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April 9-11, 1995
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Northeastern Recreation Research Symposium Policy Statement

The Northeastern Recreation Research Symposium seeks to foster quality information exchange between recreation, tourism and resource managers and researchers throughout the Northeast. The forum provides opportunities for recreation and tourism resource managers from different agencies, states and governmental levels as well as those in 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 resource management are particularly welcome.

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Proceedings of the 1995 Northeastern Recreation Research Symposium

April 9-11, 1995

**New York State Parks Management and Research Institute
Saratoga Springs, New York**

Compiled by:

Chad P. Dawson

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Heritage Tourism in Vermont: Comparing Shelburne Museum Visitors and Nonvisitors. Walter Kuentzel (U. of Vermont)

Social Science in the National Park Service: Designing a Research Program. Robert Manning (U. of Vermont) and Gary Machlis (U. of Idaho and NPS)

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New York State Open Space Plan. Robert Reinhardt (NYS OPRHP)

**OPENING SESSION:
Trends in the Recreation
Profession**

PERSPECTIVES AND INSIGHTS

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Introduction

I have been asked to share with you my perspectives and insights on changing political, social, and fiscal environments and how we are likely to be affected as we approach the turn of the century. As I traveled around the nation during my year as president of the National Recreation and Park Association, I met some great, hard-working citizens and professionals. BUT, I became **adversarial, parochial, defeated**. I heard comments like, "They **stole** my aerobics instructor and the students were in my class," and "We can't **compete**." It seems to me with all the needs that are out there and the limited resources that we have, surely there are enough programs to develop that would serve your community, wherever it may be.

In an article that appeared in the Park and Recreation Magazine a few years ago, Dr. Doug Sessoms of the University of North Carolina asked, "Have we lost our way? Have we become myopic? Have we been so self-focused in trying to gain stature as a profession that we have forgotten our potential contributions to society? What happened to vision, initiative, leadership, adaptability, flexibility?"

The role of a recreation leader is to affect change in an individual. The value is in what the individual gains from the experience, not the activity he or she participates in. The choice of activity has little to do with it. We need to focus on the benefits of what we do. Note the Canadians' Benefits-Based Approach. We can learn a great deal from them. When I attended the national conference of the Canadian Recreation/Park Association last August, I had the opportunity to participate in a series of working sessions focused on the benefits of parks and recreation. It is worth seriously considering moving in that direction. The information is available from the National Recreation and Park Association.

Let's look at today's scene - changing demographics - multicultural, aging, female-oriented. There are identifiable social ills: crime; youth at risk; increasing unemployment; increasing poverty; increasing single-parent homes; rising health care costs; demand for value and benefits; increasing regulation; increasing inactivity; increasing obesity; increasing environmental degradation (e.g., vandalism, overuse, lack of resources for proper maintenance); reduced self-esteem; reduced trust in government; high taxes; and an eroded urban tax base.

Are these new issues? I think not! These are the issues that were prevailing at the turn of the century when our park and recreation movement began. Just a brief history - there were

four thrusts of the movement: community recreation; state and national parks; non-profit agencies; and private/commercial recreation. The first three developed very early in the century. Private/commercial recreation began to come into its own after World War II. Who were some of the early leaders of the movement? Frederick Law Olmstead, Jane Addams, Richard Lieber, and Steven Mather. They were social forces in our society. They understood the benefits of their actions. They provided services and protected resources for the benefits they would provide people. An excellent example would be Sid Lutzin, who for years **was** the New York State Youth Service Bureau. He parlayed millions of tax dollars into the "prevention of juvenile delinquency." What tools did he use? -- recreation services and facilities. Recreation was a means to an end or a benefit. In the evolution of the movement, the people involved, for whatever reason, wanted society to believe recreation was an end in itself. They focused on "fun" and "enjoyment," etc. In so doing the perception of recreation changed from a "benefit" to a "frill" -- something society could do without, particularly during tough times.

During my year as president of the National Recreation and Park Association, I had the distinct opportunity to hear Dr. John Crompton from Texas A&M University on several occasions. He has a message about how we must focus on the benefits of what we do, which is very thought provoking and worth hearing. He says that we must reposition ourselves so the services we offer "are perceived to be a central contributor to alleviating the major problems in a community identified by its residents and decision makers." We need to communicate what we do in terms that our customers, visitors, and clients understand and value.

There is not time to address all the issues outlined in today's scene, which I just described. I will focus on a few which I believe may be of greatest concern and in which we can and do play a central role. Let's look at:

- Changing demographics
- Economic development
- Youth crime
- Unemployment and homelessness
- Health and wellness
- Environment

As I proceed, I may use personal experiences as examples for illustrative purposes only. They are not intended to be models.

Changing Demographics Cultural Diversity

We have often heard the United States referred to as a "melting pot", or as I prefer it, a "fondue pot", where everything melts together into an unidentifiable one. Today, in reality, it is a "stir fry" where every ingredient retains its identity, but mixed together, creates a "delicious dish". That is the United States today. There are those who resist that concept. The "official language is English" movement is a good example. The United States today should be a celebration and preservation of our diverse cultural heritage.

How many of you avoided taking a "foreign" language in school? I tried to. I was exposed to German as I grew up, but I considered it unnecessary at the time. I had the distinct privilege to serve on the accreditation visitation team for the first Canadian institution to successfully seek accreditation in our U.S. program. The University of Ottawa is a bilingual university by charter. The faculty conducts classes in both English and French. Many of the documents that the team had to review were in French and not translated into English. It was embarrassing to me, coming from a state contiguous to the Province of Quebec and serving many French Canadians in our State Park system, which I manage. There is a certain arrogance in my situation that is disturbing. Our country is a mecca for travelers from other countries around the world. The Germans are coming to the Northeast. The Japanese are traveling everywhere. We need to think globally. We need multilingual staff, information, and research.

Aging Population

I feel certain that you all have read and heard much about our aging population, but there is a changing perception and changing needs. Picture a 93 year old woman running the 100 meter sprint in the Senior Games this year. She has already competed and won several medals in her age group and there are many ready to compete against her. Many in the aging population will spend more time in retirement than they did in their work life. They need special programs and services beyond recreation activity (housing, nutrition, health and wellness, transportation, and income maintenance, to name a few). We have a role to play here in addition to providing recreation services. There is a wealth of knowledge, talent and skill in this age group that needs to be utilized in a productive manner, not wasted in idleness. We need research. We need to think in terms of partnerships.

Redefining Lifestyles

Much has been about this scene. It can best be described as enforced leisure, limited work, less affluence, inexpensive leisure pursuits, two-income households, more females in the work force, two-job individuals, part-time employment, entrepreneurship, early retirement, unemployment, changing vacation patterns, year-round schooling, and economy of restraint. Do we have a role to play in all this? You bet we do - a very important role. We need more research. We need to pursue partnerships.

Economic Development

Dr. John Crompton says public recreation is the driving force in developing the economy of an area or community. We manage major attractions which bring visitors. Think how much a regional softball tournament sponsored by the local recreation and park department contributes to the economy. Recreation and parks attract "footloose" businesses, those not tied to a particular resource or infrastructure, looking for a "quality of life" for employees. Recreation and parks attract retirees, many of whom are relatively affluent. Recreation and parks are an integral part of urban rejuvenation projects. Recreation and parks enhance property values. Retail growth is dependent

upon public recreation facilities and programs. If you start a lacrosse or aerobics program that has not existed before, the participants need to purchase equipment and apparel which the local merchants need to stock. Recreation and parks are usually environmentally friendly.

Youth Crime

There are many efforts and programs that we can create or participate in to help alleviate this situation: first offender and court diversion programs; Youth Conservation Corp; leisure counseling; literacy; mentors, and on and on. We need to provide outreach, constructive programs, atypical schedules and programs, and opportunities for healthy social relationships, a sense of community; increased self-esteem, and a sense of accomplishment.

Unemployment and Homelessness

The needs here are many, and we have a unique role to play. There is a need for atypical schedules and programs, employment counseling, psychological support, physical fitness, temporary counseling, psychological support, physical fitness, temporary shelter, meals, health services and, most of all, research. Again, there may be a lot of knowledge and skill among this segment of the population. We have the opportunity to help develop feelings of self-worth and contributing to the community.

Health and Wellness

Can we contribute to cost reduction, longevity, psychological well-being, weight and substance abuse reduction, self-discipline, and education about nutrition? A fitness lifestyle is no longer considered as recreation, but a necessary part of living. We need to think in terms of partnerships and more research.

Environment

At times I sound like a real "green sneaker" environmentalist, but actually I am more of a pragmatist. What I am most interested in is providing the same opportunities for our nine grandchildren and their grandchildren that I have enjoyed. I want them to be able to swim in the brook or pond without becoming ill, eat the fish they catch, and to be able to see the horizon when they climb to the top of the hill or mountain. The primary purpose of clean air, clean water, and natural landscapes is recreation - to be able to enjoy all the benefits that these outdoor amenities offer. Dr. John Crompton talks about the research of one of his colleagues that clearly demonstrates the value of viewing a natural landscape to the rapid and complete recovery of surgery patients in a hospital. Frederick Olmstead created Central Park for the health benefits that would accrue to the citizens of New York City. Leisure is moving outdoors with the ecotourism movement. But we have a much broader role to play. We should be the models for energy conservation, purchasing practices, in construction and maintenance, and use of hazardous materials, etc. Our community centers can be the repository for recyclable materials. We should be composting garbage from our snack bars and grass clippings and leaves from our facilities and giving it back to the community to put on their flower beds and

gardens. We could be providing technical assistance on how to combat insects and weeds without using hazardous substances and how to prune trees and shrubs. There is much we could contribute to a healthy environment in our communities. Education is extremely important and we have a role to play. In our parks in Vermont we have a carry in/carry out rubbish policy in day use areas and a highly sophisticated waste separation and recycling program in campgrounds. They not only help improve the environment and educate the public but help reduce our cost of operation. We are experimenting with electric powered vehicles. There is much we can do.

In conclusion, let me go back a few minutes. In the comic strip by the same name, some years back, Pogo said, "We have met the enemy and it is US". Recreation is moving away from government, and leisure needs are moving away from what government has traditionally done best - providing facilities and formal, structured programs. We have not only resisted it, but we have resented it. Government is really in the facilitating and enabling business, but we have lost sight of that. Recreation as an independent service is declining and we are strongly resisting it. We have failed to strongly establish ourselves as an **essential** service. We have general ignored our close relationship to other social services and private business. **WE are our own worst enemy!** Dr. Crompton continues, "It should be emphasized that repositioning does not necessarily involve radical changes in the type or nature of services that agencies offer. Rather the task is to demonstrate and then communicate the benefits these services offer, in terms that consistently align and associate them with alleviating community problems".

We have a multitude of opportunities being presented to us, but we need a positive attitude and the fortitude to open our minds and senses and seize those opportunities. If we are to make a substantial contribution to society as we approach the turn of the century, it is time for a renewal of leadership. We recall the leadership qualities of the pioneers of our movement. Today, as then, we need leaders in our profession who are innovators, creators, enablers, facilitators, risk takers, peacemakers, negotiators, coalition builders, visionaries, organizers, planners, implementors, evaluators, researchers, contributors -- all wrapped up into one. I leave you with that **CHALLENGE!**

MOUNTAIN BIKING

RECREATIONAL CHALLENGE AND ENVIRONMENTAL EFFECTS OF MOUNTAIN BIKING

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In a few short years, mountain biking has become a major outdoor recreation. This study provides an approach to map and evaluate recreational challenges and environmental effects of mountain biking trails. It is applied to eight trails in the Western US. The results indicate the relationship between experience and impact varies for different trail surfaces.

Introduction

Mountain biking is a physically demanding outdoor recreational activity that has grown rapidly in the past decade (Ruff & Mellors 1993). It began about 20 years ago in the mountains of Marin County, California. Back then, equipment and trails were makeshift. Today, it is a national pastime which supports a multi-million dollar industry. A recent Roper Starch Worldwide survey for the Recreation Roundtable found 5 percent of Americans participated in mountain biking, an amount comparable to horseback riding, downhill skiing, or off-road vehicle driving (New York Times 1995)

The sport consists of riding specially-equipped bicycles over unpaved and unimproved land. Tracks vary from quick, intense down-hills, and long, seemingly endless distance trips, to very slow, articulated, climbing trails. Because of the diversity of acceptable trails, mountain bikers can turn any place into a challenging course.

A survey of mountain bikers found them to be largely "young, highly educated, affluent males from urban areas" (Chavez 1994 and this volume). On the average, respondents rode trails on National Forests about 20 times a year. Most spent two-thirds of their time riding off-road. They preferred trails, abandoned roads, or fire roads, and gravel roads in more mountainous areas. Over 80 percent of the mountain bike activity was informal and not associated with an organized event.

Mountain biking is a spontaneous, vernacular activity. Trails are typically formed when bikers see an area they think might be good for biking, so they try it out. If they like it and do not get chased away, word of mouth makes it more known. Users will lay out a trail to incorporate desirable traits and avoid undesirable traits. In fact, on more difficult passages on most trails, one can often see numerous optional routes. This provides multiple challenge levels for users over a wide range of skills.

There are three factors inherent to the rider that effect recreational experience and environmental impacts to the trail system. The first factor is knowledge -- the rider's awareness of the potential for damage caused by his use or misuse. The second factor is skill -- the rider's physical ability to avoid damaging the trail. The third factor is attitude -- the rider's desire to care for, appreciate, and nurture the environment, including native flora, fauna, and other trail users. Managers can indirectly influence each of these factor through surveys, education materials, or other techniques. However, a more direct approach is for managers to apply an objective trail rating system that aids them in opening hardened, damage-resistant trails, and closing vulnerable ones.

This study develops a formal approach to assess the appropriateness of sites for mountain bike usage. Two perspectives are taken in assessing eight well established trails. On the one hand, these trail are evaluated from the perspective of the user: how are they laid out, what features do they offer, and how challenging are they. On the other hand, it evaluates their impact on the environment: what impacts do they have on the vegetation, how do they relate to the terrain and drainage. This study presents an approach for mapping trail attributes related to recreation experience and environmental damage. A weighting scheme is used to create experience and damage indices for a specified trail segment. These results can be used by both recreationists and managers to improve the mountain biking experience.

