATV), four-wheeled drive trucks and sport utility vehicles, and specialty vehicles such as dune buggies. There are also 1,100 miles of non-motorized pathways managed for hiking, cross country skiing, horseback riding, and mountain

biking. While not a focus of this paper, the state forests also provide almost 5,000 miles of snowmobile trails.

In 1990, Michigan Public Act 319 of 1976, commonly refered to as the ORV Act, was amended by Public Act 71. This new act required all ORVs to be licensed annually. The revenue collected from the sale of these licenses is deposited in the restricted ORV Trail Improvement Fund (ORV Fund) created by Public Act 17 of 1991. In addition, PA 17 authorized the distribution of funds in the form of grants to public agencies, non-profit clubs, and organizations for environmental restoration, general trail improvements, maintenance, sign replacement, and law enforcement. This ORV Fund and grant process effectively created a partnership between trail stakeholders, environmental interests and the DNR.

Since the initial year of the ORV Fund, 160 grants totaling over $3.6 million have been awarded (personnel communication, Steve Kubisiak, 1997). Of this total, $2.5 million has gone towards maintenance of the ORV system. In addition, $630,000 has been granted to county sheriff departments across the state for local law enforcement patrols on public lands, and $500,000 has been used to restore damage caused by ORVs, mostly in off-trail locations. Since 1991 the ORV Fund and the partnerships between grant receipients and the DNR have considerably improved the ORV trail system.

In contrast, the non-motorized pathways have no similar legislatively-sanctioned partnership to maintain the 1,100 miles of state forest pathways. As a result, managers of that system face many challenges. An inadequate funding base has contributed to deteriorating conditions of the pathway system (Michigan State Forest Advisory Committee, 1995; DNR, Recreation Division, 1992). An investigation of these two program by the authors has shown five principles that have led to a more successful situation for ORV trails and their management.

Key to Elements to Successful Trail Related Partnerships

Program Funding

Funding for the ORV Program is paid directly by the users through an annual $16.25 ORV license fee and a miniscule portion of state gasoline taxes. This results in an annual program budget of $1.5 million, of which an average of 70% is used in the grants program. In its initial year, $350,000 was distributed, while in the most recent year (1996), $870,000 was awarded to public agencies and non-profit organizations for maintenance, degraded site restoration, operation, and law enforcement. The ORV license fees are generally supported by ORV users and trail organizations, because of the direct visible improvements that have been made to the ORV system since the initiation of the ORV Fund. For instance, virtually all trail miles are brushed annually and safety signs checked. Furthermore, maps have also been developed for all trails, and most recently six trailheads are scheduled for construction in 1997/98.

By contrast, the non-motorized pathways currently have no earmarked funds for maintenance or operation and users pay nothing towards the program except in sporadic voluntary contributions mostly related to cross country ski grooming (DNR, Recreation Division, 1992). Nevertheless, the pathways program has expenditures of $0.4 million annually (Lynch and Nelson, 1995). Funding for maintenance and operation has been provided primarily by user fees from state forest campground campers and state general fund dollars (Michigan State Forest Advisory Committee, 1995). In addition, non-profit organizations such as the North Country Trail Association, Michigan Trail Riders (equestrian), Michigan Mountain Biking Association, local cross country ski clubs, and others volunteer time and contribute money in developing and maintaining pathways. Lastly, funding for the pathway program also comes from the Recreation Improvement Fund whose source is the state gasoline tax. Most of the money from this fund, however, is for capital improvements and is devoted to major projects such as pathway and bridge construction. It is rarely used for annual maintenance and operation of the system.

Advisory Committee

One formal link between agency and constituents is a recognized citizen advisory committee. The committees may be constituted by statute or agency policy. Typically, such a committee is an on-going effort to act as a sounding board concerning agency policies and initiatives. Members are generally appointed by the director of the managing agency and the membership makeup is often specified to include representatives of certain user groups or organizations.

The Michigan ORV Advisory Committee has 7 members and was created by PA 71 of 1990. The members represent the major ORV organizations in the state, ORV dealers and environmental interests. Many of these organizations are also the receipients of ORV Fund grants. Their sole focus is on ORV issues and the ORV trail and route system.

The pathway system has no comparable advisory committee. The Michigan Trailways Committee has 5 members and was created by statute in 1994 (PA 451). While the membership is composed of non-motorized trail advocates, it is focused on the conversion of abandoned railroad rights of way to trails. Hence their focus is in a different direction than the pathway system, as very little of that is former railroad right of way. Futher, much of their effort relates to capital improvement, not maintenance and operations. Second, the Michigan State Forest Recreation Advisory Committee was also statutorily created (PA 115 of 1991). The committee's scope includes state forest pathways, but it goes far beyond that to include all 3.9 million acres of state forest and a host of recreation facilities and opportunities. To date it has focused the major share of its energies on the restoration of the state forest campground system and development of a strategic plan for forest recreation entitled Forest Recreation 2000 (State Forest Recreation Advisory Committee, 1995).

Grant Process

The Forest Management Division of the DNR is responsible for the administration of the ORV Fund. Distribution of these funds is accomplished through a grant process. Each

year public agencies and non-profit clubs and organizations submit applications to the DNR to conduct annual maintenance on designated trails, restore areas damaged by ORVs and develop facilities such as trailheads. In addition, public agencies submit applications to conduct law enforcement on trails. The FMD and the ORV Advisory Board review these applications and make recommendations and modifications if necessary. Once approved, the application becomes a legally binding contract. Of all the activities performed by grant cooperators, annual maintenance (involving trail clearing, sign replacement and grading) has been the largest component.

Maintenance activities are guided by established maintenance standards. These specifications also serve as a basis to allow DNR ORV Specialists and field staff to inspect all work conducted by grant cooperators. Areas not complying with standards need to be revisited by the cooperators and brought up to such. Failure to meet standards may result in the organization being placed on probation or the termination of the grant.

In comparison, almost all activities conducted on the non-motorized pathways by an individual or organization are neither legally bound by a contract and accountability is lessened. Additionally, there are no standards of maintenance to guide volunteers. Typically most efforts involve "handshake" agreements. While these individuals and groups have contributed a great deal towards the pathway system, this effort is not consistent across the state, with great efforts occurring on one pathway and nothing on another 20 miles away.

Reimbursement

Presently, organizations conducting work on the non-motorized pathways are not reimbursed for any expenses. On ORV trails, work on restoration, law enforcement, or development projects conducted by the grant recipients is either partially or entirely compensated by the ORV Fund. Cooperators conducting maintenance receive $45 per mile as reimbursement to help defray out of pocket expenses (tools, vehicle operation, telephone, etc.). In addition, each grant sponsor must have their own liability insurance, which is reimbursed up to a maximum of $500 per year.

In November 1996, a workshop involving ORV grant recipients and FMD personnel was conducted to determine typical work procedures, their frequency, and expenses associated with meeting maintenance specifications (Lynch and Nelson, 1997). One objective of this workshop was to estimate average per mile maintenance costs. According to workshop participants, it takes an estimated $128 per mile to maintain at existing specifications all designated motorcycle and ATV trails and $ 77 per mile for truck routes. This per mile expense includes a $6/hour nominal wage for volunteer time as suggested by the cooperating groups in the workshop. This is conservative as employee costs per hour for state employees would be $18-$24 per hour considering wages and benefits. Even at this conservative figure, $45 per mile is a savings for the DNR of $83/mile for motorcycle and ATV trails and $32/mile for truck routes.

From the cooperating groups point of view, a total of $99 of the $128 per mile maintenance cost for motorcycle and ATV trails is attributed to labor ($6/hour volunteer wage), while labor amounted to $55 of the $77 per mile on all truck routes. Hence, $45 per mile appears generous to the cooperators if the labor is considered truly volunteer.

Cooperative Organizations

While, the majority of ORV and pathway users are not members of organized trail/pathway clubs (State Forest Recreation Advisory Committee, 1995), it is the membership and leadership of these organizations that promote the cause of users in the executive and legislative branches of state government. For ORV users, the Michigan Cycle Conservation Club (CCC) has been instrumental in both initiating the ORV Fund as well as in maintaining and improving the ORV trail system. The CCC is the largest trail related organization in Michigan and is relatively well organized with many chapters and a sizeable membership. The assessment of ORV trails found that over 75% of the designated ORV trails were maintained by this organization (Lynch and Nelson, 1997). In contrast, non-motorized pathway users are more diverse and less organized, with the exception of mountain bikers (Michigan Mountain Biking Association) and equestrian (Michigan Trail Riders) users. Hikers, backpackers and cross country skiers lack a strong statewide organization.

Pitfall of Partnerships

The benefits that the ORV partnership has created for the DNR and trail system are certainly notable. However, there are still pitfalls. For example, different ORV organizations have different objectives for the trails they maintain. Those oriented to a two-wheel cycle membership want to keep trails challenging, narrow, and twisting for skilled cycle riders. Those with ties to ATV enthusiasts want trails that are wider, straighter and suitable for lower skill, family riders. A second challenge is that coordination with diverse groups is time consuming for DNR program managers.

Lastly, the grant administration is an involved and detailed process that can also be time consuming. However, even with these challenges, the formal structure of the ORV program has resulted in a trail system in better condition and with broader based user support and satisfaction than the pathway system. This is especially important for an activity that does not enjoy broad based public acceptance, but does have a committed constituency. Non-motorized pathway users, especially those that enjoy the widest range of public acceptance (hikers, cross county skiers and backpackers), have been unable to convert that favorable but unorganized public opinion into the program funds necessary to have a higher quality, better maintained pathway system.

Conclusions

The success of the ORV trail program can be traced to the partnership arrangement between the DNR/FMD and various ORV stakeholders. The ORV Fund was legislatively mandated and is a restricted fund, solely dedicated to the operation and maintenance of the ORV system. Funding for

the ORV Program is paid directly by the users through ORV licenses and state gasoline taxes. This money is then used via grants to financially support ORV stakeholders in their maintenance of designated trails, restoration of areas damaged by ORVs and development of facilities such as trailheads. In addition, it allows other empowered governmental agencies to conduct law enforcement on trails. Essentially, this support amounts to generously covering the out-of-pocket expenses in most cases and full reimbursement in the case of law enforcement. The stakeholder partners supply the labor, on a voluntary basis, necessary to accomplish the work. The grant process legally binds cooperators to proposed work which is guided by established maintenance standards that promote accountability through inspections. The Michigan Cycle Conservation Club is the largest statewide trail user organizations in Michigan. It was instrumental in the establishment of the ORV fund and continues to play an important part in the operation and maintenance of the ORV trail system.

In comparison, no similar legislatively-sanctioned partnership program exists in the non-motorized pathways program. However, a proposed Forest Recreation Act, which would establish a user fee for state forest pathwyas and deposit the money in a restricted Forest Recreation Fund, was introduced in the Michigan legislature in 1996 at the behest of the State Forest Recreation Advisory Committee. While it received favorable consideration in the House, amendments in the Senate so drastically altered the bill that it was withdrawn. Its reintroductiion with modifications to garner the needed legislative and gubinatorial support is currently under consideration.

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RURAL WATERSHED PARTNERSHIPS: LESSONS FROM WEST VIRGINIA

Steve W. Selin

Associate Professor, Division of Forestry, West Virginia University, Morgantown, WV

Alan Collins

Associate Professor, Division of Resource Management, West Virginia University, Morgantown, WV

Susan Hunter

Associate Professor, Department of Political Science, West Virginia University, Morgantown, WV

Abstract: The goal of this study is to examine the efforts by one state government (West Virginia) to facilitate collaborative, watershed-based planning. This paper provides an overview of the state watershed planning process and includes a summary of a baseline study of rural watershed partnerships operating within West Virginia. Implication of the study for state policies and programs, community-based support, and future research are presented. Three main lessons learned from experience with the WVWAP include: (1) the need to assist local communities with the principles of inclusiveness and conflict resolution in development of watershed associations; (2) the importance of local leadership; and (3) the emphasis of process over plan.

Introduction

Over the last two decades, water quality improvement has become a national priority. There is growing recognition that the unintended, dispersed, and cumulative impacts on watersheds--affecting water quality, fisheries, soil loss, and agricultural productivity-- may be the single most limiting factor to economic health and well-being in the next century (Myers 1993). Historically, the protection of water quality has been addressed by command-and-control regulation authorized by federal and state laws. While progress has been made in controlling point source pollution, nonpoint source pollution continues to be a major problem (Brown et al. 1993).

Historically, efforts to restore the integrity of Appalachian watersheds have relied on an overlapping set of federal and state laws regulating land use. Federal efforts to improve water quality stem from the 1972, 1977, and 1987 amendments to the federal Water Pollution Control Act (Haines et al. 1988). Section 319 of the 1987 Amendment requires each state to prepare detailed water quality plans for watersheds affected by pollution, identify sources, and develop control mechanisms (Hawkes et al. 1993). Many observers have noted the inherent limitations of a strictly regulatory approach to watershed revitalization. Marsh and Lallas (1995), in a review of federal and state water quality regulations, concluded that reliance on command-and-control regulations have led to a confusing, fragmented set of laws that are increasingly expensive for states to apply and for landowners to comply with. There is a growing backlash among landowners who feel they are being asked to shoulder an unfair share of the cost of restoring watersheds (Marsh and Lallas 1995).

There is a growing consensus that local solutions are needed to supplement regulatory approaches to watershed restoration. The emergence of local watershed partnerships initiated to resolve conflicts, problem solve, coordinate, build coalitions, and leverage resources illustrate the growing interest of communities, state and federal government, and academics in this subject. However, successful rural watershed partnerships are unlikely to occur unless all relevant actors and organizations possess the capacity to work together for the common good. New ways of organizing are needed to mobilize the human, technical, and financial resources needed to effectively restore watersheds degraded by a century of neglect. Partnerships require new types of leadership, purposes, agreements, and organizational structures in order to be successful. The ability to network people and money becomes increasingly important.

State governments can play pivotal roles in supporting of collaborative, watershed-based planning. Many states have implemented statewide watershed management frameworks (Clements et al. 1996). In addition, the states of Oregon and Washington have encouraged formation of cooperative partnerships at the watershed level by enacting legislation and providing funding (Horton et al. 1996; Pinkerton 1991). The goal of this study is to examine the efforts by one state government (West Virginia) to facilitate collaborative, watershed-based planning. We believe that the West Virginia initiative is unique because it involves direct facilitation of a network of inclusive watershed associations engaged in collaborative planning. This paper provides an overview of the state watershed planning process and includes a summary of a baseline study of rural watershed partnerships operating within West Virginia. Implication of the study for state policies and programs, community-based support, and future research are presented.

West Virginia Watershed Assessment Program

Initially established in 1993, the WVWAP was developed to address interagency concern about the ability of any one state agency to protect water quality in the state. The first step in this program was to develop a comprehensive statewide plan. An interagency task force obtained input from 90 statewide stakeholder groups representing the complete spectrum of political interests. This planning process exposed individuals and organizations around the state to thinking about water quality on a watershed basis. Eighty-four percent of responding stakeholder representatives found the statewide plan to be generally acceptable. Working in consultation with these

stakeholders, two strategies from this plan were elevated for implementation: (1) Using geographical information systems (GIS), assess the ecological health of West Virginia=s watersheds; and (2) assist local people in restoring their streams through the work of watershed associations. The practical reasons for assigning high priority to watershed associations included: (1) recognizing that some local people know more about their local streams than government regulators; (2) a dwindling state government budget combined with expectations of improved water quality could be reconciled only through the creation of partnerships between state and local interests; and (3) realizing that collaborative efforts might yield better, more widely accepted solutions than conventional top-down management.

In 1994, the WVWAP began to facilitate the birth and growth of local watershed associations. Initially, someone or organization must contact the program director expressing an interest in developing a watershed association. This invitation indicates some local leadership and avoids the impression of Abig government@ intrusiveness. Public knowledge about the existence of the WVWAP was created through the media, public presentations, and the initial statewide planning process. To date, about 25 inquires have been made, with some contacts coming from pre-existing river conservation groups.

Based on these initial contacts, the program director has been invited to meetings of nuclear stakeholders in about 20 watersheds. Nuclear groups are typically four to six people in size. The focus of these meetings has been: Do the people of this watershed want to participate in an inclusive, consensus-building watershed association? If there is an expression of interest, then a larger exploratory meeting is held where the nuclear group members have invited all major stakeholders which use the river resource or whose activities may impact water quality. These exploratory meetings have averaged about ten people in attendance with a range from three to twenty. At this exploratory meeting, the program director gives a presentation on the WVWAP. Facilitation services being offered are outlined, literature is provided, and some preliminary discussion of water issues is encouraged. Again, the program director leaves attendees with a question: Do the people of this watershed want to participate in the WVWAP by forming a watershed association?

A positive response to the above question starts WVWAP facilitation to develop a watershed association. However, a negative response does not imply that no organization forms in this watershed, some groups have chosen to form outside of the WVWAP. Since 1994, a total of nine watershed associations have developed under WVWAP facilitation. Facilitation services have included identifying stakeholders, maintaining membership lists, mailing organizational materials, arranging meetings, and assistance in conflict resolution and strategic planning.

Watershed associations formed under WVWAP facilitation are encouraged to practice transactional planning by employing inclusiveness of stakeholders, conflict resolution among parties involved with water issues, and consensus building. These principles are followed to enhance the credibility of an association to address water issues and to maximize acceptance of strategies developed by association. In order to solve problems associated with surface water and watersheds, all of the watershed=s stakeholders should be represented during the planning process. Given past experiences among stakeholders, however, they often need assistance from an independent facilitator to grapple with the principles of inclusiveness and consensus building. To encourage inclusiveness, all stakeholders are: invited to attend meetings; sent minutes from meetings; and provided opportunities to comment on plans drafted by the association. These practices allow for a continuous flow of information between watershed associations and those parties affected by their plans.

Once association officers and a board of directors have been selected, the program director typically leads the association through a strategic planning process conducted over a series of meetings where all the stakeholders identified earlier are invited to participate. This process includes the following steps:

- In a brainstorming session, attendees are invited to provide a vision for the watershed 50 years into the future. A group consensus is developed for this vision.
- A creative thinking exercise is conducted where problems and opportunities associated with the river and its watershed are listed.
- These problems and opportunities are consolidated into a manageable list of issues. The group then reaches a consensus on the top priority issue.
- Another creative thinking exercise is conducted to solicit strategies to deal with these issues.
- These strategies are consolidated and prioritized.
- The single most important strategy is identified and agreed upon by consensus. Consensus may be pure (zero dissent) or simply a substantial majority (i.e., at least 75-80% agreement).
- The identified strategy may be large (e.g. construct a sewage treatment plant) so that the program director focuses the association on breaking up a large strategy into "bite-size" projects which incrementally contribute to accomplishing the larger strategy. These small projects are prioritized and one doable project is them implemented. Initial success, regardless of size, is crucial for community visibility of the association.
- After the initial project is completed, the entire strategic planning process is repeated to assess changing perspectives and priorities.

The program director conducts "process checks" periodically throughout the strategic planning process. Participants are asked to fill out surveys about the process

and the facilitation. Participation by diverse stakeholders is critical. The WVWAP will not facilitate the work of groups intent on becoming single-position advocacy groups. As a rule of thumb, at least 75% of the stakeholder categories should be represented during the process to maintain the principle of inclusiveness. Depending upon the degree of local leadership available, the program director may or may not conduct the meetings during the strategic planning process, although he attends most meetings.

Many of the doable projects conducted so far have involved on-the-ground activities. Examples include litter cleanups, stabilization of failing streambanks, or creation of recreational access to streams. Association strategic plans also have involved education to encourage voluntary changes in landowner behavior. Most stakeholders reflect the prevailing attitude that enough government regulation exists already. However, stronger enforcement of current laws (e.g.. litter) has been sought by several watershed associations.

The ultimate goal of the WVWAP is to create inclusive, sustainable, and consensus-building watershed associations. A strategic planning process is emphasized where: (1) diverse interests are represented; (2) strategies are identified by consensus and action taken; and (3) the organization continues to exist after developing a watershed plan. The following section profiles watershed associations now operating within West Virginia.

A Survey of Rural Watershed Partnerships in West Virginia

During the summer of 1996, a mail survey was conducted to profile and to assess the needs of watershed associations in West Virginia. A sample population of 67 river, community, watershed, and related environmental organizations was developed. A total of 40 responses were obtained for a response rate of 59 percent, of which 17 organizations were identified as watershed associations who had received assistance from the WVWAP. We define watershed association as an organization whose membership is voluntary and whose primary focus is water issues related to a specific area as determined by the group. Those watershed associations receiving assistance included those which developed under the WVWAP as well as associations which developed outside the WVWAP yet received assistance from the program director. The mail-out questionnaire probed a number of specific issues related to watershed association planning and management including: purpose, composition, participation in state program, watershed problems, activities, barriers, and technical assistance needs.

Survey respondents were asked to identify serious water problems in their watershed (Table 1). Non- point sources of pollution were the most commonly identified problems. If possible, non-point responses were categorized as agriculture (e.g., logging, poultry industry) and non agriculture (e.g., abandoned coal mines, residential development). Non-point pollution from non agricultural sources and sewage were pollution sources of greatest concern. Many rural areas of West Virginia continue to lack proper wastewater treatment facilities. Water flow problems consisted of flooding and stream blockage while the Aother@ category included mainly land use and management issues which impact water quality.

Many of the watershed associations surveyed are young, 11 of the 17 associations have been formed since 1994. The average membership size of watershed associations was 35 with a range of 8 to 250. Most groups had representatives from local government, businesses and industry, landowners, environmental groups, and recreational groups. Federal government and agricultural organizations were represented in only about half of the watershed associations.

The mission(s) of these watershed associations were categorized into: general cleanup or improvement of surface water resource (53%); watershed level planning (35%); promotion of tourism (18%); public education(12%); habitat protection (12%); and flood control (6%). The activities undertaken by the 17 watershed associations to fulfill these missions are listed Table 2. Over half of the associations were involved in an initial study of the problems of their watershed. These studies included water quality sampling and monitoring of pollution sources. As the associations tended to be young organizations, almost half were engaged in organizational development activities such as strategic planning and fund raising. The remaining activities primarily were action projects of: clean-ups of river litter; public education programs (float trips, holding river festivals, newsletters, arranging meetings with landowners, etc.); public meetings; buying land for river access; restoring wetlands (listed under AOther@ category in Table 2); and training volunteers for stream quality monitoring.

When respondents were asked to rate how effective their organization has been in fulfilling its mission, 62% thought their organization was very to somewhat effective, 30% were neutral, and 8% thought somewhat ineffective. Respondents then were asked their opinion on barriers to organizational effectiveness. As expected, manpower and financial resources were the most important barriers (Table 3). Other top barriers included internal problems of inadequate planning for meetings, a failure to define the group=s focus, and working across multiple government jurisdictions. As about one-half of the associations were engaged in watershed studies, knowledge of the watershed resource was identified by only half the respondents as being a barrier, yet was regarded as moderately important by those respondents who identified it as a barrier. Existence of biases, distrust among members, and unwillingness to compromise were not viewed, for the most part, as barriers by respondents.

Results

Table 1 outlines the general missions of the watershed associations participating in the study. While considerable

diversity of missions is evident, watershed associations could be grouped into those whose focus is foremost economic development and those associations whose primary focus was habitat protection. Most groups, however, indicated that both economic development and habitat protection are important objectives of their organization.

Table 1. Mission of Participating Watershed Associations

Mission Statement	%
Tourism	23
General Cleanup	20
Planning	14
Education	11
Safety	11
Habitat Protection	9

Many of the watershed associations surveyed are young; 27 or 73%of associations have been formed since 1994. Most indicated they were currently in the process of developing their organization. The average membership size of watershed associations was 35 with a range of 8 to 250. Table 2 provides an overview of the sectors represented in participating watershed associations. Most groups had representatives from local government, businesses and industry, landowners, environmental groups, and recreational groups. Federal government and agricultural organizations were represented in only about half of the watershed associations. The high level of business sector involvement reflects the economic development mission of many associations as well as the willingness of businesses to participate in local environmental initiatives.

Table 2. Sectors Represented by Association Members

Sectors Represented	%
Business	94.1
Local Govt.	87.9
Landowners	86.5
Civic Organizations	76.5
Recreation Groups	74.2
Environmental Groups	72.7
State Govt.	71.0
Agri Organizations	50.0
Fed Govt.	41.9

Overall, 17 or 42.5% of participating watershed associations had received some level of assistance from the West Virginia Watershed Assessment Program. Some groups pre-dated the state program while others either chose not to participate or were unaware of the watershed program. Types of assistance received included having a facilitator attend startup meetings, grant application assistance, and provision of watershed data. A number of watershed associations have been recipients of Stream Partner Grants, administered by the West Virginia Department of Environmental Protection, which has supported watershed-based projects.

Survey respondents were asked to identify serious water problems in their watershed (Table 3). Non- point sources of pollution were the most commonly identified problems. If possible, non-point responses were categorized as agriculture (e.g., logging, poultry industry) and non agriculture (e.g., abandoned coal mines, residential development). Non-point pollution from non agricultural sources and sewage were pollution sources of greatest concern. Many rural areas of West Virginia continue to lack proper wastewater treatment facilities. Water flow problems consisted of flooding and stream blockage which still plagues many rural part of West Virginia. Finally, the Aother@ category included mainly land use and management issues which impact water quality.

Table 3. Watershed Problems Identified

Watershed Problems Identified	%
Non-point Pollution	52.9
Sewage	23.5
Water Flow	17.6
Other Land Management	5.9

Table 4 outlines the wide range of activities undertaken by watershed associations participating in this study. Because of the young age of most associations, many were engaged in organizational development activities such as fund-raising and strategic planning. The remaining activities primarily were action projects such as: clean-ups of river litter; public education programs (float trips, holding river festivals, newsletters, arranging meetings with landowners, etc.); public meetings; buying land for river access; restoring wetlands; and training volunteers for stream quality monitoring. Watershed associations facilitated by the West Virginia Watershed Assessment Program were encouraged to develop Abite-sized projects@ to encourage early success and foster volunteer recruitment efforts.

Table 4. Activities of Participating Watershed Associations

Activities	%
River Cleanups	17.6
Education	14.7
Fund-raising	11.8
Organizing Activities	11.8
Strategic Planning	8.8
Monitoring	5.9

Respondents were also asked what factors acted as barriers to organizational effectiveness. These responses are summarized in Table 5. As expected, organizational development issues such as the lack of financial and human resources were identified as major barriers by many associations. To a lesser extent, respondents mentioned problems such as the lack of and enforcement of regulations governing water quality in West Virginia.

Table 5. Barriers to Organizational Effectiveness

Barriers	*Mean
Lack of Financial Resources	3.8
Lack of Manpower	3.6
Enforcement of Existing Regulations	2.6
Lack of State Regulations	2.5
Inadequate Info on Watersheds	2.2

*On a 1 (not at all important) to 5 (extremely important) scale

Finally, Table 6 presents some of the technical assistance needs identified by respondents. Assistance with on-the-ground-projects such as habitat restoration was identified as the top technical assistance need. A majority of respondents requested help in identifying sources of assistance for watershed restoration projects. Other needs identified included: legal help, volunteer recruitment, and resource identification and mapping.

Table 6. Technical Assistance Needs

Technical Assistance Need	%
Habitat Restoration	64.7
Resources Available	61.8
Legal Issues	55.9
Volunteer Recruitment	50.0
Resource Identification and Mapping	41.2

Lessons and Future Directions

Three main lessons learned from experience with the WVWAP include: (1) the need to assist local communities with the principles of inclusiveness and conflict resolution in development of watershed associations; (2) the importance of local leadership; and (3) the emphasis of process over plan. Some stakeholders tend to be well represented within watershed associations (e.g. environmental and recreation groups, downstream and riparian landowners) while others are less likely to participate (e.g. agricultural organizations, headwater and upland landowners). Also, inclusiveness is difficult in highly polarized communities. For example, serious flooding problems have resulted in tremendous conflict within one West Virginia watershed over flood control alternatives. Thus, facilitation efforts must stress the potential benefits of inclusive watershed partnerships. Potential benefits include the involvement of more organizations from which resources can be obtained to accomplish the association=s mission, validation of the association within the community, and enhanced credibility among legislators and regulatory agencies for association requests.

The second lesson emphasizes the importance of organizing the association and preventing any impression that state agency facilitation equates to control of the association. As an example, a well organized association will often possess a single good leader with a vision, who follows through with projects, and possesses good organizing skills.

The third lesson emphasizes process over plans because a sustainable watershed association must be responsive to changing conditions over the long term. Associations must be able to respond to changes in watershed conditions as projects are completed and as time passes. This responsive ability depends upon an association being able to revise its priorities rather than simple following a written planning document.

Given its brief existence, it is premature to assess the water quality impacts of the WVWAP. Significant improvements in water quality may take a decade or more to achieve. However, these community-based partnerships provides a forum for cooperation between state and federal agencies through association meetings and partnership opportunities. The associations also have involved local people in designing more effective stream monitoring by the WV Division of Environmental Protection by identifying pollution Ahot spots@ in their watershed.

One result of the WVWAP has been the development of two additional statewide institutions designed to assist watershed associations. First, the state legislature enacted, by an unanimous vote, the West Virginia Stream Partners Act of 1996. This law authorizes state agencies to collaborate in overseeing the Stream Partners Program. The main purpose of this program is to provide up to twenty, $5,000 grants to watershed associations. These competitive grants are awarded on the bases of an association=s commitment to developing a watershed strategic plan; merit of a proposed water quality improvement project; and the group=s commitment to the principles of inclusiveness, conflict resolution, and consensus building. During the initial round (1996) of funding, 19 grants were awards from a total of 66 applicants. Financial assistance was provided for projects such as restoring riparian corridors, improving trout habitat, public education, and a workshop on conservation easements.

The second institution is the West Virginia Watershed Network. This network is a collaboration by various groups (West Virginia Rivers Coalition, River Network, and Canaan Valley Institute) and the WV Division of Environmental Protection that support local watershed associations. The network was initially formed to avoid duplication of effort among these groups. In addition to coordination, the network has provided training for watershed association leaders through workshops and newsletters.

The WVWAP is unique in its objective of developing local capacity of watershed communities to resolve longstanding watershed problems. This program recognizes the limits of government regulation to solve the ecological problems of West Virginia watersheds. In an era of fiscal uncertainty and government downsizing, the WVWAP appears to be an appropriate response to enhance watershed planning and management. Research has begun at West Virginia University to identify and to analyze those social, economic, political, and environmental factors which explain local watershed participation in the WVWAP program. Future questions to be explored include: (1) what factors explain the degree of inclusiveness in watershed organizations; and (2) how effective in resource acquisition (funds, volunteer labor and equipment, etc) are watershed associations developed under the WVWAP compared to other watershed organizations.

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Recreation and Natural Resource Planning

MEASURING THE BENEFITS OF PROTECTED AREAS: A CRITICAL PERSPECTIVE ON THE IUCN GUIDELINES

Dick Stanley

Chief, Economic Research
Department of Canadian Heritage
Ottawa, Ontario K1A 0M5

Luc Perron

Senior Economist
Department of Canadian Heritage
Ottawa, Ontario K1A 0M5

The International Union for the Conservation of Nature has drafted guidelines to help managers of protected natural areas to develop economic arguments in defence of those areas. The guidelines identify a series of benefits which protected areas might produce and which all have real markets in the outside world, and recommend that managers focus their arguments on these benefits. One of the benefits, tourism spending, cannot be treated as a benefit like the others, however, and there are additional benefits which the authors believe should be included in the guidelines.