Methods

A list of trail features was developed based on personal experience and a review of the literature. In particular, the masters thesis work of Hopkins (1994) that was presented at the 1994 NERR meeting was particularly helpful in developing the rating scheme in table 1 for experiential attributes. The environmental damage rating scheme in table 2 uses features identified in trail organization and agency studies.

A set of symbols was developed to represent these experience and damage features. A trail map field sheet was created from existing maps for each of the eight study sites. The feature symbols were drawn on these field maps to indicate the location of trail features. Supplementary notes were made as necessary.

Table 1. Index points for trail features to rating recreation experience.

Symbol	Feature	oints	Description
	log (crossing)	2	crossed log > 3" thick
	log bridge	1	traveled along > 3'
	water bar	2	constructed erosion control, w/ positive effect
	snow/ice	3	snow or ice > 1" thick
	water crossing	2	unbridged, > 6' wide
	boulders/rocks	4	> 6" diameter
	boulders/rocks	2	< 6" diameter
	slick rock	3	hard smooth surfaces on natural rock, > 10' long
	switchback	3	both tangents > 10' long, on a slope of > 15%
	singletrack	4	winding path < 5' wide and > 30' long
	sand/pumice	1	> 30' long, 4" deep
	dirt roads(straight)	1	double track
	dirt roads(winding)	4	curves with included angles > 10 °, > 100' long
	fast downhill	5	> 10% slope, 100' long
	technical sections	4	> 6 obstacles within 100' of trail, < 10% slope
	technical descents	3	technical section, > 10% slope
	loop trail	1	easily oriented to beginning
	muddy section	1	saturated soil > 10'
	ascent	1	> 10% slope
	technical ascent	1	> 10% slope and 6 obstacles within 100' of trail
	natural area/vistas	4	> 200' of trail
	washboard surface	1	> 10' length of constructed washboard surface

Table 2. Index points for trail features to rating environmental impact.

Symbol	Feature	oints	Description
	compaction	1	visibly depression compared to adjacent land
	erosion: washout	4	length of trail with > 2' of edge breakthrough
	erosion: washdown	3	> 10' of trail is a stream bed (gravel/pebble deposits)
	sedimentation	2	> 10' of visible fluvial soil deposits by trail
	saturation: mudhole	2	saturated soil > 10'
	saturation: water	3	water standing atop saturated soil > 10'
	veg. damage: major	4	destroyed root systems
	veg. damage: minor	2	broken twigs/leaves
	wildlife damage: major	5	damaging critical nesting areas
	wildlife damage: minor	3	spooking animals who are out foraging
	wildlife damage: illegal	5	riding in designated wilderness areas, defined and posted by recognized org's
	waterbar	2	constructed erosion control w/ negative effect/hazard

Table 3. Summary of characteristics for mountain bike trails.

Site	Features per mile				
	Experience	Impact	Skill	Context	Surface
Deerfield Lake Loop	52	11	Adv'd	Forest	Soil
Moab Slickrock Trail	124	3	Adv'd	Rocky	Rock
Matthews Winters Pk.	74	2	Adv'd	Rocky	Rock
Elk Meadow	31	2	Begin	Forest	Soil
Black Canyon	7	1	Begin	Rocky	Gravel
For. Dev. Road 291	3	1	Begin	Forest	Gravel
Kokopelli's Trail	7	1	Adv'd	Rocky	Soil
White Rim Trail	6	0	Adv'd	Rocky	Rock

The length of the study segments was determined from the trail maps. The feature ratings were summed and then divided by the number of miles in the segment. The result is an experience and a damage rating for a standard mile length of trail.

Study Site Characterization

Eight study trails were surveyed during the summer of 1994. The trails were identified by word of mouth, and are in no sense a random sample. Table 3 summarizes the number of experience and impact features per mile, their skill rating, the character of their surrounding context, and the type of trail surface. The following descriptions provide a better sense of each trail's character.

Moab Slickrock Trail

This trail is in Utah on a plateau between the Moab fault and the Colorado River. It consists of petrified dunes, made up of Navajo Sandstone. The round wind-eroded, cone like shapes are what make this trail the intense roller coaster ride that it is. The Slickrock Trail is a trail for experienced, qualified riders. At many points of the trail, a fall in the wrong direction could prove disastrous.

The Slickrock Trail was established in 1969 on Bureau of Land Management land. It was originally laid out for motorcycles and Jeeps. The trail became dominated by mountain bikers in the last 6 or 7 years, seeing 10,300 mountain bikers in 1993.

As indestructible this trail appears, there are several guidelines that users should adhere to. First, users should stay on the designated trails. There are pockets of vegetation dotting this semi-desert landscape, that when even mildly damaged take a very long time to recover. Second, users should avoid riding through and/or bathing in potholes. Rain-filled natural basins in the rock are teeming with microscopic crustaceans and amphibians. In order to survive, they need the water to be in the potholes and to remain free of contamination by chain lube, sunscreen, insect repellent, and other biking related substances. Third, users should avoid skidding tires. Not only does this mar the beauty of the place, but skidding indicates a loss of control which can be dangerous on this particular trail.

Elk Meadow Park

This site is part of the Jefferson County open space system. It is located approximately 20 minutes southwest of Denver, near the town of Evergreen, Colorado. This park offers trails for a variety of users. The trail will take you up the side of the hill into a forest setting. This is an excellent site for mountain biking, as there is sufficient variety for the type and difficulty of riding one desires.

Matthews Winters Park

This is another Jefferson County park site located southwest of Denver. It consists of a ridge, which marks the beginning of the front range foothills. Portions of the Red Rocks and Morrison Slide trails were studied. This trail is very technical in nature, and provides a very strenuous ride that is popular

among local mountain bikers. These trails are designed to minimize conflicts. The trails are designed to make it undesirable for the uninvited user to ride the wrong way. An example is placing obstacles (water bars, gates, steps) on the trail segment to create an unpleasant experience for mountain bikers, thus encouraging them to bike on the nearby alternative. This site works well for the regular use it sees. It provides a challenging ride for an experienced rider, while being able to sustain minimum wear and still offer its opportunities to other types of users as well.

Forest Development Road 291

The trail is in the Black Hills National Forest, South Dakota. The Forest service maintains these roads for access for fire control, logging, management, and recreation. The studied segment was a level, gravel road providing access to a campground and private residences. The layout of the road provided several great views of the Black Hills NF, while having a minimum of trail related features. This a very easy trail to ride, which has a minimum impact on the surrounding environment. One of the reasons that there is so little impact from this road is the portions of it that are prone to damage had washboard base under the gravel. This is necessary, but is usually undesirable to mountain bikers.

Deerfield Lake Loop

This trail is also in the Black Hills National Forest, South Dakota. It is designated specifically for mountain bikes. It consists of a 10 mile loop around a reservoir, which tracks through several campgrounds. It appears to be adapted from an existing hiking trail for mountain bike use. This result is best for experienced, advanced riders.

There seems to be an extraordinary amount of trail breakdown, but it seems to be due more to the natural character of the terrain than to poor trail design. A high rate of erosion causes water bars to become quite deep and hazardous to riders. Several gates separating grazing areas are encountered along the trail. They are designed for mountain bikers, being easily open with one hand, and closing themselves after the biker passes through.

Black Canyon of the Gunnison

The Black Canyon was created by the Gunnison River, as it cuts across Southwest Colorado to join the Colorado River. The Canyon itself is 53 miles long, with the deepest portion being designated as a National Monument. The portion studied was North Rim Drive, the less popular and lesser developed half of the Monument. The Park Service's policy regarding the use of mountain bikes within the Monument consist of the basic rule of staying on the road. The road was designed for vehicle traffic, so it is a relatively easy ride with immediate access to many features. It made for a nice outing, interspersed with breaks for observing views, rock formations, and other natural features of the place.

Kokopelli's Trail

Kokopelli's Trail is a 139 mile back country trail that stretches from Loma, Colorado, to Moab, Utah. The segment studied is the Northern most portion. It is located between Interstate 70,

near Loma, Colorado, and the Colorado River, which it tends to follow. Most of the trail in this segment crosses the shale cliffs.

When first comparing the rating for this trail to others, it is easy to get mislead that there are not many features to this trail. Quite to the contrary, this trail has many features, but they are just spread out over many miles. The mix between technical challenge and long scenic stretches makes for an excellent bike ride. This segment allows for a wide variety of opportunities, from quick afternoon outing, to a 3-day bike camping trip. Long outings are facilitated by numerous access points along the length of the trail system.

White Rim Trail

This site consists of a 91 mile length of unpaved road along the canyon edge above the Green and Colorado Rivers in Canyonlands National Park, near Moab, Utah. As a mountain bike trail, it is often experienced as a multi-day outing. Along the trail, there are two primitive campsites. Reservations for this sought after outing are usually booked years in advance, for prime seasons.

The trail is used mostly by off-road vehicles and mountain bikes. The only amenities are two primitive campsites with chemical toilets; the nearest available drinking water is located approximately 20 miles away. The only rule is to stay on the trail at all times. This is crucial for the same reasons as at the Slickrock Trail. The White Rim Trail is well designed to provide a challenging and enjoyable ride with little impact to the environment.

Experience and Impact Mapping

Figure 1 shows the experience and impact feature map of a 6 mile segment of Kokopelli's mountain bike trail. The map is created from the orientation of a rider going west; from the top to the bottom of the page. The ride begins with an ascent (1 experience point) on a double track dirt road (1 experience point). Shortly, to the north there is a vista (4 experience points) and to the south temporary damage to vegetation (2 impact points). The trail features are thus recorded for the full 6 mile segment. There are a total of 46 experience and 9 impact points, or a per mile rating of 7.6 experience and 1.5 impact points for this segment.

A full map would let the potential mountain biker know that this is an advanced trail. It would also inform the recreation manager that while the impact of this trail is not severe, the intensity of use is starting to cause some vegetation damage.

Relation between Experience and Impact

The number of experience and impact ratings (i.e. points per mile) is reported in table 3 for each of the eight study sites. There is a wide range in the experience ratings, and to a lesser extent of impact ratings. These sites also offer both beginner and advanced skill opportunities, trails through both forested and rocky settings, and trail surfaces that are predominately

rock, gravel or soil. With such variety and only eight sites, any statistical conclusions must be considered exploratory.

An investigation of these data, as well as a rereading of the trail notes, indicate that the relationship between the experience and impact ratings differ for trails with hard and soft surfaces. A plot of the experience and impact ratings is shown in figure 2. This figure also distinguishes between trails with hard rocky or gravelly surfaces and those with softer soil surfaces. The two lines represent the linear relationship reported in table 4 between experience and impact for hard and soft surfaced trails.

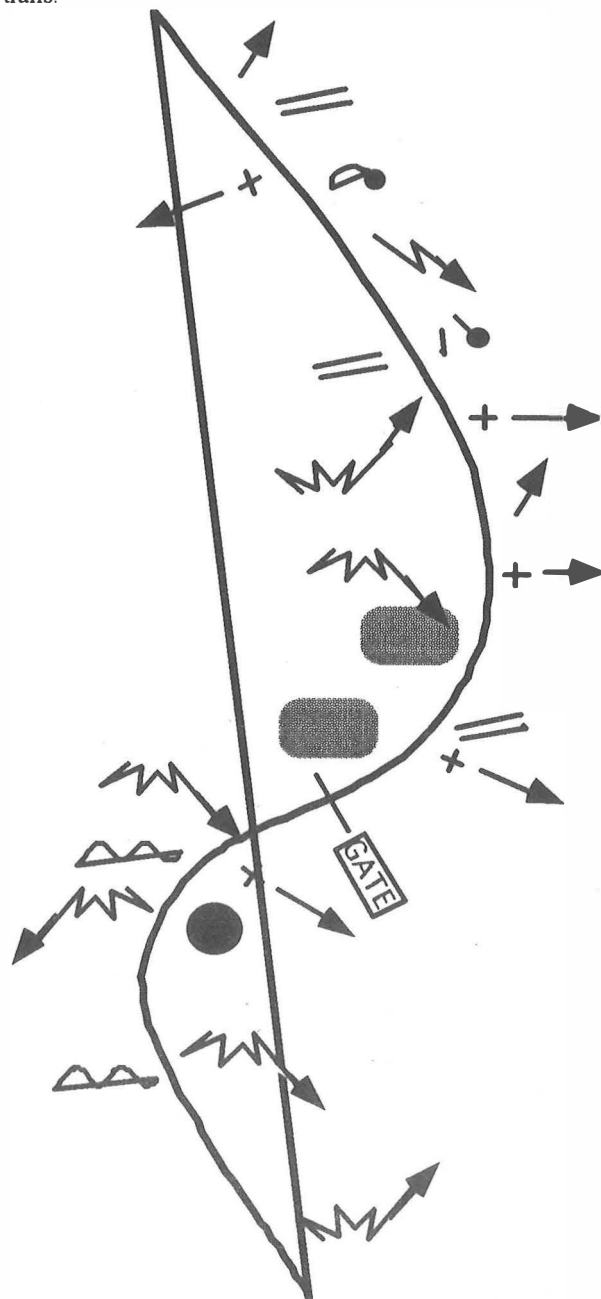
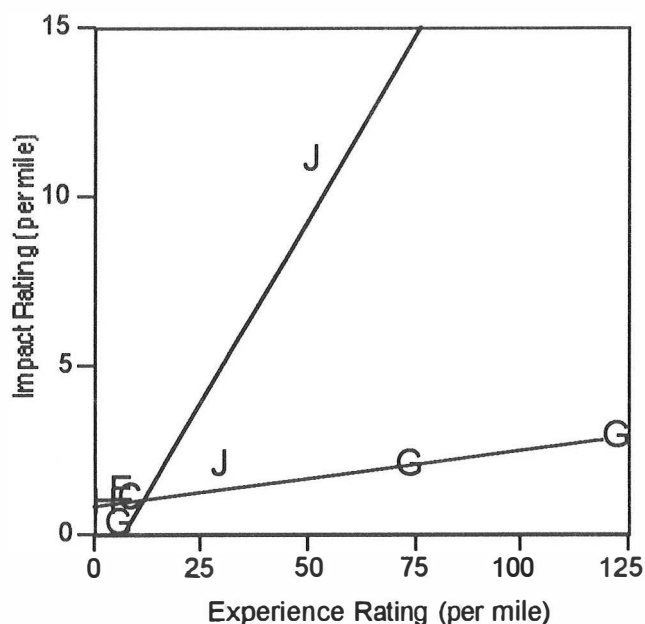


Figure 1. The feature map of a 6 mile segment of Kokopelli's mountain bike trail.