In February of 1996, Lee Thomas, convenor of the Economic Task Force of the International Union for the Conservation of Nature's (IUCN) Commission for National Parks and Protected Areas released for review a draft of guidelines for the economic assessment of protected natural areas (IUCN, 1996). He was seeking critical comment from the economic community and protected area managers and planners. He also hoped to encourage managers to undertake pilot studies to test the methodologies described in the guidelines. The authors were asked by Parks Canada to review the guidelines and offer comments to Lee Thomas, as part of Parks Canada's contribution to the guidelines development. This paper describes the conclusions of that review.

The purpose of the Guidelines was to help managers and planners of protected areas throughout the world to develop credible arguments to justify spending on those protected areas, in the face of opposition from industries wanting to exploit the protected areas for their resources. The guidelines therefore identified a number of economic benefits that protected areas might produce which would be particularly credible in making such arguments.

The benefits they identify are:

1. Tourism and recreation. Protected areas attract visitors who wish to experience the outdoors and the flora and fauna of a place. These visitors spend money on food, transportation and accommodations and so create beneficial economic activity around the protected area.

2. Natural services. This is the benefit produced by various natural phenomena which occur thanks to the protected area. An example is pollination of crops by bees who live in the protected area. If they did not exist, farmers would have to pay pollination services to bring bees in to pollinate plants. There is a private market for this, and so the value that the protected area generates can be evaluated credibly.

3. Water production is an important benefit that protected areas provide in many places in the world. A protected area can act as a natural reservoir holding water from a rainy season for slow release through the rest of the year when needed. It also acts a filtration plant, purifying the water. Dams and filtration plants have clear costs, so if downstream cities are saved from having to invest in such things because of the existence of a protected area, then the protected area is clearly providing substantial benefit.

4. Protected areas can mitigate natural disasters. Protected areas retain water to prevent flooding. We only have to consider the millions of dollars spent every year by the US Army Corps of Engineers to control flooding in the Mississippi basin to realise that some forested protected area s in the place of the cultivated prairie grasslands would mitigate flooding and save money.

5. The guidelines identify fish breeding and spawning as a benefit. Protecting shorelines and rivers preserves the breeding grounds of fish, which can support a fishing industry. Failure to protect these areas can lead to destruction of the fishing industry. The classic example of this is the Aswan Dam. When it was built on the upper Nile, ostensibly to bring economic benefits to Egyptian agriculture, the shrimp fishery on the eastern Mediterranean was wiped out.

6. The next benefit identified is food and fibre hunting and gathering. This is the sustenance that, for example, native peoples draw from the protected area. It is not commercial (or the area would not be considered protected) and it is typically not intensive. In Canada's National Parks, hunting and gathering must generally have been a traditional activity of native peoples to be permitted. It is nonetheless real, and, in its absence, the hunters and gatherers could well be obliged to purchase equivalents in a market.

7. The next benefit, commercial activities in protected areas, has to be understood properly. Obviously, a mine or logging operation which takes place in a protected area produces economic benefits. However, in most cases, it is no thanks to the protected area that it takes place. In fact, commercial activities are generally

considered to be antithetical to protected area s. If the commercial activity is to be considered a benefit, it must itself benefit from the protected area. For example, only if the protected area=s conservation programs or effects permit a sustained yield of forest products could the benefits created by forestry be in any way attributed to the protected area.

The guidelines also identify three areas of economic activity which represent costs of protected areas, and which the guidelines suggest should also be measured and accounted for against the benefits, in order to present an honest picture of the protected area.

8. The financial costs of protected area development and operations are correctly identified by the guidelines as being a cost, and not a benefit. These expenditures are what are usually considered as creating an impact in the area local to the protected area (see, for example, Coopers and Lybrand, 1992) and this impact can often be incorrectly taken as a benefit. The guidelines rightly do not make this common error. The guidelines point out, however, that when the funding for development and operation of the protected area come from outside of the economy, as is the case when the protected area is a foreign aid project, then the recipient country can consider the administrative costs as a benefit, and hence include it and the resulting impact in the benefit account.

9. The guidelines identify natural phenomena causing damage as another cost of protected area s. Wild animals who are sheltered by the protected areas and prey on neighbouring livestock are an example. The guidelines point out however, that careful study of the situation often reveals that the natural phenomena cause more damage in the imagination than in fact.

10. The last item which has to be included in the cost-benefit balance is the opportunity cost of the protected area, or the benefit foregone because economic activities such as natural resource exploitation are prohibited in a protected area. The loss of the opportunity to exploit resources in the protected area should always be taken into account as a cost.

Of course, it is unlikely that any one protected area will have all of the benefits or even the costs which the guidelines identify. The guidelines suggest that each type of benefit should be examined to determine which the protected area in question has it. This, says the guidelines, is a task for the park manager or biologist/naturalist and the economist combined. Both knowledge of the natural processes of the park and the knowledge of the functioning of the market place are needed to identify and assess the benefit.

Why are these particular benefits identified? For each of the benefits identified, a real market can be found somewhere, trading in that benefit. Real prices exist for the benefit that the protected area is providing. Therefore, it will be possible to determine the real value of the benefit, without resort to surrogate or artificial methods such as contingent valuation or revealed preference . As a result, industry and politicians will perceive the benefits as credible.

The authors are aware of a number of other benefits such as those identified by Walsh (1992) but did not mention them because they believe that managers and planners will not gain much by advancing these benefits at the table when face to face with logging and mining interests. The guideline is, after all, supposed to help people advocate for protected areas in public fora, against sometimes hostile interests, where credibility is everything.

There are two major problems with the guidelines. The first is that they incorrectly claim that tourism spending is a benefit, when in fact most tourism spending is merely redistribution. Secondly, they ignore a large number of benefits which could be used in justification, and by ignoring them, deny the guidelines user the full array of choices available for making arguments.

To understand the problem of tourism spending as it is treated in the guidelines, it is useful to start with a fundamental question: why do we want to measure economically the benefits of protected areas anyway? The reason is that if entrepreneurs and managers are to make rational decisions about whether to invest in or continue to maintain a protected area, they must compare the costs and benefits. In this way they can ensure that they only invest in those projects where the benefits exceed the costs. It is fairly easy to estimate the costs, both direct costs, and the economic value foregone because various forms of natural resources can no longer be exploited. The calculation of benefits, many of which are indirect or even intangible, is much more problematic. Hence, the guidelines.

For example, if an entrepreneur sees that the cost of some undertaking is $12 million, and the revenue (the entrepreneurs benefits) to be expected is $ 15 million, then it makes sense to proceed. If cost is $12 million and revenue is only $6, then it makes no sense to do it. Of course, this simple example ignores the many complicating factors such as the duration of the investment and the wait for revenues, and the risk. However, the basic decision criterion used is that benefit must exceed cost.

When a public agency decides to protect an area, it generally does not expect enough revenue (from users, concession fees, etc.) to equal or exceed costs. That is, in fact, why it is usually public agencies which protect natural areas. But the investment criterion with public money should be the same as with private money: the benefit must exceed the cost. If there is not enough revenue to counterbalance costs then, the question becomes: where else can we look for benefits to justify the public cost of the protected area?

Usually the first thing to come to mind is economic impact (see, among numerous examples, Coopers and Lybrand, 1992). Whenever a public agency spends money to operate a protected area, employees are hired and paid, and suppliers of goods and services in the local area receive the money as income. They, in turn, re-spend some of that money to pay their employees and purchase more stock from other suppliers to replace what they have just sold to the public agency. These other suppliers also spend some of the money they receive on their own employees and on additional goods and services. The original expenditure can thus go through many rounds of re-spending, creating beneficial economic activity in the local economy which would not have been created without the public agency spending on the protected area. The sum of this spending and re-spending is called economic impact.

But all expenditures, no matter what they are for or who makes them, have this impact. If it can be used to justify the investment in a public project that has insufficient revenue to make it profitable, why did the private sector entrepreneur not use it to justify his investment in the project that was not expected to bring in sufficient revenue? The obvious answer is that the private entrepreneur does not receive any of the impact; it accrues only to third parties: the local suppliers of goods and services and their employees, for example. The reason that the government (public agency) can claim the impact as a benefit is that the recipients of the spending are the constituents of the public agency, so any benefits accruing to the recipients accrue in some sense to the public agency that represents them and is supposed to be promoting their interests.

If, for example, the federal government of Canada spends money in Newfoundland to develop and operate a national park, then the citizens of Newfoundland obviously benefit. Since it is the mandate of the federal government to create benefits for its citizens, the benefits it creates for the citizens of Newfoundland can be put against the costs of developing the park.

But the money spent in Newfoundland came from somewhere! It came from taxes on the citizens of the rest of Canada. When the taxes were taken from somewhere else in Canada, a reverse impact took place in that somewhere else. Dollars removed from the taxpayers were not spent in their local economy, so local suppliers of goods and services received less revenue than they would have. They hired fewer workers and bought less stock in trade. The suppliers similarly received less revenue and bought less in their turn. Therefore, for every dollar of impact gained by Newfoundland, there is a dollar of impact lost somewhere else in Canada. The agency is merely redistributing economic activity, not creating any net increase in benefit. This is why the impact cannot count to balance against the cost, at least in the view of the public sector manager. Paradoxically, the expenditures are a benefit from the point of view of the people living in the area that receives the expenditure. The advocacy of the people in the receiving area frequently confuses the argument to the point that the public agency comes to believe that it is in fact creating a benefit, and not merely redistributing economic activity among its many constituents.

The IUCN guidelines correctly identify the costs for developing a protected area and operating it as costs and not benefits. Nor do they advocate applying impact analysis to these costs to multiply up the economic activity. However, they also do not warn against doing this. Since presenting government spending as a benefit to justify the creation of a protected area is such a common mistake, I believe that the guidelines should have mentioned this practice, and pointed out why it is an error. The use of government spending as a benefit does a great deal to undercut the credibility of economic benefit arguments generally, and the IUCN guidelines miss an important opportunity to correct the error and thus strengthen credibility.

Although the guidelines do not make the error of considering government expenditure a benefit, they do make that very error when considering tourism expenditure.

The protected area will draw visitors (or what we loosely call tourists, lumping local visitors in with those who come from long distances away, because it makes a bigger number and makes the argument look better) who will spend in the local area and bring the kind of Impact benefits that we thought government spending would bring. They, at least, are spending their own money and not taxes.

Unfortunately, tourists come from somewhere too. If they are from other parts of Newfoundland, the spending they do in the protected area is merely spending redistributed from somewhere else in Newfoundland. It they are visiting Newfoundland from somewhere else and spending money, they are not spending it visiting somewhere else, or not spending it on entertainment at home. So again, Newfoundland's gain is someone else's loss. Since most tourism in Canada is domestic, and indeed most of it is from within the same province (Statistics Canada, 1995 a,b), most tourism spending is merely redistribution.

The word "most" is important here. Not all tourists to our fictitious protected area in Newfoundland come from other parts of Canada. Some come from other countries, and some would have left Canada to travel to other countries in the absence of the attractive protected area. So it is valid to count as benefits the expenditures produced by some of those tourists, that is, those tourists who would not otherwise have come to Canada, but who came because of the protected area, and it is also permissible to count those who stayed in Newfoundland (or the rest of Canada) but would otherwise have left the country had it not been for the existence of the protected area.

In practice, of course, it is quite difficult (although not impossible) to determine which tourism spending is legitimate to count and which not. However, if we are trying to make rational and informed decisions about major

Table 1 Economic Benefits of Protected Areas

	Economic Effects of Protected Areas	
	True Incremental Benefits	***Redistributed Economic Effects***
Benefits to individuals using the area for activities compatible with its primary purpose	**Direct paid use benefit** (= revenue) Direct unpaid use benefit (= consumer surplus)	
Benefits to individuals through the knowledge of the area in the awareness of its primary purpose	Indirect use benefits (books, TV) Existence benefits Option benefits Bequest benefits	
Benefits to individuals using the area for collateral purposes	***Natural services** ***Water production** ***Mitigation of natural disasters** ***Fish breeding** ***Hunting/Gathering** ***Commercial activities** Ecological functions Health effects ***[Displaced activities]** ***[Natural disasters]**	***Tourism spending and impact** ***Protected areas development and operations and impact** [can be considered a cost under certain circumstances]
Benefits to society at large (exterrnalities)	Worker productivity Biodiversity Scientific, educational benefits Amenity benefits	

Notes: **bold** denotes those benefits for which a market exists and which can therefore be quantified with reference to market equivalents; * denotes those benefits and impacts identified by the IUCN guidelines; **[ ]** denotes those benefits which are negative, that is, a cost.

investments, it is irresponsible not to make the effort to get the true benefits, and instead to fool ourselves by not acknowledging that many of the benefits claimed are merely a redistribution of economic activity that would have taken place anyway.

The IUCN guidelines ignore the redistribution problem and incorrectly recommend that all visitor spending be counted as a benefit.

The second problem with the guidelines is the lack of mention of large classes of benefits which in recent years have become more credible. These are the benefits which the user of the protected area gets but which he or she does not pay for, and the benefits which non-users get from the mere existence of the protected area. They represent the hard to quantify well-being that is created by the protected area: the psychological, or spiritual benefits, and the enjoyment which the Protected area creates. These benefits are often the real justification for the Protected area.

The benefits include:

1. Consumer surplus: benefit the direct user gets from his or her experience of the protected area above and beyond what is paid for. This is often captured through the question How much more would you have paid to have the experience you had today?

2. Indirect use benefits: the benefits the non-user obtains by such activities as reading about the protected area or viewing it on television.

3. Existence benefits: the benefits obtained by knowing that the area is protected, for example, the pride in knowing that the nation's natural heritage, or the environment are being protected. This is closely related to bequest benefit, the benefit a citizen gets from knowing that future generations will still have the protected area to enjoy.

4. Option benefits. These are the benefits the non-user gets from maintaining the options for future

use of the protected area. For example, the non-user may someday visit the protected area, or society could someday benefit from the future discovery of a use of genetic or other material in the protected area. This potential would be lost if the protected area were to be exploited for its resources.

5. There are a whole variety of further benefits to society at large which can loosely be called externalities, which include biodiversity, scientific and educational benefits, increased worker productivity and sense of social cohesion, and amenity benefits.

It is beyond the scope of this paper to explore all these benefits exhaustively. However, Table 1 attempts to put these types of benefits into an overall framework.
The main importance of this table is in the distinctions it makes in the columns and rows.

The columns make the distinction between benefits that are true incremental benefits and those which are benefits only to a limited group of people with a particular geographic perspective. The benefits listed in the first column represent a net increase in society=s well being which would not have occurred at all if the protected area had not come into existence. Not all are additions to gross domestic product, of course. Some cannot even be quantified or must be estimated indirectly, but they are all true benefits of protected areas. The second column lists economic activity which the existence of the protected area redistributes to the local area, but which would have taken place somewhere in any case. It is only a benefit if the evaluator takes the narrow geographic perspective of those who are receiving the economic activity and is willing to ignore the perspective of those who are loosing the economic activity. This narrow perspective is frequently adopted, quite rationally, by those who are promoting the development of a protected area for their region, but should not be accepted by those who are funding the protected area, since it inevitably means redistributing economic activity from some other part of the funding agency=s jurisdiction.

The rows distinguish between the different types of use. The first row identifies the benefits that accrue to the direct users of the protected area who enjoy its resources in a way compatible with its objectives, for example by hiking. The second row identifies the benefits that accrue to those who do not use the area directly at all, but benefit from the knowledge of its existence at second hand, say by reading about it. The third row identifies the benefits that accrue to those who actually use the resources or the effects of those resources in a consumptive way, although the uses may be sustainable. Finally, the fourth row identifies the benefits that accrue to society at large from the existence of the protected area, whether they use it or not. An example here is the benefits we all gain from the increased productivity of workers who use the protected areas to vacation in.
The guidelines do not address these benefits that are not marked with an asterisk, reasoning that they do not have market equivalents, so they are not as credible as the ones the guidelines identify. In recent years, however, great strides have been made in their measurement, through the development of contingent valuation and revealed preference techniques. Although these values may not be as credible to all observers as benefits for which a direct market equivalent can be found, they are nonetheless gaining credibility in North America, following the findings of the NOAA panel of experts in the USA (NOAA, 1993).

Although not all benefits are useful for all arguments in support of protected areas, it is useful to be aware of the complete range of benefits. This enables protected area managers and advocates to frame more coherent and thoughtful arguments, and to put what quantitative measurements of benefits that exist in to the correct perspective

The conclusion that can be drawn about the IUCN guidelines is therefore that they highlight an important set of real benefits which protected area managers should examine when seeking to justify their protected areas. The guidelines are however very misleading about tourism: what groups of visitors to count and which group to leave out because they do not represent an incremental benefit to the economy. Nor do the guidelines do anything to correct the major error in benefit assessment, confusing impacts and benefits. In the guidelines, even the language is somewhat confusing.

Furthermore, the guidelines are not comprehensive, in that they do not put the important benefits they do treat in the context of the complete set of benefits. While this is not a fatal criticism, there is sufficient confusion in the field of benefits measurement that any guideline aiming at a general audience ought to put the subject matter into a general context. The guidelines however are a useful addition to the debate about creating and maintaining protected areas.

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Emergent Issues in Forest Plan Revision: A Dialogue

Susan I. Stewart

Research Social Scientist, North Central Forest Experiment Station, 845 Chicago Ave., Suite 225, Evanston, IL 60202-2357

Pamela J. Jakes

Project Leader, North Central Forest Experiment Station, 1992 Folwell Ave., St Paul, MN 55108-6148

Paul Monson

Regional Economist, Eastern Region, USDA Forest Service, 310 West Wisconsin Ave. Rm 500, Milwaukee, WI 53203

Abstract: Working with National Forest planners can raise many questions for social scientists regarding their role in planning or plan revision. Social scientists from the North Central Forest Experiment Station and the National Forest System Eastern Region debate 3 questions that continue to surface in their work with Forest Service managers on plan revision: first, what is the role of social scientists in the critical venue of public involvement? Second, the costly and time consuming task of social assessment is considered: what are the merits of full versus partial social assessments? And third, along more philosophical lines, do social scientists play the same role in plan revision that all other scientists play, or do social scientists play a potentially more sensitive role? Because there are no simple right and wrong answers, this paper explores the questions in point-counterpoint style.

Introduction

For the past year, a team of five social scientists at the North Central Forest Experiment and the have been working with two National Forest planning teams in the Eastern Region of the U.S. Forest Service. The goal of our project is to develop recommendations for incorporating various social science perspectives, methods, and models into forest plan revision.

A Forest Plan for each National Forest is required by the National Forest Management Act (NFMA), which amended the Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA). The purpose of the Forest Plan is to provide strategic direction for all natural resource management activities on the Forest. Most National Forests in the Eastern Region completed their Forest Plans in 1986. Many are currently updating and revising those plans in accordance with the NFMA regulations which state that the plan shall ordinarily be revised on a 10-year cycle or at least every 15 years.

Following many of our work sessions with National Forest System (NFS) staff we found that we were repeatedly asking each other three questions:

1. Do social scientists have a role in assisting National Forest managers with the public involvement aspects of forest plan revision?

2. Is a full social assessment necessary for plan revision?

3. Do all scientists play the same role in plan revision, or do social scientists have a potentially more sensitive role?

Although debating such questions may appear to be of interest only to academics, these questions are at the root of many of the challenges faced by social scientists when they try to work with managers to update forest plans. In an effort to better develop our thinking and to encourage others to share their ideas, we present the pros and cons, or opposing viewpoints, in answer to each question.

Question 1. Do social scientists have a role in assisting the forests with the public involvement aspects of forest plan revision?

Background

The political argument for public involvement in government activities is based on the real or imagined belief that government has failed to respond appropriately to the needs and demands of its citizens (Riedel 1972). Public involvement is vital to the activities of any governmental agency in that it is a mechanism for exchanging information, provides information on the value context for decisions, and is a source of credibility (Creighton et al. 1983).

The Administrative Procedures Act (APA) was passed in 1946 in order to provided public access to federal agencies. Under the APA, agencies were required to (1) inform the public of how they were going to interpret and implement congressional mandates, and (2) solicit comments from the public regarding any pending rules. However, the courts ruled that the APA did not apply to land management agencies because these agencies were acting as land owners when managing the federal lands, not as governmental rule-making bodies. The National Environmental Policy Act of 1970 (NEPA) was the first law to give land management agencies direction regarding public involvement. In the Forest Service, the need for public involvement was reinforced by the Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA) and the National Forest Management Act of 1976 (NFMA). These laws direct forest managers to use public involvement activities early and often throughout the revision of Forest Plans. In this context, public involvement can help evaluate community needs and expectations, develop Forest Plan alternatives, provide input for the projection and assessment of impacts, and monitor the impacts of plan implementation.

Social scientists may have a variety of motives for participating in public involvement activities related to

National Forest planning--(1) it may be part of the individual's job description, (2) it is an opportunity to test hypotheses related to public involvement in land management and planning in the closest thing a social scientist has to a laboratory, or (3) the individual feel that they have a role to play in the development of public involvement activities related to planning and management. In 1992, Gericke and his colleagues posed four questions that would provide the nucleus for a social science research program in public involvement (or what Gericke referred to as public participation):

1. What forms of public participation are constructive and what forms are destructive in particular situations?

2. How much public participation is enough?

3. How does trust in the Forest Service, as well as the desires of the public, change through the planning process?

4. How does public participation influence management decisions? (p. 38)

But public participation is a well-established component of National Forest management that has traditionally been accomplished without input from social scientists. Why should NFS managers risk increasing the complexity of their public involvement tasks by involving social scientists? What role might scientists play in this broadly-accepted, established activity?

Scientists provide valuable insights in designing public involvement plans.

Agency experience with public involvement is not an argument for continuing to leave it in NFS hands. In an evaluation of National Forest planning conducted in the late 1980s, critics found that:

"... planning is not the exclusive domain of experts.... Planning must access issues about which people deeply care. Rather than being isolated and insulated, planning is immersed in our country's social and political milieu." And, "Where plans have been successful, the attention to people's needs (emotional, symbolic, and organizational, as well as economic and community needs) were given consideration along with the resource capabilities and commodity schedules." (USDA Forest Service 1990a, pp. 3, 13).

The only way to reveal "issues about which people deeply care" or "people's needs" is through public involvement.

It would be easier to argue against the role of social scientists in public involvement if the process were working well. In fact, the process appears to be badly broken. In a recent evaluation of resource management, Cortner (1996) observes that "past efforts at resource management have not adequately dealt with the public's desires to be heard and listened to" (p. 165). She goes on to critique early public participation efforts specifically, and finds that:

"... these efforts failed to achieve participation by all affected segments of the public; failed to accommodate those segments of the public that did participate; occurred too late in the process, or if it occurred early was not sustained throughout the process; and separated the planning and public involvement processes thereby making it hard to integrate citizen input." (p.168)

Scientists have much to offer to the practice of public involvement in National Forest planning and management. First, through their participation in public involvement activities, scientists can share various disciplinary answers to or perspectives on Gericke et al.'s questions listed above and the concerns of Cortner. More to the point, social scientists can (1) assist the planning team in identifying tasks where public involvement is required, (2) identify places in the planning process where public involvement can improve decisionmaking, (3) suggest additional types of information that could be obtained through public involvement activities, and (4) match the correct or appropriate public involvement tool with the planning task.

The second area in which social scientists can make a contribution is in the analysis and integration of qualitative data into the planning process. The pages of comments that forests receive from letters and transcripts of public meetings, although not necessarily quantifiable, are still vital to forest planning and decisionmaking. Scientists can help managers develop ways to systematically interpret and display this data so that it is useful information for decisionmakers and their partners. The goal in analyzing public input is to have a process that is "not only visible and traceable but also objective and reliable" (Hendee et al. 1974). Finally, social scientists can help NFS personnel define the goals of their public involvement process and establish criteria for evaluating its effectiveness.

Scientists should leave public involvement to Forest Service staff and public affairs officers.

Involving scientists in the design of NFS public involvement strategies is sure to disappoint both managers and scientists. First, managers simply don't have much latitude in designing their public involvement processes. The same legislation and regulations that mandate the use of public involvement leave managers a very small decision space within which to work (Krannich et al. 1994). Forest Service planning is not a good laboratory for trying out the latest social science model, because many aspects of the participation process are pre-determined. In addition, planning situations vary so much that there is a lack of generalizability from one planning situation to the next (Day 1997), limiting the usefulness of research.

In a recent review of planning literature, Day (1997) found that public involvement studies often emphasize how to maintain or shift the balance of political power by manipulating the public involvement process. Much of the difference across research studies can be traced to the ideological stance of the scientist. Those who believe in pluralism tend to see the best results from those methods that involve listening to all who come forward. Those who are revisionist see a great and unjust disparity between those who are involved and those who are not. The blending of political philosophy with social science has a

long tradition in public involvement research (Day 1997), which suggests planners might be wise to turn down scientists' offers of help.

Few scientists active in human dimension of natural resources research have qualifications in planning, policy studies, communication or political science, where much of the relevant theoretical work in participation can be found. The expertise they bring to public involvement in forest planning is in the area of understanding the context in which the NFS participation process unfolds, not in their mastery of its theoretical bases. As such, their advice should be given and received with due caution.

Question 2. Is a full social assessment necessary for plan revision?

Background

The Forest Service manual defines a social assessment as a "broad level or programmatic data collection and analysis process used to generate information about the social environment." It is not a decision document, but is meant to be used by national forest managers as background information for decisionmaking--providing them a description of past, present, and potential social conditions.

There are few examples of forest-level social assessments in the literature, although they ubdoubtably exist on the shelves and in the files of individual forests. One example of a forest-level social assessment is the assessment prepared for the Kootenai National Forest (Impact Assessment, Incorporated 1995). The objective of this report was to describe public perceptions regarding forest management issues and the social, cultural, and economic factors that influence public perceptions. In a similar document looking at Ravalli County, Montana, and prepared for the Northern Region of the Forest Service (Bitterroot Social Research Institute 1994) the authors argue that "attempts to manage ecosystems must carefully consider the human dimension; without this factor, there would be no reason to manage anything. The best method to gather and assess information concerning the human dimension of ecosystems is a process called social assessment." (p.1)

Recently the focus of social assessments have shifted from a national forest or individual county to a multi-county or multi-state region. Large area social assessments have been popping up like spring mushrooms - witness FEMAT (1993), the Southern Appalachian Assessment (Southern Appalachian Man and the Biosphere Cooperative, 1996), and the on-going Ozark-Ouachita Highlands Assessment. But regardless of their geographic coverage, social assessments are time consuming and costly, and the jury is still out on the value of these assessments for planning and decision making. In the absence of evaluations of the success or applicability of the social assessments that have been undertaken, is a full social assessment advisable for forest plan revision?

A full social assessment in conjunction with plan revision is overkill.

Forests are not required to undertake a full social assessment in conjunction with planning or plan revision. The NEPA requires disclosure of the social impacts that are associated with Forest Plan revision. When, based on the decision maker's judgement, social impacts are expected, they need to be determined and disclosed to the public. This amounts to a full *social impact analysis* - quantifying and describing all impacts of specific management actions - not a full *social assessment* covering all aspects of community life and health, whether impacted by proposed plan changes or not.

In the Forest Service, the decision to conduct a social assessment and the contents of such a document are left to the discretion of the line officer responsible for that forest. If the line officer is convinced a sufficient understanding of the social conditions in their area exists, why would they undertake a lengthy and expensive exercise that will produce little or no new useful information? Rather than spend their time and money gathering new information about the people and institutions important to the National Forests, managers should develop a framework for incorporating the wealth of knowledge they and their staff already hold about social conditions so that it is of use in forest planning and decisionmaking.

A second alternative to a full social assessment is a more narrow assessment of just the social components of the issues identified in the Notice Of Intent (one of the first summaries of plan revision issues). Many of these forest planning issues are defined in terms of biological or physical resources, and by focusing social analysis on these problems, their biological, physical and social dimensions can be tied together and the interactions and linkages among the dimensions made more apparent.

A full social assessment is a well worth the time and money .

Although not required by law or regulation, social assessments set the stage on which National Forests perform. The Forest Service's own NEPA training courses highlight the need for evaluating current conditions in implementing forest planning. A social assessment provides such an evaluation. Following the first round of planning on the National Forests, a critique of that process found that forest planning, as practiced by the Forest Service, lacked any means of incorporating social issues into decision making (USDA Forest Service 1990a):

"We apparently provided the decisionmakers with reams of FORPLAN results and resource data but with very little information on the demographics, culture, or lifestyle of constituents. As a result, decisions often were not acceptable in social and political spheres." (USDA Forest Service 1990b, p.14)

Information describing the demographics, culture, and lifestyle are the essence of a standard social assessment.

The National Forests are being managed under an ecosystem management paradigm, which has been defined by the Agency as: "A concept of natural resources management wherein National Forest activities are

considered with the context of economic, ecological, and social interactions within a defined area or region over both the short- and long-term." There is no way that the "context of economic, ecological, and social interactions" can be understood without a broad analysis of the ways in which people are part of and interact with forest ecosystems. Social assessments provide such an analysis.

Question 3. Do all scientists play the same role in plan revision, or do social scientists play a potentially more sensitive role?

Background

NFS relies on scientists from a wide range of disciplines to lend expertise on resource management issues, and to help predict the effects of management decisions. Ecosystem management depends on scientists to support an adaptive management approach, where managers are encouraged to treat policies as experiments, learn from them, and refine their management practices (USDA 1995). Any scientist involved in NFS planning will judge the outcomes (i.e., proposed alternatives and their consequences) of the planning process. Yet social scientists' expertise may also extend to the process by which decisions are made, or the reasons for disagreements about resource management and use. Does the broad scope and political nature of social science create unique responsibilities for social scientists working in plan revision, or do all scientists face essentially the same kind of task?

All scientists face the same kind of challenges.

All scientists share the fundamental goal of improving our understanding of the world. The knowledge they generate sometimes has widespread, unanticipated consequences. Intentionally or otherwise, scientists often challenge popular ideas, redistribute power, raise concerns where none existed before, or change relations between people or groups of people. These effects will be felt most acutely when new knowledge is being added rapidly - which is also justification for addressing an issue in plan revision. Any scientist involved in plan revision will be dealing with potentially sensitive issues.

Forest management policy is often based on scientific findings, and scientists in the Forest Service have been caught up in the politics of natural resource management for years, despite the best efforts of the agency to insulate them (USDA Forest Service, 1995). The spotted owl controversy provides the perfect example of how inflamed a "strictly biological" debate can get. Even something that appears simple and straightforward, like the definition of "old growth forest", has political ramifications and can make an ecologists' work the focus of controversy.

The political sensitivity of any scientist's work stems in part from their personal world view and style. Just as there are social scientists who aim to change the balance of power between social groups through their research (Rosenau 1992), there are biologists whose mission is changing the priorities of land managers (Lautenschlager 1996). Post-modern philosophies of science call for more honesty about the scientist's personal agenda, and as a result, there is more discussion and declaration of agendas than ever before (Rosenau 1992). Its effects are evident in the criticism and dialogue that surrounds debates over natural resource, ecosystem management, and ecology (e.g., Kellert and Wilson 1993; Cronon 1995).

The idea that social scientists have a more delicate mission is just a symptom of being relatively new to resource management, still lacking institutional knowledge of how to anticipate and deal with controversy. There is no reason for social scientists to approach plan revision differently than the rest of the scientific community does.

Social scientists have a different role in plan revision.

When biologists and physical scientists comment on the consequences of management actions, their criticism usually applies to recommendations made by a resource specialist or interdisciplinary team. Social scientists more often apply their expertise to judgements made at a higher level of the agency. For example, when a social scientist comments on the method the forest has used to involve its publics, or the process by which issues are screened, or the relationship a forest has with its Friends of the Forest group, their criticism applies to the judgement of line officers, the Regional Forester, national leadership, or Congress.

Because social scientists study the needs and values that drive the political processes bearing on forest planning, the focus of their research is different from that of biological or physical scientists. Managers rarely ask scientists for input on many aspects of the plan revision process; in fact, the questions many social scientists find most fascinating are likely to be the same ones managers are least likely to ask them to study. For example, from the perspective of a social scientist, the question of how best to reach a decision is a potential research question. To most managers, it is a policy question, and they rightly see themselves as the experts where agency policy is concerned. NFS managers simply may not see scientific expertise as relevant to what they are doing. The same is true of research on the ways in which NFS personnel engage with or respond to the public, how NFS staff judge the public and how the public judges them. When social scientists offer to analyze a difficult management situation, there is a natural hesitancy on the part of the manager to submit to scrutiny, and few managers will be comfortable initiating a study of their actions.

Although research carried out in conjunction with plan revision does not necessarily have to originate from or even please NFS managers, it does have to relevant and useable. Without a long track record of previous research to point to, social scientists face a greater challenge convincing managers that their research will be helpful. If managers do not use social science research results, social scientists will have difficulty establishing the relevance and worth of their work, the ultimate test of their success.

Conclusion

There are no right or wrong answers to these questions. Rather, answers vary by National Forest and by individual

scientist. The important point is that social scientists and forest managers work together to insure that the best possible planning process is implemented on each forest, and that adaptive management represents a true partnership between scientists and manager.

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NATIONAL RECREATION TRAILS: AN OVERVIEW

Joanne F. Tynon

Assistant Professor, Parks, Recreation & Tourism Program, University of Maine, Orono, ME 04469-5769

James A. Harding

Ph.D. Candidate in Parks, Recreation & Tourism, University of Maine, Orono, ME 04469-5769

Deborah J. Chavez

Research Social Scientist, USDA Forest Service PSW Research Station, Riverside, CA 92507-6099

Abstract: Since the establishment of the National Trails System in 1968, 822 trails have been designated as National Recreation Trails (NRT). These trails support a wide range of activities, including but not limited to hiking, mountain biking, cross country skiing and horseback riding. In short, NRTs can be found across a diversity of geographic settings and are frequent destinations for a wide variety of people looking for natural resource-based recreation experiences. Most NRTs are federally managed with the balance managed by state, municipal, or private entities. To date, NRT management concerns and strategies, especially successful strategies, have not been identified. While some studies have focused on National Scenic Trails or National Historic Trails, this study is the first comprehensive survey of National Recreation Trails since the NRT organic Act. It is clear, however, that many NRT managers do not use their special trail designations to any advantage.

Introduction

Almost 30 years ago, Congress passed the National Trails System Act. That legislation gave us National Scenic Trails like the Appalachian Trail and the Pacific Crest Trail, National Historic Trails like the Iditarod and the Lewis & Clark Trail, and National Recreation Trails - perhaps the least familiar of the three designation types. The rationale for NRT designation offered back in 1968 was that it conveyed some level of prestige resulting in favorable publicity, community benefits, and added protection for trails. Today there are 822 NRTs across the US, supporting a wide range of activities, including but not limited to, hiking, mountain biking, XC skiing, and horseback riding. Trail lengths vary in range from 0.1 mile (in Florida) to 410 miles (in Pennsylvania). Trail surface types range from concrete (2%) and asphalt (12%) to natural surfaces (86%).

Methods

The main objectives of the study were to: (1) describe NRTs; (2) determine allowable uses; (3) determine which issues are important to managers, and (4) determine which management techniques/tools are being used. Of the 822 NRTs, 64.8% are federally managed, and the rest (35.2%) are managed by a variety of nonfederal public and private entities, ranging from state governments to private foundations. Given the relatively small population size, we attempted a census survey. While our response rate of 63.4% fell far short of a census, we nevertheless achieved a sample that closely mimics the population. When we compared the sample to the population on key variables, we found no meaningful differences. Follow-up phone calls support a lack of nonresponse bias; that is, we feel the data are representative of the population studied. With or without a complete census, our results are limited to a discussion based on descriptive statistics, including bivariate and multivariate analyses. To our knowledge this is the first study of NRTs; it is exploratory and descriptive. The results reported here are for mailback questionnaire responses from 521 NRT managers, 67.9% of them federally managed and 32.1% managed by nonfederal entities.

Results

The US Forest Service manages 45% of all NRTs. Table 1 shows the rank order comparison of all NRTs, to only those that responded, by administering agency. Federally managed NRTs are shaded. This table clearly shows that the distribution of responses mimics the population distribution.

Table 1. Rank order comparison of all NRTs to only those that responded, by administering agency.

Administering Agency	All NRTs	NRTs in Sample
USFS	45.5%	44.3%
City P&R	10.6%	9.4%
States	7.6%	8.5%
National Parks	6.6%	6.5%
Other[1]	6.3%	5.7%
USACOE	6.0%	8.3%
Local Board	3.7%	3.1%
County Parks	3.5%	3.0%
BLM	3.0%	3.7%
Other Federal[2]	2.6%	3.7%
State Park	1.7%	2.2%
USFWS	1.5%	1.2%
TVA	1.1%	0.2%
State Board	0.4%	0.2%

[1] Includes private companies/utilities, universities, and foundations (e.g. Univ. of Northern Florida, Audubon).

[2] Includes National Recreation Areas, National battlefields, National Memorial/Historic sites.

We compared NRTs by their designation year to determine if we could discount overrepresentation by more recently designated NRTs. Table 2 shows the rank order comparison of those who responded, to all NRTs, by their designation year. Again, we found no meaningful

differences. It is interesting to note that 70% of all NRTs were designated in the late 1970s and early 1980s.

Table 2. Comparison of all NRTs to only those that responded, by the year of NRT designation.

Year Designated	All NRTs	NRTs in Sample
1969	0.1%	0.2%
1970	0.1%	0
1971	3.5%	3.7%
1972	0.4%	0.6%
1973	0.9%	0.8%
1974	1.5%	1.2%
1975	2.7%	1.5%
1976	3.5%	3.1%
1977	3.5%	4.4%
1978	10.0%	9.8%
1979	25.8%	24.9%
1980	11.6%	10.8%
1981	16.5%	17.4%
1982	7.0%	7.5%
1983	2.1%	2.1%
1984	2.2%	2.1%
1985	1.1%	0.8%
1986	0.7%	0.8%
1987	0.7%	1.0%
1988	0.4%	0.4%
1989	0.5%	0.6%
1990	1.1%	1.2%
1991	0.4%	0.6%
1992	1.8%	2.3%
1993	0.5%	0.8%
1994	0.9%	1.0%
1995	0.5%	0.6%

Only about 10% of NRTs support motorized vehicle use of any kind. The balance of NRTs accommodate nonmotorized use by a single recreation user type (49.3%) such as only pedestrians or only cross-country skiers, or they support diverse nonmotorized use (40.4%) by, for example, bicyclists, pedestrians, and in-line skaters. Given these use characteristics, it is nevertheless surprising that NRT managers report seldom encountering user conflicts.

We asked managers to rank order their most important management challenges (safety, resource damage, accidents, user conflicts). Over half of respondents ranked safety as their most critical challenge (Figure 1). But, when asked how frequently they encountered those same management challenges (and collapsing the *frequently* and *often* response categories), safety dropped to second place (Figure 2). User conflicts, again, do not seem to be a serious problem on NRTs. Likewise, conflicts between a variety of specifc user groups, from walkers and runners to XC skiers and snowmobilers, are low. The most frequently encountered problem was between pedestrians and runners/joggers (by only 6.8% of all NRT managers who responded), followed by pedestrians and mountain bicyclists (only 5.2% of all NRT managers who responded).

Figure 1. Critical Management Challenges

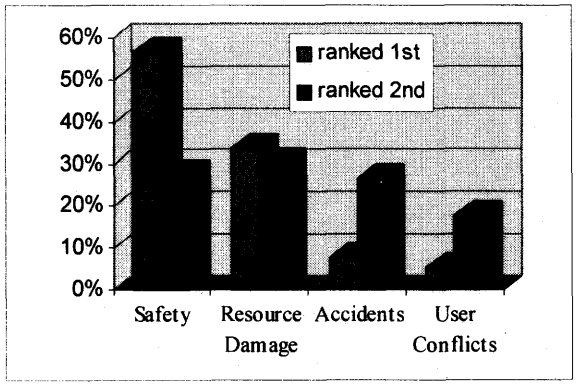
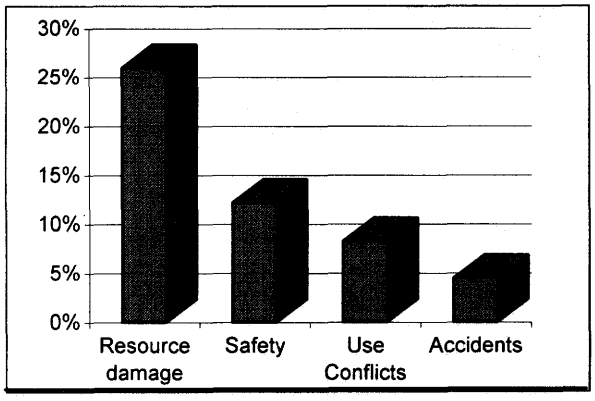


Figure 2. Frequency of Management Challenges



When we examined NRT trails by allowable use categories that didn't cater to only single uses, we found slightly higher reports of user conflicts. For NRTs that allow nonmotorized diverse use (40.4% of all NRTs), managers report user conflicts between pedestrians and mountain bicyclists (8.9%), pedestrians and tour bicyclists (7.4%), tour bicyclists and in-line skaters (6.9%), pedestrians and runners or joggers (6.3%), mountain bicyclists and equestrians or in-line skaters (5.3% each). For NRTs that allow diversified motorized and nonmotorized use (7.4%), managers report user conflicts between cross country skiers and snowmobilers (8.3%) and between snowshoers and snowmobilers (5.6%). Managers of NRTs that allow motorized diverse use (1.6%) did not report any user conflicts. These results are not indicative of serious user conflict problems.

To ascertain what tools and techniques NRT managers use to deal with the problems of safety, accidents, user conflicts, and resource damage, we used a five point scale, collapsing the frequently and often categories for Tables 3 and 4. The tools and techniques used are divided into 4 main groups: indirect, resource hardening, direct tools, and bridge building techniques.

Most managers rely on indirect management methods. In rank order, the tools and techniques used most often are informative or educational, such as maps (60%), trailhead (58.2%) & trailside signs (36.3%), bulletin boards (47.4%), brochures (46.8%), and a staffed information desk (38.9%). Two resource hardening, or physical, tools that ranked

within the top ten are monitoring the trail (38.7%) and installing water bars (33.4%). We know that while visitors are attracted to maps, they are not an effective strategy for communicating messages (Cole et al. 1997). It has also been reported that sign-based messages (such as trailside signs) and bulletin boards can be effective ways of communicating information, at least for hikers, if you can get them to stop and read the messages, and at the same time avoid message overload (*ibid.*).

Table 3. Management tools and techniques used on the NRT to deal with the problems of SAFETY, ACCIDENTS, USER CONFLICTS, and RESOURCE DAMAGE.

Percent	Rank	Tool/Technique
Indirect tools/techniques		
60.0%	1	Maps
58.2%	2	Trailhead signs
47.4%	3	Bulletin board(s)
46.8%	4	Brochures
38.9%	5	A staffed information desk
36.3%	7	Trailside signs
34.7%	8	Informational posters
29.7%	10	User ethics information
21.6%		Exhibits/displays
16.0%		A self-serve info. desk
9.4%		Local newspaper articles
7.5%		Public service announcements
Resource Hardening tools/techniques		
38.7%	6	Monitor trail
33.4%	9	Water bars
20.3%		Drain dips
17.9%		Harden trail surface(s)
17.1%		Trail reconstruction
13.3%		Low bridges
9.8%		Small culverts
7.4%		Boardwalks
5.2%		Turnpiking
4.7%		Wide turnouts
4.6%		Trail relocation
3.8%		Re-design trail

Finally, we asked whether NRT management is the only priority of those who responded, or if it is a top priority. Only 11% of managers listed NRT management as their only priority, while 43.8% said it is a top priority.

Recommendations

We have several recommendations for further study. First, it seems that the next logical step is to survey NRT users. Are users even aware of the NRT designation? Do they recognize NRTs as distinct from other trails? Does the designation carry any status or prestige for NRT users? And, does NRT designation affect behavior in any way? How might we explain the low incidence of user conflicts? Is it an indication of the effectiveness of NRT management tools and techniques? Another line of inquiry is to compare the management issues given by NRT managers to those of other trail managers. Do NRTs really exhibit fewer problems? Of particular interest is the apparent success of NRTs in regard to user conflicts. What is different, if anything?

Table 4. Management tools and techniques used on the NRT to deal with the problems of SAFETY, ACCIDENTS, USER CONFLICTS, and/or RESOURCE DAMAGE.

Percent	Tools/Techniques
Direct tools/techniques	
15.2%	Law enforcement
8.9%	Separate trail users
7.4%	Seasonal closures
6.6%	Limit organized group use
5.0%	Limit use
2.5%	Close area
Bridge building tools/techniques	
28.9%	Volunteer association groups
28.5%	Personal contacts - but not law enforcement
25.2%	Maintain trail with local users
17.9%	Local club contacts
14.7%	Volunteer patrols
10.2%	Committees with user group reps.
8.5%	State club contacts
5.4%	Partnerships with businesses
4.7%	National club contacts
2.3%	Workshops

As mentioned above, the rationale for NRT designation offered in 1968 was that it conveyed some level of prestige resulting in favorable publicity, community benefits, and added protection for trails. By way of responding to that, below are some of the comments we received from NRT managers:

"I apologize for taking so long [to return the questionnaire] - with downsizing and funding levels there is not much time except for crises management and top priority projects."

"We haven't been able to locate this trail."

"We've talked to a lot of people, and they didn't know anything about [the trail.]"

"I must tell you up front that while a good portion of the trail is improved and easily accessible by the public, in the overall scheme of things in our parks system it is a relatively small trail. We do not program even the maintenance of this trail on a regular basis, other than roadside weed abatement. We do not monitor its use. You should be aware that due to budget erosion over the last 10 years, [we have] had no formal budget for trail maintenance."

"The trails at [this park] are no longer available to the general public."

"Plans are to remove these trails in the near future. These have not been managed to NRT standards."

And lastly, "No one has heard of this trail."

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DEMONSTRATING THE VALUE OF A SOCIAL SCIENCE RESEARCH PROGRAM TO A NATURAL RESOURCE MANAGEMENT AGENCY

Pamela J. Jakes

Project Leader, North Central Forest Experiment Station, 1992 Folwell Ave., St. Paul, MN 55108

John F. Dwyer

Project Leader, North Central Forest Experiment Station, 845 Chicago Avenue, Suite 225, Evanston, IL 60202-2537

Deborah S. Carr

Principal Research Social Scientist, North Central Forest Experiment Station, 1407 S. Harrison Road, Room 200, East Lansing, MI 48823

Abstract: With ever tightening resources to address an increased number of diverse and complex issues, it has become common for scientists and managers to be called upon to demonstrate the value of their programs. In the spring of 1995, social scientists at the USDA Forest Service North Central Forest Experiment Station we so called upon. This paper discusses an effort to demonstrate the value of a social science research program for the Agency and the Station. We describe our experiences to share our perspectives on the value of a social science research program to public land management, and as an aid to others likely to face similar challenges in the future.

Introduction

In this time of declining budgets and re-evaluation of priorities for funding public programs, many of us have been called upon to demonstrate the value of our program's continued existence; others may face this challenge in the years ahead. In the USDA Forest Service, we have been going through a number of critical evaluations of our research program. One impetus for these evaluations is the National Performance Review's recommendations to federal agencies regarding improving services to the public by eliminating obsolete programs and restructuring others (National Performance Review 1993). Through a strategic planning process currently underway within the Agency, we are working to clearly identify the role and focus of the Forest Service's research program.

In May 1995, social scientists at the North Central Forest Experiment Station (NCFES) were asked by the Forest Service Research staff to clarify the role and value to the Forest Service of social science research. We were subsequently asked to build on that effort and outline the focus of a social science research program at NCFES that contributes to the Agency's mission of "Caring for the Land and Serving the People". In this paper we discuss the process we used to develop a justification for social science research for both the Agency and the Station, as well as some lessons we learned in undertaking the process. We present this process in the hope that it will help others who will evaluate the importance of their programs to their agencies.

Demonstrating the Value of a National Social Science Research Program in a Public Resource Management Agency

In justifying a social science research program for the USDA Forest Service we focused on five tasks that should be completed in order for decisionmakers to have the information they need to evaluate a program. Although the tasks are framed within the context of Forest Service social science research, they are applicable to any program:

1. Identify how social science research supports the Forest Service's mission.
2. Demonstrate support for an Agency social science research program.
3. Highlight benefits of the social science research program to the Agency.
4. Describe the unique role of the Forest Service's social science research program.
5. Identify emerging social issues with potential impacts on natural resource management and use, and how social science research can help the Agency meet these challenges.

Identify How the Program Supports the Agency's Mission—It is critical in justifying any program that the program be tied to major areas that the agency expects to emphasize in the years ahead. At the time we were tackling this assignment, broad guidance for Forest Service operations came from two sources—the Agency's statement of a mission, vision, and guiding principles; and a document called "The Forest Service Ethics and Course to the Future." We felt it was critical that we link a national program of social science research to these two documents. You may have similar documents for your organizations.

Regarding the Agency's mission, "Caring for the land and serving the people." Obviously we cannot effectively "serve the people" without a clear understanding of their values, expectations, and behaviors. In "caring for the land," the Agency has considerable expertise in the biological and physical sciences, but its implementation of management strategies is often hampered because of conflicts resulting from competing uses and changing values and expectations associated with public lands. Information developed by social science research is critical to successful implementation of these strategies.

"The Forest Service Ethics and Course to the Future," broadly described the management context and the Agency's focus in providing sustainable benefits to U.S. citizens and to the world. Priorities established in the document included:

1. protect ecosystems,
2. restore deteriorated ecosystems,
3. provide multiple benefits to people within the capabilities of ecosystems, and
4. ensure organizational effectiveness.

Information from social science research figures prominently in supporting all four priorities. We cannot hope to protect or restore ecosystems (items 1 and 2 above) without public understanding and support for these goals and the steps necessary to reach them. The tie of social science research to the third item is clear given research on resource benefits. Regarding the fourth item, there is a significant body of social science literature on improving organizational effectiveness. Although much of this research has been conducted outside the Agency, we need to test some of these findings within the Forest Service, and to conduct research that focuses on how we might implement our mission and vision and apply our guiding principles. Additionally, as discussed earlier, the conflict engendered by trying to implement land management strategies without adequate understanding of or support from the Agency's publics substantially impacts organizational effectiveness.

Demonstrate Support for a Forest Service Social Science Research Program—Identifying internal and external constituencies or supporters for the research being done by Forest Service social scientists makes a powerful statement on the value of this work. With respect to constituents internal to the Agency, a survey of Forest Service employees (Gregersen et al. 1989) showed strong support for social science research. When asked to identify the single greatest challenge facing the Forest Service today, the most common responses by Agency personnel focused on identifying and responding to what the public wants, as well as dealing with changing values and perceptions. Social science research can help the Agency meet these challenges. A more recent study (Mohai et al. 1994) found that Forest Service employees support giving the public more say in Forest Service policymaking. Finding ways to effectively give the public a greater say falls within the realm of social science research.

The need for social science research was also identified in a review of the Agency's first round of National Forest planning (USDA Forest Service 1990a and 1990b). Critique findings that support the need for social science research include the observation that "We must first recognize and accept that planning has important social and political dimensions. We learned the hard way that if we ignore these aspects, the planning process breaks down, and plans cannot be completed or implemented." (USDA Forest Service 1990a p.13) And that to be successful, forest plans need to recognize "other values with less emphasis on receipts and economics." (USDA Forest Service 1990b p.7) "We apparently provided the decisionmakers... very little information on the demographics, culture, or lifestyle of constituents. As a result, decisions often were not acceptable in the social and political spheres." (USDA Forest Service 1990b p.14). Social science research offers solutions to the problems of incorporating "other values" into decisionmaking, including the incorporation of demographics, and information on culture or lifestyle. Social science research can help insure that forest plans are more socially acceptable and politically feasible.

Further support for Forest Service social science research comes from the Agency's long-term strategic plan, as outlined in the draft 1995 Resources Planning Act (RPA) Program (USDA Forest Service 1995). That document highlights the need to understand "the relationship between people and forest and range ecosystems," and promises that research "will contribute by taking a scientific approach to understanding people's needs and values with regard to ecosystems, thereby providing information which will be necessary in the development of management options that better meet people's needs." (p. III-48). The RPA Program also talks about the need to "incorporate social sciences into policy-related analyses and studies." (p. III-48)

We also had the results of external evaluations of Forest Service Research in which the need to incorporate more social science information into the Agency's land management efforts was highlighted. One of the most often cited studies highlighting the need for more social science research is the National Research Council's *Forestry Research: Mandate for Change*. The Council recommends increased funding in five major areas, including human-forest interactions. The authors observe: "Our efforts to understand how people think about and act on forests have been minimal, and yet most controversies and shortages ultimately arise from human activity... The opportunity to increase knowledge and solve problems is great if research on human-forest interactions is accelerated and if the social ecology of forests is better understood." (National Research Council 1990 pp. 37-38)

Highlight Benefits of the Social Science Research Program to the Agency—Because research is such a small portion of the total Forest Service program, and social science research is relatively small within the research effort itself, we felt it was important to highlighted some past accomplishments of the Agency's program, including (but not limited to):

1. developed tools for management decisionmaking such as Limits to Acceptable Change, Recreational Opportunity Spectrum, Visual Resource Management System, and Benefits-Based Management;
2. developed analyses and recommendations regarding forestry incentives programs;
3. developed analyses and recommendations regarding impacts of log exports and imports on employment by geographic region and sector;
4. helped the urban national forests better serve their diverse recreation customers;
5. developed methods for collecting recreation area visitor information and estimating use; and
6. estimated the economic value of noncommodity resources, and the affects of various approaches to investment.

This list illustrates an important characteristic of Forest Service social science research—it is diverse. This diversity is expressed in three ways. First, the social scientists in the Forest Service come from diverse disciplinary backgrounds. Our social science workforce offers perspectives from geography, economics, sociology, landscape architecture, psychology, parks and recreation, planning, policy, and archeology. Each of these perspectives offers unique ways of defining and addressing

natural resource issues. Second, our client base is diverse. We serve groups from large public land managers to small individual private landowners, from wilderness campers to inner-city urban park day users, from small resource-dependent rural communities to large metropolitan areas. Finally, our research covers a diverse array of topics. We've analyzed the impacts of a log export embargo on employment in the Pacific Northwest, identified perceptions of safety in urban parks, and developed computer software for managing small woodlots. The questions and needs of forest managers and users are diverse—our program has, and will continue to reflect this diversity.

Describe the Unique Role of the Forest Service's Social Science Research Program—Looking back over our accomplishments we felt that there are four characteristics that help describe how the Agency's social science research program operates. First, we are client focused. We work with managers and policy makers to enhance the well-being of people through more effective resource management. Our research agenda reflects the needs of our clients. Second, we are problem oriented. We work in the context of actual resource management problems and time frames. We provide managers with the information necessary to develop plans and make decisions for specific resources and places in a timely fashion. Third, we work in teams. We bring together managers, university colleagues, people from other agencies, technology transfer specialists, policy makers, and others to solve specific problems. Increasingly these teams include researchers from a wide range of biological, physical, and social sciences. Finally, we emphasize high quality science in pursuit of generating information to meet the needs of our clients. Although many highlight the differences between the social sciences and the biological and physical sciences, we are similar in that we follow established scientific methods that produce results that are scientifically rigorous and defensible.

Another question related to the role of the Agency's social science research program is "How does the Forest Service social science research program relate to social science research at universities?" It is vital for any public program to be able to distinguish itself from other similar programs, and to be able to place its efforts or mission within a larger context that extends beyond the government sector. Although there are significant differences in the way social science research is conducted in the Forest Service and at universities, the Agency's social scientists work closely with their university partners in ways that capitalize on the strengths of both. When we provide funding for cooperative research projects or work with our university partners in other ways, it helps direct university research toward areas useful to the Forest Service. In instances where we are able to cooperate, our leadership and sensitivity to Agency concerns assure that the research effort stays focused on critical issues, is completed within management-relevant time frames, and is delivered to managers in a useful form.

Identifying Emerging Social Issues—NCFES social scientists have worked to identify critical and/or emerging social issues that have important implications for natural resource management and use. In identifying these issues we started with a clean slate. Many times when agencies are called upon to justify or develop a research program, they start with what they have and use that as a foundation for future work. However, rather than beginning our process by focusing inward on the Agency, we felt that we needed to look outward, at the broader issues affecting society. We could then identify the societal issues with strong natural resource components and finally develop some critical questions related to each issue that Forest Service social science research should address. The list is based not just on our own interpretation of events, but on issues and concerns expressed by our partners as we cooperate or consult with them about research needs and priorities. We identified seven major issues:

1. The values that people place on forests are changing dramatically—the future of the nation's forests hinges on our ability to keep pace with social change, to understand the forces that drive it, and to integrate these changing values into forest management strategies.
2. Effective communication between the Forest Service and its publics is increasingly important—in the absence of effective communication between the Forest Service and its publics about management of their forest ecosystems, people resort to extreme and contentious ways to make their voices heard.
3. Changing population demographics have wide-ranging implications for forest management—without a better understanding of demographic shifts and their implications, any agency is severely limited in its ability to develop responsive and pro-active management strategies for the years ahead.
4. A growing realization that social systems are intertwined with biological and physical systems raises new questions about the management and use of forest ecosystems—if we don't understand people and natural resource relationships, we simply cannot understand or sustain ecosystems.
5. Social change has and will continue to be a driving force in shaping landscape uses and conditions—attempting to protect, manage, and restore forest ecosystems by focusing solely on the physical and biological dimensions of these systems is socially and politically naive, imperiling the ecosystems we are charged with caring for, the people who depend on these ecosystems for their quality of life, and resource management agencies themselves.
6. Changes in the way we manage forest ecosystems affect the health and sustainability of communities—until we fully understand impacts to communities from forest management policies, natural resource management agencies will continue to find themselves vulnerable to accusations of weakening community character and viability, threatening traditional lifestyles, and ignoring environmental justice.
7. Transition to a global economy and changing land use patterns are transforming forest landscapes and affecting resource markets—local managers may miss significant opportunities for development or blunder into serious conflicts without a good understanding of how these broader social and economic changes affect them.

Moving From an Agency to Station Perspective—Operationalizing the Agency Vision

After making the case for social science research in the Forest Service, we were asked by Station management to develop a social science research program for NCFES. In moving from an Agency to a Station focus, we thought it was critical to accomplish five tasks—clearly define our goals and expected research outcomes; highlight our strengths as a Station; tie our program to where the Station is headed; define the regional contribution to national trends; and take an ecosystem approach.

Define Goals—The goal of the NCFES social science research program is to identify the linkages between the health and productivity of our forests and grasslands and the health and productivity of individuals, communities, and social institutions. The outcome of this research will be forest management decisions that are not only more scientifically feasible but also more politically justifiable. This research has the potential to reduced conflict over natural resource management and use. Reduced conflict would be an outcome of research that decreases or eliminates discrepancies between public values and managers' perceptions of those values; and between the biological, physical, and legal limits to sustainable management and public perceptions of these limits.

Highlight Strengths—We felt that a social science research program is appropriate for NCFES because we have a critical mass of social scientists with diverse backgrounds who already operate effectively as a team. This team consists of 15 scientists from five research work units, as well as numerous research cooperators in colleges and universities and other organizations. Members of the social science team have a broad range of expertise that includes geography, psychology, sociology, economics, parks and recreation, landscape architecture, planning, public policy, forestry, and biology. NCFES social scientists have also begun conducting integrated, interdisciplinary research with Station biological and physical scientists. These efforts have been enhanced by social scientists with backgrounds in forestry and biology, as well as in integrating disciplines such as landscape architecture, parks and recreation, and planning. As we'll discuss later, we see the integration of the social sciences with the biological and physical sciences as critical to answering many of the challenges facing natural resource managers.

Tie to Station Strategic Direction—The focus of the NCFES social science research program is on people-forest interactions—on how forests influence people and how people influence forests. These interactions are a critical component of many significant natural resource issues. As mentioned earlier, this area of research has been highlighted in a number of important strategic planing documents at the national level. It has also been a critical component of NCFES planning documents such as the North Central Forest Experiment Station Strategic Plan and the North Central Forest Experiment Station Ecosystem Management Research Plan. We have participated in Station committees on organizational structures, and will provide assistance with the Station's upcoming strategic planning process.

Define the Regional Context of National Trends—We listed earlier some broad social trends occurring across the country that influence natural resource management and use. At the North Central Station we chose to highlight the regional significance of six of the national trends mentioned earlier:

1. The values that people place on forests are changing dramatically—the large metropolitan areas in the North Central region place millions of people within a few hours of national forests, state parks, and other forested land. While the values of some of these people have been changing, immigrants and people new to forest use have brought greater and more diverse demands on the region's forests.

2. Effective communication between the Forest Service and the public is increasingly important—the number of people interested in and or impacted by forest management decisions is increasing. The large population centers in the North Central region provide greater opportunities and demands for collaborative partnerships which require more effective communication between forest managers and their partners.

3. Changing population demographics have wide-ranging implications for forest management—demographic changes such as increasing age, greater racial and ethnic diversity, and urbanization will have significant impacts on the forests in the North Central region and throughout the U.S.

4. A growing realization that social systems are intertwined with biological and physical systems raises new questions about the management and use of forest ecosystems—in the North Central region, these impacts are especially evident in riparian ecosystems. Riparian areas are a defining characteristics of the North Central region, and it is in the management and use of these areas where tension is often evident between competing users at a site and between users far removed geographically but joined by a ribbon of lakes, rivers, and wetlands.

5. Social change has and will continue to be a driving force in shaping landscape uses and conditions—in the North Central region we have a long history of urbanites summering in forested areas. We are also experiencing increased suburbanization and net immigration in some rural areas. Both these seasonal and new residents have significant impacts on the landscape.

6. Changes in the way we manage forest ecosystems affect the health and sustainability of communities—in the North Central region we have a relatively long history of logging and mining, both of which have played a major role in the establishment and sustainability of rural communities. Changes in the way we manage forests, particularly in the way they impact these two uses of the forest, can have significant impacts on the health of rural communities.

Take an Ecosystem Approach—Two of the tenets of ecosystem management are that ecosystems include people, and that the health and productivity of social systems are

linked to the health and productivity of natural systems. The NCFES social science research program has already been exploring the interactions between forests and communities across the regional landscape—from our large metropolitan areas to isolated rural communities (for example research in urban forestry and rural development). While recognizing special needs in particular areas, we can be most effective in using our scarce resources by focusing on ties between forest management and communities across the urban to wilderness landscape. In urban centers, we address the linkages between the quality of urban life and trees, parks, and open areas. In rural communities the focus shifts to linkages between forest landscapes, forest outputs, and community prosperity and stability. At the interface between these two segments of the landscape we can conduct research related to partnerships and collaborative planning.

There are also critical linkages in people-forest interactions across the landscape. Values formed in urban areas often influence perceptions of how forests should be managed elsewhere. Experiences in rural areas often shape the values of urban residents; urban residents are important users of rural environments; and individuals often move their residences between urban and rural areas.

An important component of ecosystem management that the NCFES social science research program has begun to address is the integration of the biological, physical, and social sciences to help solve complex ecosystem management problems. NCFES scientists have already initiated some research that begins this integration. In one research effort, biological and physical scientists work to identify and quantify the ecological impacts of different disturbances in central hardwood ecosystems, while social scientists (1) model the influence of these disturbances on visual quality, (2) estimate the impacts of these disturbances on noncommodity values, and (3) calculate the impact of ecosystem management on timber sale costs and revenues. In another critical effort, NCFES scientists are taking the first steps in linking people's perceptions of riparian system health to actual biological and physical measurements of riparian system functions. A final example of integrated research is the Station's project comparing people's perceptions of climatological events and trends against actual events and trends to assess how people understand climate change phenomenon.