Context	Surface		
	Rocky	Gravel	Soil
Forested	B	H	J
Rocky	G	C	E

Figure 2. The relationship between experience and impact feature for sites of different context and surface condition.

Table 4. Results from regressing experience (x) onto impact (y) features for hard and soft surfaced trails.

Statistics	Trail surface	
	Hard	Soft
constant	0.563	-1.872
standard error	0.287	3.907
t-ratio	1.96	-0.48
probability	0.145	0.716
beta (experience)	0.020	0.218
standard error	0.004	0.111
t-ratio	4.40	1.96
probability	0.022	0.300
R-squared	0.866	0.794
R-squared (adj.)	0.821	0.588
probability	0.022	0.300

These regression equations can be interpreted to describe the expected impact rating a trail will have given a specific experience rating. The relationship suggests that the five hard surface trails begin with a .56 impact rating, which increases one unit for every increase of 50 in the experience rating. This regression explains over 80 percent of the variation in data points and is statistically significant ($p = .022$). The three soft surface trails begin with a -1.87 impact rating that increases one unit as the experience rating increases by approximately five points. While this relationship is strong, it is not statistically significant ($p = .300$) due to the limited sample size.

Conclusions

This exploratory study has demonstrated the application of a mapping system to record experience and impact related features along mountain biking trails. These maps can be used to inform users and potential users about the type of conditions they will encounter using a trail. These features can also be translated into ratings that can be used in several ways by trail managers. For instance, this approach to mapping and rating can aid in the planning and design of challenging trails. It can be used to determine difficulty levels for trails, such as are used for down-hill skiing and white water canoeing. As this study demonstrated, there is a significant relationship between the ratio of experience to impact ratings and the trail's surface. As this relationship is explored further, knowledge about surface material can be used to locate trails and design mitigation measures. If managers map the same trail segments at regular time intervals, they can then assess the changes in the level of impact to a trail over time. It is likely that there are additional ways that managers could use these tools to compare planned or existing trails.

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INFORMATION SOURCES AND ATTITUDES OF MOUNTAIN BIKERS

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The sport of mountain biking is relatively new and rapidly growing, producing a large number of participants with a relatively small amount of experience. The attitudes of bikers are more heavily influenced by reference groups and expert sources, such as popular magazines devoted to the sport, than by the individual's personal experiences. The attitudes of respondents in this survey were more accurately predicted by choice of information source than by levels of personal experience.

Introduction

Mountain bicyclists represent a relatively new user group currently attempting to establish a place in the plans of outdoor recreation managers. This has not always been an easy process, as more traditional users of trail systems have experienced conflicts and unpleasant encounters with bikers utilizing trails in a very different manner. Mountain bikers have somewhat different motives for engaging in their activity than hikers or equestrians (Hendricks & Ramthun, 1993). Often mountain bikers are seeking challenges and may ride their bikes in a manner that may lead other trail users to express safety concerns. In addition to safety concerns, many other trail users and land managers believe that mountain bikes are particularly damaging to trails and trailside environments (Grost, 1989). These fears and concerns have led some other users of trails to register complaints about mountain bikers and in many cases land managers have responded to these complaints by placing limits on trail use or access by mountain bikes (Badaracco, 1991; Leaf, 1983).

Mountain bikers have expressed concerns about continued access to lands and regulation of their activities by land managers. While mountain bikers rarely perceive conflict during encounters with members of other user groups, they do believe that other trail users are too possessive of trails and are working against the interests of mountain bikers (Schuett & Hollenhorst, 1994). Schuett and Hollenhorst's finding, in conjunction with other research indicating that mountain bikers rarely experience conflict caused by the behavior of other users (Ramthun & Ruddell, 1994), raises the question of how

mountain bikers develop negative attitudes toward other user groups while not actually having unpleasant encounters with them.

Social-psychological research on attitude formation suggests that the sources of information that an individual uses to learn about a subject are powerful influences on the individual's attitudes toward that subject (Hovland & Weiss 1952; Petty & Caccioppo, 1986). Some sources of information are more powerful than others. An individual's reference group is an especially persuasive influence on attitude, as is any source that may be deemed "expert". Sources that may be considered expert, and therefore especially credible, may include books, magazines, newspapers, or television reports (Sears, Peplau, Freedman & Taylor, 1986).

The literature on attitude formation suggests that attitudes are also influenced by on-going personal experience with the subject of the attitude. While experience use history has been a very useful predictor of attitudes in previous outdoor recreation research, mountain bikers represent a unique situation. The relative youth of the activity and its current exponential growth have created a situation where many participants in the activity have only recently taken up the sport.

The attitudes and beliefs that mountain bikers hold about land management agencies and other user groups will ultimately determine how bikers will work with land managers and other user groups. The purpose of this study was to examine potential influences on the attitudes of mountain bicyclists. The primary hypothesis being tested in this study is that information sources will be significant predictors of attitudes while experience variables will not.

Methods

Data were collected from 161 respondents utilizing on-site surveys. Respondents were primarily male (75%), young (mean age = 23 years), and fairly new to the sport of mountain biking (mean years of participation = 3.2). Data were collected from mountain bikers at trailheads in and around the Jefferson National Forest in southwest Virginia. The low mean age of the respondents may be attributed to the proximity of Radford and Virginia Polytechnic Universities. A very high percentage of respondents appeared to be college students.

Individuals were asked to respond to a series of items measuring the following independent variables: years of experience in mountain biking, personal experience of conflict with members of other user groups, membership in mountain biking organizations, use of mountain biking friends as a source of information, and use of mountain biking magazines and periodicals as a source of information. Individuals were also asked to indicate their level of agreement with a series of

statements concerning public access, other user groups and land management agencies. The attitude statements that were used as dependent variables were based on comments and statements derived from a review of popular mountain biking periodicals. The bikers' level of agreement with the statements was the dependent variable. Agreement with the attitude statements was measured on a five point Likert scale with 1 representing no agreement and 5 representing strong agreement. A series of stepwise regression analyses were conducted to measure the association of these attitudes with the bikers' reported sources of information about their sport.

Results

Respondents tended to agree that efforts to limit trail access were based on other groups misconceptions about mountain biking and this attitude had two statistically significant predictors (see Table 1). The attitude that other user groups have more political clout than bikers had two significant predictors (see Table 2). Respondents agreed with statements suggesting that other user groups wanted to limit access for bikers in order to maintain areas for their own use. This attitude also had two significant predictors and was the only attitude in which an experience variable was significant (see Table 3). Respondents also tended to agree that land management agencies were more responsive to other user groups with variance in this attitude being predicted only by magazine reading (see Table 4). Reading mountain biking magazines was a significant predictor of three attitude statements. Acquiring information from friends who bike was a significant predictor of two attitude statements, while membership in a biking organization was a significant predictor of only one attitude statement. Of the two experience variables regressed on each of the attitudes, personal experience of conflict was a significant predictor of one attitude while years of experience was not a significant predictor of any of these attitudes.

Table 1. Results of Regression Analysis I.

Dependent variable: I believe efforts to limit trail access are based on misconception about the activity (Mean = 3.24 SD = 1.2).

Independent Variable	Multiple R	R ²	P Value
Friends	.230	.053	.003
Membership	.294	.086	.0009

Table 2. Results of Regression Analysis II.

Dependent variable: I believe that other user groups are better organized and have more political "clout" than bikers (Mean = 3.05 SD = 2.19).

Independent Variable	Multiple R	R ²	P Value
Friends	.257	.066	.0011
Magazines	.304	.092	.0005

Table 3. Results of Regression Analysis III.

Dependent variable: I believe efforts to limit trail access are based on other user groups desire to have desirable areas strictly for their own use (Mean = 3.5 SD = 1.2).

Independent Variable	Multiple R	R ²	P Value
Magazines	.340	.115	.0000
Conflict	.373	.139	.0000

Table 4. Results of Regression Analysis IV.

Dependent variable: I believe that local land use agencies, such as the USDA Forest Service, are more responsive to other user groups than they are to bikers (Mean = 3.06 SD = 1.18).

Independent Variable	Multiple R	R ²	P Value
Magazines	.378	.143	.0000

Discussion

Much of the social-psychological research on attitude formation and attitude change focuses on the sources of information available to the individual (Petty & Cacioppo, 1986). This study suggests that the attitudes of mountain bikers toward management agencies and other user groups are heavily influenced by the popular literature of the sport. This is consistent with the view that these types of sources are regarded as "expert" by a large percentage of readers. Reference groups also have some influence. Membership in a mountain biking organization is less related to attitudes than other information sources. Years of experience was not a significant predictor of any of the dependent variable attitudes. A personal experience of conflict with other user groups was a

significant predictor of only one of the dependent variable attitudes.

Implications for Managers

In a sport such as mountain biking, which is currently demonstrating incredibly rapid growth, the majority of participants are new to the sport. They have not had an opportunity to be indoctrinated into the sport gradually, as often happens with anglers, hunters, campers, and other traditional outdoor recreation user groups. In an informal focus group prior to this study, the author asked a group of mountain bikers the question "How do you learn about your sport?". The two most common answers were that information was gained from biking friends or by reading the popular magazines devoted to the sport. Until these participants have acquired more personal experience and been exposed to a wider variety of information sources, the information acquired from peers and from popular literature will have a powerful influence on their attitudes and decisions.

While there is little that a land manager might do to assess the attitudes being reinforced by reference groups, mountain biking magazines do offer some insight into the attitudes and beliefs that are currently extant in the mountain biking community. The review of that literature that was done for this study suggests that mountain bikers (or at least the ones who write in magazines) have a basic distrust of the motives of land managers and other user groups. This distrust seems to be associated with a belief that mountain biking access to trails and recreation areas is being unfairly limited. In fairness to the mountain biking magazines, these publications also readily acknowledge that many bikers ride irresponsibly and the promotion of good trail etiquette is a frequent theme in these publications.

Land use planning is a process that usually requires public input through a process of hearings or focus groups. In situations where this public participation process may affect the interests of the mountain biking community, land managers should anticipate increased involvement by the growing number of mountain bikers with a stake in these decisions. It would be beneficial for managers to be aware of some of the attitudes and values common to this user group and take these attitudes into consideration in the process of making decisions. The popular literature of the activity is a simple way to gain some insight into this new and evolving user group.

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BICYCLE TOURISM DEVELOPMENT IN THE ADIRONDACK NORTH COUNTRY REGION OF NEW YORK STATE

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In order to obtain information on how to entice bicyclists to the region, the Bicycle Master Plan study team undertook a two part survey effort. The study team designed one questionnaire specifically for the lodging industry in the Adirondack North Country region. Another questionnaire was developed for bicyclists and other tourists to the region. The two survey efforts provide a unique opportunity for comparative analysis of service providers and potential visitors. The summary and recommendations based on the survey results provide guidance to interested tourism organizations and bicycle-related businesses on the most cost effective means of developing promotional materials, and offer insights on a regional marketing approach focused on bicycling.

Introduction

For the Adirondack North Country region, the economic potential for increased tourism exists in the form of vacations with a bicycling focus. The region is replete with beautiful scenery, mountains, lakes, and has a significant historic and cultural heritage. The lodging industry is well rooted in the area with accommodations ranging from bed and breakfasts to campgrounds, small inns, motels/hotels, and Adirondack Great Camps. For the bicyclist, there already exists a network of highways and roads highly desirable for bicycling touring. A recent increase in the number of bicycle shops in the region will provide the technical support necessary for individuals and

groups touring the region.

With the passage of new federal transportation legislation in 1991, bicycling planning began in earnest in many cities around the country. The Adirondack North Country Association (ANCA), a regional not-for-profit dedicated to increasing business development and improving quality of life, recognized that New York's North Country region would benefit from a bicycle planning effort. However, the urban focus of most contemporary bicycle planning did not address the needs and concerns of the rural North Country where tourism and natural resources are major sources of employment. In 1993, ANCA proposed to the New York State Department of Transportation (NYSDOT) that a bicycle planning effort be developed for the 14 county North Country region.

There are a number of bicycle studies that have attempted to quantify the economic impact of bicycling in local economies. Overall, previous research demonstrates the potential positive economic impacts of bicyclists and bicycling on local economies, with the impact being felt by local merchants in restaurants, retail stores, bike shops, and the lodging industry. Some of the findings of these studies listed in Table 1, and are briefly described below.

Studies of the Summit County, Colorado recreation trail system found that an estimated \$4.3 million was spent in 1989 by people using the trail system, primarily for bicycling. The average expenditure per person per day was \$50.56 for all respondents, while the average for out-of-state users was \$99.66 per day. Approximately 16% of the users were from out-of-state. The number of users on the pathway increased an average of 28% per year between 1986 and 1990. The pathway user count was projected at 212,779 in 1991 (Summit County Community Development Department 1989, 1991).

A study done in Pennsylvania: *Allegheny Valley Rail-Trails Feasibility and Development Plan* assessed the economic impacts of bicyclists to the local economy (Lord and Strauss 1994). Based on survey data, users of the Oil Creek State Park trail spent an average of \$25.85 per person per day (PP/PD) for a total economic impact of \$1.8 million annually. Two-thirds of the 22,700 visitors in 1991 came from out-of-state.

Within the Adirondack North Country region, a detailed economic analysis of the GEAR '92 event (Great Eastern Rally of the League of American Wheelmen) held in Canton, New York August 7-10, 1992, found that the average participant spent \$232. That translates to a per person, per day average of

Table 1. Summary of research findings on bicyclists' expenditures.

Average Daily Expenditure				
Location	Type of Bicycling	Year	per Person	Source
Colorado	Day use: trail system	1989	\$51-\$100	Summit County (1991)
Pennsylvania	Day use: trail system	1991	\$26	Lord & Strauss (1993)
Canton, NY	Bicycle Rally	1992	\$77	Lally (1992)
Vermont	Bicycle Touring	1992	\$115	Burgess (1992)

\$77. The total direct economic impact in the community of the 1,378 participants was \$319,696. The average income of participants was about \$60,000 (Lally 1992).

Finally, in research directed specifically at bicycle touring, as in the research carried out for this project, the owner of a successful bicycle touring business in Vermont estimated that in 1992, 32,500 out-of-state bicycle tourists in Vermont contribute as much as \$13.1 million to the state's economy. Of the total expenditures, lodging comprised 30%, food 21%, bicycle services and outfitters 22%, and personal expenses the remaining 27%. Additionally, the employment and indirect expenditures of bicycle touring companies contribute significantly to the local communities where they are located. In 1986, a Vermont bicycle touring company was sold for \$1 million; another was sold in 1987 for a reported \$3 million (Burgess 1992).

Purpose Of The Study

The purpose of the Adirondack North Country Bicycle Master Plan project was to develop a regional bicycle plan that clearly demonstrated the community benefits and economic value of local bicycle planning efforts, and that outlined the next steps necessary for creating bicycle friendly communities and for promoting the regional Scenic Byways System as the means for establishing the region's reputation as a bicycle tourism destination.

In order to realize these goals, the project consisted of the following eight distinct work objectives:

1. An inventory of highway corridors, including identification of major features, inventory of services and facilities, and identification of necessary structural improvements related to bicycling.
2. Compilation and use of existing geographic information system (GIS) digital data for the region.
3. Review of local, regional, state, and national programs for bicycling.
4. An economic analysis of bicycling in the North Country region.
5. The development of a master plan document and associated maps.
6. Strategic analysis and recommendations for promoting bicycling in the region and along the Scenic Byways.
7. A questionnaire survey of B&Bs, inns, lodges, hotels, and campgrounds in the 14 county region, with accompanying economic analysis and discussion of the industry's relationship to bicycling.
8. A questionnaire survey of people who have taken bicycling vacations, with accompanying economic analysis and

evaluation of the North Country's appeal to the bicycle tourist.

The focus of this paper is on reporting the main findings from work objectives 4, 7, and 8, and highlighting how survey research can effectively be applied to tourism planning in rural areas.

Method

There are at least four types of information necessary for determining how to entice bicyclists, and those who might be interested in bicycling, to the Adirondack North Country region:

1. Determine the potential market,
2. Examine current marketing efforts,
3. Assess how the area is perceived by consumers, and,
4. Assess how the market is perceived by the local tourism system (e.g., lodging industry, local merchants, etc.).

The task of compiling this type of information on a region the size of Vermont and New Hampshire combined could not be successfully completed without the aid of bicycle planners and bicycle enthusiasts from throughout the region. Coordinating regional bicycling planning with the many on-going local and county bicycle projects became a key component of the planning effort early in the process. Holmes & Associates participated in 16 separate meetings and presentations related to the project, attended by over 300 people involved in bicycling planning in the region. The audience for these meetings were primarily chambers of commerce, county planning departments, and local bicycle planning committees. The public outreach effort culminated in a North Country Regional Bicycle Forum, held on July 15, 1994, in Saranac Lake. The 60 attendees participated in three concurrent discussion groups, prioritizing regional needs related to bicycle maps, bicycle tourism along the Scenic Byways, and developing bicycle friendly communities.

In addition, the Bicycle Master Plan study team undertook a two part survey effort. In the spring of 1994, the study team designed two questionnaires: one specifically for the lodging industry and another for bicyclists and other tourists to the Adirondack North Country region. Items on the questionnaire included demographics, patterns of recreational use, destination choices, expenditures, specific needs and preferences, attractions and activities of interest in the North Country region. Data were collected by mail questionnaire to 236 past bicycle tourists and other visitors to the North Country region, and 460 North Country lodging businesses.

The profile of bicyclists documents patterns of recreational use, how they decide where to go, where they stay, what they spend, specific needs and preferences, attractions and activities of interest, and ratings of such in the North Country. The lodging

owner survey results tend to confirm the same type of behaviors, needs, preferences, etc. and demonstrate the lodgings' capability of satisfying them. Also documented are lodging owners' present promotions, and future promotion considerations.

Results

Seventy-seven questionnaires were returned by the bicyclists, for a response rate of 33%; while the lodging owners returned 132 questionnaires, for a response rate of about 30%. Bed & Breakfasts comprised 71% of the sample. The response rates were limited, thus caution should be taken in generalizing to all bicyclists visiting the region. However, this marketing information has been heretofore been unavailable so the nature of the results have yielded some valuable information.

Lodging Industry Survey

Results of the survey show that the lodging industry is tuned into the recent increase in bicycle participation and interested in becoming more involved in attracting this market (Table 2). Overall, 52% of the lodging participants feel that bicycling is on the increase. This attitude is reinforced by the 98% who responded that they would like to attract more bicyclists to their business. In addition, 70% indicated they are interested in offering bicycle touring packages, the highest response rate among the nine travel packages listed.

The lodging industry in the Adirondack North Country region has some experience with bicycle touring. Findings from the study showed that 69% have had guests who were traveling by bicycle. The same percentage of lodging establishments reported having one or more guests who brought bicycles with them in 1993, and 41% said that one or more of their guests wanted to rent bicycles last year.

Table 2. Lodging industry's perceptions and observations on bicycling.

Survey Item	Percentage
Would like to see more bicyclists use their business	98%
Bicycling guests leave by bicycle from the door	84%
Interested in offering bicycle touring packages	70%
Lodgings with guests who brought bicycles with them	69%
Bicyclists are interested in paved roads	62%
Feel bicycling is on the rise	52%
Lodgings with guests who wanted to rent a bicycle	47%

It appears that there is a viable interest in bicycling touring from both parties, the lodging industry and the traveler. Lodging owners estimate that at least 62% of the bicyclists staying with them are more interested in bicycling on paved roads, rather than on dirt roads or trails. The roads and trails preferred by bicyclists are by and large very close to the lodging establishments because the owners estimate that 84% of their bicycling guests usually leave by bicycle right from the front door.

Lodging owners note that bicyclists especially appreciate healthy foods high in carbohydrates, complemented by fresh fruits. Bicyclists were observed to be most interested in relaxing, swimming, exploring historic sites, and enjoying scenery. These perceptions of the lodging owners were confirmed as accurate by the bicyclist survey respondents. According to lodging owners, especially important to the bicyclist is the need to store bicycles where they can be locked up. A place to work on and clean their bicycles is also greatly appreciated. Some B&Bs mentioned that their garage and a garden hose have adequately served their bicycling guests. Close to 3/4s of the B&Bs, 1/4 of the campgrounds and 1/2 of the hotel/motels offer secure, covered bicycle storage.

In terms of attractions and points of interests in the vicinity of lodging establishments, the choices are as varied as the places to stay themselves (Table 3). For example, over 50% of the lodging sample have historic sites, museums, and mountain biking trails directly adjacent or within a short drive (less than five miles) of their property. Almost 75% have lakes, rivers, hiking trails, swimming spots, and scenic overlooks either directly adjacent or within a short drive (less than five miles). As indicated by the bicyclist survey respondents, these types of attractions are exactly what most bicyclists are looking for.

Table 3. Lodging industry's nearby amenities.

Seventy-five percent of respondents have the following within a short drive (5 miles or less):

Lakes	Scenic overlooks	Historic sites
Rivers	Unique geological feature	Swimming spots
Hiking trails	Unique natural habitat	Restaurant/cafe

The advertising done by the lodging industry to attract travelers appears very diverse, yet the dollars spent by the industry in the area will remain steady for the next year. A statewide study of B&Bs found that the average private home B&B spent about \$750 on promotion in 1993, while the larger B&B inns spent an average of \$2,400 (Kuehn 1994). As shown in Table 4, only a quarter of the region's lodging industry will spend more on advertising next year. The most popular advertising strategies include: individual brochures, accommodation directories, and direct mailings. The majority promote locally (51%) and use local and regional publications rather than national publications. Of significance to groups interested in developing bicycle maps, 64% of the lodging owners indicated they would like to be contacted about advertising in a brochure or map focused on bicycling.

Table 4. Lodging industry's marketing behavior and attitudes.

Survey Item	Percentage
Would advertise in regional bicycle brochure or map	64%
Promotes locally	51%
Does not advertise in regional magazines	46%
Has own brochures	88%
Will spend more on advertising next year	25%

It appears that tourists who stay overnight in the Adirondack North Country region will find that the average B&B rate of \$59 is very reasonable compared to the national average of \$75 per night/couple (Emerick 1994). The rates for campgrounds average \$21/night/campsite, while hotels average \$71. A third of the B&Bs offer lunch and dinner, as do more than 2/3s of the motels. Almost all lodging types offer a total capacity that would accommodate the average 5 to 13 person bicycle tour group size.

Bicyclist Survey

Of the 236 bicycle tourers surveyed 77, or 33%, responded. Of the 180 non-bicycling visitors 19 (11%) responded. Due to the low response rate for the non-bicycling visitors, their responses are grouped with those of the bicyclists. In general, despite the average-to-low response rates for the mail-out questionnaires, the tendency for the lodging survey results to confirm similar items in the bicyclist survey, and the agreement of the bicyclist survey results with other bicycling surveys, strengthens both the results and recommendations.

It should be noted that most of the bicyclists responding to this survey were selected from mailing lists of touring companies in the area. Therefore the results generally reflect the views of those who might prefer group bicycle tours, as opposed to those who prefer planning and executing a bicycle trip on their own. Future bicycle survey efforts should target bicycle vacationers in general. Additionally, since the selection of bicyclists was non-random in terms of the population of all bicyclists, the findings are not statistically significant.

Results of the bicyclist survey show that the mean age of bicyclists is 45 years, 2/3's of the respondents were male, and their households had a mean income in the \$60,000 to \$69,999 range. Seventy percent of the bicyclists reside in New York, with an average six hour drive to the Adirondack North Country region. It appears that this sample is very capable of visiting this region for the weekend or longer, as well as financially able to enjoy it.

Highlights from the questionnaire show that 98% respondents own a bicycle, primarily of the touring bicycle type (52%), followed by racing road bikes (43%). A significant proportion (49%) own either a mountain bike or hybrid bicycle. The group responding to this survey classified themselves primarily as touring cyclists (92%), rather than mountain bikers.

Over 3/4's of the respondents (84%) reported that they usually ride on paved roads without a bicycle lane, although at least a third prefer paved roads with a striped bicycle lane. About 1/4 (27%) prefer dedicated bicycle lanes, while another 27% prefer paved roads without a bicycle lane.

A selection of average bicycle trip characteristics are shown in Table 5. In terms of how long and how far these bicyclists ride, this group is comprised of active cyclists, reporting many rides in the past year (1993) and visiting an average of 11 different bicycling areas. The average number of recreational rides of 1/2 day or less last year was 43, with 86% of the rides averaging between 1 to 6 hours. When asked what length of

ride they prefer, a little more than one third (37%) said they prefer 1/2 day rides, another third prefer longer tours of 3 or more days.

Table 5. Bicyclists' average ride and trip characteristics

Survey Item	Mean
Number of different bicycling areas visited in 1993	11
Number of days bicycling in an area	5
Miles in an average day's ride	39
Number of people usually ride with	7
Annual average number of 1/2 day bicycle rides	43
Number of bicycle trips of two days or more annually	8

Information on the average distance usually ridden in a day is especially of interest to lodging owners and tourism promoters because it indicates the optimal length for bicycle loops and day tours, and has implications for bicycle mapping. When asked about the average ride in a single day, distances ranged from 3 to 100 miles. The average distance varied from 30 to 39 miles, with a mean of 39 miles, a median of 35 miles, and a mode of 30 miles. A conclusion is that the length of loops and day-rides should be 40 miles at the most, and more generally in the 30 to 35 mile range. By way of comparison, the average mountain bike ride is about 15 miles (Hollenhorst et al. 1993).

Although the majority in this group prefer to take day trips, many do enjoy multi-day tours. Close to 2/3s (63%) have toured by bicycle for three or more days, traveling from campground to campground or lodge to lodge. Considering the planning involved in a multi-day ride, logistics are critical to the riders. Not surprisingly, 47% prefer the aid of a good bicycle map of the area for trip planning. Preferred areas where the bicyclists like to go include New England, Vermont, and the Adirondack North Country region. Specific reasons as to why this sample prefers these areas were varied, although they can be categorized into a few main attributes: scenery, low traffic, varied terrain, good roads, small towns, and people. A key finding here, and one advantageous to the North Country, is that most bicyclists like a "varied" terrain, rather than a flat terrain as might be expected. In fact, a "challenging" terrain is favored by many bicyclists.

When asked about their last bicycle trip in the Adirondack North Country region, the bicyclists reported an average bicycle group size of 5 people, based on the median value for all groups. The mean group size was 13 people, however, respondents from a large group of 600 people, and another of 200, likely influenced the mean upward. Length of trip in days ranged from one day to two weeks, with an averaging bicycle trip of five days. The mean distance traveled was 250 miles, while the median was 137 miles, for an average distance traveled per day of 27 to 50 miles on their last Adirondack bicycle trip. This corresponds with the average length of ride reported on earlier, 30 to 39 miles.

Expenditures averaged \$45 per person/per day (PP/PD) for the entire group of respondents. In examining the expenditures by

group size, we selected three size categories: 1-5 people, 6-50 people, and 51 people or more. Average total expenditures for a group of 1-5 people was \$52 (PP/PD), 6-50 people was \$48 (PP/PD) and for groups of 51 or more was \$9 (PP/PD).

In addition to trip characteristics, the study team used the bicyclist survey effort to inquiry on bicyclists' preferred attractions, activities, lodging types, and sources of information. On a scale of "Very Important" to "Not at all Important", attributes that were most influential in deciding where to take a bicycle vacation include the presence of: rural areas, lakes and streams, lodging, wilderness areas, restaurants, and historic sites or parks (Table 6). The attribute of their favorite bicycling area mentioned most frequently was "scenery". Respondents in this sample are very active and prefer numerous types of recreational opportunities while on vacation, in addition to bicycling. The most sought after activities during a bicycle trip were: visiting historic sites and museums, swimming, day hiking, and shopping.

Table 6. Bicyclists' preferred attractions.

Items rated as 'important'	Percentage
Rural areas	100%
Lodging and campgrounds	97%
Wilderness areas	96%
Lakes and streams	92%
Restaurants	88%
Historic sites and parks	85%
Beaches for swimming/sunning	66%
Interpretive centers and museums	62%

Data on information sources for these respondents reveals that by and large word of mouth is the most influential for trip decision making (59%), followed by previous visit to the area (51%). The third most influential item among the list of 14 items is "bicycle maps of the area". The quality of the bicycling map is another key component of trip decision making because the findings show that 78% find the map quality as very influential or somewhat influential.