A guiding principle related to ecosystem management is that scientists and forest managers work closely together to facilitate adaptive management. Social scientists at NCFES are conducting a wide range of studies in support of sub-regional assessments, adaptive management, collaborative planning, and forest plan revision. Many of the issues relevant to forest planning have a significant social component. Improved understanding of the current social context of forest management as well as social trends that are likely to influence management in the years ahead are essential to effective forest planning.

Conclusions

Throughout the process of outlining a program in social science research for the Forest Service and the North Central Forest Experiment Station we found ourselves returning to three critical tasks:

1. Identify the key resource management issues where social science can make an important contribution.
2. Specify the outputs that will be the products of this research.
3. Identify the outcomes, in terms of changed conditions, that will be the true measure of the benefits of this research—answer the "So what?" question that all scientists should answer regarding the relevance of their research to their clients.

We believe that social science research can help managers work more effectively with their clients and partners to increase "customer" satisfaction, increase support for resource management programs and policies, reduce controversy and conflict, reduce the need for restrictive rules, laws, and regulations relating to resource management and use, and reduce management costs. The entire effort to assess the contributions of social science research at the national and regional levels has been a relevance and reality check that generated a lot of healthy discussion among the social scientists who participated in the process. It has enabled us as individuals and as a team to be more effective in our research, development and technology transfer efforts. We expect that it will also help us work more effectively with other research teams at the regional and national levels. The effort has, thus far, withstood the test of time. Two years later we are comfortable with what we have developed and are making only minor adjustments in our emphases. We encourage others to undertake similar efforts and share their results with the social science community.

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Wildland Recreation

The Role of "Outdoor Capital" in the Socialization of Wildland Recreationists

Robert D. Bixler, Ph.D.

Manager of Research and Program Evaluation, Cleveland Metroparks, 4101 Fulton Parkway, Cleveland OH 44144

Beverly Morris, Ph.D.

Post-Doctoral Research Associate, Cleveland Metroparks, 4101 Fulton Parkway, Cleveland OH 44144

Interviews were conducted with canoeists and kayakers to identify key socialization experiences that led to involvement in these activities. Nonparticipants were also interviewed as a comparison group. Family involvement, both direct and through delegation to institutions such as summer camps and scouting, were key factors. While there was tremendous variation in socialization experiences, canoeists and kayakers had "accumulated" large numbers of outdoor experiences by the time they had reached their teens. This "outdoor capital" provides a solid experiential foundation for adopting water-based wildland recreation activities.

This study, using comparative biographical methods, investigated the differences in socialization experiences between young adults who are, and are not, involved in canoeing or kayaking. Results illustrate the importance of many and varied childhood experiences in later adopting wildland recreation activities. Practitioners may want to mimic some of these socialization forces in programming for youth from families uninvolved in outdoor recreation.

Literature Review

How people do or do not become involved in wildland recreation activities is still unclear, although experiences during childhood seem to be important. Kelly's (1974, 1977) work on socialization suggests that about half of all recreation activities, whether outdoor activities or not, are learned during childhood. Scott and Willits (1989) provided longitudinal data showing that adults enrolled in high school in 1947 still exhibited many of the same patterns of leisure involvement 37 years later. O'Leary, Behrens-Tepper, McGuire, & Dottavio (1987) found that 83% of hunters began hunting before the age of 18. Other studies have found varying degrees of relationship between childhood introduction to an activity and later adult participation (Sofranko & Nolan, 1972; Yoesting & Burkhkead, 1973; Yoesting & Christensen, 1978). Using frequency of recreation participation data, Miles et al (1993) noted that participation rates in some wildland recreation activities increase during parenthood, and speculated that parents are purposefully introducing their children to these activities during this period. While these studies document the significant relationship between childhood experiences and later adult participation, none of them attempted to identify the specific socialization processes which occur during childhood.

Scattered research suggests there are significant precursors to establishing interest in many wildland recreation activities. First, studies of adult risk recreationists indicate a high degree of personal involvement in the activity, suggesting multi-faceted involvement over a long period (Schuett, 1993). Decker, Purdy, & Brown (1986) found that exposure to hunting during childhood included accompanying other family members on hunts before the child was of legal hunting age, sharing hunting stories, helping clean game, and eating game. Dargitz (1988) found that urban youth, living with adults who fished, were significantly more likely to be involved in fishing, and reported enjoying fishing more than those without adult anglers at home. Brandenburg, Greiner, Hamilton-Smith, Scholten & Webb (1982) included opportunity for a recreational apprenticeship with a close acquaintance as a key component of a model explaining adoption of recreation activities.

Research has also documented the importance of childhood experiences in the development of attitude and skills which are, at least peripherally, important to being able to participate in some wildland recreation activities. For instance, studies of significant life experiences of prominent conservation leaders and environmental educators have consistently identified childhood play in natural environments as helping shape later interest in natural environments and conservation careers (Chawla, 1988; Chawla, 1997; Chawla & Hart, 1988; Palmer, 1993). Similar work has identified childhood play and unsupervised exploration as important in developing wayfinding competencies necessary for exploring unstructured environments (e.g. wildlands) (Bixler, Carlisle, & Floyd, 1995; Kaplan, 1976; Moore & Young, 1978). In contrast, three studies have documented the range of negative perceptions of wildland environments held by children or adolescents who have limited exposure to wildland environments (Bixler, Carlisle, Hammitt, & Floyd, 1994; Bixler & Floyd, 1997; Bixler, Floyd, & Hammitt, 1995).

The existing literature documents the importance of childhood as a period for adopting many recreation activities. It also suggests that seemingly unrelated outdoor childhood experiences are important for learning basic skills and developing attitudes that increase the appeal of the sociophysical environments in which wildland activities occur.

There are many possible approaches to begin documenting the specific socialization processes that are part of adopting a wildland recreation activity.

Life-span development and social-network strategies are two approaches. However, more exploratory work is needed before implementing these approaches.

In this study, the general concept of "cultural capital "(Bourdieu, 1986) is transformed to the concept of "outdoor capital" which refers to the accumulation of outdoor experiences within social groups. These experiences result in the development of outdoor skills, vocabulary, values, social networks, accumulation of outdoor equipment and clothing, and outdoor-related references and even art.

Cultural capital is a concept traditionally used to explain achievement in economic life domains such as education, career attainment and social status, but it describes a non-economic process. Cultural capital has been used to study development of interest and skills related to high-brow cultural activities. Individuals growing up in a family and community with a high degree of cultural capital will accumulate knowledge, skills and experiences, objects, and social and institutional networks, that allow them to function more effectively in higher social strata. Used in research, measures of cultural capital have added to the ability of human capital and social class variables to predict educational and economic success (DiMaggio, 1982).

Bourdieu (1986) argues that cultural capital is accumulated in three states: embodied, objectified, and institutionalized. Embodied cultural capital refers to attitudes and knowledge which are either implicitly or purposefully learned. Cultural capital cannot be transmitted instantaneously the way economic assets can be. Embodied cultural capital is assimilated through interacting with cultured people from a high social strata. Objectified cultural capital is material objects and media which can be transferred or purchased with economic capital. To actually use the objects in their intended way, the individual must have embodied capital either in person or by proxy. Institutionalized cultural capital is credentials or restricted memberships symbolic of cultural competence, from organizations that have widely-recognized cultural standing, independent of the persons receiving degrees or membership.

In this paper, we present data organized around the concept of "outdoor capital" in which families accrue wildland recreation-related knowledge, skills, and experiences that are transmitted to children. Children in social environments with a high degree of accumulated outdoor capital should tend to view wildland recreation as normative behavior and be able to quickly learn and perform a wide variety of wildland recreation activities.

Method

In-depth interviews lasting approximately one hour, were conducted with ten dedicated canoeists and kayakers, four casual water-sports participants, and ten individuals not involved in these activities (n=24). Participants included six professionals working as outfitters, park naturalists, or in scouting. The remaining non-professionals were recruited at a canoeing event, and through a screening questionnaire given to seasonal employees working at a zoo in a large metropolitan area. Non-participants were recruited from a park district employee list or from the same pool of seasonal zoo employees. All participants were between 18 and 33 years of age with equal numbers of males and females. The questions were designed to elicit from the participants a description of outdoor experiences they had during childhood, teenage and early-adult years. Follow-up questions dealt with the social circles from which interest in wildland recreation evolved. A series of questions at the end of the interview focused on respondents' perceptions of 12 different motorized and non-motorized, water-based activities.

Results

Involvement in canoeing and kayaking among informants ranged from those heavily involved in water-based wildland recreation to those with absolutely no interest in such activities. Life histories of two informants are contrasted, followed by a discussion of different wildland socialization factors.

Life Histories

Brief life histories of two individuals interviewed illustrate the differences in accumulated experiences between those active or inactive in boating. Both the informants were unmarried males, 25 years of age, who grew up in stable, two-parent families in older suburbs of Cleveland.

Carl is an avid boater who described his parents as "outdoor-type people" and his white-collar father as being at heart "a farmer who is most happy out-of-doors." His mother grew up in a city, but was the "adventurous sort who is always willing to try anything." His parents were active members of a canoeing organization and took the children on extended trips, tent camping and canoeing together. Since his mother was a swimming instructor, Carl learned to swim at an early age, becoming a certified life guard and had many experiences swimming in pools, lakes and the ocean.

He became a Cub Scout, at a time when he believes Cubs were allowed to do things that today might be considered "a little bit dangerous." While his parents "pushed" him towards scouting, he felt it was also his choice to get involved. The only outdoor activity he was involved in that was not directly tied to parents or scouting was his rock climbing in junior high. He and his friends climbed in a nearby ravine and bought rock climbing equipment that they "kept hidden from our parents so that they wouldn't wonder where we were going." During family rafting trips, Carl admired the dexterity of the kayakers sharing the river, and became fascinated with the sport. By age 14, he had

purchased his own kayak and his parents bought him the accessories. In his teens, he continued to take extended canoeing trips with his parents and by 15 was teaching canoeing at a scout camp.

Carl credits his father as the source of his outdoor interests. If his father didn't have the needed skills, the two of them learned together. His scouting experiences were also important because "it was completely and totally done by us (scouts)." As an adult, he continues to be active in camping, backpacking, kayaking, and professionally instructs wildland recreation activities and leads commercial trips.

In contrast, Jim is uninvolved in wildland recreation of any kind. He grew up in a blue collar family. His father neither hunted nor fished but was "a bookworm, a real reader." His parents took the family on carefully-planned trips to amusement parks, zoos, Las Vegas and Florida. Closer to home, the family's outdoor activities were primarily picnics at local parks.

His only tent camping experience was in the backyard and failed when it started to rain. He believed he could successfully camp if he wanted to, but "I like to have my davenport, my television and my commode right there if I need it. I don't need to be out in the middle of nowhere .... I have nothing to prove."

He stated that as a child he was "hydrophobic" for a long time. Around age ten, his parents saw his lack of swimming skills as a safety issue and sent him for swimming lessons to a "German (type) instructor ... no systematic desensitization ... just threw me in the deep water." He maintains he is "an okay swimmer ... I know what I have to do in deep water even if I can't. It's not my favorite thing in the world, but it's good exercise." He really likes "to look at water, more than being in it."

He was never a Boy Scout and his canoeing experiences were limited to two trips during adolescence. These were commercial ventures on a river that was "two feet of water, no challenge" in "the middle of nowhere. There's no K-Mart or McDonald's." He currently does no "traditional hiking," but plays basketball and football.

The contrast between the two is striking. Carl was raised in a family that had numerous outdoor experiences. The parents viewed outdoor and wildland activity as normal, valued activities. They taught their son skills and encouraged him to develop additional outdoor interests and skills beyond their abilities. In contrast, Jim was a member of a family lacking in outdoor experiences and found few opportunities to participate in wildland recreation.

Swimming

During the interviewing, it became obvious that the canoeists and kayakers were mostly swimmers and that many non-participants were either non-swimmers or their swimming experiences were limited to pools. Strong swimming skills probably increase the appeal of paddling unstable boats such as canoes and kayaks. Motivation for learning swimming skills frequently came from parents who wanted the child to learn to swim for safety and recreational reasons. Some informants started swimming at such a young age that they cannot recall any details: "I was practically born in the water." "Started swimming lessons before I could walk." "I don't remember ever not being able to swim." Some informants were taught to swim by their parents, others had formal swimming lessons. Many informants credited their parents' concern for their welfare as the motivation for swimming lessons. "I think it was my parents' desire that I learn to swim because my dad works in shipping and we were always around water. We'd go on the tug boats. You would hear stories of people that work on the boats that fell overboard. One guy drowned ... he didn't know how to swim." From another informant: "My mother said 'I want you kids to learn how to swim because I didn't know and now I'm afraid and I'm trying to do things like sail in a boat and I'm scared to death.' "

Among the group of avid canoeists and kayakers there was a respect for the dangers of water. One kayaker thought it "incredibly bizarre" that whitewater rafting is so popular because she is "sure they have no idea how dangerous it is." A male kayaker stated "Doing whitewater kayaking you have to know how to swim and you have to be able to work with the current to get somewhere if you do come out of your boat. You have to have a healthy fear of the water."

Perception of Natural Bodies of Water

The experiences of swimming in pools and in natural bodies of water were perceived to be quite different. Many were less enamored of natural bodies of water; other swimmers preferred natural bodies of water. These statements are typical of the dialogue: "Yucky bottom? It didn't really bother me." "When I'm out on watercraft clinics with my dad I have no problem jumping into the water. I don't mind that, but I just don't like that part when you have to go from shore out to open water. Once you get past the stones, there is slippery algae and I just don't like that."

Parents and Other Relatives

Introduction to wildland recreation was frequently by the parents or other relatives by actually taking the child to natural areas, teaching them skills or telling stories about their own childhood experiences: "I learned camping from my dad. Survival in the woods - - my dad. Building traps, hunting, canoeing, boating, all from my dad." "Both my parents are very interested in nature and wildlife, but my mom in particular. She was always looking at plants with me when I was young." "I have real strong memories of going to Arizona. It was an uncle, we went out into the desert and looked for creatures. Hiked around, looked for petrified wood and animals in the deserts."

"I heard stories about my dad's dad in Ireland, who spent a lot of time outdoors."

Institutions

Institutions often expanded the range of activities a child was introduced to, particularly the traditional outdoor-oriented organizations such as Boy Scouts and Girl Scouts and summer camps. Several girls participated in scouting activities through the Boy Scouts. These "closet Boy Scouts" were girls who had tried Girl Scouts, but for various reasons dropped out. "I was in Brownies for a week. I was a tomboy and all the girls wanted to do macramé and I wanted to go out and play in the mud. My brother was in Boy Scouts and my dad was the leader and my mom was the den mother so I hung out with the guys. I did a lot of camping with them."

Other institutions included school clubs and summer camps, which provided opportunities to go on backpacking, boating and skiing trips. Summer camp was enthusiastically mentioned by one individual as an institution that practically replaced her parents: "I went to boarding school when I was 13. I haven't spent two weeks with my parents since I was 13. I loved summer camp. We did all the activities." While some mention was made of school camping programs in the outdoors, these were never acknowledged by our informants as significant developmental influence.

Residential and Summer Homes

The childhood residential home selected by the parents provided a setting for childhood play and exploration. A few of the informants mentioned natural or undeveloped areas close to home that were available for play during childhood. For some informants, vacation homes were mentioned as a significant influence. These ranged from tent camping on a privately-owned wooded area to cottages on lakes.

Peers

Peers had either a positive or negative effect. Some informants reported ridicule from peers not involved in wildland recreation. This was a problem particularly in adolescence. "When you're a Girl Scout in high school, you're a geek anyway." Some of the informants used effective counter responses: "Someone comes up to you and sees you in a Boy Scout uniform and says, 'Oh, man, I had no idea,' and starts to give you a hard time, and you say, 'I was in Australia over Christmas break because of it. Where were you?' "

Active wildland recreationists positively influenced their friends who might otherwise have had few experiences. One informant whose family was active in wildland activities and owned a summer cottage and much outdoor equipment said, "I remember doing outdoor activities with my parents and then in high school I organized it for my friends." Also, peers with mutual enthusiasm for wildlands reinforced each other's interests. An informant who had parents with few outdoor skills but who were supportive of her interests, described in rich detail the experiences she and a friend had as children and adolescents planning bike trips to the parks: "We'd plan it for days in advance and we didn't care about getting wet and we didn't care about getting dirty ... Sometimes we would invite the boys to go with us, but we'd do all the planning for them." The girls also shared stories which expanded each other's outdoor horizons: "She belonged to her school's outing club ... I remember her telling me about some of the things she did with them, things I had never really done. I never would have thought about snowshoeing until she told me what a good time she had snowshoeing ... she adventured with me."

Discussion and Conclusion

While there were many types of socialization forces identified in this project, the interviews suggest those active in wildland recreation had accumulated many direct and vicarious experiences during their childhood and teen years. Parental influences included: supporting involvement in scouts, choosing traditional outdoor summer camps for their children, telling stories of their outdoor experiences, owning property that was wild or near parks or other undeveloped areas, visiting relatives who involved the children in outdoor activities, teaching specific wildland skills, traveling substantial distances for summer vacations to parks, access to outdoor equipment and being interested in learning new outdoor activities along with their children. Positive peer influences included: sharing equipment with others, providing friends access to familial resources such as summer cottages and outdoor equipment, and having friends to plan and go on adventures. Institutions provided many opportunities to learn activities that required considerable investment in equipment and specialized knowledge. Choice of institutions often reflected the parents' outdoor values.

Childhood play experiences in natural environments were explored with informants because of the consistent findings in socialization studies of conservation leaders that outdoor play was a significant formative experience. Play experiences also reflect the concept of outdoor capital in both an embodied and objectified sense. Parents either chose a more natural place to live or a home near a natural area, or took regular trips to parks. Any of these choices would allow their children to accumulate unsupervised play and exploration experiences. Data from this study were less than conclusive, failing to mirror the findings of other studies on the importance of childhood play. Some wildland recreation enthusiasts had play experiences in natural areas and recalled them with positive feelings, but others did not. This area needs further investigation. Informants who were boaters had different styles of participation

in their favorite sport. The informants who described canoeing primarily as a means to experiencing riparian environments and wildlife did have memorable childhood play experiences, but they were also all in their early thirties. Canoeing as a means of observing nature may tend to emerge later in life, with younger adults focusing on skill development, taking trips, and risk taking. It is also possible that water-based wildland recreationists, lacking childhood play experiences in wildland environments, are less likely to evolve from skill- and risk-oriented canoeing or kayaking toward boating as a means to natural-area experiences.

Both boaters and nonparticipants had varying levels of perceived swimming abilities, but only the non-participant informants contained non-swimmers. Informants tended to describe their parents' motivation for wanting them to learn to swim in terms of "drown proofing." Non-participants in water-based wildland recreation had done little or no swimming except in swimming pools, while the wildland recreationists reported childhood swimming in some combination of pools, lakes, ponds, rivers, and oceans. Swimming seems to be an important prerequisite for developing a lasting interest in recreation activities that involve maneuvering a watercraft that is easily capsized. Swimming skills represent embodied outdoor capital to the extent this skill provides confidence in wildland boating and institutionalized outdoor capital in the form of Red Cross swimming certification.

Strong swimming skills may not be sufficient. Most informants viewed natural water bodies differently than swimming pool. There was indication that harmless fish, insects, mud and algae were either feared or disgusting to nonparticipants. These differences suggest that both the perception of adequate swimming skills (psychomotor skills) and tolerance for full-body contact with natural bodies of water (environmental socialization) are necessary prerequisites for being an active canoeist or kayaker. Developing a positive attitude towards natural bodies of water is probably a function of parents or peers helping a person make appropriate interpretation of the things in natural bodies of water and repeated contact with water through swimming and wading.

The family was often the source of much learning about wildland environments. While only some families had backyard wild areas for play, most families of water-based wildland recreationists were involved in frequent trips to parks, vacations that tended to involve visiting natural resource-based parks, and visiting relatives who either lived in rural areas or took their visiting nieces or nephews to their favorite natural areas. There was some evidence of parents sharing outdoor adventures with children through telling about outdoor experiences they had growing up. The notion of multi-generational accumulation of outdoor capital was evident in discussions of visits with grandparents (or aunts and uncles) who consistently involved the informants in outdoor activities to their farm, wooded area or visits to rivers or oceans during family visits.

The introduction to canoeing or kayaking was either by the parent, a peer, scouts or camping. Participants consistently reported encouragement from their parents, and sometimes had friends who were also enthusiastic about the activity. Institutions such as Boy Scouts, Girl Scouts or summer camps were where canoeing or kayaking where typically learned. Parents sought institutions that reflected their outdoor values and their desire for their children to be exposed to additional wildland recreation activities. Belonging to scouting programs or attending summer camp are examples of institutionalized outdoor capital.

This project strongly suggests that adults who are enthusiastic about wildland recreation have had a large number of outdoor experiences growing up. Nonparticipants have few wildland experiences. The amount of accrued outdoor capital during childhood seems to be predictive of involvement in wildland recreation activities as adults. Unfortunately, outdoor capital provides little help in defining the style of participation in a wildland recreation activity.

In terms of application, the data supports current educational strategies of teaching canoeing or kayaking skills (paddle strokes, portaging) and safety, but only for children from families with outdoor capital. In contrast, the results present a disquieting look at the effort which may be needed to effectively introduce youth from families with no outdoor capital to wildland recreation activities. For canoeing and kayaking, it may be necessary to help youth develop: excellent swimming skills and comfort in being in natural bodies of water, tolerance for the negative aspects of wildland environments through frequent contact with wildlands, trip planning and wayfinding skills plus the usual skills necessary to canoe or kayak. Helping these youth to establish a peer group that is enthusiastic about these activities may also be an essential strategy to counter negative peer pressure.

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PROTECTING AND MANAGING TRADITIONAL ALLAGASH WILDERNESS WATERWAY RECREATION ACTIVITIES

Thomas J. Cieslinski
Maine Department of Conservation
Bureau of Parks and Lands

Abstract: The statute creating the Allagash Wilderness Waterway in 1966 specified several outdoor activities traditionally participated in along the watercourse. Additionally, there are other outdoor activities traditional to the watercourse. The identification and provision of opportunities for these activities, consistent with maintaining wilderness character, is central to long-term protection and management of the Waterway. An Advisory Committee has been created by the Bureau of Parks and Lands to assist the Bureau in identification of suitable opportunities for traditional outdoor activities and preparation of a plan to guide management of the Allagash into the 21st Century.

Introduction

The Allagash Wilderness Waterway is located within 24 unorganized townships and one organized town in northwestern Maine, in an area referred to in Maine as the "North Maine Woods."

It is almost entirely surrounded by privately owned land managed exclusively for forest products. The major private landowners include Bowater, International Paper Company, Seven Islands Land Company, Prentiss and Carlisle, and Irving Pulp and Paper.

Since 1990, the average annual summer use of the Allagash has been 43,540 visitor days. Summer day use has increased approximately 17% annually, while camping use has declined approximately 7% annually.

In the same time period, the average annual winter use was 11,000 visitor days. Winter use has increased an average of 9% annually. Winter use fluctuates widely based upon how early there is sufficient snow cover for snowmobiling and ice for ice fishing.

The Allagash Waterway was created by state acquisition of 22,840 acres of land between 1966 and 1970. The state-owned land is contained within a 500 foot strip of land, known as the Restricted Zone, along either side of the 92-mile long watercourse.

The "Waterway" however, is not just this state-owned strip of land; it also encompasses a New Construction Area, the One-Mile Area, and "Visible Areas."

The **New Construction Area** extends one-quarter mile from the outer boundary of the Restricted Zone. Within this area all development must be approved by the Bureau of Parks and Lands. The Bureau has approved 26 development projects in the New Construction Area, primarily for road construction for timber harvesting. In addition, three state camps were constructed for administration purposes by other state agencies.

The **One-Mile Area** extends one mile from the high water mark of the shoreline of the watercourse. The Bureau of Parks and Lands must be notified of all timber harvesting operations and herbicide applications within this area. In addition, the Bureau must approve harvest operations and herbicide applications within **Visible Areas** in the One-Mile Area north of Churchill Dam.

In addition, there are several Public Reserved Land units located within the One-Mile Area totaling 34,155 acres, which are managed for remote recreation, wildlife habitat, natural features, and forest products. Many of these Public Reserved Lands are adjacent to the state-owned Restricted Zone.

These Public Reserved Lands are managed by the Bureau of Parks and Lands, the same agency that manages the Allagash Waterway.

The Allagash was dedicated as the first state-administered component of the national wild and scenic river system in 1970. A management plan for the Waterway was prepared by the Bureau in 1973. The Bureau is in the midst of updating that plan with the assistance of a 22-member Advisory Committee. In addition to three Advisory Committee meetings, there have been two field trips to the Waterway and an additional winter trip by staff. Two major tasks of the planning effort are to determine and provide for the recreation activities that were traditional at the time the Waterway was created, and to identify the policies, objectives, and strategies necessary to maintain or enhance opportunities for these traditional activities.

Traditional activities

Activities traditional at the time of creation of the Allagash Waterway in 1966 include:

- Canoeing and river fishing with and without the use of outboard motors;
- The use of watercraft with outboard motors on the larger lakes of the watercourse, primarily for fishing;
- Remote camping along the watercourse;
- Hunting along and on the watercourse;
- Hiking from the shoreline to several fire towers on nearby mountain summits;
- The use of float and ski planes to bring "sports" to favorite places on the watercourse; and
- Snowmobiling.

Overnight stays in rustic cabins at several sporting camps was also traditional. The Bureau was required by statute to purchase and remove most of the sporting camp cabins. Two however, were allowed by statute to remain; Nugent's on Chamberlain Lake and Jalbert's on Round Pond. These two sporting camps were acquired by the state and are leased for management. Major use periods for the camps are May through October and January through March. Use of these camps accounts for approximately 8% of the total Allagash use.

Non-traditional uses

Over the years, several activities that did not exist or were not common prior to 1966, have become common in the north woods of northern Maine. These include:

- The use of all terrain vehicles on trails, plowed roads, and frozen lakes in the winter;
- Camping overnight in recreational vehicles;
- Camping overnight in ice shacks;
- Moose hunting in October; and
- Day use of the watercourse from non-traditional access points or routes.

ATV summer use is prohibited by North Maine Woods, Inc., A landowner consortium which manages road access control gates to the north Maine woods area from May through November. The Bureau is a member of this consortium.

Management planning

To protect and manage traditional Allagash Wilderness Waterway recreation activities the Bureau and the Advisory Committee first had to define "wilderness," which was not defined in the Allagash statute.

Wilderness Character Concept

- Opportunities Are Provided For Traditional Recreational Activities Including Canoeing, Primitive Camping, Stream And Lake Fishing From Canoes And Small Boats, Shoreline Fishing, The Use Of Small Motors On Canoes And Boats, Hunting, Hiking To Mountain Summits, Day Use, Limited Float Plane Access For Canoeing And Fishing Parties, Snowmobiling, And Ice Fishing.
- Limitations Are Placed On The Number Of Motor Vehicle, Float Plane, Boat, And Snowmobile Watercourse Access Points.
- Water Quality And Quantity Are Maintained At Sufficient Levels For Traditional Recreation Activities And Water Dependent Resources.
- Historical Structures And Cultural Artifacts Are Protected And Interpreted.
- Rare, Unusual, Or Special Natural And Geological Features Are Protected.
- Opportunities Are Provided For Secluded Watercourse Travel And Camping.
- Limitations Are Placed On The Amount And Impact Of Recreation Use.
- Administrative Structures Are Unobtrusive From The Watercourse.

Seven policies will provide direction for management of the state-owned Restricted Zone, the natural setting of the New Construction Area, and the land and waters of the One Mile Area. These policies will be pursued by the Bureau, landowners, and other resource management agencies.

Allagash Management Policies

1. Enhance The Wilderness Character Of The Restricted Zone.
2. Prevent Development In The New Construction Area That Is Incompatible With The Wilderness Character Of The Restricted Zone.
3. Protect And Manage Areas Visible From The Watercourse, In The Restricted Zone And The One Mile Area, To Maintain The Appearance From The Watercourse Of A Largely Undisturbed Forest Cover.
4. Identify And Manage Important Natural, Historical, Cultural, Wildlife, And Fishery Resources Within The Restricted Zone.
5. Identify And Manage Natural, Historical, Cultural, Wildlife, And Fishery Resources Located In The One Mile Area, Outside Of The Restricted Zone, That Are Visited By Waterway Users Or That Contribute To Waterway Character.
6. Provide A High Quality Recreation Experience For Traditional Uses Of The Watercourse.
7. Maintain Watercourse Water Quality And Ensure Sufficient Quantity For Wildlife And Recreation Uses.

With the wilderness concept and seven policies in mind, here is how we are addressing the traditional and non-traditional activities that currently occur in the Allagash.

Primitive camping:

* Is allowed only at 80 authorized campsites (142 camping cells).
* We will sample campsite use to determine which campsites are often filled to capacity or "crowded."
* We will determine the physical condition of campsites and the degree of solitude available at each campsite cell.
* We will develop a plan for creating new campsites and/or replacing or renovating existing campsites based upon daily use and physical condition findings.

Winter camping

* Is allowed in two parking lots located outside of the Restricted Zone near Chamberlain Bridge, at authorized campsites, and in ice shacks.
* We will continue to allow winter camping at the Chamberlain Thoroughfare and Kellogg Brook parking areas, but will not increase capacity beyond what it is today.
* We will not allow overnight camping in ice shacks located either on the ice or in the Restricted Zone.

Sporting camp use

* We will allow continued use of Nugent's and Jalbert's Sporting Camps. However, the number of cabins and

capacity at those camps cannot be increased beyond the number existing in 1966.

* The repair, improvement, and replacement of existing camps and structures will be allowed using design and materials that are as consistent as possible with the original housing.
* No motor vehicle access will be allowed except for administrative or emergency purposes.

Watercraft outboard motors and watercraft

* Use of outboards will not be allowed on Allagash Lake and Stream. Use of outboards of 10 horsepower or less allowed on Eagle Lake north. In all likelihood unlimited horsepower will continue to be allowed on Chamberlain and Telos Lakes.
* Personal watercraft, racing boats, and party boats will not be allowed in the Waterway.

Hiking

* Authorized land trails to the watercourse will be listed in the Allagash rules.
* Trails to nearby mountain summits will be maintained by the Bureau.
* Traditional foot access routes to the watercourse will be maintained and promoted. No other walking trails in the Restricted Zone will be allowed by the Bureau.

Snowmobiling

* Currently allowed on all lakes and ponds except Allagash Lake and Stream.
* Authorized snowmobile routes to the watercourse will be listed in the rules. These will include several existing trails.

All terrain vehicles

* All terrain vehicles will continue to be prohibited in the Waterway from April 1 through December 31, except for emergency and administrative purposes.
* All terrain vehicles will be prohibited within one mile of Allagash Lake and Stream.

Float plane and ski plane landings

* There will be 7 authorized float plane landing sites.
* Lakes and ponds within the One-Mile Area where float planes may land will be listed in the rules.
* Ski planes will continue to be allowed on frozen lakes and ponds within the One-Mile Area, except for Allagash Lake.

Canoeing

* Only canoes will be allowed on Allagash Lake and Stream, and on the watercourse north of Lock Dam.
* The size of canoeing/camping parties will continue to be restricted to 12 or less.

Day use

* Day use has increased over the years while camping overnight has decreased. We will study the amount and impact of summer and winter day use to help determine if a day use fee system should be implemented, and we will consider other methods to manage day use, such as limiting the number of users in certain areas.