Since 92% of this sample consisted of repeat visitors, the rating of attributes of the Adirondack North Country region is based on past experience. Ninety percent perceive the region to be associated with beautiful scenery, while 86% think of lakes, 84% mountains, 70% quiet roads, and 68% associate the region with rivers. Perceptions of the region are thus largely based on the natural environment.

When asked to rate the quality of bicycle infrastructure and support services in the Adirondack North Country region, the bicyclists surveyed tended to be very critical. The findings, as presented in Table 7, show that there are many improvements to be made. For example, less than 20% thought that the availability and quality of bicycle maps was good. Less than 1/3 thought that the condition and size of road shoulders was good, however, surface condition of roads was more favorably rated. Only 11% thought that the availability of bicycle shops was good in the region.

Table 7. Bicyclists' ratings of infrastructure and support.

Bicycling attributes rated as 'good'	Percentage
Road surface conditions	59%
Size of shoulders	32%
Condition of road shoulders	30%
Quality of bicycle maps	18%
Availability of bicycle maps	17%
Signage for bicyclists	14%
Availability of bicycle repair shops	11%

Implications for Marketing to Bicyclists

A key aspect of this bicycle planning effort is its close link to the local, predominately rural economies of the North Country. The study team carried out two separate, but related surveys as part of the planning effort. The response rates were limited, thus caution should be taken in generalizing to all bicyclists to the region. However, the results provide interested tourism and bicycle-related businesses with insights on the most cost effective means of developing their own promotional materials and offer insights on a regional marketing approach focused on bicycling.

The bicyclist and the lodging surveys provide a foundation of information that can be used, first, to entice the bicyclist to the area, and second, to make their visit as enjoyable as possible. Bicycle maps, events, and articles seem to be key to attracting bicyclists, while scenery, good roads, rural countryside, lakes, and quality lodging make their visits most enjoyable. On a regional basis, future bicycle promotional strategies should capitalize on bicyclists' natural environment-based perceptions of the region. At the more local, individual business level, these findings confirm that B&Bs and other lodgings involved in organizing lodge-to-lodge tours should plan bicycle routes of 40 miles or less to appeal to the widest possible clientele.

The significance of Canadian visitors to the region's tourism industry should also be recognized in regional promotions. Canadian visitors, including many French speaking Canadians, reportedly comprise up to 30% of the visitation at some attractions in the region. Meanwhile, a statewide B&B study in New York found that 17% of the B&B guests in the Adirondack region were from Canada (Kuehn 1994).

The lodging industry in the Adirondacks appears to be open and willing to attract more bicycle tourists and seems eager to put their efforts forward to capture some of this market. It seems clear that the major preferences of bicyclists include nature, history, and culture, all found in abundance in the Adirondack North Country region. A key finding is that these preferences correspond very closely with both the lodging industry's assessment of the region and the bicyclists' perceptions of the region. Significantly, most accommodations feature a diversity of attractions and points of interest valued by bicyclists. The strong interest in historic sites and museums among bicyclists is especially significant for those lodging

establishments in the vicinity of historic attractions, and should be prominently featured in promotions.

The expenditures by the smaller groups of bicyclists (less than 50 people) are similar to that found in other bicycle touring studies, except for data on Vermont touring companies (Burgess 1992). It appears that having local bicycle touring companies helping to market the area, as in the case of Vermont, leads to higher expenditures by the bicycling tourist. For example, the local touring companies are likely to be more involved in bicycle rentals and the sale of bicycle touring accessories. Local touring companies also would be better able to promote some of the local attractions, shops, and restaurants to the visiting bicyclist. The result appears to be higher expenditures and a more favorable economic impact on local communities. At present, many of the bicycle tours through the Adirondack North Country region are led by companies based outside the region.

With 62% of the bicyclist survey respondents having bicycled in the region before, their ratings of North Country bicycling attributes were based on experience. Rated good to excellent was the overall enjoyment of bicycling in the region, demonstrating that the development of a premier bicycling area is certainly feasible. In addition, over 50% indicated that it is very likely they will visit the area to bicycle during the next year or two. Yet there are improvements to be made, mainly in the area of maps and signage, with both showing up in the "average to poor" and "not sure" categories. This finding led to major recommendations in the regional Bicycle Master Plan for increased bicycle mapping at the regional and sub-regional level, and the coordination of bicycle signage throughout the region. Evidently, the fairly recent trend in constructing wider shoulders on State highways throughout the region needs to be promoted since bicyclists rated the size of road shoulders as only poor to average.

Conclusions and Recommendations

There is a vital interest in bicycle tourism in the Adirondack North Country region among both the lodging industry and active bicyclists. However, successful establishment of the region's bicycle reputation will require a new collaborative and cooperative effort that departs somewhat from the region's usual tourism promotion techniques and participants. Targeted marketing is key, and those who know the market, for example bicycle shop owners and bicycle clubs, need to be consulted. Products attractive to the bicycle market, such as bicycle maps and bicycle events, need to be developed and promoted. New partnerships need to be formed to support bicycle tourism planning and promotion, with a novel mix of key players that includes local highway departments, New York State agencies, planning organizations, ANCA, and the tourism industry.

Recommendations and implementation strategies in the short term include producing a map of regional bicycle routes, coordinated planning of bicycle events, sub-regional mapping and promotion, and specific infrastructure improvements along the already established Scenic Byway Routes (Holmes et al.

1994). A major conclusion focuses on using the Scenic Byway routes to promote the region as a premier bicycle tourism destination.

In addition, two long term goals are strongly encouraged by the study team. First, the establishment of a regional bicycle/pedestrian advisory committee is crucial to the achievement of the short term goals. Successful tourism planning in a 14 county region the size of the Adirondack North Country depends on communication and coordination. Local economic impacts resulting from regional bicycle route planning and mapping will be enhanced through the on-going involvement of key players and stakeholders.

Second, is the production of a regional bicycle route map and the refinement of a regional recreation and tourism database. This project initialized a regional database that includes roads, scenic locations, natural features, and tourism facilities throughout the region. Much of this information was compiled in a GIS compatible format, and the database can be used to create the regional maps that will be effective in attracting bicyclists to the area. In the long term, the database can be used to develop a GIS-based traveler information system. Through computer access of locational and descriptive information on the region's rich and diverse resources, facilities, and attractions, tourism information centers of the future will be able to tailor maps and informational materials to each visitor's specific interests. The actual accomplishment of this goal will require the commitment to a vision of a future that is not here now, but with persistence will happen.

Acknowledgments

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RECREATION PRICING

POTENTIAL EQUITY EFFECTS OF A NEW DAY-

USE FEE

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A new fee at the Army Corps of Engineers day-use facilities could very well have an adverse equity effect on low-income users. The study finds that low-income users will terminate their use of the day-use sites at a greater rate than current users with higher levels of income.

Introduction

The Army Corps of Engineers is one of the leading federal agencies in providing recreational opportunities. In fact, the Corps accommodates more visits at its recreation sites than any other federal agency except the U.S. Forest Service. Both day-use and camping facilities are provided at most Corps projects throughout the U.S.

Although the Corps has a long history of charging fees at its campgrounds, it has not charged fees at day-use facilities until last year. Consequently, the Corps had no information about how current users would respond to the proposed fee system. One of the concerns of economists and recreation providers is that a new fee at a recreation area could displace current users, especially those with low incomes. Those familiar with the literature surrounding the use of fees in recreation are aware of the allegation that fees may displace low-income users of the

recreation facilities (Cockrell and Wellman, 1985; Cordell, 1985; Dustin, 1986; Fletcher, et al., 1993; Leuschner, et al., 1987; Manning and Becker, 1981; Reiling, et al., 1992).

Consequently, a study was conducted during the summer of 1993 to learn more about Corps day-users' attitudes toward fees and how they would respond to the user fee. One of the major objectives of the study was to determine whether low-income users would be displaced by the fee system when it was implemented. The purpose of this paper is to present the results of that part of the study.

Study Design and Data Collection Procedures

A total of eighteen Corps projects were visited to assess their suitability for the fee study. Criteria used to assess each project are: at least two day-use areas that contained beaches, picnic table and boat launching facilities, which are required facilities for charging a fee; day-use areas with varying degrees of development; different locations across the U.S. so that regional differences, if any, in users' reactions to fees could be considered; a mix of highly accessible and remote projects; and adequate locations where traffic could be safely intercepted to collect names and addresses of users.

Based on the above criteria, a total of six projects were selected for the study: Burnsville, West Virginia; Strom Thurmond on the South Carolina-Georgia border; J. Percy Priest, Tennessee; Truman, Missouri; Canyon, Texas; and Mendocino, California. Two day-use areas at each project were selected for collecting the names and addresses of current users. A sampling plan was then developed for each day-use area at each project.

A questionnaire was developed and pretested prior to the data collection phase of the study. The questionnaire contained questions designed to determine how current users would respond to a fee system and the number of trips they would make to the day-use area at alternative fee levels. Two types of fees were included: an annual fee for the day-use area and a daily fee. Both fees were expressed on a per-vehicle basis.

A sample of day users was collected at each project by randomly stopping vehicles and collecting the name and address of the driver. Those selected for the sample were then mailed a survey and appropriate follow-ups to obtain the desired information. A total of 1,405 of the 2,522 deliverable surveys were completed and returned, yielding a response rate of 55.7 percent.

A modified contingent valuation approach was used to collect the information needed to predict users' responses to the new fee system. The new fee system offers users the choice of either paying a per vehicle fee that is paid during each visit or purchasing an annual pass that was good for the entire year. Consequently, current visitors have three choices: pay the daily per vehicle fee; purchase the annual pass; or, pay neither fee and stop visiting the site. Respondents were presented these options in the following question:

There is legislation before Congress that would establish day-use fees at Corps of Engineer day-use areas, like the one where your vehicle was stopped. The Corps is interested in your views on recreation day-use fees. Suppose a recreation day-use fee was charged at the recreation day-use area where your vehicle was stopped, and at other similar Corps-operated day-use areas nationwide. If the fee was \$____ per vehicle per day, or \$____ per vehicle for an annual pass that would allow you to use all the day-use areas located on this lake for one year, which option would you personally choose? (please circle one number)

1. I would pay the per-vehicle per-day fee
2. I would purchase the annual pass
3. Neither--I would not visit Corps day-use areas anymore

Fee levels ranging from one to five dollars for the daily fee and from \$10 to \$100 for the annual pass were written in the appropriate spaces prior to mailing the surveys. For the analyses performed in this paper, respondents who chose either the daily or annual pass fees were grouped together into the "pay fee" group, while respondents who indicated they would not pay either fee are referred to as the "no fee" group.

Results

Responses to the fee question were analyzed to determine how the introduction of a fee system would impact different subgroups of current visitors. A comparison of users who self-selected the "neither fee" option and those who chose one of the two fees is shown in Table 1. It should be noted that over 40 percent of all respondents indicated they would not visit Corps areas if a fee was charged.

No statistically significant difference exists in the two groups in terms of age, household size, and the percent minority group members. Significant differences do, however, exist for the

other variables in Table 1. The group that selected the "neither fee" option has a higher percentage of males, a lower level of education, and a lower household income level. The latter difference is especially important because we are interested in whether a fee system would displace low-income users at a higher rate than users with higher incomes.

In terms of trip-related variables, respondents in the "no fee" group took over 60 percent more trips during the last twelve months than their counterparts in the "pay fee" group. One would think that the frequent users in the "no fee" group would opt for the purchase of the annual pass. However, this was not the case.

Differences in other trip-related variables are more consistent with expectations. Respondents in the "no fee" group spent less time at the site, reported lower quality and preference ratings for the areas visited, and a smaller fraction had paid a fee to use a day-use area located on a lake during the last year. The latter variable may partially explain the aversion to fees expressed by the "no fee" group. Historical experience in paying fees is often a significant factor in explaining people's attitudes toward fees.

Responses to the fee question also varied significantly across the six projects, thereby suggesting that regional differences in users' responses to fees exist.

To examine more closely the effect of the fee on current users with different income levels, a binomial logit model was estimated using the responses to the hypothetical fee question. In the binomial logit model, the dependent variable is equal to zero if the respondent chose the "no fee" option and is equal to one if the respondent chose either of the "pay fee" options. A set of independent variables including the socio-economic characteristics of users and their trip characteristics are used to explain the fee decision made by respondents. The model results indicate whether the independent variables increase or decrease the probability of respondents choosing the "pay fee" option.

The estimated binomial logit model is reported in Table 2.

Table 1. Socio-demographic and trip characteristics of corps day-use visitors, by willingness to pay day-use fee.

Characteristic	Would Pay Fee	Would Not Pay Fee
Average Age (years)	40.3	40.0
Sex (percent Male)*	58.9	65.3
Average Household Size (people)	3.1	3.0
Average Education (years)*	13.5	13.0
Average Income (\$)*	38,600	32,800
Race (% caucasian)	87.5	89.4
Average Party Size* (persons)	3.3	3.0
Average No. of Hours spent at Rec. Area*	5.4	4.5
Average One-Way Travel Distance*	32.8	26.8
Average Total Trip Expenses*	\$29.80	\$25.33
Average Preference Rating for Area Visited*	2.1	2.4
Average No. of Visits to Rec. Area in Last 12 Months*	16.6	27.3
Visited Lake Area in Last 12 months where day-use fee was charged? (% yes)*	26.8	12.2

* denotes a statistically significant difference in group means at the 10 percent level, two tail test.

Three of the independent variables are insignificant in the equation: the magnitude of the annual fee charged (ANNFEE), the number of hours spent at the site (HOURS), and the racial/ethnic background of respondents (RACE). Their insignificance indicates these variables neither increase nor decrease the probability that respondents would choose the "pay fee" option. In addition, three of the lake dummy variables used to capture regional differences in attitudes toward fees are also insignificant.

Table 2. Binomial logit results for corps day users.

Variable	Coefficient	Standard Error
CONSTANT	0.220	0.609
DAYFEE	-0.282*	0.065
ANNFEE	-0.003	0.004
DISTANCE	0.009*	0.003
VISITS	-0.005*	0.002
HOURS	0.015	0.016
FAMSIZE	-0.115*	0.057
QUALITY	0.392*	0.147
PAIDFEE	0.784*	0.187
PREFERENCE	0.773*	0.149
RACE	0.188	0.224
SEX	0.372*	0.146
LAKE1	-0.581*	0.241
LAKE2	0.209	0.241
LAKE3	-0.074	0.238
LAKE4	-0.300	0.248
LAKE5	0.665*	0.268
MEDINCOME	0.394*	0.190
HIGHINCOME	0.563*	0.202

* signifies coefficient is significant at the 5% level.