Hunting

* Moose hunting in the Restricted Zone and on the watercourse will continue to be prohibited.
* Other types of hunting will be allowed between October 1st. and April 31st.

Fishing access

* Motor vehicle access to the watercourse will continue to be available at seven locations. Other motor vehicle access locations will be considered.

Historical structures

* The tramway/locomotives and boarding house will be restored and educational displays will be provided at these locations.
* Other important structures and features will be identified, protected, and managed according to interpretive plans for each.
* Educational displays will be provided at the boarding house.

Enhancing the wilderness character of the Restricted Zone and the watercourse

In addition, there are many additional proposed strategies that will maintain or enhance the wilderness character of the Restricted Zone and the watercourse. These include the following.

* Motor use of any kind, including powered ice augers, will continue to be prohibited on Allagash Lake and Stream, except for administrative purposes.
* Power saws will continue to be prohibited in the Restricted Zone and on the watercourse, except for administrative purposes and at sporting camps.
* Generators for winter camping will be allowed only at the Chamberlain Thoroughfare and Kellogg Brook parking areas and at sporting camps.
* The discharge of wastes, including soaps and detergents, into the watercourse will continue to be prohibited.
* The harvesting of live trees within the Restricted Zone will be allowed only for the construction of new or replacement administrative structures and associated roads.
* Insect infestations will be allowed to occur in the Restricted Zone without suppression or control.
* All wildfires will be suppressed immediately.

Conclusions

Providing suitable opportunities for the traditional recreation activities of the Allagash will be a difficult task. Even more difficult will be the task of limiting or prohibiting non-traditional activities. The Bureau is up to the challenge, but limited funding, reduced staffing, priorities elsewhere within the State Park and Historic Site system, and the demands of a society becoming more accustomed to utilizing new technology and new recreation equipment will be formidable obstacles to achieving the strategies identified for the Allagash. The Bureau will rely more and more on friend's groups, other volunteers, donations, and dedicated revenue to achieve our Allagash strategies.

NEW ENGLAND'S NORTHEAST RECREATION ACTIVITY MARKETS: TRENDS IN THE 90S

Rodney B. Warnick

Associate Professor of Hotel, Restaurant and Travel Administration, University of Massachusetts at Amherst, 203B Flint Lab, Amherst, MA 01003-2710

Abstract: The purpose of this study was to examine activity markets within three major geographic areas in the Northeast for the period of 1994-1996. The activity markets examined included travel activities; recreation/sport activities; outdoor activities; interest in fitness activities and cultural/historic interests. The geographic markets of each activity group were examined by primary, secondary and tertiary markets of Central New England. Findings here indicated that the activity markets with potential to travel to New England show signs of growing; however, there exists considerable variation between the different geographic areas.

Introduction

Recent studies have examined trends in the activity and geographic markets for New England's travelers and recreation participants (Warnick 1993, 1994, 1995, 1996 and Kuentzel, Robertson and Ramaswamy, 1995). These studies have indicated that domestic travel in the Northeast has become a mature market and also very different in terms of changes by state within the Northeast. This paper examines activity markets by their major metro areas and groups these areas into primary, secondary and tertiary markets to examine how trends within the activity markets and by geographic locale may affect the travel potential to New England.

In Warnick's previous studies of geographic markets, the markets were examined by large geographic regions and their travel behavior in selecting New England as a primary destination. Specifically, all of the Northeast was considered as one major market and compared to other regions (the South, Midwest and West) when individuals indicated travel to New England as a primary destination choice. These studies indicated that New England was considered to be a mature destination region for domestic travel. The region had not rebounded to the peak market demand of the mid-80s. However, the most recent study (Warnick 1996) indicated some rebound in the travel patterns. The Vermont and New Hampshire travel study (Kuentzel, Robertson and Ramaswamy, 1995) showed domestic travel to these states had also become mature, but they also found very different changes in travel patterns by state residence and primary destination of the visitors. Therefore, evidence does suggest that the future of travel and recreational pursuits in New England are changing and need further attention and review. Specifically, it may be helpful to examine activities and changes within these activities by geographic subregions of the Northeast to further assess the market potential of New England.

Purposes of Study

The purposes of this research paper are two-fold: 1) to examine and update recreation activity markets for New England in the 90s by specifically examining activity trends for 1994, 1995 and 1996; and 2) to continue to identify changing patterns in these activity trends by examining the geographic markets by primary, secondary and tertiary regions of those who may potentially visited New England.

Method

A limitation of Warnick's studies and justly noted is the lag time in monitoring the trends. The data are usually two to three years behind the current publication time. This was simply a result of the release time of the Simmons Market Research Bureau's activity data to universities for research and teaching purposes. However, other data sets exist which now allow more timely review of the travel and recreational trend analysis.

Standard Rate and Data Service's (SRDS) *Lifestyle Market Analyst* has been published on a yearly basis since the early 90s and provides perhaps the most recent and timely data available of selected markets. In additional to profiling the market for the activity, SRDS provides data specific to over 200 major markets areas. These data are provide at the local, regional and national levels and provide three distinct ways of identifying who one's customers are, how they differ from market to market and how they spend their time in over 60 different lifestyle activities.

SRDS' data are based on information collected from more than 20 million households collected on an annual basis. This includes extensive information on the interests, hobbies and activities popular in each geographic and demographic market. The data come from a joint venture of SRDS and NDL (National Demographic and Lifestyles, Inc., a subsidiary of R.L. Polk and Company). The demographic and lifestyle profiles collect in this data set are updated annually and the release of the 1990 census information enables NDL to summarize, weight and update the profiles to be reflective of the U.S. population and their respective markets. NDL uses a variety of sources to derive its estimates including Claritas for its household counts and demographic estimates.

NDL collects the data from U.S. household by inserting consumer information questionnaires into the packaging of a variety of consumer goods. From the large 20 plus million household surveys a sample of over 10 million, which represents data collect over one year, from November to November, are weighted and adjusted to reflect the entire U.S. population and its respective regional locations. The data are collected and represent 211 DMAs (designated market areas) as compiled by the Nielsen Company. These markets, DMAs, are more commonly known as TV or broadcast markets and are largely groupings of counties with commercial stations located in metro/central areas. DMAs are non-overlapping areas used for planning, buying and evaluating television audiences. Lifestyle markets and activities are created by NDL in conjunction with product consumption and media data compiled by Mediamark Research, Inc. Respondents to NDL's questionnaire are asked to report their participation in each of 69 different activities. Households are

considered to be involved in an activity if at least one adult member is a regular or frequent participant within the previous year. An adult is any person over 18 years of age or older living in the household. The activities are assembled into home life; good life; investing and money; sports, fitness and health; great outdoors; hobbies and interests; and high tech activity groupings with individual statistics reported on each individual activity and by each geographic market. Data is also collected on 40 different demographic variables.

For this study, three major groupings of geographic markets were developed: primary, secondary and tertiary markets. Markets were based on their location relative to the center of New England and respective drive times. Primary markets were those major markets which are located within a three - five hour drive time of Central New England and include the metro areas of Albany, New York; Bangor, Maine; Boston, Massachusetts; Hartford/New Haven, Connecticut; New York City; Portland/Auburn, Maine; Providence, Rhode Island/New Bedford, Massachusetts; and Springfield, Massachusetts. These geographic areas are likely to make-up an estimated 50-60% of the travel market to the region. Secondary markets were those major markets which are located from a five to eight hour drive time of Central New England and include the metro areas of Harrisburg; Philadelphia; and Scranton-Wilkes Barre, Pennsylvania and Syracuse, New York. These geographic areas are considered to make-up an estimated 20-30% of the travel market to the region. Tertiary markets were those major markets which are located over an eight hour drive time of Central New England and include the metro areas of Baltimore, Maryland; Cleveland, Ohio; Pittsburgh, Pennsylvania and Washington, DC. These geographic areas are considered to make-up an estimated 10-20% of the travel market to the region.

For the purposes of this study, activity groupings included travel activities; recreation/sport activities; outdoor activities; interest in fitness activities and cultural/historic interests. Specifically within each groupings include travel activities -- domestic travel and travel for vacation; recreation/sport activities -- golf, tennis, ski and biking; outdoor activities -- interest in wildlife and the environment, camping/hiking, hunting and fishing; interest in fitness activities -- fitness walking and fitness and exercise programs; and cultural/historic interests -- attending cultural activities and interest in history and America's heritage. "Travel" in this study is believe to represent those households with individuals who have traveled over 100 miles one-way, overnight to an away-from-home destination. "Vacation travel" represents those households with individuals who traveled away from home for vacation purposes with no mileage restrictions.

Participation rates of households within major metro markets were developed by activity and geographic market and summed to reflect the primary, secondary and tertiary areas and compare to national, regional and internal geographic markets. When the primary, secondary and tertiary areas are combined, they are considered to be the total Northeast market for New England. An average annual adjusted percentage change rate and descriptive statistics were used to examine each of the activity markets. The change rates were compared by indexing metro rates to the national rates. Each trend year reflects the average participation for the previous three years. This serves to be a three point moving average for each activity market. For example, 1994 data would reflect the average for 1992, 1993 and 1994 data on activity participation. Thus, this study's data actually covers a moving average of participation for activities from 1992 through 1996. In tables which follow, activity trends for the years 1994 through 1996 are described on one of five different patterns -- decline trend (declining more than 1% per year); stable trend (no change); growth trend (increasing more than 1% per year); stable/decline trend (declining less than 1% per year) and stable/growth (increasing less than 1% per year).

The tables presented in this study provided information which can be compared three ways. Comparisons can be made from: 1) New England's total northeast markets to national rates; 2) the primary, secondary and tertiary rates compared to the overall New England Northeast rates; and 3) the metro rates within each of the primary, secondary and tertiary areas.

Selected Findings

Discussions here will address each of the activity markets with specific data presented in each of the following tables. Only key findings are discussed, but readers are encouraged to examine in detail the subregion and metro specific trends and rates.

Table 1. Geographic Markets for New England Destinations for Travel Activities.

Geographic Region	Travel	Vacation Travel
National Rates	34.5% (D)*	37.6% (S)
All New England Mkts (Prim., Sec., Tert.)	34.8% (D)	38.4% (D)
1. Primary Markets	34.7% (D)	38.5% (D)
Albany	34.8 (S)	38.4 (D)
Bangor	29.0 (D)	31.6 (D)
Boston	35.9 (D)	40.2 (D)
Hartford/New Haven	36.6 (D)	39.5 (D)
New York City Metro	36.6 (D)	40.6 (D)
Portland/Auburn	31.7 (D)	35.7 (D)
Providence/New Bedford	33.8 (D)	38.0 (D)
Springfield	34.2 (D)	38.0 (G)
2.Secondary Markets	34.5% (G)	38.3% (S)
Harrisburg, PA	32.8 (G)	37.2 (S)
Philadelphia	35.5 (S)	39.5 (S)
Scranton-Wilkes Barre	30.7 (S)	34.2 (S)
Syracuse, NY	35.5 (G)	38.4 (G)
3.Tertiary Markets	35.4% (SG)	38.2% (S)
Baltimore	33.8 (D)	38.0 (S)
Cleveland	36.2 (G)	38.0 (D)
Pittsburgh	33.1 (G)	36.5 (S)
Washington, DC	36.9 (D)	39.9 (S)

*Participation rate noted is for most recent year, 1996.
Indicates trend of 1994- 1996: D=Decline; S=Stable; G=Growth; SD=Stable/Decline and SG=Stable/Growth.
Source. SRDS. 1994-1996. *Lifestyle Market Analyst.*

Travel Activities. Nationally, domestic travel is declining at a rate of slightly greater than one percent per year; however, vacation travel has remained relatively stable. Within all of New England major markets (primary, secondary and tertiary), the rate of participation who travel and travel for vacation purposes are declining. However, the rates for these markets are higher than the national rates. Overall, the primary market metro areas when combined are declining for both travel activities. Secondary and tertiary markets were growing for travel and stable for vacation travel participation. Table 1 contains these data.

Table 2. Geographic Markets -- Key Markets for Recreation and Sport Activities.

Geographic Region	Golf	Tennis	Ski	Bike
National Rates	19.6% (G)*	5.4% (D)	7.1% (D)	16.7% (D)
All New England Mkts	20.2% (SD)	6.4% (D)	8.1% (D)	16.0% (G)
1. Primary Markets	16.5% (D)	6.7% (D)	9.1% (D)	16.0% (D)
Albany	22.2 (D)	5.5 (D)	12.2 (S)	17.2 (G)
Bangor	14.1 (D)	3.3 (D)	11.6 (G)	15.8 (G)
Boston	20.6 (D)	6.7 (D)	13.1 (D)	18.0 (G)
Hartford/New Haven	20.8 (D)	6.5 (D)	9.8 (D)	15.4 (G)
New York City Metro	15.1 (D)	7.6 (S)	7.8 (D)	16.2 (G)
Portland/Auburn	16.5 (D)	4.5 (D)	14.4 (D)	16.7 (S)
Providence/New Bedford	19.2 (D)	5.3 (D)	8.8 (D)	17.0 (S)
Springfield	20.0 (D)	4.7 (D)	10.1 (D)	17.5 (G)
2.Secondary Markets	18.7% (S)	5.3% (D)	7.0% (S)	14.9% (G)
Harrisburg, PA	18.8 (D)	4.6 (D)	5.3 (G)	12.9 (D)
Philadelphia	18.2 (S)	6.1 (D)	7.0 (S)	15.9 (G)
Scranton-Wilkes Barre	16.5 (G)	3.2 (D)	6.3 (G)	11.0 (S)
Syracuse, NY	24.9 (D)	4.4 (D)	10.2 (D)	16.4 (G)
3.Tertiary Markets	20.1% (G)	5.9% (G)	6.5% (G)	15.6% (G)
Baltimore	16.1 (D)	6.2 (D)	6.5 (D)	15.9 (G)
Cleveland	25.5 (S)	4.3 (G)	5.3 (G)	15.9 (G)
Pittsburgh	22.5 (G)	4.0 (G)	6.1 (G)	11.7 (G)
Washington, DC	16.7 (G)	8.0 (D)	7.6 (S)	17.5 (G)

*Participation rate noted is for most recent year, 1996. Indicates trend of 1994- 1996: D=Decline; S=Stable; G=Growth; SD=Stable/Decline and SG=Stable/Growth. Source. SRDS. 1994-1996. *Lifestyle Market Analyst.*

Table 3. Geographic Markets -- Key Markets for Outdoor Activities.

Geographic Region	Wildlife	Camp/Hike	Hunt	Fish
National Rates	16.2% (S)*	22.7% (G)	15.2% (G)	23.3% (G)
All New England Mkts (Prim., Sec., Tert.)	16.2% (SG)	16.5% (SG)	10.4% (SG)	16.4% (G)
1. Primary Markets	16.1% (SD)	15.4% (SG)	7.9% (SG)	14.6% (G)
Albany	18.6 (D)	26.1 (G)	16.3 (G)	20.3 (D)
Bangor	21.2 (D)	35.0 (D)	28.7 (D)	33.3 (D)
Boston	17.5 (G)	20.2 (G)	8.1 (G)	14.9 (G)
Hartford/New Haven	16.5 (D)	19.1 (G)	9.4 (G)	17.2 (G)
New York City Metro	16.0 (S)	12.0 (S)	6.5 (D)	13.5 (G)
Portland/Auburn	21.4 (D)	32.0 (G)	20.2 (G)	25.4 (D)
Providence/New Bedford	15.9 (D)	17.5 (G)	7.4 (G)	16.3 (G)
Springfield	18.0 (S)	22.5 (G)	11.9 (G)	19.6 (G)
2.Secondary Markets	17.0% (G)	17.6% (S)	14.6% (S)	19.4% (G)
Harrisburg, PA	17.3 (G)	21.8 (D)	22.3 (S)	21.2 (D)
Philadelphia	16.7 (G)	14.8 (G)	10.2 (G)	17.0 (G)
Scranton-Wilkes Barre	16.8 (G)	21.1 (D)	25.2 (D)	26.1 (D)
Syracuse, NY	18.5 (D)	25.4 (G)	17.9 (S)	22.8 (G)
3.Tertiary Markets	16.5% (G)	16.5% (S)	10.4% (G)	16.5% (G)
Baltimore	16.8 (S)	16.6 (G)	10.2 (G)	17.7 (G)
Cleveland	15.2 (G)	19.5 (S)	11.9 (G)	20.0 (S)
Pittsburgh	15.2 (G)	18.6 (S)	19.2 (D)	20.5 (D)
Washington, DC	16.7 (S)	17.5 (G)	10.8 (G)	15.6 (G)

*Participation rate noted is for most recent year, 1996. Indicates trend of 1994- 1996: D=Decline; S=Stable; G=Growth; SD=Stable/Decline and SG=Stable/Growth. Source. SRDS. 1994-1996. *Lifestyle Market Analyst.*

Recreation and Sport Activities. Nationally, for three of the four recreational sport activities, household participation rates are declining. They include the activities of tennis, skiing and bicycling. Only golf was growing at the national level. Within all of New England major markets (primary, secondary and tertiary), the rates of participation for tennis and skiing were declining. Golf was declining only slightly and contrary to national rates the participation rate for biking was growing. But, golf, tennis and skiing participation rates were higher than national household participation rates. Overall, the primary market metro areas held rates which were declining for all four activities. Secondary markets were more stable with decline in only tennis; stable for golf and skiing and experienced growth in biking. Growth across all these activities were found in the tertiary markets. Table 2 contains these data.

Outdoor Activities. Nationally, for three of the outdoor activities, household participation rates are growing -- camping/hiking, hunting and fishing. Interest in wildlife and the environment were found to be stable. Within all of New England major markets (primary, secondary and tertiary), the rates of participation for each of these activities were growing with the rate of growth the strongest for fishing. However, the rates for each of the growth activities are significantly below the national rates. The rates are as much as five to seven percent below the national rates. For the primary, secondary and tertiary markets for each of these activities the household participation rates are either stable , slightly growing or growing overall. Only the primary market has experienced a slight decline for interest in wildlife and the environment. Table 3 contains these data.

Table 4. Geographic Markets -- Key Markets for Fitness Activities.

Geographic Region	Fitness Walking	Fit/Exercise Programs
National Rates	34.1% (D)*	34.1% (D)
All New England Mkts	33.7% (SD	34.2% (D)
1. Primary Markets	34.7% (S)	34.6% (D)
Albany	35.8 (D)	36.5 (D)
Bangor	36.8 (SG)	29.0 (D)
Boston	36.8 (G)	37.2 (D)
Hartford/New Haven	35.1 (SD)	35.5 (D)
New York City Metro	33.8 (S)	36.5 (S)
Portland/Auburn	37.5 (SG)	32.4 (D)
Providence/New Bedford	38.5 (SG)	33.8 (D)
Springfield	36.1 (S)	33.4 (D)
2.Secondary Markets	34.4% (D)	30.4% (D)
Harrisburg, PA	34.1 (SD)	31.0 (S)
Philadelphia	34.1 (S)	35.5 (G)
Scranton-Wilkes Barre	36.1 (D)	27.6 (G)
Syracuse, NY	34.1 (S)	34.1 (S)
3.Tertiary Markets	33.0% (SD)	36.0% (S)
Baltimore	31.7 (SG)	35.1 (D)
Cleveland	32.7 (D)	33.8 (SD)
Pittsburgh	33.3 (SD)	34.3 (G)
Washington, DC	32.1 (SG)	40.2 (D)

*Participation rate noted is for most recent year, 1996.
Indicates trend of 1994- 1996: D=Decline; S=Stable; G=Growth; SD=Stable/Decline and SG=Stable/Growth.
Source. SRDS. 1994-1996. *Lifestyle Market Analyst.*

Fitness Activities. The rates for fitness walking and participation in fitness and exercise programs/activities were declining at the national level. Within all of New England major markets (primary, secondary and tertiary), interest in fitness walking is declining slightly and fitness and exercise participation is declining more. The primary market for fitness walking is stable and for exercise and fitness participation rates are stable within the tertiary market. All other markets are either declining or declining slightly for these two activities. Table 4 contains these data and comparisons.

Cultural and Historical Activities. Attending cultural activities at the national level is declining and interest in history and America's heritage is increasing. Interest in history within all of new England markets is growing and above the national average. Attending cultural events within New England's major markets is declining slightly but above the national average. Participation is growing over all market areas for interest in history and America's heritage. In only the tertiary market is the household participation for attending cultural events stable. Table 5 contains these data.

Table 5. Geographic Markets -- Key Markets for Attending Cultural Activities and Interest in history and America's Heritage.

Geographic Region	Attend Cultural Events	Interest in History and America's Heritage
National Rates	13.9% (D)*	4.8% (G)
All New England Mkts	15.8% (SD)	5.1% (G)
1. Primary Markets	16.5% (SD)	4.9% (G)
Albany	14.5 (D)	5.9 (SG)
Bangor	14.8 (G)	5.9 (G)
Boston	16.3 (D)	5.1 (G)
Hartford/New Haven	15.6 (D)	4.8 (D)
New York City Metro	17.8 (D)	4.7 (D)
Portland/Auburn	12.6 (D)	5.6 (G)
Providence/New Bedford	12.8 (D)	4.8 (G)
Springfield	13.8 (G)	4.5 (D)
2.Secondary Markets	13.4% (D)	5.4% (SG)
Harrisburg, PA	12.1 (D)	5.9 (D)
Philadelphia	14.5 (D)	5.3 (G)
Scranton-Wilkes Barre	9.7 (D)	5.2 (G)
Syracuse, NY	13.6 (SG)	5.2 (D)
3.Tertiary Markets	16.0% (S)	5.6% (G)
Baltimore	15.2 (D)	5.3 (D)
Cleveland	13.3 (D)	4.9 (S)
Pittsburgh	13.8 (G)	5.0 (G)
Washington, DC	19.9 (D)	6.6 (SG)

*Participation rate noted is for most recent year, 1996.
Indicates trend of 1994- 1996: D=Decline; S=Stable; G=Growth; SD=Stable/Decline and SG=Stable/Growth.
Source. SRDS. 1994-1996. *Lifestyle Market Analyst.*

Conclusions and Implications

Earlier studies have indicated that New England was a mature travel destination. However, this examination of the data by activities and primary, secondary, and tertiary markets with the potential to travel to New England provide different findings. Market orientation is also

helpful in examining the trends within various activities. The early studies examined the Northeast as a total market area. But, there exists considerable variation within the Northeast when activities are examined by the primary, secondary and tertiary markets of New England. Furthermore, even though an activity may show a decline at the national level, activity trends within selected regions can be and are different. Also, regional trends can also vary greatly from the national participation rates.

Examining trends within the Northeast at the subregion or primary/secondary/tertiary level provides clearly different insights about the potential markets for the Northeast. There is variation within these subregions and between these regions and the national rates. When travel participation is examined, for example, participation rates of New England's markets as a whole are declining. However, the secondary market area (including such cities as Philadelphia, Pennsylvania and Syracuse, New York) and tertiary market area (including such cities like Baltimore, Maryland and Washington, DC) are actually growing. In addition, although there is a decline, the participation rates are higher than the national averages.

While the Simmons data are somewhat dated by the time research can be undertaken, the SRDS data are more current. However, even these data suffer from another problem which does not allow a highly accurate picture of the more precise travel indicators to New England provided by the data from Simmons. These data only provide information on whether or not the markets actually traveled and/or participated in various activities by their residential locale. There is no indication in the data that people within these households actually engaged in travel and recreational activities which were undertaken at New England destinations. This is a significant limitation of this data set and analysis. The data merely show the what people are doing specific to their home area. Also, these data are unlike the Simmons and other data sets in that participation is measured at the household level. What is measured here is the residential market demand for activities and not the actual participation in travel and related activities while visiting New England. However, part of marketing is persuading motivated markets to travel to New England. Identifying these markets and trends within the respective markets is essential in the targeting and promotional effort.

The subregional analysis also provides information about how trends may affect regional marketing efforts. For example, if travel within New England's primary market is declining; then, it would seem reasonable to more aggressively pursue those markets within the secondary and tertiary metro areas which are growing.

Within recreational and outdoor markets, even further market savvy may be necessary. On a positive note, the traditional outdoor activities of camping, hiking and fishing are enjoying a rebound within new England's major markets. However, even within these markets, the rates are dramatically below the national rates. Those businesses which seek to attract these traditional activity markets should enjoy rebounding market activity, but also recognize that there are more distant markets (e.g., the South and Midwest) which may have markets with participation rates which are substantially higher than the national averages and the averages for New England's Northeast markets. Recreation businesses and attractions with longer term stay potential may benefit from marketing to these more distant locations.

While variations were noted within the Northeast by primary, secondary and tertiary markets, the variations also extend to intra-regional markets. For example, household participation rates in 1996 for golf vary by as much as eight (8) percent between Albany, New York (household golf participation rate - 22.2%) and Portland, Maine (household golf participation rate -- 14.1%). On the other hand, the household participation rate for hunting for Portland, Maine (28.7%) is over four times higher than the rate for New York City metro area (rate of 6.5%). In other activities, hunting for example, those metro areas closer to more abundant hunting areas (Albany, New York's proximity to upstate New York) and Bangor, Maine's proximity to the Great Northern Woods) all have much higher household participation rates. Albany's participation rate for hunting in 1996 was 16.3% and Bangor's 28.7% in 1996 as compared to the primary region rate of 7.9%.

The impact of a large metropolitan area should also not be overlooked within these findings. The New York City metro area is comprised of over 6.9 million households in 1996. The household density may actually limit participation in some activities such as camping, hiking, hunting and even others like interest in viewing wildlife due to the proximity to the resources and lack of opportunities. The impact of the New York City metro area must be acknowledged in that it comprises 56.4% of the primary market. Due to this size factor, activity trends within this metro area may well mask changes within other metro areas when the primary market is considered in total. For example, New York City metro area has the lowest participation rate for skiing in 1996 of all the major metro areas in the primary market areas. The household participation in 1996 for skiing was 7.8%. However, it comprises 48.4% of all households ski markets within the primary market area and 30.5% of all households throughout the three regions. Portland, Maine's ski participation rate of 14.4% is nearly double that of New York City, but it comprises only 4.5% of the household ski market in New England's primary geographic market in 1996. Attracting skiers from New York metro area may be easier even though the rate is much lower and the distribution of these skiers is likely more dispersed. However, reaching these skiers with advertising messages may be more cost effective because of media can be used in the metro area which has further reach. On the other hand, New York City has the highest household participation rate (7.6%) for tennis in 1996 of all cities within the primary and secondary markets. The New York metro tennis market comprises 64.1% of all primary market tennis households and 38.3% of all three markets for New England. In addition, the New York metro is one area not to over look for travel marketing. Of all the metro areas examined here, it has the highest participation rates for household which travel for vacation purposes -- a rate of 40.6%.

It is also likely that variations in participation are occurring within the New York Metro Area. This is a large area which includes 26 different sub-areas/counties. The New York Metro area extends from Southwestern Connecticut through Central City New York to Northern and Central New Jersey. A quick examination of skiing participation rates in 1994, when the rates were the highest doing this period finds that the household participation rate for skiing in Fairfield County, Connecticut, part of the greater New York metro area, was 14.6% while the rate of participation in Bronx County, New York, also part of the New York metro area, was 3.3%. SRDS data does provide the opportunity to further examine trends within the large metropolitan areas. Sub-metro analysis can be conduct on such cities as Boston, New York, Philadelphia, Baltimore and Washington, DC.

This review of activity markets within geographic proximity of New England gives us new perspectives. The markets in the 90s are changing and evolving. It is clear that a simple examination of national and even regional trends can be misleading and may not provide the total picture for marketing and targeting purposes. Nevertheless, more intense monitoring of travel and recreational activity trends is needed if New England is to continue as a major destination region.

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TRENDS IN PARTICIPATION RATES FOR WILDLIFE-ASSOCIATED OUTDOOR RECREATION ACTIVITIES BY AGE AND RACE/ETHNICITY: IMPLICATIONS FOR COHORT-COMPONENT PROJECTION MODELS

John F. Dwyer

Project Leader/Research Forester, USDA Forest Service, North Central Forest Experiment Station, 845 Chicago Avenue, Suite 225, Evanston IL 60202-2357

Allan Marsinko

Associate Professor, Department of Forest Resources, School of Natural Resources, Clemson University, Box 341003, Clemson SC 29634-1003

Abstract: Cohort-component projection models have been used to explore the implications of increased aging and growth of racial/ethnic minority groups on number of participants in outdoor recreation activities in the years ahead. Projections usually assume that participation rates by age and race/ethnicity remain constant over time. This study looks at trends in activity participation rates by age and race/ethnicity and explores their implications for projections made by cohort-component projection models.

Introduction

Outdoor recreation resource planners, managers, and policy makers often ask what levels of participation in outdoor recreation activities can be expected in the years ahead. They find these projections useful for planning facilities, staffing, and programs; as well as for predicting revenues from licenses, permits, and user fees. Their questions are increasingly about the implications of changing population demographics, particularly increased aging of the population and growth of racial/ethnic groups, for participation in outdoor recreation activities in the years ahead.

The U.S. Bureau of the Census (1989, 1992) provides projections of future populations by age and racial ethnic background which indicate that older Americans and individuals from particular racial/ethnic backgrounds will make up an increasing proportion of the population. There is ample evidence of significant differences in participation in outdoor recreation activities among individuals of different ages and racial/ethnic backgrounds (Dwyer 1995a, 1994a, 1994b, 1993; Nadkarni and O'Leary 1992). This has prompted recreation resource planners, managers, and policy makers to seek information about implications of these demographic changes for recreation participation in the years ahead.

Use of the Cohort-Component Projection Model

In an effort to answer these questions, cohort-component projection models have been developed to predict the number of participants in selected recreation activities in the years ahead based on projected changes in the size, age, and racial/ethnic structure of the population (Dwyer 1996, 1995b; Murdock 1990, 1991, 1996). The cohort-component projection model is based on estimates of the population in the years ahead by age and race/ethnicity (i.e., number of African Americans age 20 to 24) and the probability of an individual in an age and racial/ethnic category participating in an activity (i.e., the participation rate). The number of individuals projected to be in an age and racial/ethnic category is multiplied by the probability of an individual in that group participating in the activity to get an estimate of the number of participants from that group. The total number of participants in the activity is the sum of the participants across all groups in the population.

While projections of the population by age and race/ethnicity are available from the U.S. Bureau of the Census and individual States, projections of participation rates in outdoor recreation activities by age and race/ethnicity (i.e., proportion of the group that participates in the activity one or more times per year) are seldom made. Consequently, most applications of the cohort-component projection model have used activity participation rates by age and race/ethnicity from a single year to project number of participants in future years. This assumes that individuals in an age and racial/ethnic group (i.e., whites age 20-24 years) have the same likelihood of participating in an activity in each of the years ahead. This means that the projected number of white participants age 20-24 will change over time only with the projected number of individuals in that population group. Under these circumstances the cohort-component projection model predicts changes in the number of participants in a given activity based on changes in the size of the population and its distribution by age and race/ethnicity. All else is assumed to remain constant.

Extending the Model

In reviewing the results of cohort-component projection models; planners, managers, policy makers, and researchers often suggest that participation rates by age and racial/ethnic group might change over time, and ask about the implications of such changes for the projected number of participants. Some speculate that the participation rates of particular racial/ethnic groups might converge in the years ahead as groups become assimilated in a dominant culture (i.e., "the melting pot"). An alternative view is that recreation and leisure are among the means by which cultures maintain their identity, consequently we would not expect participation patterns of various groups to converge over time. The likelihood of either of these expectations materializing may vary with activity, racial/ethnic group, and age class. Others suggest that with improved health and changing attitudes towards recreation and leisure, older

Americans might tend to increase their participation in many activities -- acting more like their younger counterparts. The likelihood of this happening may also vary by activity and racial/ethnic group.

An absence of data on trends over time in activity participation rates by age and race/ethnicity makes it difficult to investigate these questions. However, data from the National Survey of Fishing, Hunting, and Wildlife-Associated Recreation presents a unique opportunity to investigate these trends. Participation data have been gathered at 5-year intervals since 1955. Information on race/ethnicity has been included in the survey since 1990, using the same definitions as the U.S. Bureau of the Census.

In order to maintain consistent definitions of activities and ethnic groups over time, we limited the present analysis to three activities and three years 1980, 1985, and 1990. The activities included in our analysis are hunting, fishing, and observing wildlife around the home. Following the U.S. Bureau of the Census protocol, the National Survey of Fishing, Hunting, and Wildlife-Associated Recreation breaks down the population into four racial groups: White; African American; American Indian, Eskimo, and Aleut; Asian and Pacific Islander; as well as by Hispanic and non-Hispanic. An individual in any of the four racial groups can be Hispanic or non-Hispanic. In this study we categorized all individuals who reported that they were Hispanic into a single group, regardless of race. Consequently all other groups included only individuals who reported that they were non-Hispanic. In order to match with the Census classifications we dropped the racial category "other" from the National Survey of Fishing, Hunting, and Wildlife-Associated Recreation data. The implications were minimal since nearly all of those who selected "other" as their race also selected "Hispanic."

Differences in Activity Participation by Racial/Ethnic Group

Depending on the activity, we found different patterns of change in participation rates over time by racial/ethnic group (Tables 1, 2, and 3). Hunting had the smallest changes in participation rates over time and the most diverse pattern of changes by racial/ethnic group. No group showed consistent trends in hunting participation rates between 1980-1985 and 1985-1990. The overall trend 1980-1990 was for a slight increase in hunting participation rates for Whites, American Indians, and Asian Americans; but a slight decrease for African Americans and Hispanic Americans. With fishing there were consistent increases in participation rates from 1980-1985 and 1985-1990 for all racial/ethnic groups except Asian Americans where there was a slight decrease 1980-1985, and then an increase 1985-1990, resulting in an overall increase 1980-1990. With wildlife observation around the home there were substantial and consistent increases in participation rates for all racial/ethnic groups over the periods 1980-1985 and 1985-1990.

Table 1. Percent of Individuals Participating in Hunting by Racial/Ethnic Background and Year

Racial/Ethnic Group	1980	1985	1990
White	9.7	9.1	9.9
African American	2.6	2.2	2.4
American Indian	11.4	11.4	12.0
Asian American	0.9	1.2	1.2
Hispanic American	2.9	2.7	2.7

Table 2. Percent of Individuals Participating in Fishing by Racial/Ethnic Background and Year

Racial/Ethnic Group	1980	1985	1990
White	26.7	27.6	32.1
African American	12.4	13.1	15.9
American Indian	25.0	27.8	35.5
Asian American	16.3	15.4	16.9
Hispanic American	13.9	15.2	16.7

Table 3. Percent of Individuals Participating in Wildlife Observation Around the Home by Racial/Ethnic Background and Year

Racial/Ethnic Group	1980	1985	1990
White	17.0	22.9	32.7
African American	6.0	7.7	11.2
American Indian	11.3	16.6	30.6
Asian American	6.0	7.3	10.9
Hispanic American	7.1	9.8	13.5

Differences in Activity Participation Rates by Age Class

There was not a clear pattern of differential change over time in activity participation rates across the age classes. With some racial/ethnic groups the changes in participation rates stayed quite uniform across age classes over time, while in others there seemed to be no pattern of change across age classes. The similar changes across age classes tended to be for groups with fairly large sample sizes, suggesting that perhaps small sample sizes were contributing to the widely-varying patterns observed with smaller groups. With relatively small sample sizes for minority groups in some age classes and substantial weighting of individual cases, it is possible to get a wide variation in results across age classes within a racial/ethnic group.

Results from the Cohort-Component Projection Model

To test the implications of changes in activity participation rates by age and race/ethnicity for cohort-component projection models, we developed a model based on the distribution of the U.S. population by age and race/ethnicity for 1992. Projections of the number of participants in each of three activities were made for that year based on the participation rates by age and race/ethnicity in 1980, 1985, and 1990. This resulted in three sets of predictions for 1992, using 1980, 1985, and 1990 as the base years (Tables 4, 5, and 6). The prediction

using 1980 participation rates, for example, assumed that participation rates for 1980 by age and race/ethnicity remained constant through 1992, and calculated projected number of participants based on the population mix in 1992. These three sets of estimates represent the estimates that would be made using participation rates by age and race/ethnicity for that particular year (1980, 1985, or 1990) and population projections for 1992; and assuming that participation rates by age and race/ethnicity from that base year would be the same for 1992, a common practice with previous applications of the model.

Differences in Predictions by Activity

Estimating the number of hunting participants in 1992 based on 1980 participation rates by age and race/ethnicity produced a higher estimate (+5-6 percent) of the total number of hunters than were derived using the rates from 1985 or 1990 (which produced similar estimates). The 1980 participation rates produced the highest estimated number of White, African American, and Hispanic American hunters, while the 1985 participation rates predicted the highest estimates of American Indian and Asian American hunters. For no group did the 1990 participation rates produce the highest estimate of the number of hunters for 1992. The three sets of predictions reflect only slightly different proportions of hunters by racial/ethnic group. Over the periods 1980-1985 and 1985-1990 there are successively lower proportions of African American and Hispanic American hunters and a larger proportion of White hunters.

Table 4. Projected Number of 1992 Participants in Hunting by Racial/Ethnic Group, Based on 1992 Population and 1980, 1985, and 1990 Activity Participation Rates by Age and Race/Ethnicity

Racial/Ethnic Group	Base Year 1980	Base Year 1985	Base Year 1990
	Numbers are in thousands of participants projected for 1992		
White	(90.7)	(91.4)	(92.1)
	17,965	16,989	17,291
African American	(4.2)	(3.6)	(3.4)
	835	662	638
American Indian	(1.1)	(1.2)	(1.0)
	210	214	198
Asian American	(0.4)	(0.5)	(0.4)
	72	96	86
Hispanic American	(3.6)	(3.4)	(3.0)
	715	636	560
Total	(100)	(100)	(100)
	19,797	18,597	18,773

(X.X) = Percent of projected participants by racial/ethnic group. Numbers do not add up to 100 percent due to rounding.

Table 5. Projected Number of 1992 Participants in Fishing by Racial/Ethnic Group, Based on 1992 Population and 1980, 1985, and 1990 Activity Participation Rates by Age and Race/Ethnicity

Racial/Ethnic Group	Base Year 1980	Base Year 1985	Base Year 1990
	Numbers are in thousands of participants projected for 1992		
White	(84.6)	(84.8)	(85.4)
	49,569	51,788	57,014
African American	(6.6)	(6.5)	(6.4)
	3,864	3,979	4,300
American Indian	(0.8)	(0.8)	(0.9)
	460	519	610
Asian American	(2.2)	(2.0)	(1.8)
	1,283	1,199	1,234
Hispanic American	(5.8)	(5.9)	(5.4)
	3,382	3,612	3,573
Total	(100)	(100)	(100)
	58,558	61,097	66,731

(X.X) = Percent of projected participants by racial/ethnic group. Numbers do not add up to 100 percent due to rounding.

Table 6. Projected Number of 1992 Participants in Wildlife Observation Around the Home, by Racial/Ethnic Group, Based on 1992 Population and 1980, 1985, and 1990 Activity Participation Rates by Age and Race/Ethnicity

Racial/Ethnic Group	Base Year 1980	Base Year 1985	Base Year 1990
	Numbers are in thousands of participants projected for 1992		
White	(88.8)	(88.7)	(88.8)
	32,238	42,231	57,826
African American	(5.0)	(4.7)	(4.7)
	1,800	2,249	3,046
American Indian	(0.2)	(0.6)	(0.8)
	79	300	523
Asian American	(1.3)	(1.2)	(1.2)
	461	551	804
Hispanic American	(4.7)	(4.7)	(4.5)
	1,721	2,257	2,908
Total	(100)	(100)	(100)
	36,299	47,579	65,107

(X.X) = Percent of projected participants by racial/ethnic group. Numbers do not add up to 100 percent due to rounding.

Estimating the number of fishers in 1992 based on participation rates by age and race/ethnicity for 1980, 1985, and 1990 produced successively higher projections overall. Projections of the number of fishers in 1992 based on 1990 participation rates yielded estimated numbers of participants that were 14 percent higher than those based on 1980 rates and 4 percent higher than those based on 1985 rates. The 1990 rates produced the highest estimated 1992 number of White, African American, and American Indian fishers compared to numbers from these groups based on the 1980 and 1985 rates. Estimates of 1992 Hispanic fishers were highest when 1985 rates were used in the projections. The projections of Asian American fishers were similar across all three years, and the projections of Hispanic American fishers were similar for 1985 and 1990. Over the periods 1980-1985 and 1985-1990 there were successively higher proportions of fishers who were white and successively lower proportions who were African American.

The 1990 participation rates by age and race/ethnicity produced higher estimates of the number of individuals engaged in wildlife observation around the home than did the 1985 or 1980 rates. The 1990 estimates were 31 percent higher than those for 1985 and 79 percent higher than those for 1980. The 1990 rates generated the highest estimated number of participants for each group, with the 1980 rates producing the lowest estimates for each group. The 1990 rates generated a higher proportion of American Indian participants and a lower proportion of Hispanic American participants than did the 1985 or 1980 rates.

Conclusions

With the analysis limited to three points of data, our efforts to identify trends were limited. However, we feel that the results are useful, and expect to extend the analysis to other years as the data become available.

The results show that participation rates by age and racial/ethnic background for hunting, fishing, and wildlife observation around the home do change over time, and the changes can have implications for the projections made by cohort-component projection models. Depending on which year's participation rates were used in the projections of number of participants in 1992, the estimates varied. In some instances the activity participation rates by age and race/ethnicity dropped or stayed the same over time, while in others they increased. Using 1980 participation rates by age and race/ethnicity for predicting number of participants in hunting, fishing, and wildlife observation around the home in 1992 would, in comparison to using 1990 rates, have overestimated the number of hunters by 5 percent, underestimated the number of fishers by 14 percent, and underestimated the number engaged in wildlife observation around the home by 79 percent. These results are based on an assumption that participation rates by age and race/ethnicity would remain constant for up to 10 years. The changes in predictions implied by the changes in rates reported here could have significant implications for management, planning, and policy. Those implications could be even greater in those instances where projections are made for periods longer than 10 years, which is often the case.

The participation rates by age and racial/ethnic groups in an activity tended to follow the same general pattern over time. Consequently use of the rates from different years (i.e., 1980, 1985, 1990) and applying then to the same population (i.e., 1992) did not have major implications for the racial/ethnic or age mix of projected participants. These results suggest that forces for change in participation rates in an activity appear to be operating similarly across age and race/ethnicity. Examining trends in activity participation rates by age and race/ethnicity over the 10 year time span, we did not see evidence of participation rates becoming more similar across racial/ethnic groups or that older individuals are beginning to behave more like their younger counterparts. Further testing for changes in the relative patterns across racial/ethnic groups will require data for additional years and the inclusion of additional explanatory variables in the models for predicting the number of participants. In the meantime it may be useful to monitor changes in participation rates over time and explore their implications for future participation.

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COGNITIVE DIMENSIONS OF RECREATIONAL USER EXPERIENCES IN WILDERNESS: AN EXPLORATORY STUDY IN ADIRONDACK WILDERNESS AREAS.

Chad P. Dawson

Professor, SUNY College of Environmental Science and Forestry, Marshall Hall, Syracuse, NY 13210-2787

Peter Newman

M.S. Student, SUNY College of Environmental Science and Forestry, Marshall Hall, Syracuse, NY 13210-2787

Alan Watson

Social Scientist, Aldo Leopold Wilderness Research Institute, P. O. Box 8089, Missoula, MT 59807

Abstract: This exploratory study involved identifying the dimensions of a wilderness experience sought by users based on the available literature and on input from wilderness users. Input was collected using focus group interviews with members of four groups that were primarily involved in wilderness use and preservation in recent years. Positive and negative dimensions are proposed for further research.

Introduction

Wilderness researchers and managers have tended to emphasize that the National Wilderness system must provide "opportunities for solitude". Researchers and managers have struggled with defining and measuring solitude for the last several decades (e.g., Graefe et al. 1984, Shelby et al. 1989). Many of the indicators used to measure solitude have been based directly or indirectly on the number of users, user density, and relative user distribution in a wilderness area. Using solitude as the distinguishing characteristic of wilderness and measuring it by the number of users or encounters has many advantages (e.g., direct physical measurement of numbers of users) for researchers, planners, and managers. However, there is increasing evidence to support the concept that solitude is more difficult and subjective to measure than originally anticipated and that recreational use of wilderness includes many other dimensions beyond solitide.

For example, another approach to evaluating user experiences and solitude was developed with the multi-dimensional concept of privacy (Lee 1977, Twight et al. 1981, Hammitt 1982, Hammitt and Brown 1984, Hammitt and Madden 1989, Priest and Bugg 1991, Hammitt 1994). While solitude is generally defined as being alone or being apart from usual associates, privacy implies more of a place or state of freedom from unwanted intrusion or observation by others. Privacy research includes solitude as well as other components, such as the natural environment of the place, within a multi-dimensional approach that is more representative of the multiple motivations and satisfactions sought by a variety of users. However, the natural environment dimension has been ranked by Adirondack wilderness users as more important than the more traditional privacy items such as those related to cognitive freedom, intimacy, and individualism (Dawson and Hammitt 1996).

Research that redefines the concept of solitude as an opportunity for personal growth and development (Hollenhorst et al. 1994) has also raised questions about whether solitude was previously operationalized correctly in research on wilderness users and whether previous research results were valid as measured. Hollenhorst and others (1994) note that solitude achievement is hierarchical in nature and includes physical, emotional, intellectual, and spiritual components. Furthermore, they conclude that "the most effective predictors of solitude achievement were not physical characteristics of the setting, but rather predispositional factors that the visitor brings to the wilderness experience" (Hollenhorst et al. 1994).

These research issues about solitude and privacy raise many question about whether privacy or solitude are the most important single dimensions of a wilderness experience and whether there are other important dimensions that have not been traditionally measured about wilderness users. Such potential dimensions could include user challenge and risk, sense of spiritual experience and unity with nature, recreational skill building and testing, and others.

The Wilderness Act (1964) mostly defined solitude as the primary human experience of wilderness but did mention some other positive aspects of wilderness (i.e., it mostly defined wilderness by what it was not). The Eastern Wilderness Act (1975) defined more positive human values of wilderness as including: solitude, physical and mental challenge, scientific study, inspiration, and primitive recreation. We are concerned about the need to better identify and understand all of the basic dimensions of human recreational experiences in wilderness (i.e., beyond solitude and privacy). The identification and quantification of these dimensions will aid wilderness planners and managers in better understanding and providing for users.

Wilderness and recreation literature on the attributes of the user experience have been widely published (e.g., Manfredo et al. 1996, Dawson and Hammitt 1996, Hollenhorst et al. 1994, Roggenbuck et al. 1993, Scherl 1990) but no comprehensive wilderness experience attribute scale has been proposed. Some of the dimensions suggested in the literature on recreation experiences, wilderness values, and wilderness users indicates that dimensions could be categorized in many ways with both positive (e.g., psychological, social, skills and equipment use, and natural environment) and negative (e.g., user impacts, user - user conflicts) oriented dimensions. One approach to organizing these positive and negative

attributes is suggested in labor and management literature on Herzberg's two factor theory (Herzberg 1987) which includes attributes that are mostly negative (i.e., dissatisfiers) and those that are positive (i.e., satisfiers). According to Herzberg, the negative factors must be mitigated and there must be some measure of multiple positive attributes before an employee is satisfied in the work place. The extension of Herzberg's theory to wilderness user dimensions may be helpful to conceptualize and make distinctions between the positive and negative dimensions when constructing future studies.

The purpose of this study was to further explore the dimensions of wilderness user experiences using the New York's Adirondack wilderness system as a region to develop and test a new survey instrument. The objective of this paper is to identify the dimensions of a wilderness experience sought by users in Adirondack wilderness areas as a starting point for a future project that will quantitatively measure the dimensions of the wilderness experience for users in three Adirondack wilderness areas (i.e., with different user densities).

Methods

This exploratory research process involved identifying the dimensions of a wilderness experience sought by users based on the available literature and on input from wilderness users. Input was collected using focus group interviews with members of groups that are primarily involved in wilderness use and preservation in recent years. The qualitative research technique of focus group interviews has been used successfully by the author with other recreational groups in New York State (Dawson, Connelly and Brown 1993). Focus group interviews were held by invitation to various groups and took place in public meeting rooms. Four different locations were chosen in upstate New York and were to include 6-18 participants in each session. Each focus group discussion section lasted two hours and followed the methodology recommended by Krueger (1988).

The intent was to broadly sample the different types of users and identify the full range of wilderness user experiences sought in wilderness areas (i.e., dimensions of the user experience). Focus group interviews were conducted during the spring of 1997 and were intended as input to a field interview and mail survey process that was to be conducted in three Adirondack Wilderness areas in the summer of 1997. The use of the Adirondack Wilderness System for this study allows for a more directed discussion in the focus group sessions and later survey process in the summer of 1997. The value of this from a research design perspective is that all Adirondack wilderness areas have similar situational factors (e.g., geographic region, user residence areas, information available for user access, environmental settings, and weather patterns).

Results and Discussion

Four focus group interviews were conducted in the spring of 1997 with wilderness user groups of: (1) recreation planners and managers at the Northeastern Recreation Research Symposium (24 participants); (2) Adirondack researchers and educators at the Adirondack Research Consortium Annual Conference (7 participants); (3) members of the central New York Chapter of the Adirondack Mountain Club (7 participants); and (4) undergraduate and graduate students at the SUNY College of Environmental Science and Forestry (9 participants).

The focus group interviews were very similar in the dimensions discussed even though the groups were from very different wilderness user segments (e.g., age, experience level, residence area). The written notes and audio tapes of the group discussions were used to compile the dimensions and some of the attributes that represent each dimension. Participants were relatively clear about the hierarchical difference between what was a dimension versus what constituted attributes within a dimension. Based on the focus group discussions and literature review, there was a distinction made between positive (satisfier) and negative (dissatisfier) dimensions and attributes of the wilderness experience.

A summary of the positive dimensions and some examples of the attributes are shown in Tables 1. These positive attributes represent the items that participants were most interested in discussing because these were the motivating force for them to seek out and experience wilderness. The total list of attributes discussed is very lengthy and could not be presented here in its entirety; these attributes are representative of those discussed.

A summary of the negative or dissatisfier dimensions and some examples of the attributes are shown in Tables 2. These attributes represent the items that participants were most concerned about because these were the issues that had (or could) lead to their dissatisfaction with a wilderness experience but which could be potentially mitigated by wilderness managers. The negative items that could not be affected by managers (e.g., ethics of the public) were dropped during the discussion as were factors that were outside the wilderness area (e.g., economic health of a region).

The listings in Tables 1 and 2 are qualitative in nature and no ranking between dimensions is implied (or appropriate) since all discussion was initiated by a participant and then discussed by the group as they wished to contribute to the group process. The next phase of this study will use the listing of positive and negative attributes from this process in a survey of Adirondack wilderness users who will be contacted on site during their trip in the summer of 1997. The intent of the overall project is to develop a list of positive and negative attributes that can be used in quantitative studies of wilderness users to measure their experiences. We think that the identification and quantification of these dimensions will aid wilderness planners and managers in better understanding and providing for users.

Table 1. Examples of cognitive dimensions of satisfiers and related attributes during recreational experiences in wilderness.

Psychological
- to relax
- sense of self confidence
- get away from daily routines
- sense of self-sufficiency
- sense of status and identity with others who share wilderness

Social
- freedom of choice
- to experience places I read about or heard about from others
- to be with friends and family
- to experience group solitude and intimacy
- to have a story to tell others later

Solitude
- enjoy being alone by myself in a natural setting
- enjoy being with a small group of friends and no other people around
- sense of getting in touch with myself
- to allow personal freedom and choice

Spiritual
- sense of oneness with nature
- feelings of mortality and fragility of life
- reflections on life and living
- to get in touch with my true self

Exploration
- to feel connected to a place that is important to me
- to explore a natural environment
- to feel like I was one of the first people to experience a place
- sense of remoteness from cities and people

Inspirational
- to feel a sense of an earlier and rugged time in history
- celebrate wilderness as a symbol of naturalness
- to stimulate creativity

Physical and Physiological
- physical challenge and risk
- for the excitement
- get away from daily physical routine
- physical exercise and health
- sense of oneness with the rhythm of the recreational activity

Skills
- to improve low impact camping skills
- to gain an understanding of or knowledge about wilderness use
- to test recreational equipment use
- to appreciate and improve wilderness travel skills
- to learn how to deal with unpredictable natural situations

Natural Environment
- to observe and hear wildlife
- learn to respect the forces of nature
- to see different and dramatic landscapes
- to see spectacular views and unique places
- to experience mature and natural forests
- to observe and appreciate the complexity of an ecosystem

Table 2. Examples of cognitive dimensions of potential dissatisfiers and related attributes, that could be managed or mitigated by wilderness managers, during recreational experiences in wilderness.

User and Management Impacts
- to see evidence of management activities
- to experience burdensome user regulations
- to see too many physical structures (e.g., bridges, signage)
- to see litter on trails or campsites
- to hike on heavily used trails
- to experience a lack of adequate trail maintenance
- to hear aircraft closeby

User - User Encounters
- to experience conflicts with other users
- to hear many other people
- to see many other people
- to experience congestion at scenic vistas and summits
- to experience congestion at campsites

Acknowledgments

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Poster Sessions

THE INFLUENCE OF INVOLVEMENT AND OUTCOME MESSAGES ON CONSUMER REFERENCE PRICES

Gerard Kyle

Graduate Student, The Pennsylvania State University
201 Mateer Building, University Park, Pa 16802

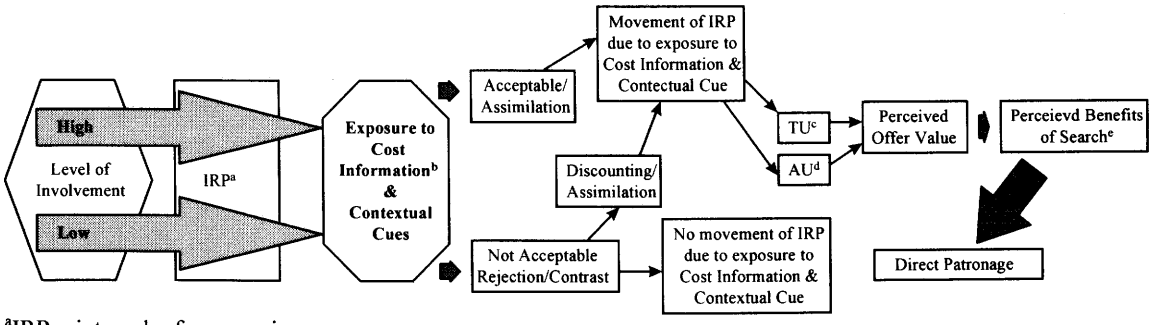
Dr Ercan Sirakaya

Assistant Professor, The Pennsylvania State University
201 Mateer Building, University Park, Pa 16802

As public leisure and recreation services become more accountable for their service's fiscal independence, service providers dependence on user fees continues to be a contentious issue. Annually, service managers are required to recommend price changes for services offered the following year in order to maintain existing service quality. Despite the emergent role of price, reactions of consumers to price changes in publicly funded leisure and recreation services are not well understood.

In marketing literature, the term "reference price" has often been used in research concerned with measuring consumers' reactions to price. Reference price is most commonly operationalized as an internally held standard that consumers use to evaluate new price information, and within the context of this study, is conceptualized as the "expected price" consumers anticipate paying for a product or service (Winer, 1988). Figure A, presents a revised process model, originally developed by Urbany, Beardon, and Weilbaker (1988) concisely illustrating reference price effects within the context of this study. It is important to note that this study is primarily concerned with analyzing consumer behavior to the point where there is a shift (or in fact, no shift) in consumers' internal reference price after the provision of contextual cues and sale price. It is assumed that consumers behavior will continue as the remainder model suggests and as Urbany et al. (1988) research confirms.

Figure1. Revised process model for reference price effects. Adapted from "The Effect of Plausible and Exaggerated Reference Prices and Consumer Perceptions and Price Search," by J.E. Urbany, W.O. Beardon, and D.C. Weilbaker, 1988, *Journal of Consumer Research, 15,* p.108.



[a]IRP = internal reference price.
[b]ERP = external reference price (Cost information).
[c]TU = transaction utility and is based upon a comparison of the sales price and the internal reference price.
[d]AU = acquisition utility and is based upon a comparison with the sale price and what the consumer is willing to pay for the utility.
[e]Benefits of search based upon a comparison of the sale price to the lowest expected market price.

Little research can be found in marketing literature analyzing the effects of involvement on reference price. In these studies (Biswas, 1992; Herr, 1989) involvement has often been operationalized as brand familiarity, where brand familiarity is defined as "the number of brand-related experiences that have been accumulated by the consumer" (Biswas, 1992, p.253). This definition shares some similarities with Rothschild's (1984) definition of involvement, in that it also implies that consumers express a level of interest or motivation in their product search behavior. It also implies that consumers possess a certain level of "experience", where brand familiar (or highly involved) consumers are more knowledgeable than unfamiliar (or low involved) consumers (Biswas, 1992; Urbany et al., 1988).

In leisure literature, two studies (McCarville, 1991; McCarville, Crompton & Sell, 1993) can be identified that specifically examine involvement as an independent variable and its impact on reference price, the dependent variable. In each of these studies, high-involved subjects expressed greater understanding of the leisure program's content, and responded more favorably in terms of shifting their internal reference price, when additional program information was provided.

Therefore, in terms of the model presented in Figure A, it is assumed that consumers will have some general price expectation which is held with varying degrees of certainty, dependent on level of involvement. Previous research (McCarville, 1991; McCarville et al., 1993) suggests that highly involved subjects will exhibit lower initial price

expectations. Upon exposure to both the sale price and the contextual cues, the consumer will judge the acceptability of the sale price. The research of McCarville et al. (1993), illustrates the importance of providing contextual cues when attempting to alter consumer reference prices. This research examines whether positive or negative prospects resulting from subjects' own actions are likely to influence reference price. As contextual variables change, so to will the level of expectation (i.e., price expectation). There are three possible outcomes concerning consumers' judgments of price acceptability. First, the external reference price (ERP) may be judged acceptable, and therefore assimilated, causing an adaptation (or movement) of the internal reference price (IRP) toward the ERP. This increases perceived transaction and acquisition utility which, in succession, increases the overall perceived offer value, reduces the perceived benefits of search, and increases the likelihood of direct patronage. The other two possible outcomes deal with an ERP judged unacceptable. The second outcome occurs when the ERP may be judged not believable, but may be discounted and assimilated into the range of expected prices, still causing a shift in the IRP. This behavior was observed in Urbany et al. (1988) study, and whilst not guaranteeing direct patronage, there was a shift in individuals' IRP. The third outcome occurs when the external reference price is not judged acceptable and is truly contrasted and rejected (Monroe & Petroshius, 1981). The subsequent effects of this outcome are not favorable for the service provider: no shift in consumers' IRP, no improvement of perceived transaction utility or acquisition utility, and potentially negative attributions about the service provider (Urbany et al., 1988).

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AN INTERACTIVE INFORMATION KIOSK FOR THE ADIRONDACK PARK VISITOR INTERPRETIVE CENTER, NEWCOMB, NY

Lien Alpert

Graduate Research Assistant, SUNY College of Environmental Science & Forestry
Syracuse, NY 13210

Lee P. Herrington

Professor of Information Resources Management, SUNY College of Environmental Science & Forestry
Syracuse, NY 13210

Abstract: Kiosks have traditionally been non-electronic, but today kiosks are being developed as interactive, electronic information centers to transmit information about government services, commercial products and recreational experiences. This project's objective was to develop and evaluate the usefulness of a user-friendly information interface for kiosks in the Adirondack Park Visitor Interpretive Center in Newcomb, NY.

Introduction:

Kiosks "provide users with access to community and local information in an easily understandable format. Kiosks are defined to be used by the average user who has little or no experience with computer or information systems" (comp.infosystems.kiosks newsgroup, 1996). Kiosks have become a popular venue for delivering information to non-technical users such as tourists, campers, hikers, cross-country skiers, etc. Kiosks started out as bulletin boards, but in the past decade have moved into the electronic realm, by utilizing software such as Rocky Mountain Multimedia's *Kiosk-in-a-Box*. This project will develop a user-friendly information kiosk to enhance the recreational experience of visitors to the Adirondack Park Visitor Interpretive Center in Newcomb, NY.

Recreational experiences consist of five phases:

1. *Anticipation*: The period of foreseeing and awaiting a trip or occasion involves imagination and develops enthusiasm This includes the planning, or actual preparation for the event as well as gathering equipment and supplies, packing and preparing other logistics.
2. *Travel to*: Travel to the activity site is important, regardless of whether travel time is short or extended. Although anticipation is a separate phase, travel to the activity site includes anticipation of the activity.
3. *Participation*: The activity and the events surrounding it extend from departure to return. It is the core of the experience, the time of encounter with the resource and activity opportunities.
4. *Travel back*: Travel from the site may be different from the travel to the activity site; actual routes traveled may be different. The memories that are different from the anticipation of the activity, which influence the travel back home.
5. *Recollection*: After participation, an experience is not usually over. Participation is relived through pictures, stories, and memories. (Clawson & Knetsch, 1966).

The temporal definition of a recreational experience suggests that information, maps, and pictures are an important element of a recreational experience (Knudson, 1984).

People seek information for two reasons: 1) as an end in itself to increase their knowledge about some particular subject of interest (i.e., learning about Mt. Marcy through images and written information) and 2) as a means to an end (i.e., planning the hiking route through the High Peaks in the Adirondacks) (Jubenville & Twight, 1993). One group of non-technical users, such as those who are unfamiliar with computer or information systems, is the non-local recreationists who wish to find information relating to their interests. Non-local and local recreationists seek different types of information through different channels; local recreationists don't need formal information programs because they are probably informed about the area in which they live (Jubenville & Twight, 1993).

Regional information systems are designed to enhance macro-level decision making by providing base data on available recreational opportunities (Jubenville & Twight, 1993). People who are interested in a region and its available activities would use a regional information system. This information would be generalized so as not to overwhelm people with too much information. Conversely, area information systems are designed for micro-level decision making. Area information systems allow finer detail so participants can make informed choices (Jubenville & Twight, 1993). Local recreationists who are familiar with the area would probably find an informal area information system more useful, whereas non-local recreationists could use an area information system/kiosk to find trails that offer beautiful overlooks or to find a 'hot' fishing spot.

This kiosk application is a type of area information system that can be used to satisfy both types of information needs mentioned above. It would allow non-local recreationists to query for information such as put-in points, trail-heads, or picnic areas, as well as provide information to local recreationists about different trees and mammals in the area. Kiosks can be used to select opportunities as well as view images and information as a form of participation. Selecting opportunities is distinctly different from planning an outdoor recreation experience because the visitor is already at the destination and is participating in the recreation experience. The user interface of the kiosk could be an interactive map allowing users to select an outdoor recreation opportunity to find out detailed textual information about trails, swimming areas, etc. The query

structure would be based upon available spatial data and its attribute information. Customizing a GIS to perform the necessary queries could be accomplished through the use of an HTML hypertext browser (e.g., Netscape Navigator or Microsoft Internet Explorer).