Among the statistically significant variables, three have negative signs: the amount of the daily fee (DAYFEE), the number of persons in the respondents' household (FAMSIZE), and the dummy variable for Burnsville Lake (LAKE1). As the daily fee or family size increases, the probability of respondents choosing the "pay fee" option decreases; furthermore, respondents at Burnsville are less likely, other things being equal, to choose the "pay fee" option, compared to the respondents at Mendocino Lake, which is the omitted lake in the dummy variable set.

All the other independent variables in the binomial logit equation are positive and statistically significant. Therefore,

higher values of these variables result in an increase in the probability of respondents selecting the "pay fee" option. For example, the farther one travels to visit the Corps day-use areas, the higher probability that the respondent will opt for the "pay fee" option. This is consistent with expectations because the fee accounts for a small part of the total trip expenses for those who travel some distance to visit the site. Other variables that increase the probability of users choosing the "pay fee" option include a high quality rating for the site (QUALITY), a high preference for the site on the part of visitors (PREFERENCE), and having paid a day-use fee for lake recreation in the past (PAIDFEE).

To examine the potential equity effect of the new fee, we are interested in the sign on the income variables in the binomial logit equation. Note that income is a categorical variable in the equation. The low-income category, which is the omitted category in the dummy variable set, includes all respondents with incomes of less than \$15,000. The MEDINCOME category includes all respondents with income between \$15,000 and \$40,000, and the HIGHINCOME group represents all respondents with incomes of over \$40,000.

Note that the coefficients on both MEDINCOME and HIGHINCOME are statistically significant and positive. This suggests that the probability of respondents selecting the "pay fee" option is higher for respondents in the medium and high-income categories than for respondents in the low-income category. Therefore, a potential equity effect may exist as result of the fee because low-income users (those with incomes of less than \$15,000) will opt for the "no-fee" option (and thereby stop using the Corps day-use sites), at a greater rate than those with incomes of \$15,000 or more. It is also interesting to note that the difference in the coefficients for medium and high income users are not statistically different. Therefore, current users with medium and high incomes will respond to the fee in about the same manner.

The potential discriminatory effect is illustrated in Table 3. The table shows the probabilities associated with respondents in the three income groups selecting the "pay fee" option at three different fee levels. Note that the probabilities for the low-income group are lower at all fee levels than for the other income groups. This suggests that more low-income users will opt to not use the Corps facilities after the fee system is initiated.

Table 3. Probabilities of choosing the "pay fee" option at alternative fee levels, by income group.

PRICE LEVELS (day/annual)	INCOME GROUPS		
	LOW (< \$15,000)	MEDIUM (\$15,000- \$40,000)	HIGH (> \$40,000)
\$1/\$10	.708	.782	.809
\$3/\$20	.572	.665	.701
\$5/\$30	.424	.522	.564

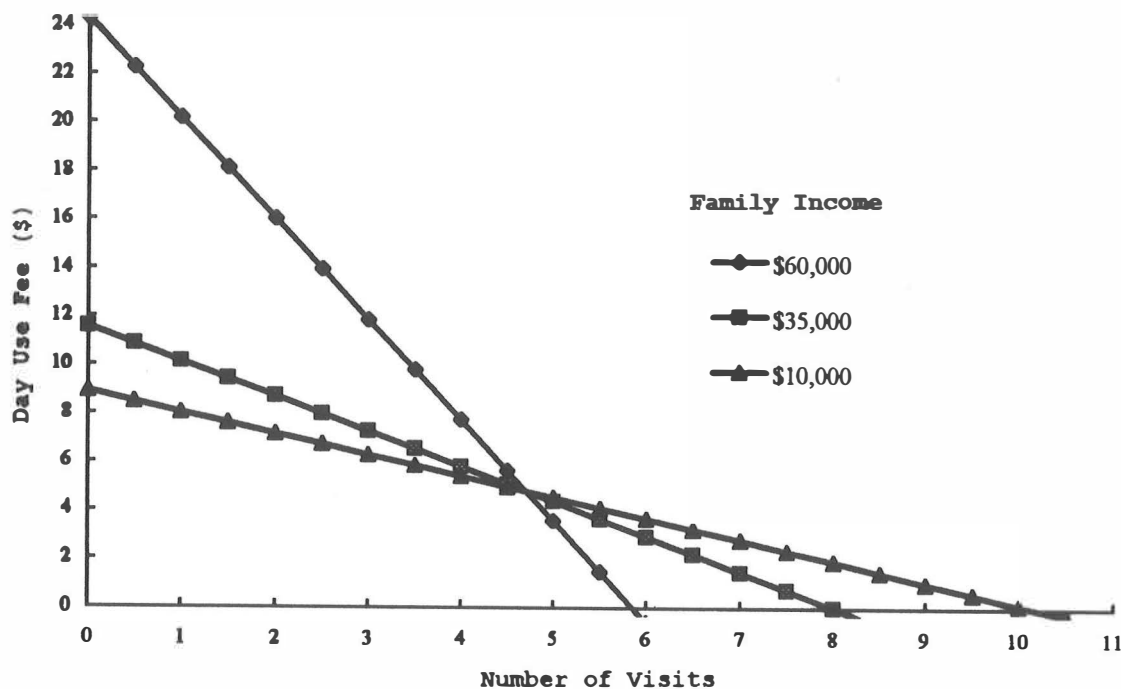


Figure 1. Demand curves for respondents with selected income levels.

A second type of analysis was conducted to investigate further the potential impact of the new fee system on current users. Using the responses obtained from users who chose the daily fee option, a demand curve was estimated for the Corps sites. Income was included as one of the independent variables in the demand equation. In addition, an interaction term between income and the daily fee amount was constructed and included in the demand equation. The interaction term allows the slope of the demand curve to vary, depending on the income of the users. If a discriminatory effect exists, the interaction term should be positive and statistically significant in the demand equation (Reiling, et al, 1992). This would signify that the demand curve of low-income users is more elastic than that of users with higher incomes. This would indicate that low-income users are more sensitive to the magnitude of a fee than their higher-income counterparts.

The demand curve was estimated using ordinary least squares and the results are shown in Table 4. Six variables, excluding the constant term, are statistically significant at the ten percent level or higher and have the correct sign. Note that the interaction term for income and fee (INCOME*DAYFEE) is significant at the ten percent level and is positive, thereby also suggesting a potential equity effect associated with the magnitude of the fee.

This equity effect can be illustrated by plotting the demand curves for selected levels of income. Figure 1 contains the demand curves for visitors with incomes of \$10,000, \$35,000

and \$60,000. Note that the demand curve for users with incomes of \$10,000 is much flatter than for the users with higher incomes. As can be seen, this means that the low-income users are more sensitive to the size of the fee charged. As the fee increases, they reduce the number of visits much more rapidly than do the users with higher incomes who selected the daily fee.

Table 4. Demand equation for Corps day-use sites based on respondents that chose the daily fee.

VARIABLE	COEFFICIENT	STANDARD ERROR
CONSTANT	11.546**	2.049
DAYFEE	-1.321**	0.477
DISTANCE	-0.065**	0.014
HOURS	0.132*	0.080
FAMSIZE	-0.077	0.287
QUALITY	-0.508	0.740
PAIDFEE	0.719	0.802
PREFERENCE	1.990**	0.758
RACE	-0.111	1.106
SEX	-0.097	0.703
INCOME	-0.000086**	0.000036
INCOME*DAY FEE	0.000018*	0.00001

* significant at 10% level, two tail test.

** significant at 5% level, two tail test.

Conclusions

The results of this study suggest that the new fee being initiated by the Army Corps of Engineers could very well have an adverse equity effect on low-income users. The binomial logit analysis suggests that low-income users have a higher probability of choosing the "no-fee" option and thereby terminate their use of the day-use sites at a greater rate than current users with higher levels of income. Furthermore, the demand analysis indicates that low-income users who chose the daily fee are much more sensitive to the size of the fee. Consequently, they will terminate their use at much lower fee levels than users with higher incomes. Hence, both analyses suggest that low-income users will react differently than high-income users in deciding whether to continue to use the facilities once the fee is initiated, and the amount they will curtail their use at the prevailing fee schedule.

The results also suggest some steps the Corps could take to minimize the detrimental impact that the fee system could have on users with low incomes. The most obvious is that the Corps could initially set the fee at a low level, such as \$1 per vehicle per day and \$10 or \$20 per year. This would reduce displacement of low-income users and would allow users to become more accustomed to paying fees. Fees could then be increased in subsequent years. This approach would also reduce the complaints the Corps will receive about the new fee system.

Ideally, the Corps should conduct a similar study a couple of years after the fee is implemented to determine whether the discriminatory impact predicted by our work actually occurs. This would provide the best approach for studying the potential discriminatory effects associated with recreation fees.

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FACTORS ASSOCIATED WITH WILLINGNESS- TO-PAY FOR HUNTING LICENSE INCREASE AMONG SMALL AND BIG GAME HUNTERS IN PENNSYLVANIA

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Participants in the Pennsylvania Hunter Survey (n = 1005) were asked to indicate their support for an increase in the cost of an adult resident hunting license. Hunters were evenly divided, with a slight majority of hunters favoring the increase (52% versus 48%). Waterfowl hunters, archery deer hunters, and pheasant hunters most strongly supported the increase in the general license. Rifle and shotgun deer hunters were close to even (49% yes to 51% no), while the majority of grouse, turkey, and muzzleloader deer hunters opposed the license increase. The variable found to be most consistently significant in predicting a hunter's support was satisfaction with management programs, which was significant in five of the seven hunting categories. Income was significant for two categories, as was experience with hunting in other states, and hunters' level of education. Hunting in other states was found to be negatively related to willingness to pay.

Introduction

Hunting license fees have been the main source of income of wildlife management agencies for decades (O'Leary et al., 1987, Heberlein, 1992). Declines in the number of hunters and increased costs have prompted many agencies to look for additional sources of income and increase fees to traditional constituents (Walsh, et al., 1988, U.S. Fish and Wildlife Service, 1993). More than 75% of the money used for wildlife management in 1977 came from consumptive wildlife users (Jahn and Trefethen, 1978). In 1986, state wildlife agencies in the United States receive approximately 56% of their funding from the sale of hunting licenses (Wildlife Conservation Fund, 1987). For example, the Pennsylvania Game Commission receives 60% of their total operating budget from hunting license fees (Pennsylvania Game Commission, 1995).

As license fees increase to meet agency budget demands, those hunters who perceive cost as a constraint to hunting may cease to participate (Backman and Wright, 1993). Hunters who remain active have a higher commitment and place demands on managers to provide a return for their investment (Stribling, et al. 1992; Gan and Luzar, 1993). Changes in demographics and hunting involvement nationwide make it necessary for state wildlife agencies to understand those factors which lead to support for license fee structures among hunters.

Methods

The data for this study originated from the Pennsylvania Hunter Survey conducted in the summer of 1994. A sample of 1,295 resident adult hunters received a 12 page questionnaire by mail, of which 1,005 (78%) completed surveys were returned. The subjects for this survey were assigned to one of seven categories based on their response to the 1993 Game Take Survey conducted by the Pennsylvania Game Commission. The seven categories were: archery (A), rifle/shotgun deer (D), grouse (G), flintlock muzzleloader (M), pheasant (P), turkey (T), and waterfowl (W).

This study examined the relationship between those items that addressed the proposed increase to the general hunting license and variables related hunter attitudes toward management, degree of specialization, participation, and selected demographics. The response data are presented as total responses collapsed across the seven hunting categories and the responses generated for the individual categories. Analyses were conducted using logistic regression to find those variables significant in predicting the willingness of participants to support the increase in the general license fee.

Results

The number of completed survey questionnaires and response rate for each category is presented in table 1. Each survey participant was asked to respond to a question regarding support for an increase in the general adult resident hunting license: "The Pennsylvania Game Commission is a state agency operating independently of funding from the general fund (tax dollars). The majority of the PGC operating budget comes from the money generated from the sales of hunting licenses. Considering the increased demands for services and operating costs, and the license fee has not increased since 1985, would you support an increase in the general hunting license fee (for all small game, deer, and turkey)?" The results are presented in Table 2.

Willingness to pay for the general license increase and the special licenses were coded as a 1 for "yes" and a 0 for "no". A total of 1005 hunters (100%) responded to the question regarding support for an increase in the general adult resident hunting license. Table 2 presents the results for all hunters and for each of the seven hunting categories. An examination of the results for all hunters shows a majority of hunters supporting the increase (52%). When the responses are presented by hunting category, waterfowl hunters responded positively most

often (67%); archery hunters (64%) and pheasant hunters (52%) also indicated positive attitudes toward the proposed increase. A slightly negative response was obtained from deer hunters (51% "No"). Turkey hunters also were less supportive of an increase (54% "No"), while grouse and muzzleloader hunters were least supportive with 55% of the hunters in each category responding "No".

Table 1. Response rates for seven hunting categories.

Category	Number Received	Percent Response
Archery	125	69%
R/S Deer	144	76%
Grouse	148	81%
Muzzleloader	156	82%
Pheasant	137	73%
Turkey	138	82%
Waterfowl	157	80%

Table 2. Support for increase in general license fee by hunting category.

Category	Yes/No	Frequency	Percent	N
All Hunters	Yes	521	52%	1005
	No	484	48%	
Archery	Yes	80	64%	125
	No	45	36%	
R/S Deer	Yes	70	49%	144
	No	74	51%	
Grouse	Yes	67	45%	148
	No	81	55%	
Muzzleloader	Yes	70	45%	156
	No	86	55%	
Pheasant	Yes	66	52%	137
	No	71	48%	
Turkey	Yes	63	46%	138
	No	75	54%	
Waterfowl	Yes	105	67%	157
	No	52	33%	

In order to determine what factors were most important in determining hunters' willingness to pay for the increase in the general license fee, related items from the questionnaire were analyzed through logistic regression. Regression variables were selected on the basis of their logical relationship to the hunter's experience, attitudes toward the current wildlife management programs, demographic characteristics, and self-image as a hunter. The variables used for the regression models are provided in table 3.