Background:

Information signs can help apportion use evenly between similar facilities if users are informed about opportunities, liabilities, and/or limitations. Information signing has been shown to be an instrument by which managers can control visitor use and movement (Brown and Hunt, 1969). In Michigan, Travel Information Centers along the interstate highways have been shown to have an impact on the travel and spending decisions of those who receive information there (Beckon, et al. 1981).

Recreational opportunity guides or other printed materials are useful for areas that receive more non-local users than local users (see above). Placing these recreation opportunity guides in public areas help users make decisions and increase access to other informational programs (Jubenville and Twight, 1993). Jubenville and Twight recommend that the following types of communication should be provided by agencies:

1. Information to users on available recreational opportunities and feedback from users on the quality of the experience;
2. Information to users on existing activity patterns and feedback;
3. Information and feedback on major problems or proposed plans being considered by agencies; and
4. Information from continuous interchange through open channels.

In 1993, one of the recommendations from the National Performance Review (NPR) was to create an electronic infrastructure that would meld services from all levels of government for one-stop access by citizens. As a result the Government Information Technology Services Customer Service Improvement Team was established. Furthermore, an Interagency Kiosk Committee was instituted to create a kiosk plan for national implementation (Interagency Kiosk Committee, 1995). The resulting report, *The Kiosk Network Solution: An Electronic Gateway to Government Service*, describes a model for implementing the NPR's recommendations, development costs, and current examples in the US.

Plan:

The kiosk developed from a desire to work on a thesis or project that used GIS as a tool to deliver outdoor recreation information. Originally, the idea centered around an Internet HTML query structure that would allow users to obtain existing digital maps and spatial data, and connect to other sites that have similar types of data and maps. After a meeting with John Banta and John Barge (APA[1]), Sandy Bureau (VIC[2]), and Dr. Herrington, it was decided that the project would concentrate on a more interactive kiosk for one of the VICs rather than a website.

The plan was driven by the APA's request for such a kiosk application. In addition to the APA and the VIC, the Town of Newcomb, one of the few local government's using GIS in the North Country, wanted to be involved. These parties were all convinced that such a kiosk will stimulate recreational use of nearby facilities. Upon meeting with the interested parties, the VIC in Newcomb, NY was chosen as the prototype location for the development of the kiosk; primarily because of the amount of data available and the interest of Newcomb town officials and the AEC in providing available digital data.

The kiosk was designed primarily to provide information about outdoor recreation activities, forest types and bird species at the request of the VIC. The information provided was selected on the basis of the spatial data available as well as the needs of the VIC and the APA. The kiosk was designed to encourage outdoor recreation use and nature interpretation. Ideally, these two types of information (outdoor recreation information and nature interpretation) would be developed as separate kiosks. However, the monetary constraints do not allow for this. A sample of information is provided in what would ideally be provided in a the final version of the kiosk. Examples of outdoor recreation activities, trees, wildlife, and forest management practices have been selected that illustrate the type of information that could be provided. Copyright permission from the Adirondack Mountain Club was obtained for trail information, as well as permission from several organizations for use of their images. Based on user's comments concerning the useability of the kiosk, the system was modified.

Several types of information provided were:

Outdoor recreation information --

- Trail systems in and around the VIC, AEC, and Newcomb;
- Campgrounds and lean-tos in Newcomb;
- Cross-country (Nordic) ski trails
- Picnic areas and other day use areas; and

Interpretive information --

- A forest management practice called the shelterwood method on Huntington Forest will be illustrated through pictures of representative forest types and management schemes with text.
- Fauna and flora identification information such as pictures and text will be accessed similarly to the forest management & forest management information.

General information --

- Text on the history of the Adirondack Park, Newcomb, NY, VICs, and the AEC will be included.

Four outdoor recreation activities were selected and illustrated through map images and text. The maps were developed using ArcView; the map images were exported

[1]Adirondack Park Agency

[2]Visitor Interpretive Center

as bitmaps and then imported into Canvas 5.0 (graphics package) as gifs or jpeg files. Trail information was used with copyright permission by the Adirondack Mountain Club. This information was accessible by clicking on certain parts of the map images.

The trees and wildlife were illustrated through images and text as well. Much of the information came from *Adirondack Mammals* by D. Andrew Saunders and *Adirondack Ecology: Common Trees, Shrubs and Herbaceous Plants of Central Adirondack Forests* by Michele Deisch and Richard Sage, Jr. The images were borrowed with permission from their respective owners, primarily from webpages found through Netscape Navigator.

The shelterwood method section was developed with the help of Dr. Ralph Nyland. He helped develop the short summary of forest management practices, as well as the bulleted statements that will accompany each image. The images were scanned slides provided by Dr. Nyland.

The last section of general information was copied directly from websites of the organizations if one existed. However, if the organization did not have a website, information and brochures were used to develop a webpage for the kiosk.

The users see a screen that is divided in two parts; the left part of the screen shows the table of contents. If users click on one of the words in the table of contents, the right part of the screen reflect that change. The table of contents remains visible at all times; this was done to orient the user and to make sure that the user always has an 'escape route' from any section of the kiosk to another section. The opening screen gives options as to what part of the kiosk users can access, as well as a section for acknowledgments and a section requesting users to fill out a questionnaire when they're done using the kiosk.

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MONITORING APPALACHIAN TRAIL CORRIDORS: AN EXAMPLE OF VOLUNTEER LAND MANAGEMENT

Robert S. Bristow

Associate Professor of Geography & Regional Planning, Westfield State College, Westfield, MA 01086.

Greg Knoettner

New England Field Assistant, Appalachian Trail Conference, 18 On the Common, Unit 7, Lyme, NH 03768

Rick Wagner

Appalachian Trail Committee Chair, Berkshire Chapter, Appalachian Mountain Club, 105 Windigo Road, Cummington, MA 01026

Abstract: The management relationship between the Appalachian Trail Conference (ATC) and various land management agencies such as the National Park Service (NPS) is a prime example of the Partnerships prescribed by the President's Commission on Americans Outdoors. The Appalachian Trail is one success story of bringing public and private resources together to help plan and manage public protected areas. The monitoring program initiated by the ATC has saved taxpayers many thousands of dollars by enlisting the help of volunteers to serve as the eyes and ears of the National Park Service and other agencies for the public AT lands. This paper illustrates the essential elements of public land monitoring including the steps necessary to implement such a program. It will identify the problems and pitfalls, as well as highlight the successes and enjoyment offered to the volunteer monitor.
Keywords: Volunteer Land Management, Appalachian Trail, Monitoring

Introduction

"The men and women of the National Park Service are wizards at doing more with less, but even they are reaching their limits" (AMC Outdoors, 1997). This quotation by Paul Pritchard, President of the National Parks and Conservation Association rings in the dire need to expand partnerships. One such partnership that exemplifies cooperation to the fullest potential is the working relationship between the Appalachian Trail Conference and the National Park Service. The Appalachian National Scenic Trail (or AT as it is commonly known) is the longest continuously maintained foot trail in the world. It stretches along the Appalachian Mountains some 2100 miles between Springer Mountain in Northern Georgia and Mt. Katahdin in Central Maine.

The AT was the inspiration of regional planner Benton MacKaye, who wrote "The Appalachian Trail: A Project in Regional Planning" in the Journal of the American Institute of Architects (MacKaye 1921). The trail was constructed over the 1920s and 30s and has evolved over time, changing the route and even the southern terminus (Foster 1987). The original plan was further expounded in MacKaye's seminal work, The New Exploration: A Philosophy of Regional Planning (MacKaye 1962) and sought to build a "dam" to the encroaching urban landscape.

In 1968, the National Trails System Act recognized the importance of the trail and through an amendment of the Act in 1978, provided funds to secure a permanent right of way (ROW) that would preserve the route and character of the corridor. The law enhanced the working relationship between the Appalachian Trail Conference (ATC) and federal land management agencies, principally the National Park Service. In 1984, the NPS took an equally historic step by delegating the ATC and its member trail maintaining clubs the responsibility for managing NPS-acquired AT lands. This formalized a long term relationship that has made the AT one of the premier hiking experiences available to the American public and a model for other long distance trails (Burch 1979).

Support for outdoor recreation was widespread during the environmental 1960s and 70s, but waned during the economic slump of the 1980s. In the mid Eighties, the President's Commission on Americans Outdoors (PCAO 1986) re-introduced the need to develop partnerships in order to maintain and protect outdoor recreation opportunities in America. Organized and well informed volunteer initiatives in the area of public land monitoring will play a pivotal and crucial role within this framework of public and private partnerships. This paper seeks to highlight some of the issues necessary to undertake recreation trail corridor monitoring.

Background

Monitoring recreation lands is a recognized form of planning and management. As an important part of any planning process, monitoring recreation resources is necessary since conditions change over time, and as a result of these changes, managers must adapt policies to meet administrative mandates. For example, the Limits of Acceptable Change, or LAC, is a planning model utilized by the US Forest Service (Stankey et al. 1985). Monitoring is a part of the LAC planning process. Another planning model found to be successful for land managers is the Quality Updating and Learning (QUAL) model that has been utilized in many recreation resources (Chilman et al. 1991). In this model, monitoring is a dynamic process including all the individuals responsible for land management, from the backcountry ranger to the park superintendent. Yet both of these processes are inherently dependent on paid personnel, something becoming scarce on public recreation lands. A more sustainable arrangement in the tradition of the PCAO mandate, is the long time partnership that has already been in place along the Appalachian Trail since 1984.

The purpose of AT monitoring is to provide regular field inspections of corridor lands. The volunteer monitors are

the eyes and ears for the ATC and NPS. And like any land manager, whether public or private, the main concern is protection of the land against unwanted uses including timber theft, dumping, overuse and misuse (Berkshire Chapter, Appalachian Mountain Club 1991). Further, there is a need to be aware of natural changes in the landscape such as insect deforestation, storm damage or unnecessary erosion.

In Massachusetts, the AT travels over 80 miles between the Vermont and Connecticut borders along the Berkshire Mountains. The Massachusetts AT corridor or greenway is anchored by Mt. Greylock in the north and Mt. Everett in the south. Details of the route can be found in the Appalachian Trail Guide for Massachusetts-Connecticut (ATC 1988). There are essentially two landowners of AT lands in Massachusetts: the National Park Service and the Commonwealth of Massachusetts Department of Environmental Management (DEM). Both agencies participate in the land acquisition effort. State Forest lands make up a third land management type, where the AT corridor traverses more expansive areas of public ownership.

For purposes of trail monitoring, 37 sections of two to three trail miles (approximately 1000+/- acres of land) have been allocated amongst a armada of volunteers. These individuals are solicited from ATC and/or Appalachian Mountain Club (AMC) members and share a common interest in protecting the Appalachian Trail. Three Section Coordinators (Northern, Central and Southern segments of AT in Massachusetts) help organize and assist the monitors in their task. The Chair of the AT Committee, Berkshire Chapter, AMC, oversees the group of volunteers and reports to the AMC and ATC.

Methods

The ATC has classified corridor lands in terms of priority. This ranking is necessary since the frequency of monitoring visits varies according to the level of threat. High priority lands are areas where access or past problems make abuse most likely while less accessible lands rank lower. Sections of newly cut trails or relocations are particularly vulnerable to impacts and thus are placed in this category. These properties need to be inspected twice a month to twice a year. Table 1 lists the characteristics that make a parcel of high priority.

Table 1. Hot Spot Factors that make corridors high priority.

Easement
Special Use Permits
Ungated Powerline crossing
Ungated dirt roads
NPS owned structures
adjacent development, logging, or mineral extraction
adjacent active ATV/ORV area, rifle range or car park
Conflicting use of the land (ORVs, horse back riding etc.)
trespass (dumping camping, timber theft)

Moderate priority lands are threatened by only moderate infractions. For example, tracts that have no hot spots (Table 1.) can be considered moderate unless they are very remote. An annual inspection will probably be enough.

Low priority lands have low risks and can be inspected once every two or three years. These lands may be remote or have minimal land impact infractions. Boundaries on steep or other inaccessible areas can be thought as having a low priority. However initial and thorough inspections should still take place. A minimum level of monitoring should be established for each priority category. Exceeding the minimum levels is desirable and should be encouraged if program participation and enthusiasm is strong.

Once the corridor has been classified as to its priority, field inspections can take place. This is the real fun part of AT monitoring. Depending on the presence of known or suspected problems and the priority of need, monitors can determine what type of inspection is appropriate. More often than not, a combination of methods may be necessary.

Types of Inspections

Boundary hike. The most comprehensive type of inspection and required for initial inspections. It is important to walk the entire boundary during one visit, if possible, and to get the big picture of the properties. This will aid in subsequent inspections, especially if a hot spot is discovered that will need constant monitoring. Extensive note taking and photography will support and document the findings.

Trail hike with some boundary walking. This type of monitoring is useful for sections that have a combination of high/medium priority boundaries and low priority sections. The monitor will follow the trail through the low priority sections and concentrate on parcels threatened by outside use. It also allows the monitor to get a feel for the interior of the corridor.

Trail hike. In the winter, the monitor can view the corridor up to 600 feet on either side of the trail in deciduous forests. A simple trail hike may suffice to narrow corridors.

Doing the Inspection

This requires some basic map and compass work. This paper will not go into the details of map and compass work; interested readers are referred to Kjellstrom's (1976) work titled Be Expert with Map and Compass. The monitor must be comfortable with map and compass since they will be traversing property lines away from the trail and other well traveled ways. Essentially it is also important to remember to account for magnetic declination when following legal boundary descriptions contained in deeds since the bearings are typically based on True North. However this is not always so. Attention to the northern reference is prudent.

Appalachian Trail corridor lands are presently being surveyed and blazed to provide monitors with up to date

and accurate information about the properties. One must then visit the property with the AT segment map, the survey map and compass. Under ideal conditions, the monitor may follow the survey blazes fairly easily, but experience tells us that the path is often obscured by plants (especially bushes with thorns) and survey blazes fade over time. Initial inspections may take all day, but once the monitor becomes familiar with the corridor, the inspections will take less time. The monitor may need only visit the "hot spots" on the majority of future visits. Shortcuts along old logging roads can reduce travel time to a particular area.

However, some sections of the AT remain unsurveyed and the monitor has only the deed information to follow in conducting the inspection. This requires a little more skill and patience, since the corridor is not as clearly marked. Fortunately for some AT segments is the fact that old landmarks may still exist and make the job easier, or at least possible. An old stone wall may mark a boundary, or even the edge between a field and the woods. The monitor will soon realize it may be easier to walk parallel to the property line, especially in steep or heavily vegetated terrain.

Since the monitor will be walking off from the trail, it may appear strange to adjacent landowners. Introducing oneself, as the AT section monitor to the neighbors, will ease their suspicion. And once the neighbors understand the role of protecting the corridor, the monitor may even enlist the landowner to become additional "eyes and ears" for the AT. A good neighbor is better than an angry one.

Report Preparation

A necessary component of monitoring is the record keeping. . While paper work may be considered to be a hassle by those monitors that just want to get outside and bushwhack through the woods, it is vital for tracking the history of problem areas and getting this information into the hands of professional land managers. The documentation may also become legal information in the prosecution of crimes committed on corridors lands. Besides the monitor report (see Appendix A), sketch maps, photographs and other support evidence will provide the best information for trail monitors. It is important to keep copies of all reports submitted, since they may become lost or misplaced

Lessons Learned From the Field

Periodic and regular field inspections can be fun and provide excellent exercise to the monitor. The best time of the year to undertake the monitoring is between the Fall and Spring, when the leaves are off the trees and visibility is maximized. Care should be exercised during hunting season, so check with local regulations about dates in the Fall. Late Spring may be muddy and since the monitor may be bushwhacking through the woods, be careful about trampling on young plants. However, the best thing about this season is the lack of insects, cooler temperatures and the private experience one finds walking in the Appalachian woods.

While the field inspections can be done solo, it is highly recommended that teams of volunteers group to assist one another with the monitoring. Besides being safety conscious, this is especially useful, since pairs of hikers can cover ground faster with a "Leap Frog" type of coverage. That is, one can set a compass bearing while the other heads off in that direction. Once a hundred feet is paced out (or some other distance, still within sight of the compass bearer), the first can "leap" ahead of the other and maintain a correct bearing.

Future

There are tremendous opportunities for this type of land management to continue in the future. As additional lands become protected for open space, traditional land management agencies will become strapped to properly oversee these properties. The partnership described in this paper is one way that the public can become involved in the management of public lands. Besides the obvious savings of public tax dollars, there are two distinct advantages to this partnership. First, it strengthens the bond between public and private agencies and provides an opportunity for all parties to better understand the needs and issues related to protecting our natural resources. And second, the satisfaction one gets by bushwhacking in the woods, knowing that they can have fun, exercise and yet still help protect the Appalachian Trail.

As more and more parks establish citizen partnerships, we can expect the ties to strengthen even further. These "Friends of the AT" become advocates to insure the continued protection of public open space and greenways.

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Figure 1 Inspection Report

MASSACHUSETTS APPALACHAIN TRAIL CORRIDOR INSPECTION REPORT

Name:_____ Date: ___/ ___/ ___

Area and Tracts Monitored:_____

****

I monitored my Corridor Section and submit the following report:

	Yes	No	Tract # if Yes
1) Unsightly dumping of garbage, litter or large items, ie cars, or household goods:			
2) Evidence of camping outside of designated zoones, litter or camping/woodcutting:			
3) Evidence of use by vehicles or horses:			
4) Evidence of logging or household wood cutting:			
5) Evidence of damage by natural causes; such as disease, insects or fire:			
6) Bulding of fences, shelters or structures on trail corridor:			
7) Evidence of or knowledge of adjacent development, which can adversely affect the Appalachain Trail or its environment:			
8) FOR TRACTS WITH EASEMENTS, evidence of violations of restrictions or terms of deed:			
9) FOR AREAS WITH SPECIAL PERMITS, eveidence of any violations of the permit:			
10) Other			

If the answer to any of the above is YES, Please describe below using the back of this form or additional sheets if needed. Include tract #, exact location and/or sketches. Also include suggestions and/or follow-up needed. If you consider the problem to be AN EMERGENCY, please call your MONITOR COORDINATOR or the AMC Regional Office (413) 443-0011, or DEM Regional Headquarters (413) 694-8928, if the problem is on State Land.

Notes

Corridor Monitoring Statistics (This Report):

Hours Spent on Corridor: _____ Travel Hours: _____ Other Help: _____ Help Hours: _____

Number of contacts with land owners, neighbors, and local officials: _____

List and Comments: _____

Signature of Monitor: _____

Address: _____

_____

Phone: _____

VALUING IMPACTS OF FOREST QUALITY CHANGE: RECREATION AND NEW YORK'S ALLEGANY STATE PARK

James F. Booker

Assistant Professor of Economics and Environmental Studies, College of Business, Alfred University, Alfred, NY 14802.

Russell Patterson

Undergraduate Research Assistant, Powell Box 0852, Alfred University, Alfred, NY 14802.

Abstract: Allegany State Park in southwestern New York State attracts visitors from across western New York State, and neighboring states and Canada, while providing a variety of valuable ecological, social, and recreational benefits. Proposed management of forested park land has generated considerable controversy. Conflicting values regarding older growth versus mixed age forests, conflicting needs of alternative recreational activities, and the potential benefits of harvesting valuable timber underlie this controversy. There has to date been no attempt to estimate direct economic impacts of the proposed changes on the 1.2 million visitors who annually travel to the park. Using existing surveys of park users, a benefit transfer methodology is applied to value present park activities including camping, picnicking, sightseeing, fishing, and hunting. Second, an approach to estimating recreation economic impacts of alternative forest management plans including selective logging is developed.

Introduction

Valuation of non-priced goods is increasingly looked to as an essential component in weighing costs and benefits of alternative actions (see Costanza et al., 1997, for an heroic application). New York's Allegany State Park provides an example of such a good, used to providing ecological, social, and recreational benefits for over one million visitors annually, and an undetermined number of non-users. Despite the significance of the Park as a recreational resource there has been little work on systematically valuing the benefits enjoyed by visitors. This paper has the dual objectives of establishing baseline valuation of visitor benefits, and introducing one framework for estimating impacts on visitor benefits of changes in forest quality for recreation.

Visitor benefits are measured as the willingness-to-pay for the enjoyment of the recreational experience. The purpose is to establish the economic value of the experience tot he visitor. These visitor benefits are distinct from both expenditures by visitors (e.g. costs of travelling to the Park), and the resulting local and regional economic activity generated by visitor expenditures. No attempt is made to estimate these latter impacts of Park visitation.

Study Setting

Allegany State Park in southwestern New York State attracts visitors from across western New York State, and neighboring states and Canada. At approximately 100 square miles in size, it is the largest New York State Park (though the Adirondack and Catskill Forest Preserves are much larger). Visitors engage in a wide variety of year-round recreational activities. Visitors view the relative "naturalness" of the Park as a critical attribute (Palmer, 1988). The Park is heavily forested, with only 6% of current land in alternative uses (e.g. roads, campgrounds, etc.) It is dominated by second growth forest, much of which is nearing 100 years in age. Some areas of older growth are also present, though their extent is limited. A new park management plan is presently being developed, including study of forest management (timber harvesting) on Park land. Considerable controversy has arisen (see, for example, Empire State Report, 1995) surrounding the proposed forest management alternatives. Conflicting values regarding older even aged growth versus mixed age forests, conflicting needs of alternative recreational activities, and the potential benefits of harvesting valuable timber underlie this controversy. A user survey (Palmer, 1988) shows that typical Park visitors do not support harvesting timber for commercial purposes, and are wary of any form of active forest management.

There are no available estimates of visitor benefits under either existing or proposed forest conditions. Providing such estimates is addressed here by first developing an estimate of the non-priced value of visitation by park visitors under existing management. Using a previously completed survey of park users (Palmer, 1988), the benefit transfer methodology is applied to present park activities including camping, picnicking, sightseeing, hiking, fishing, and hunting. An approach to valuing quality changes from proposed management alternatives is then presented.

Benefit Transfer: The Application of Existing Studies

The need to provide cost-effective estimates of non-priced recreation benefits has spurred discussion of differing benefit transfer methodologies. In each approach, benefit estimates from existing studies are applied to a target, or policy site where time or monetary costs preclude developing primary benefit estimates. Boyle and Bergstrom (1992) describe the process as "simply the application of secondary data to a new policy issue." The most promising benefit transfers, applicable when use data for the policy site is available, may be those focusing on average benefit per user day (Loomis, et al., 1995). Such an approach is possible for Allegany State Park visitation, where detailed data on Park attendance and activities is available. Benefit estimates reported by Bergstrom and Cordell (1991) are used here. Alternative representative values are also available (see, for example, Walsh, Johnson, and McKean, 1988).

In addition to a benefit transfer methodology, estimation of unit day benefits for Allegany State Park visitors requires a methodology for treating the diverse activities present within the Park. Benefit transfers for each of the thirteen distinct activities identified in Palmer's (1988) survey of visitors are

used. A weighted average based on participation rates was then developed to provide unit day benefit estimates for typical user groups (e.g. campers and visitors). Because these estimates are derived from all activities reported by each user group, they are not a benefit estimate for a typical visitor, but are rather an average across all visitors within the group.

Visitors to Allegany State Park report that they typically engage in a variety of recreational activities. Casual observation, and the range of available facilities confirm that multipurpose visits to Allegany State Park are typical. The degree to which recreational activities outside the Park are also engaged in during a typical day for a Park visitor is not known. Because of the substantial travel involved for visitors from surrounding metropolitan regions, their recreational activities outside the Park may be quite limited. In contrast, the literature from which the relevant primary studies are drawn focuses almost exclusively on single uses such as fishing, hunting, hiking, and swimming. The approach used here was to use reported participation in different activities by Allegany State Park visitors (Palmer, 1988) to develop a unit day profile. Because benefit estimates are typically reported based on a full day's participation, it was necessary here to allocate portions of the day to differing activities. Participation rates were not directly available, but were inferred from the percentage of visitors reporting participation in each activity. Let the percentage of Park visitors participating in activity i be given by p_i, and the consumer surplus in the ith activity (estimated by benefit transfer) be V_i. Then the unit day consumer surplus estimate (for each user group) V is given by

$$V = \Sigma_i w_i V_i$$

where $w_i = p_i / \Sigma_i p_i$. Table 1 shows the use of this approach using standard values developed by Bergstrom and Cordell (1991). Adjusted to 1997 dollars using the GDP deflator, visitor benefits are approximately $16 per visitor day under existing conditions.

Table 1. Contribution of recreational activities to total benefits of camping at Allegany State Park.

Activity	Standard Value	Participation	Weighted %	Weighted Value
	($)	(%)	(%)	($)
Hiking	16.52	89.3	15.0	2.48
Scenic (pleasure) driving	12.95	87.9	14.7	1.90
Nature trails (study)	13.12	83.3	13.9	1.82
Swimming	19.89	78.4	13.1	2.61
Picnicking	15.90	63.3	10.6	1.69
Canoeing and kayaking	17.00	59.2	9.9	1.68
Fishing	16.82	58	9.7	1.63
Bicycling	17.85	43.5	7.3	1.30
Big game hunting	16.20	9.8	1.6	0.26
Small game hunting	16.08	6.3	1.1	0.18
X-country skiing	12.84	15.6	2.6	0.33
Horseback riding	15.30	2.6	0.4	0.06
			Total benefits	15.95

Units are 1997 dollars per visitor day.

Towards Valuing Visitor Preferences for Forest Management

Quality of recreation sites is one factor in visitor demand (Bergstrom and Cordell, 1991). Quality is a function of the specific recreation activity, however. In Allegany State Park visitors engage in a broad range of activities: their valuation of alternative forest management is similarly a function of their specific recreation preferences. Applying Bergstrom and Cordell's estimated coefficients across the range of recreation uses provides one approach to valuing changes in recreation quality in Allegany State Park.

In the absence of detailed empirical data on the impact of forest management on site quality be recreational activity, sensitivity analysis is instead used to estimate the likely range of impacts of forest management. It is hypothesized that forest management negatively impacts Park visitors engaging in hiking and nature study, and positively impacts small and large game hunting by increasing suitable habitat and forage. Site quality for other Park uses is assumed unaffected by initiation of forest management. The value of site quality changes is estimated by applying impacts of quality changes (Figure 1, after Bergstrom and Cordell, 1991) to the specific visitor activities in Table 1. The site quality index used by Bergstrom and Cordell ranges from 1 (least suitable) to 10 (most suitable). Using a range of changes in site quality of ±1 to ±5, Table 2 shows the resulting change in visitor benefits. The resulting aggregate change in visitor benefits across all activities ranges from -3% to -14% of the existing value. The reduction in benefits is thus about 40 cents to $2 per visitor day.

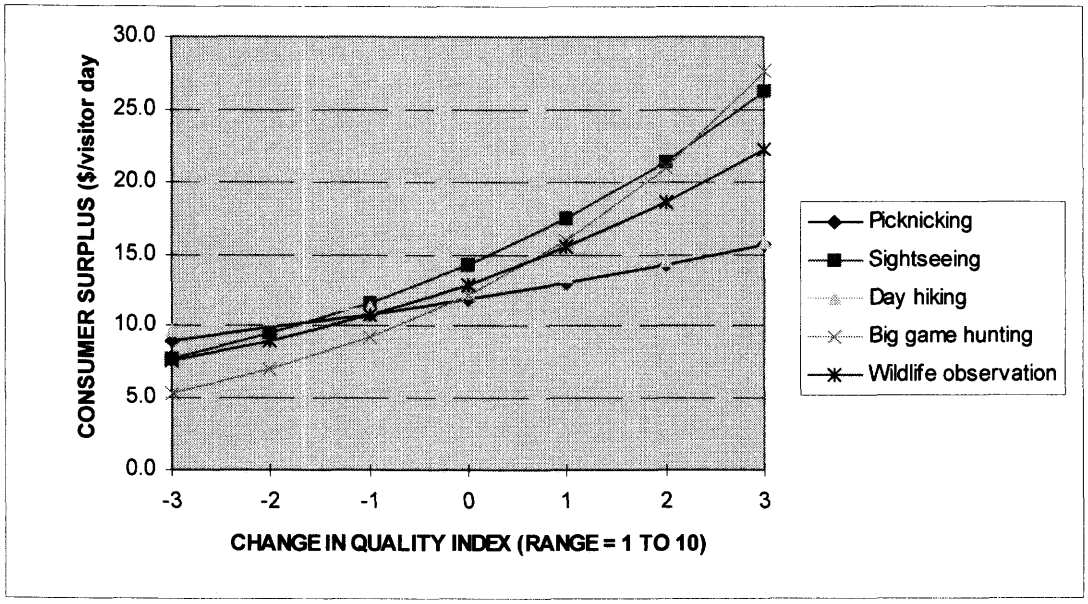


Figure 1. Sensitivity of visitor benefits to recreation site quality (after Bergstrom and Cordell, 1991).

Table 2. Potential impacts to recreational benefits at Allegany State Park with forest quality change.

Activity	Existing Value	Impact of change in quality index on existing value			Impact on final weighted value with change in quality index		
		±1	±2	±5	±1	±2	±5
Hiking	16.52	-1.37	-2.74	-6.86	-0.21	-0.41	-1.03
Scenic (pleasure) driving	12.95						
Nature trails (study)	13.12	-2.38	-4.75	-11.88	-0.33	-0.66	-1.65
Swimming	19.89						
Picnicking	15.90						
Canoeing and kayaking	17.00						
Fishing	16.82						
Bicycling	17.85						
Big game hunting	16.20	+4.47	+8.94	+22.35	0.07	0.14	0.36
Small game hunting	16.08	+2.80	+5.59	+13.99	0.03	0.06	0.15
X-country skiing	12.84						
Horseback riding	15.30						
		Total change in benefits			-0.43	-0.87	-2.17
		Final total benefit			15.51	15.08	13.78
		Change in total benefits			-3%	-5%	-14%

Units are 1997 dollars per visitor day

Discussion

Using a benefit transfer methodology, baseline estimates of visitor benefits at Allegany State Park under existing conditions can be developed. These non-priced benefits are the willingness-to-pay of Park users for their recreational experiences, and thus capture the economic value of the Park resource to its users. With 1.2 million visitors annually (New York State Office of Parks Recreation and Historic Preservation, 1992), Allegany State Park generates almost $20 million (1997 dollars) in non-priced benefits annually.

Changes to the quality and hence value of recreational experiences at Allegany State Park would likely occur with the initiation of forest management. Under one hypothetical set of impacts, annual benefits to Park visitors would decline by 3 to 14%. The potential annual loss in benefits of $0.6 million to $2.8 million (1997 dollars) would represent the economic cost to Park users initiating forest management for timber production. These estimates do not include impacts to non-users, or valuation of ecological impacts (e.g. biodiversity gains or losses). In the context of a benefit cost approach to forest management activities, it would be appropriate to contrast potential stumpage values to these annual loss estimates.

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RECREATIONAL USER ATTITUDES TOWARDS MANAGEMENT STRATEGIES OF ALLEGANY STATE PARK

Michael Nisengard

Graduate Student. State University of New York College of Environmental Science and Forestry, Faculty of Forestry. 211 Marshall Hall. 1 Forestry Drive. Syracuse, New York, 13210.

Miklos Gratzer

Distinguished Professor. State University of New York College of Environmental Science and Forestry, Faculty of Forestry. 211 Marshall Hall. 1 Forestry Drive. Syracuse, New York, 13210.

Abstract: This project examines attitudes towards management strategies of four Allegany State Park recreational user groups: cabin users, recreational vehicle users, tent users, and day users. It investigates recreational user group attitude differences, and attitude change over a ten year time period, in regard to the following park management strategy categories: park attributes, recreation issues, forest management and diversity issues, preservation issues, oil and gas development issues, and nuisance wildlife control issues. Data analysis of the study results indicate that there is a statistically significant difference in recreational user group response to 5 of 49 variables. Comparisons are made between this study and a similar study conducted in 1986 in order to assess change in user attitude over time. From 1986 to 1996, user attitude, evaluated in terms of management significance and not statistical significance, changed in response to only 3 of 46 issues.