The logistic regression procedure assessed the relative significance of the independent variables to a dichotomous dependent variable, in this case the willingness to pay for a license increase. Those variables found to be significant ($\alpha = .05$) are presented in table 4. The significant variables are presented in the order of significance, with most significant variables listed first for each hunting category.

Table 3. Variables used in logistic regression analysis of willingness-to-pay for license increase.

• Commitment (index of four related variables)
• Degree of Specialization (index of ten related variables)
• Attitudes toward specific wildlife management programs
• Out of state hunting experience
• Days of hunting for hunting category
• Importance of PGC employees as source of information
• Income
• Education

Discussion

The response frequencies found in table 2 show waterfowl hunters and archery deer hunters to be most supportive of the proposed license increase. Support for the increase on the part of the bowhunters may be due to the extra two weeks of hunting added to the fall archery season, extending the season to mid-November. This argument is substantiated in table 4, which shows bowhunting regulations and seasons to be the first significant factor in archers' willingness to pay for the increase. Bowhunters who hunted in other states were less likely to support the hunting license increase, as evidenced by the negative beta coefficient of -.6569. A similar direction was observed in the coefficient for degree of specialization; the odds that the license increase would be supported decreased with a corresponding increase in the specialization index. This result is contrary to what one would expect. As the specialization index in this study includes the dimensions of experience, skill, equipment, and lifestyle, it would seem logical to expect the willingness to pay for a license increase to increase with degree of specialization. This is not the case with archery hunters, however.

The reason for the support demonstrated from the waterfowl hunters is less apparent. The results of the logistic regression indicated that, to waterfowl hunters, the importance of Pennsylvania Game Commission staff as a source of information is the only factor significant in predicting their willingness to pay for the increase. Further investigation into demographic variables or overall hunting participation may shed light on this question.

Pheasant hunters exhibited a high level of support for both the proposed increase to the general license and several special licenses. These hunters displayed three significant predictors for willingness to pay for the general increase. The significant factors cover the dimensions of attitudes toward management, hunting experience, and the demographic variable income. As with archery hunters, those pheasant hunters who experienced hunting in other states were less likely to support the proposed increase ($B = -.6279$).

Satisfaction with management programs was associated with higher odds that the hunter would support the increased license fee for five of the seven categories: archery, rifle/shotgun deer, grouse, pheasant, and turkey. This makes intuitive sense, as hunters in this instance would serve as satisfied consumers willing to support the services provided, in this case game management. Income was positively associated with the odds for support for the license increase among muzzleloader, turkey and pheasant hunters. The relationship between income and willingness to pay could be argued from the standpoint that those of higher incomes have the resources to pay the higher fee. It must be pointed out, however, that income was significant for only three of the seven categories. Out of state hunting experience was negatively associated with the odds the hunter would support the license increase for archery and turkey hunters. It could be argued that those hunters who hunt in other states feel they have a basis for making a qualitative comparison of Pennsylvania's hunting and management programs to those of other states. It is also plausible that those archers and turkey hunters who hunt out of state would like to

see Pennsylvania's licenses kept low because of the amounts they spend on out of state hunting.

In summary, the results of this study indicate satisfaction with management programs, experience, and demographics are significant predictors of the individual's willingness to pay for an increase in the adult resident hunting license. A hunter's level of experience cannot be controlled by the agency, nor can demographics be affected by agency actions. Hunter satisfaction, however, may be influenced by the agency to some extent. Greater information services, expanded contact with agency officials, and increased visible support from sportsmen's organization could influence the hunter's satisfaction with the sport.

The results of this study indicate the support for a license increase varies among hunters participating in various types hunting public in order to educate hunters of the need for a license increase. It is beyond the scope of this paper to suggest strategies to gather support for the license increase, but this

Table 4. Predictors of willingness-to-pay for an increase in the adult resident hunting license.

Hunting category	Significant Variables	Coeff.	Significance	R	X ²	Percent Correct
Archery	Archery regulations and seasons	1.082	.0000	.3066	25.642	71%
	Out of state hunting experience	-.6569	.0086	-.1734		
	Archery degree of specialization	-.8727	.0254	-.1355		
Rifle/Shotgun Deer	Deer management program	.3737	.0225	.1268	9.868	68%
	Importance of PGC employees as sources of information	.0629	.0412	.1042		
Grouse	Pheasant stocking program	.2852	.0183	.1369	8.580	58%
	Grouse degree of specialization	.6583	.0495	.0988		
Flintlock Muzzleloader	Education	.4255	.0086	.1622	24.595	66%
	Income	.2703	.0266	.1251		
	Days of muzzleloader hunting	-.0766	.0314	-.1188		
Pheasant	Pheasant stocking program	.6133	.0009	.2187	26.482	67%
	Out of state hunting experience	-.6279	.0120	-.1508		
	Income	.1270	.0282	.1218		
Turkey	Income	.2880	.0072	.1739	13.501	64%
	Turkey management program	.4594	.0453	.1079		
Waterfowl	Importance of PGC employees as sources of information	-.6999	.0167	-.1669	6.060	70%

research does indicate that hunters who identify with a particular type of hunting may have concerns different from those of other hunters involved in different hunting pursuits.

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INCREASING REVENUES IN STATE PARKS --

WHAT WORKS AND WHAT DOESN'T

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Two years ago, Ohio State Parks developed a methodology of **measuring customer satisfaction** to gauge the effectiveness of **our customer service**. What follows is a discussion of our **installation of systems** to measure and improve customer **satisfaction**, the interpretation of the data, and the positive **results we have** enjoyed.

Introduction

Ohio State Parks averaged 4.27% annual increase in revenue for the fiscal years 1986 through 1991. The fiscal years 1992 through 1995 saw this average nearly treble to 11.43% average annual increase. This translates to a 50%, or \$6,000,000 increase in revenues over these 4 years. Revenues are estimated at \$18,750,000 for fiscal 1995 compared with revenues of \$12,154,000 for fiscal 1991 just 4 years earlier. A graphic illustration of these increases is shown in Figure 1.

The following is a discussion of the methods used to increase this revenue stream, from about 23% of operations and maintenance (O&M) funding in 1991 to 39% in FY-1995. Ohio State's fiscal years end on June 30 of the year. Ohio State Parks received just over \$29,000,000 for (O&M) in FY-1995 from General Revenue (Taxes) and will spend a total of about \$47,000,000.

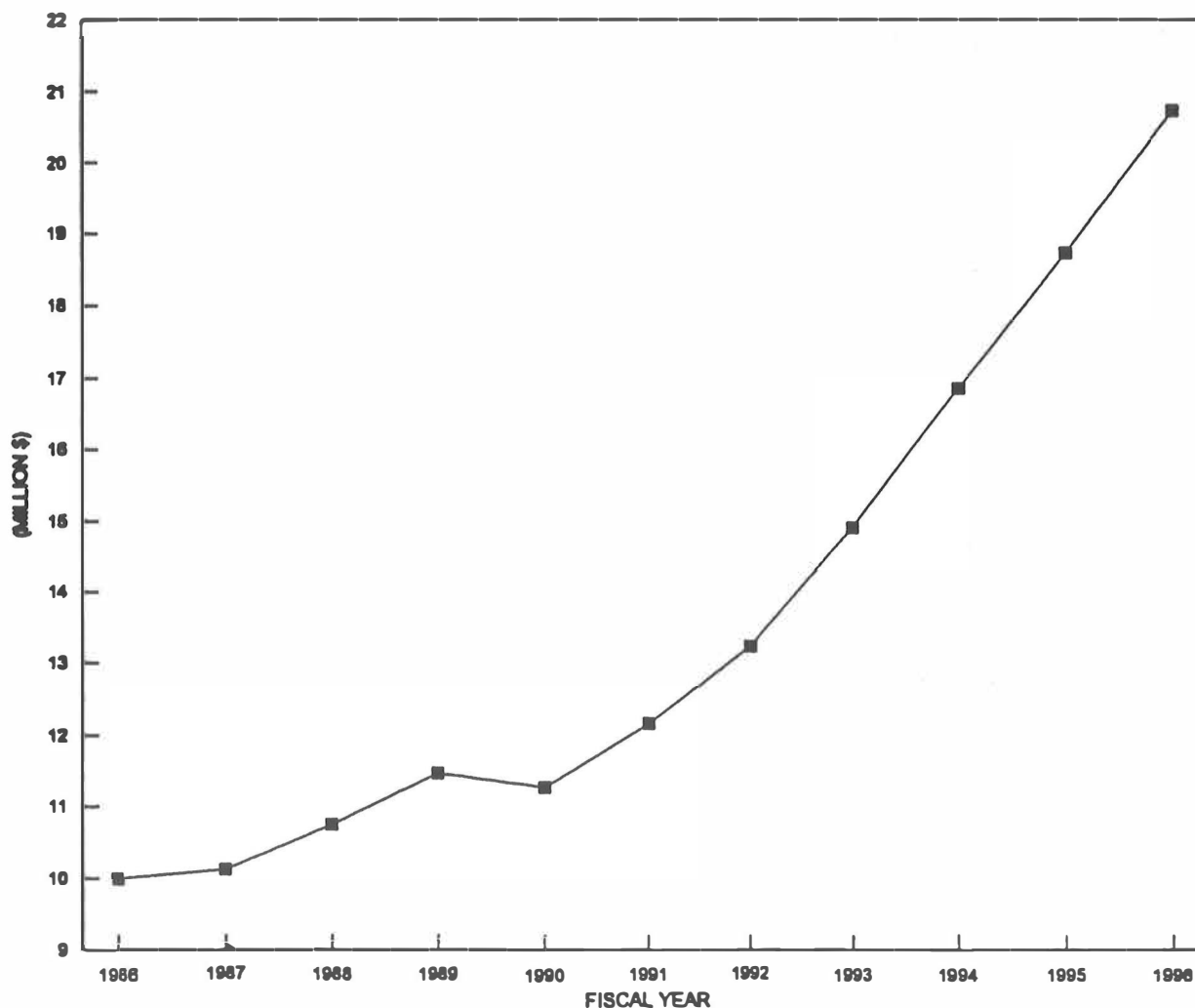


Figure 1. Ohio State Parks revenues received during 1986 through 1996.

The discussion of how we did it breaks down into five topic areas:

- I. Price comparability studies to ensure tax dollars are not used to unfairly subsidize below market prices. Ohio State Parks do **not** compete on a price basis as the cheapest outdoor recreation available. We **do** compete on a **value basis**. We believe that we offer the best outdoor recreation values for our customers in the market place.
- II. Yield and differential pricing tactics which provide the best return to the State for our special services offerings in terms of time of offering, location of offering, and value adding amenities of offering.
- III. Charging for services that were previously offered for free. Specifically what customers will accept and what they resist and under what conditions.
- IV. Introducing new "special services" for a fee, not previously offered, and providing these at a profit. Taking a look at return on investment (ROI) "hurdles" for State dollars and how to maximize returns.
- V. Self operating concession facilities that were previously operated by private business. Specifically we shall discuss "**privatization**" and how we distinguish when it is in the State's best interest to "privatize" and when it is best to self operate. Decision analysis is performed in terms of balancing quality customer service and maximum revenue to the State.

Price Comparability

Ohio State Parks annually perform "price comparability studies" which serve as the basis for the annual price setting review for all fees charged for "special services" offered in Ohio State parks. It is useful to note here that Ohio is one of only about 8 states left in the United States which does not charge a parking or entrance fee of any type. Entrance and parking in all 72 Ohio State Parks remains completely free. The majority of the 60,000,000 visitors to Ohio State Parks are day users and do not pay a fee or make any purchases.

"Price comparability studies" consist of each park manager compiling a spread sheet which compares his offerings, by type, with those of the three nearest private business competitors. He may also add one or more public sector offerings which he competes with for further reference. However, the emphasis is on the data obtained from the private business sector. A typical spread sheet from one of our parks contains such variables as daily and weekly rates, facility capacity, outdoor recreation facilities, and activity opportunities. The spread sheet attempts, as much as is practical, to account for the differing amenities of each private business offering when compared to that of the park.

We are comparing the prices only for the "special services" we offer to users of Ohio State Parks. These "special services" include camp site rentals, cabin rentals, dock rentals, picnic shelter rentals, golf green fees, and the like. All Ohioans can come to Ohio State Parks and enjoy the scenery, picnicking, and trail walking without entrance or parking fees. Each year some 40% of all Ohioans do visit their state parks and well over 65% of all Ohioans do so in any five year period.

We take the data and the recommendations of the park manager and pull together a master list of price offerings and proposed changes. We put this result through the public meeting process and review by the Ohio General Assembly, Joint Committee on Agency Rule Review (JCARR), once we have secured Department and Administration approvals.

We desire prices that are **equal**, once amenities have been considered, to similar private business offerings. If we **err**, we must **err** on the low side however. This annual attention to prices ensures that a number of important goals are met:

1. The taxpayers are getting the fairest return possible on their capital investment in these special service facilities that state parks visitors desire.
2. We are not competing unfairly with the private sector on the basis of price. That is we are not using tax dollars to subsidize unfairly low prices.
3. We are not charging our customers more than fair market rates for these special services.

Ohio State Parks do compete on a **value basis**. We believe that we offer the best outdoor recreation values for our customers possible. We have been training our employees and managers to concentrate upon the "quality" of our offering for price tendered. Things such as cleanliness of facilities, courtesy and helpfulness of employees, maintenance and upkeep improvements, added things to do, and additional small amenities all spell **added value** to our customers.

We are not trying to be the cheapest outdoor recreation value around. We are trying very hard to be the best quality for value outdoor recreation value in Ohio. Comparability studies and attendant analysis are good tools to help us get there.

Yield And Differential Pricing Tactics

It has long been the practice in the private business sector to provide discounts during slow periods to stimulate business and to charge rack rate during busy periods. In addition perceived amenities in terms of time, location, and added value amenities have long been charged extra for as well. A combined expression of differential pricing can be shown in the example of Super Bowl lodging. The rate for a suite (added value amenity) close to the stadium (location) the night before the game (time) is likely to cost one considerably more than "rack rate". (Rack rate is defined as the generally posted price

against which discounts are calculated and surcharges added.) State parks can quite profitably take a page out of this private business approach and make considerable use of these tactics.

Yield pricing is an interesting concept. Its theory is that prices can be raised or lowered across a continuum to achieve a point at which maximum gross sales occurs without regard to volume of sales. Since we are committed to market rates on our up side we have not done any experimenting with raising prices above market.