Introduction

Cattaraugus County in southwestern New York State. It is bordered on the west, north, and east by the Allegheny River, and to the south by the State of Pennsylvania. The park is 60,325 acres in size, and the topography consists of lakes, rivers, streams, and hills over 2300 feet in altitude. ASP is visited by 1.4 million park patrons each year.

Allegany State Park is administered for outdoor recreation by the Allegany Region of the New York State Office of Parks, Recreation, and Historic Preservation (OPRHP). ASP is a four season recreational facility, and provides recreational opportunities such as camping, swimming, hiking, horseback riding, cross-country skiing, hunting, and boating. In addition to the recreational resources of the park, ASP is rich in natural resources such as timber and subsurface hydrocarbons.

Due to the broad range of possible uses of these ark resources, the resulting range of management options, increased pressure for both the utilization and preservation of the park resources, as well as projected demand increases for recreational activities, the OPRHP initiated a master forest management planning process for ASP in the early 1970's. "Forest management is interrelated with facility development, trails, recreation program components, oil and gas, and other issues" (Palmer 1988). A comprehensive ASP forest management plan can help ensure appropriate and wise use and development of the park resources.

Surveys of park users regarding attitudes towards the management of ASP were conducted by James Palmer in 1986 in order to assess attitudes of the park users towards management strategies of ASP. This research was particularly useful in bridging the gap between ASP recreationists and ASP management. The park user - park manager gap is common, as recreation managers frequently misjudge what recreationists seek, and have inaccurate perceptions of their recreational attitudes (Buerger 1983). Information on recreationists' attitudes towards facilities and services is very desirable in formulating recreational policies which can improve visitor satisfaction, and create a high quality outdoor recreational experience.

Palmer's research examined the attitudes of park users based upon a sample of campers drawn from the list of camping permits. This information has been furthered by this research endeavor, which has assessed the differences in attitudes towards park management strategies in regard to four different recreational user groups. This information is valuable because different recreationists have different attitudes (Weaver 1988). Park managers must possess an understanding of the similarities and differences between user groups in order to formulate management plans and policies which can assure minimal user conflict, as well as maximize total recreational satisfaction (Buerger 1983).

Six categories of ASP management strategies are examined: 1) park attributes, 2) recreation issues, 3) forest management and diversity issues, 4) preservation issues, 5) oil and gas development issues, and 6) nuisance wildlife control issues. The park users are segregated into four user groups: cabin users, recreational vehicle (RV) users (inclusive of motor homes, pull along trailers, and pop ups), tent users, and day users.

This research will not only build upon the current literature base, but will also be useful to ASP managers. The ASP forest resources management plan has not yet been completed, and this research has updated the information of ASP managers as to the attitudes of ASP recreationists. This research has also determined significant differences in attitudes between the four major peak time park user recreational groups (cabin, RV, tent, day). The attitudes of these four user groups are important because they represent the majority of ASP users, and therefore the main recreational user focus of ASP management strategies.

Theoretical Foundation

Jubenville and Twight (1993) state six relationships between the visitor, the natural resource base, and the management organization: 1) the resource affects the visitor; 2) the visitor affects the resource; 3) the resource

situation affects management programs; 4) the management programs affect the resource situation; 5) the visitor affects management programs; and 6) the management programs affect the disposition of the visitor. This research endeavor will focus on exploring the relationship between the recreational user (visitor) and the management organization in regard to recreational user attitudes towards the management organizations' management strategies of the natural resource base.

The theoretical foundation of this study is based upon the goal of recreation management, which is to maximize visitor satisfaction (Lučas and Stankey, 1974). This goal is accomplished through management strategies, and the structure of this study was created in order to work within the existing ASP management framework.

The literature base has many examples of how attitudinal differences occur between distinct recreational user groups, and how recreational managers are unaware of, and inaccurately predict, recreational user attitudes. This research was designed in order to bridge the gap between the recreation manager and the recreationist, and to hopefully define distinct recreational user groups based upon attitudes toward park management strategies.

The results of this research will not only be beneficial to the amelioration of the literature base, but will also greatly serve ASP managers in further refining the ASP forest resources management plan in order to maximize both recreational user satisfaction and responsiveness to the public purpose.

Research Methodology

From June 19 through August 30, 1996, 194 ASP recreationists completed a hybrid interview/on-site survey. This survey established the user group category of the respondent (cabin, RV, tent, or day) through an oral interview question. The respondent was then asked to complete a survey which ascertained the importance that the respondent placed on 20 park attributes, and the extent of agreement or disagreement that the respondent placed on 3 recreation issues, 12 forest management and diversity issues, 3 preservation issues, 5 oil and gas development issues, and 6 nuisance wildlife control issues. The responses were valued on a 9 point Likert scale, in which one signified very unimportant or strong disagreement, 5 signified neutral, and 9 signified high importance or strong agreement.

The data collection dates were selected via a judgmental sample, and a systematic sampling method was employed to sample the four recreational user groups during the sampling days.

The research methodology allowed for a statistical comparison between the four user groups. While this study used a nearly identical survey as Palmer's 1986 study, differences in data collection designs between the two studies disallowed a statistical analysis of user attitude change over time. Change in attitude over time is evaluated in terms of management significance and not statistical significance. Management significance is defined as a change in user opinion greater than 10% (difference > 0.9).

Recreational User Group Attitude Differences

This study employed the Tukey-Honestly Significant Difference (Tukey-HSD) one-way analysis of variance (ANOVA) post-hoc test in order to determine statistically significant differences among the four user group. Three park attributes, one recreation issue, and one oil and gas development issue, were found to have significant attitude differences among the user groups at a significance level of 0.05.

TABLE 1 summarizes the user group differences in regard to opportunities for outdoor activity such as swimming, games, and picnics. The Tukey-HSD test found that tent users to statistically differ only from day users.

Table 1. Recreational User Group Differences In Regard To Opportunities For Outdoor Activity (Swim, Games, Picnic, Etc.)

Test (P-Value)	User Group (Mean)		User Groups (Mean)
Tukey-HSD (.05)	Tent (7.5)	Differs From	Day(8.6)

key: 1.0 = very unimportant, 5.0 = neutral, 9.0 = very important

Day users highly value opportunities for outdoor activity such as swimming, games, and picnics, because these activities fill an afternoon and thus are the primary park attraction for day users. In comparison, while tent users are also drawn to ASP for outdoor activity, it can be assumed that such activities as games and picnics do not serve as the focus of their recreational activities, and therefore these activities do not draw tent users specifically to ASP.

TABLE 2 summarizes the statistically significant difference between day users and cabin, RV, and tent users in response to the provision of overnight facilities.

Table 2. Recreational User Group Differences In Regard To The Provision Of Overnight Facilities

Test (P-Value)	User Group (Mean)		User Groups (Means)
Tukey-Hsd (.05)	Day (5.9)	Differs From	Cabin(8.2) Rv(7.8) Tent(8.1)

key: 1.0 = very unimportant, 5.0 = neutral, 9.0 = very important

It is expected that day users would find the provision of overnight facilities to be of lower importance than overnight users because day users do not use the overnight facilities, nor do they have a need for them.

TABLE 3 illustrates user group differences in regard to organized programs such as performing arts, concerts, and fairs. The results of the Tukey-HSD test sound tent users to statistically differ from cabin users and day users in response to this park amenity.

Table 3. Recreational User Group Differences In Regard To Organized Programs (Performing Arts, Concerts, Fairs, Etc.)

Test (P-Value)	User Group (Mean)		User Groups (Means)
Tukey-Hsd (.05)	Tent (4.4)	Differs From	Cabin (5.9) Day (5.7)

key: 1.0 = very unimportant, 5.0 = neutral, 9.0 = very important

A possible explanation of the difference for this park amenity may be a result of the recreational attraction to the park of the user group. A majority of cabin users stay in the park for one week, thus organized programs provide them with a new and different activity; it gives cabin users something else to do beside swim, hike, or boat. Most day users travel between ten and sixty minutes to get to the park, and organized programs provide an attraction which encourages day users to take a quick drive to ASP. In contrast to cabin and day users, most tent users visit the park for one to three nights, where the main purpose of their recreational use is focused upon the natural resource base and not structured programs.

One recreational issue, that amenities such as electricity, running water, and separate sleeping areas should be provided in the cabins, was found to have a statistically significant difference among recreational user groups at a significance level of 0.05. TABLE 4 illustrates that the Tukey-HSD test found a difference only between day and cabin users.

Table 4. Recreational User Group Differences In Regard To The Provision Of Cabin Amenities (Electricity, Running Water, Separate Sleeping Areas)

Test (P-Value)	User Group (Mean)		User Groups (Mean)
Tukey-Hsd (.05)	Day (5.4)	Differs From	Cabin (6.6)

key: 1.0 = strongly disagree, 5.0 = neutral, 9.0 = strongly agree

A possible explanation of the statistically significant difference between day users and cabin users is a result of these two user groups representing the polar extremes of this recreation issue. Day users are neutral in response to issues regarding overnight facilities, while cabin users respond higher than all other user groups in response to both the importance of overnight facilities and the provision of cabin amenities. Cabin users' recreational activities revolve around their overnight facilities, while day users recreational activities are absent of any overnight facilities. This is why cabin users respond more favorably to overnight recreation facility importance and cabin amenity provision, while day users are neutral in response to such issues.

One oil and gas development issue, that the state should consider the acquisition of privately owned subsurface rights under park land, was found to have a statistically significant difference among user groups at a significance level of 0.05. The Tukey-HSD found a statistically significant difference between RV users and tent users. TABLE 5 summarizes this difference.

Table 5. Recreational User Group Differences In Regard To The State Considering The Acquisition Of Privately Owned Subsurface Oil And Gas Rights Under Allegany State Park Land

Test (P-Value)	User Group (Mean)		User Groups (Mean)
Tukey-HSD (.05)	RV (4.4)	Differs From	Tent (6.0)

key: 1.0 = strongly disagree, 5.0 = neutral, 9.0 = strongly agree

It may be inferred from this management strategy that if the state did acquire privately owned subsurface oil and gas rights, that these resources would not be developed. RV users, whose mobile homes consume mass amounts of gasoline, may see this resource conservation as an indirect contributor to an increase in their cost of recreational activity (less gasoline, higher gasoline prices, higher cost of recreation). Therefore RV users are less in favor of state acquisition of these resources than tent users.

Study Comparison

This section will compare the results of this study to the results of the study conducted by James Palmer in 1986 titled *Attitudes Toward The Management of Allegany State Park.* Knowing attitude change over time is important information to park managers because it is their responsibility to continually be aware of shifting user attitudes. Examining attitude change can often not only demonstrate previous change in attitude, but more importantly can help managers predict future change in attitude. Sound foresight is a fundamental component of any long term management plan. The attitude change over time will be examined in terms of management significance. Management significance is defined as change in user attitude greater than 10% (change > 0.9).

TABLE 6 summarizes the comparison of the study results in regard to twenty park attributes. Courtesy of the park staff has the biggest difference, as 1996 overnight park users rated it as 0.7 less important than did park users in 1986. 1996 park users feel that opportunities to fish, the presence of law and order, and solitude while in the park are 0.6 less important than did 1986 park users. The natural park environment, opportunities to see wildlife, organized programs (performing arts, concerts, fairs, etc.), opportunities for socializing with family, friends, and others, and the provision of overnight facilities (cabins, camping) were all rated 0.5 less important by 1996 recreationists. 1996 recreationists rated the lake's water condition (clarity, color, litter, etc.) and the provision of trail opportunities to be 0.4 less important than 1986 recreationists did, and the provision of concessions and opportunities to hunt to be 0.3 less important than 1986 recreationists did. 1996 ASP recreationists feel that handicapped facilities are 0.3 more important than did recreationists in 1986. 1996 recreationists rate maintenance of the park (litter, repair, restrooms, etc.), opportunities for outdoor activity (swim, games, picnic, etc.), and scenic

features and overlooks to be 0.2 less important than 1986 ASP recreationists did, but feel that opportunities for nature interpretation were 0.2 more important than did 1986 ASP recreationists. 1996 ASP recreationists regard safety while in the park to be 0.1 less important. There was no change in opinion over time in regard to opportunities to passively watch people and activities.

None of these differences in recreational user attitude over time are large enough to constitute a significant change in user opinion over time for ASP managers.

Table 6. Comparison Of Study Results In Regard To Park Attributes

Park Attribute	Year Of Study		Difference
	1996	1986	1996 - 1986
Courtesy of Park Staff	7.5	8.2	-0.7
Opportunities to Fish	5.0	5.6	-0.6
Presence of Law and Order	7.5	8.1	-0.6
Solitude While in the Park	7.1	7.7	-0.6
Natural Park Environment	8.2	8.7	-0.5
Opportunities to See Wildlife	7.9	8.4	-0.5
Organized Programs	5.1	5.6	-0.5
Opportunities for Socializing	6.9	7.4	-0.5
Provision of Overnight Facilities	8.0	8.5	-0.5
Lake's Water Condition	8.1	8.5	-0.4
Provision of Trail Opportunities	7.2	7.6	-0.4
Provision of Concessions	5.5	5.8	-0.3
Handicapped Facilities	6.2	5.9	0.3
Opportunities to Hunt	2.9	3.2	-0.3
Maintenance of the Park	8.4	8.6	-0.2
Opportunities for Nature Interpretation	7.3	7.1	0.2
Opportunities for Outdoor Activity	7.9	8.1	-0.2
Scenic Features and Overlooks	7.8	8.0	-0.2
Safety While in the Park	8.1	8.2	-0.1
Opportunities to Passively Watch	5.3	5.3	0.0

key: 1.0 = very unimportant, 5.0 = neutral, 9.0 = very important

TABLE 7 summarizes the comparison of the study results in regard to three recreation issues. The largest change in opinion over time is in regard to developing trail bike and all-terrain vehicle trails within the park, as 1996 ASP recreationists feel that this is 2.2 more important than did 1986 ASP recreationists. 1996 recreationists feel that building swimming pools in addition to the park's two existing beaches is 0.3 less important, and that providing cabin amenities such as electricity, running water, and separate sleeping areas is 0.1 more important, than 1986 ASP recreationists did.

Table 7. Comparison Of Study Results In Regard To Recreation Issues

Recreation Issues	Year Of The Study		Difference
	1996	1986	1996 - 1986
Develop Trail Bike and All-Terrain Vehicle Trails	4.6	2.4	2.2
Build Swimming Pools	4.8	5.1	-0.3
Provide Cabin Amenities	6.4	6.3	0.1

key: 1.0 = strongly disagree, 5.0 = neutral, 9.0 = strongly agree

Only one recreation issue, that trail bike and all-terrain vehicle trails should be developed within the park, has a change over time large enough to constitute a significant management difference in user attitude towards management strategies of ASP. User attitude toward such development in 1986 was strong disagreement, but changed to neutral during the ten years between 1986 and 1996. This is a result of a sharp increase in the popularity of trail bikes and the sport of trail bike riding.

TABLE 8 summarizes the comparison of study results in regard to the forest management and diversity issues. One issue, that no action should be taken to affect diversity, cannot be compared between the two studies because of differences in the survey question. Conducting the controlled cutting of trees to generate money for other public purposes has the largest difference in user attitude over time, as 1996 park recreationists are 1.0 more in agreement of such action. 1996 ASP recreationists are 0.8 less agreeable with conducting the controlled cutting of trees to provide wood for facility rehabilitation, 0.7 less agreeable with conducting the controlled cutting of trees for firewood, and 0.5 less agreeable with conducting the controlled cutting of trees for facility rehabilitation. 1996 park users agree 0.4 more than 1986 park users that diversity is not important to their recreation. 1996 ASP recreationists feel 0.1 less agreeable towards conducting the controlled cutting of trees to generate money for ASP, conducting the controlled cutting of trees to improve scenic vistas, and conducting the controlled cutting of trees to improve wildlife observation. However, 1996 ASP recreationists are 0.1 more agreeable towards conducting the controlled cutting of trees to improve hunting and to increasing diversity via the cutting of trees. There is no change in user opinion over time in regard to conducting the controlled cutting of trees to improve bird watching.

Only one of these differences is large enough to constitute a significant change in user opinion over time for ASP managers. This difference is in regard to the controlled cutting of trees to generate money for other public purposes. As the state and national debt increases, and

people are becoming more aware of possible impending economic disaster for our governments, perhaps park users are more inclined to sacrifice our natural resource base in an attempt to reverse our nations current economic trend. It may also be that there is a lesser fear of cutting abuse as compared with ten years ago.

Table 8. A Comparison Of Study Results In Regard To Forest Management And Diversity Issues

Forest Management/ Diversity Issues	Year Of The Study		Difference
	1996	1986	1996 - 1986
No Action to Affect Diversity	5.4	N/A	N/A
Cut trees to generate money for other public purposes	3.2	2.2	1.0
Cut Trees to Provide Wood for Facility Rehabilitation	4.5	5.3	-0.8
Cut Trees for Firewood	3.5	4.2	-0.7
Cut Trees to Improve Trails	5.5	6.0	-0.5
Diversity is Not Important to Recreation	4.9	4.5	0.4
Cut Trees to Generate Money for ASP	4.0	4.1	-0.1
Cut Trees to Improve Scenic Vistas	5.5	5.6	-0.1
Cut Trees to Improve Wildlife Observation	5.3	5.4	-0.1
Cut Trees to Improve Hunting	2.8	2.7	0.1
Increase Diversity by Cutting Trees	3.8	3.7	0.1
Cut Trees to Improve Bird Watching	4.9	4.9	0.0

key: 1.0 = strongly disagree, 5.0 = neutral, 9.0 = strongly agree, N/A = not applicable

TABLE 9 summarizes the comparison of study results in regard to three preservation issues. 1996 park users are 0.6 less agreeable with preserving portions of the park where any changes that occur are primarily the result of natural processes or events, and 0.6 more agreeable that no preserve areas are needed in the park. 1996 park users are 0.2 less in favor of preserving areas for unique environmental features (e.g. wetlands, geologic features, rare or endangered habitats) than were 1986 park users.

Table 9. Comparison Of Study Results In Regard To Preservation Issues

Preservation Issues	Year Of The Study		Difference
	1996	1986	1996 - 1986
Preserve Areas for Natural Processes or Events	7.6	8.2	-0.6
No Preserve Areas Needed	2.3	1.7	0.6
Preserve Areas for Unique Environmental Features	8.3	8.5	-0.2

key: 1.0 = strongly disagree, 5.0 = neutral, 9.0 = strongly agree

None of these differences in attitude regarding the three preservation issues are large enough to constitute a significant change in user opinion over time for ASP management.

TABLE 10 illustrates the comparison of study results in regard to five oil and gas development issues. The issue with the greatest difference in user opinion over time is in regard to developing oil and gas resources in order to generate money for other public purposes, as 1996 park users feel 1.2 more in agreement with this issue than did 1986 park recreationists. 1996 park users feel 0.9 less agreement with developing oil and gas resources to heat buildings within the park, 0.6 less agreement that the state should consider the acquisition of privately owned subsurface rights under the park land, and 0.4 less agreement with developing oil and gas resources to generate revenue for ASP operations and development than did 1986 park users. 1996 park users are 0.4 more in agreement that there should be no oil or gas exploration, development, or extraction within the park than did 1986 park users.

Table 10. Comparison Of Study Results In Regard To Oil And Gas Development Issues

Oil And Gas Development Issues	Year Of The Study		Difference
	1996	1986	1996 - 1986
Develop Oil and Gas for Public Revenue	3.2	2.0	1.2
Develop Oil and Gas to Heat Buildings	4.0	4.9	-0.9
State Should Acquire Oil and Gas Rights	5.3	5.9	-0.6
Develop Oil and Gas for ASP Revenue	4.1	4.5	-0.4
No Oil and Gas Development	6.5	6.1	0.4

key:1.0 = strongly disagree, 5.0 = neutral, 9.0 = strongly agree

Only one of these differences is large enough to constitute a significant management change in user opinion over time for ASP managers; this issue is the development of the oil and gas resources beneath ASP land in order to generate revenue for other public purposes. As with the forest management and diversity issues, this difference may be the result of 1996 park users being more inclined to develop our natural resource base in an attempt to mitigate what is perceived to be a negative national economic trend. It may also be a result of low salience of this issue. Oil and gas development, and its threat of massive ecological degradation, was a big issue in the media during the mid-1980's. This is no longer the 'hot topic' it once was, and therefore may have influenced change in user opinion response.

TABLE 11 summarizes the comparison of study results in regard to nuisance wildlife control issues. Two issues cannot be compared between the two studies because of differences in the wording of the questions. They are the controlled hunting of raccoons should be allowed when

they become a nuisance or threat to park patrons, and that the controlled hunting of bear should be allowed when they become a nuisance or threat to park patrons. The trapping of raccoons when they become a nuisance or threat to park patrons has the greatest difference in user attitude over time, as 1996 park users are 0.8 more in agreement with this nuisance wildlife control issue. 1996 park users are 0.2 more in favor of trapping beaver to control flooding of buildings and roads. 1996 park recreationists are 0.1 less in agreement that trapping should not be conducted in the park under any circumstances, and 0.1 more in agreement to trap beavers to control adverse impacts on forests and trout streams.

Table 11. Comparison Of Study Results In Regard To Nuisance Wildlife Control Issues

Nuisance Wildlife Control Issues	Year Of The Study		Difference
	1996	1986	1996-1986
Hunt raccoons when nuisance or threat to patrons	6.5	N/A	N/A
Hunt Bear When Nuisance or Threat to Patrons	5.8	N/A	N/A
Trap raccoons when nuisance or threat to patrons	6.6	5.8	0.8
Trap beaver to control flooding of buildings and roads	5.7	5.5	0.2
No trapping should be conducted	4.4	4.5	-0.1
Trap beaver for adverse impacts on forests and trout streams	5.5	5.4	0.1

key: 1.0 = strongly disagree, 5.0 = neutral, 9.0 = strongly agree, N/A = not applicable

None of these differences are large enough to constitute a significant change in user opinion over time regarding nuisance wildlife control issues for park management.

Conclusions

This descriptive study examined differences in recreational user group attitudes in regard to park management strategies and change in user attitude over a ten year time period. This study found statistically significant attitude differences among user groups in response to 5 of 49 issues. Change in user attitude over time, evaluated in terms of management significance, was found in regard to 4 of 46 issues.

These findings are important to the ASP management staff in their completion of the forest resources management plan. Further research on this topic may want to explore attitudes of other user groups such as overnight backpackers, hunters, or non-peak time park users. Additionally, it may be valuable to repeat this survey in another ten years in order to assess attitude change between 1986, 1996, and 2006. If such an project is undertaken, it would be useful to reproduce the methodology or either this research or Palmer's so that statistical comparisons can be made between the two studies.

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INTEGRATING TECHNICAL ROCK CLIMBING INTO PROTECTED AREA MANAGEMENT: A CASE EXAMPLE OF MINNEWASKA STATE PARK PRESERVE, NEW YORK STATE

Jennifer A. Cairo

Climbing Ranger, Minnewaska State Park Preserve
P.O. Box 893, New Paltz, NY 12561

Thomas L. Cobb
Park Preserve Manager, Minnewaska State Park Preserve
P.O. Box 893, New Paltz, NY 12561

Abstract: In the fall of 1996, technical rock climbing was introduced as a regulated outdoor recreation activity in Minnewaska State Park Preserve, situated in the Shawangunk Mountain region of New York State. It is the first instance in which rock climbing has been sanctioned by the New York State Office of Parks, Recreation and Historic Preservation. This paper identifies key issues and associated environmental, legal and operational measures incorporated into a climbing plan, offering one model for including this type of activity in protected area management.

Background

The Shawangunk Ridge is one of the most important sites for biodiversity protection in the northeastern United States, and has been an important focal point for conservation and research for over 100 years. The Ridge forms a long, narrow corridor between the Catskill Mountains and the Hudson River in New York State, and runs southwest through New Jersey to the Susquehanna River in Pennsylvania. About 150,000 acres of this mountain ridge have been protected for conservation and recreation purposes.

Minnewaska State Park Preserve, administered by the Palisades Interstate Park Commission and the New York State Office of Parks, Recreation and Historic Preservation, is the largest publicly-owned landholding in the northern Shawangunks.

Consistent with Article 20 of the New York State Parks, Recreation and Historic Preservation Law, the overall management goal of Minnewaska is to preserve and protect the natural and cultural resources of the Park Preserve while making compatible recreational and educational opportunities available to the public.

The Park Preserve contains examples of an estimated 40 rare plant and animal species and over 20 natural communities, including the ecologically significant pitch pine *(Pinus rigida)* and unique cliff and talus vegetation. The New York Natural Heritage Program has given the Shawangunks a biodiversity rank of B1, the highest possible within the international rating system used by the program.

Statement of the Problem

Rock climbing has been a recreational activity in the Shawangunks since the 1930's. The Mohonk Preserve, Inc., a private landholding of over 6,300 acres adjacent to Minnewaska State Park Preserve, has long been one of the premier rock climbing areas in the United States.

As the sport has grown in popularity over the past few decades, the number of climbers using the cliffs of "The Gunks" each season has significantly increased, leading to greater demand for new climbing areas in the Shawangunks. The Mohonk Preserve has found it difficult to accommodate these demands; cliffs suitable for climbing are limited, and heavy climbing use has resulted in environmental degradation in some areas. Minnewaska's neighboring, relatively untouched and scenic cliffs, which offer a diverse selection of climbing opportunities, are an attractive expansion alternative.

To accommodate rock climbing within the legal framework of the Park Preserve, however, a climbing plan was needed to address an array of environmental, legal and operational concerns.

Key Issues of the Planning Process

The management plan for rock climbing at Minnewaska addresses three key issues. These are:

1. Resource Protection -- Maintaining the ecological integrity of the designated climbing area.
2. Safety and Rescue -- Accident prevention and preparation for emergency situations.
3. Administrative Operations -- Devising a management system for administering the program.

Resource Protection

Environmental conservation of the climbing area was addressed through site designation, a monitoring and mitigation program, and by encouraging low- impact climbing techniques.

A special use area known as the Peter's Kill was selected for rock climbing for three reasons:

1. An estimated 100 climbing routes of varying degrees of difficulty had been determined providing diverse and attractive climbing opportunities;
2. The site had been previously disturbed by use as a small alpine ski and camping area.
3. The area was readily accessible from the highway which intersects the Park Preserve.

"Limits of Acceptable Change" methodology has been used to develop standards for environmental monitoring and mitigation of impacts in the area (Table 1). A base line ecological survey of the area completed prior to introducing the special activity served as a frame of reference for a program of monitoring and environmental mitigation. Monitoring is conducted on a continuous basis by Park Preserve staff. A 100-car parking lot capacity and a maximum allowance of 50 climbing permits per day were designed to further control potential adverse impact on the resource.

Table 1: Potential Adverse Impacts and Mitigation Steps (PIPC/ OPRHP, 1996)

Impact	Limit of Acceptable Change (LAC)	Mitigation Step 1	Mitigation Step 2	Mitigation Step 3	Mitigation Step 4
Disturbance of raven nesting	No disturbance during nesting season	Patron education and voluntary seasonal closure of nesting area	Seasonal closure of nesting area	Permanent closure of nesting area	Reduce public access to Peter's Kill Area
Decline of protected flora	No decline	Patron education and voluntary change of behavior	Close areas supporting declining species on rotating basis	Close areas until plants recover to LAC level	Reduce public access to Peter's Kill Area
Injury to Pinus rigida from use as anchors at cliff summits	No loss of bark/ exposure of cambium; some "wear" permissible	Patron education and voluntary change of behavior	Protective material around impacted trunks	Install fixed anchors as recommended anchor alternatives	Reduce number of climbing passes
Decline of local fauna populations	No significant change in population sizes	Patron education and voluntary change of behavior	Voluntary closure of areas of concern	Closure of affected areas until populations return to LAC level	Reduce public access to Peter's Kill Area
Archeological resource degradation	No further disturbance of sites	Patron education and voluntary change of behavior	Use areas re-designed to avoid resource areas	Close affected areas	Reduce public access to Peter's Kill Area
Undesignated trails	Less than 3 informal trails on previously disturbed areas; none in undisturbed areas	Patron education and site restoration or re-design	Restoration and natural barricades put in place ("brushing in")	Close affected areas	Reduce public access to Peter's Kill Area
Accidents	Minor injuries; no life-threatening injuries or death	Patron safety education	Reduce access to or modify areas identified as dangerous	Close areas identified as dangerous	Reduce public access to Peter's Kill Area
Adverse visual impacts	No compacted soil/ denuded areas. No excessive visible chalk. No litter.	Patron education and voluntary change of behavior	Enforce designated trail use, restoration, clean-ups	Close affected areas	Reduce public access to Peter's Kill Area
Other impacts	Dependant upon impact type	Patron education and voluntary change of behavior	Area closure(s)	Reduce public access to Peter's Kill Area	

Climbers are asked to use minimum- impact climbing practices which preclude permanent anchors or similar fixed protection, vegetation removal, hold chipping, rock trundling, and excessive use of chalk.

Safety and Rescue

Several policy measures have been established to promote patron safety.

1. Climbers are advised to wear helmets.
2. Sport rappelling (repeated high speed rope descent) is not permitted due to the high incidence of injury associated with this activity.
3. Climbing access trails are off limits to users other than climbers to deter injuries involving untrained and inexperienced patrons attempting technical rock climbing, and from falling rock and equipment.
4. Park Preserve ranger staff are involved with regularly scheduled emergency response training in cooperation with local and regional emergency medical and rescue agencies.
5. While a policy was adopted to restrict dangerous or environmentally damaging practices, general climbing style and techniques are left to individual preference.

Administrative Operations

1. Climbers are required to pay a $5.00 fee for a climbing permit and sign an "Acknowledgement of Risk". A parent or guardian assumes this responsibility for climbers under eighteen years of age.

2. Climbing guides and instructors are required to obtain permits involving proof of insurance, accreditation by the American Mountain Guides Association(AMGA), NYS guide license, and attendance at a climbing orientation session conducted by Park Preserve staff.
3. Additional climbing rangers and support staff are employed to monitor climbing activities and to assist with educational and maintenance needs.
4. Informational kiosks with regulations, emergency contact numbers, interpretive information, and maps of the area are being developed. These will be located at primary access points such as trail heads.
5. Climbing regulations are consistent with those used elsewhere in the Shawangunks whenever possible Consistent policy could reduce enforcement needs.
6. A volunteer technical rock climbing committee has been retained to advise on policy and program development.

Conclusion

Based upon the initial (1996) season of climbing operations in the Peter's Kill Area, the area management plan has been found to be satisfactory . Only minor modifications, such as the addition of staff, increases in the amount and types of staff training , trail revisions, and use area demarcations, have been necessary to date. At present, no major management plan changes are anticipated. The program for the Peter's Kill will continue to be monitored through 1997 and future seasons.

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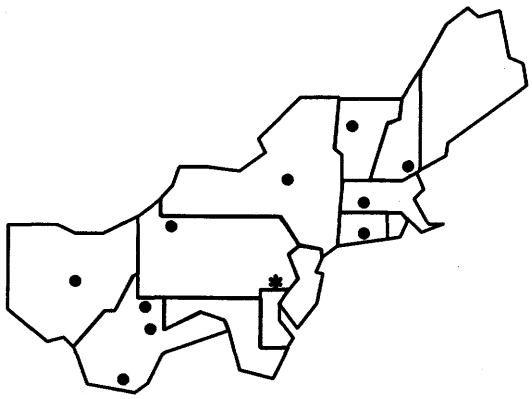
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