Discounting, however, gives us a range between the market price and the variable cost coverage price within which a number of managers have been experimenting. We need to determine whether off season rate discounts will actually bring in more gross dollars than simply leaving market rates intact. We are after more total sales dollars, not more sales. We generally expect more sales when a discounted price is offered. However, greater total gross sales dollars do not necessarily follow discount pricing.

The unknown being experimented with is how many of our off season visitors will use our facilities regardless of the price charged and how many additional will be attracted by a discount. We have adopted a general guideline that discounts will be employed when they increase gross sales dollars beyond levels existing at market pricing within a given period.

Differential pricing is being applied by us in three different situations: value adding amenities, time, and location. Our approach with each is as follows:

1. **Value adding amenities** is fairly easy. Customers expect to pay more for fireplaces in cabins or for electricity at campsites. However, the addition of new amenities often goes unpriced for unless everyone is sensitive to the need to price for value adding amenities.
2. **Time** is one area that we had overlooked. We are now pricing for holiday weekends in our campgrounds and cabins. We have been selling the fact that our labor costs increase over the major summer holiday weekends and that a small increase for these periods is so justified to pay for the holiday pay and overtime we invariably experience. We have encountered surprisingly little price resistance with this tactic so far. We have generally learned, however, that price increases of \$1.00 to \$2.00 per campsite night and \$5.00 to \$10.00 per cabin night are about all customers will absorb every few years or so without significant resistance. Price increases above that hit significant resistance. We are also now sensitized to instituting price increases at the beginning of the visitor season. Any price increase in the middle of the season meets with confusion and resistance on the part of our customers.

3. **Location** is another area that we were overlooking. A view or access to water is a major locational amenity for campsites and cabins that we are starting to charge for. Again we have encountered essentially no customer resistance at modest price increase differentials because we always have alternative lower priced offerings available for those who want them. Additionally the campsites and cabins with these locational amenities are still the first to fill up regardless of the price differential. Location is often considered a "tertiary amenity" after the location inside the park and the value of site offerings such as electricity are considered. Consequently it is often overlooked as a basis for additional revenue.

Charging For Services That Were Previously Offered For Free

This is a very sensitive political area to attempt to make progress in. Our customers absolutely resist paying for something they were getting for free previously. The common comment is: "That is what I pay taxes for!" We have employed two strategies here relatively successfully. First we have "recast" the offering with additional value added for which we charge. This has been the easier to implement. Secondly we have used a "piecemeal" approach focusing upon the "fairness" to other taxpayers issue.

The first "recasting" strategy really worked well when we began to charge for reserving picnic shelters. Very few people objected and a great many were really appreciative that they now could make plans for that family reunion and have confidence that a particular picnic shelter would be held available for them. In a number of cases picnic shelter use actually increased once people learned that they could be reserved.

Our costs of picnic shelter reservations were absorbed easily within current staffing levels and the fees collected dropped directly to the bottom line. An additional benefit also accrued in that park maintenance now knew when the shelters were being used and could plan cleanings in advance. As a result we also received positive comments from customers on cleaner shelters.

One of our most difficult challenges was implementing fees for locking recreational boats through 10 historic locks over many miles of the Muskingum River. There is no substitute for doing your homework on an issue like this. Our costs amount to over \$40.00 in direct labor costs for every locking. Our goal is to communicate this to all of our boaters. The "fairness" issue comes into play when one stops to think about whether it is "fair" for a blue collar worker in Cleveland to have \$40.00 of his tax money go to provide a recreational locking experience for someone who is well off enough to own a \$20,000.00 boat. The majority of our boaters are sensitive to this issue and do not have a great problem with a small lock fee. Locking is a

"special service" and in "fairness" should have some fee attached to it.

We also prudently started small with a \$5.00 lock fee and appropriately priced annual passes. We spent a full year in advance of any implementation in education and getting the word out. This particular combination of strategies seems to have kept this situation manageable, so far.

Our estimate of this situation is that customer acceptance of fees for previously free services depends upon: low initial fee levels, long time frame notice, education of the users regarding costs of operations, and a strong public information and relations campaign focused upon the "fairness" issue. Missing any of these key points can be fatal to such an effort.

Introducing New "Special Services" For Fee

We have introduced a number of new special services for a fee for our park customers. In that process we have paid particular attention to ensuring that these new offerings perform at a profit over our costs of providing them.

Further, when we calculate the profitability of any new offering we are using a "hurdle rate" of 18 months to 36 months for return a full 100% on investment. This is in part dictated by the biennial budget system of Ohio and in part by our own cash flow needs. These two criteria rule out many "good ideas" that result in a net drain of very scarce tax dollars.

Some of the offerings we have implemented include:

1. Sales of firewood, ice, food, camper necessities such as bug spray and sun tan lotion, soda pop, apparel, and sundries at our camp check-in stations. By adding merchandise sales to these locations without adding any new labor costs and with minimal changes in physical plant we have increased the profitability of our campgrounds significantly. The private sector has mixed feelings about this venture into the business arena. However, our campers love it. They no longer have to break down their camper and drive for miles in many cases for necessities. We believe that this results in longer more convenient camper stays which benefits both us and the business community surrounding our parks. Anything which brings in more customers and has them stay longer benefits everyone.
2. Manufacturing our own firewood bundles is another profitable offering. Dave Barr, one of our entrepreneurial park managers, located a source of free slab wood in a lumber mill within a mile of his service area. All he had to do was to cut it to length and bundle it with seasonal labor - no splitting was necessary. Our best private business statewide firewood bid was \$2.50 a bundle. Dave can produce it for \$1.40 or less. Both deliver to the parks for that price. It should be noted that proposals from other locations to use expensive skilled labor in the "off

season" to haul, split, cut, and bundle firewood were rejected as not cost effective.

3. Rental of recreational vehicle trailers all set up on a campsite ready to move into was an idea generated by several of our park managers at the same time. There is an increasing market out there of folks who want to try out an RV before they invest in one or who simply want the experience without the hassle of ownership. Our numbers indicate that we can recover our initial investment within 20 to 30 months. Three to six RV's per campground incurs manageable cleaning costs with much cost being absorbed by existing staffs.

Self Operation Of Concession Facilities Previously Operated By Private Business Under Contract

This, like the charging for services previously provided for free, is a tough challenge that has to be approached very carefully. "Privatization" is a politically popular phrase these days and this idea goes just the other way. A number of critical criteria have to be met for self operation, or "self op", to be successful and accepted by your visitors and the political environment. These include:

1. The present concessioner is providing unsatisfactory service which is reasonably notorious and can be corrected by self op.
2. The return to the state is low or nonexistent from the concessioner and pro forma returns from self op appear substantially better.
3. The park manager has "the fire in the belly" to successfully self op, has a modicum of ability, and will accept direction and assistance.
4. The state can apply substantial economies of scale, which a concessioner cannot match in a parallel operation, and which enable it to self op at considerably better return than a concession contractor can provide.
5. The pro forma demonstrates that the "incremental" costs of self op result in a substantially increased net cash flow to the state. We differentiate here between "incremental" and "absolute" costs of self op. "Incremental costs" are those costs which actually decrease cash flow. "Absolute costs" are those costs actually attributable to the self op and which may or may not impact cash flow. As an example the salary of the park manager is an absolute cost but not an incremental cost. The park bears the costs of the park managers salary regardless of whether there is a self operation or not. The cost of goods sold is both an incremental cost, because it decreases cash flow, and an absolute cost because it is attributable to the self op.

6. The state, through economies of scale and innovative management, can produce customer services markedly superior to any present or projected concession operation.

The goal of any venture into this field is to demonstrate superior customer service and satisfaction with increased cash flows to the state. There are situations in which the cash flows are so marginal that we choose self operation as the only means by which we can provide satisfactory quality services to our customers.

There are also many situations in which we have an excellently performing concession contractor and have no plans to do other than support an already satisfactory situation.

Through experimenting in this arena we have learned many valuable lessons which enable us to make better decisions about which operations should be concessioned out and which ones make good self operations.

We operate 80+ beaches and nearly 40 of these have some type of food and sundry concession in or adjacent to them. Historically many of these operations have exhibited poor customer satisfaction ratings. As we attempted to self op some of the poorer ones we "discovered" that the cash streams they generate were so low that no one could provide any reasonable level of service because the labor costs were beyond recovery. The answer lay in implementing a vending machine operation and doing away with labor intensive operations at them. The vending operation provides much of what visitors want at far less cost and it totally resolves the complaint of not being open on low use days. Visitors accept the change reasonably well offsetting a somewhat lower level of service with uniform availability.

Our major tool for evaluating self operation versus a concession contract is a parallel pro forma with which we evaluate prospective concession contract bids against self operation figures. We have no problem with saying a self op simply didn't work out and going back to a concession operation -if the quality of service and cash flow evaluations so indicate.

In closing it is well to note that the future for funding the operation and maintenance of parks is likely to hold more emphasis on self sufficiency funding as opposed to tax dollar funding. Tax dollars at all governmental levels are getting more dear with each passing year. Innovating ways to increase cash flows from application of private business principles and methods may be the only way park managers can continue to provide quality operations for their customers.

OUTDOOR RECREATION MANAGEMENT

EXAMINING THE NATURE OF RIVER RECREATION VISITORS AND THEIR RECREATIONAL EXPERIENCES ON THE DELAWARE RIVER

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This study investigated the nature of river recreationists and the meanings associated with their recreational experiences on the Upper and Middle Delaware National Scenic and Recreational River. A phenomenological, qualitative design based on Glaser and Strauss' (1967) Constant Comparative Method of Qualitative Analysis was utilized. Several key thematic axes revolving around the core theme of the "Delaware River" emerged from the data and were prepared in narrative formats. The main thematic axes included the following: a physical, sociocultural, legislative, and management profile of the Delaware River; key river access sites and their characteristics; types of river users and the attributes, properties, and dimensions of their experiences; and the nature of the river recreation experience. This research identified several unique themes that served to expand our understanding of the meanings river users attached to their recreational experiences. These themes provide new starting points for future exploration and broadened insight into the multiple properties and dimensions of recreation phenomena.

Introduction

Over the years, interest in and use of our rivers for recreational pursuits has greatly expanded. This has been especially the case with reference to rivers designated under the National Wild and Scenic Rivers Act of 1968. In particular, the Upper and Middle Delaware National Scenic and Recreational River is a prime and popular recreation resource located within the eastern megalopolis corridor that has attracted not only increased amounts of use, but greater diversity of use in the recreational forms and types of users (e.g., canoeists, rafters, kayakers, kayak rafts, anglers, jetskiers, motorboaters), and the cultural background of river visitors. This increased use has resulted in concerns about recreational carrying capacity. Furthermore, federal legislative mandates exist that require outdoor recreation resource managers to establish management guidelines to preserve the qualities of our outdoor recreation resources (Public Law 64-235; Public Law 90-542).

Early studies of the Delaware River (Dawson, Decker, Lime and Knopf 1981; Dawson, Decker and Brown 1981; Dawson, Decker and Smolka 1982; Strauss, Lord and Miller 1983; Strauss, Miller and Lord 1984) addressed recreational carrying capacity related concerns. These studies tended to focus on the numbers of river users and the different types of river recreationists and their recreational activity management preferences. These efforts were quantitative in nature and focused primarily on the questions "Who", "What", "When", "Where", and "How Many".

The notion of recreational carrying capacity was broadened in definition and scope and became referred to as "appropriate use management" (Marion, Cole and Reynolds 1985). This alternative management approach shifted the focus from recreational use limits (i.e., carrying capacity) to desired biophysical and social-psychological conditions appropriate for a particular resource setting (Knudson 1984). Inherent in the concept of appropriate use management is the subjective evaluation of what constitutes desired recreational use. With the continued introduction of new recreation technologies (e.g., jet boats, jet skis, inflatable kayak rafts), user groups, and ideas of how to use recreation places, questions concerning "what is appropriate use?" need to be posed by managers and to recreation user publics for periodic assessment of what constitutes the best recreational mix (Knudson 1984:478-480).

Determining appropriate recreational use is considered to be a highly individual matter based upon personal preference and one's prior experience background (Lime, Anderson, Knopf, Schomaker and Schreyer 1985:vi). Previous research has tended to categorize what people do in recreational environments. This may not, however, accurately reflect what is actually experienced during a recreational visit. As Laing (1967) pointed out,

We see other people's behavior, but not
their experience....
Experience is man's invisibility to man....
People may be observed to sleep, eat, walk,
talk, etc. in relatively predictable ways. We

must not be content with observation of this kind alone. Observations of behavior must be extended by inference to attributions about experience....

...behavior is a function of experience, and both experience and behavior are always in relation to someone or something other than self.

The literature suggested that a better understanding of the kinds of recreational experiences visitors sought, and the meanings recreationists attached to the settings and their experiences was needed. Research which raises the "Why", "For Whom", and "What Does It Mean" questions has been advocated as suitable for discovering the meanings users connect to their experiences (Knopf 1983; Downing and Clark 1985; Kelly 1987). This kind of information is important in the identification of factors that might contribute to more effective management of desired river recreation opportunities, so as to reduce undue impacts to the resource or social setting.

Since prior research has not provided sufficient explanation of the complex character of the recreation visitor experience through quantitative methods, it has been suggested that alternative approaches such as qualitative methods might yield greater holistic insight into the nature of the recreation experience (Kelly 1980; Lime et al. 1985:19). As O'Rourke (1989:11) noted, "In our quest for prediction and understanding, we often use linear models to explain what might well be a nonlinear phenomenon."

Purpose of the Study

In an effort to open up the realm of understanding about river recreationists and the experiences they desire, and the factors and conditions which produce these experiences, a phenomenological based qualitative research project was undertaken. Phenomenology as a research approach may be used to explore anew, various everyday things and experiences in people's lives: that which often gets overlooked or taken for granted in the ordinary patterns of daily life (Husserl 1911). As Harper (1981:117) explained,

It is the essential structure of whatever interests us which the phenomenologist attempts to describe. The phenomenologist is trying to make the implicit (what is taken for granted in our ability to recognize instances) explicit. The implicit is 'already there,' just not yet explicitly exposed to view. In describing what is commonly taken for granted, the phenomenologist looks for those necessary features which make a thing what it is.

The science of phenomenology presents us with a tool to explore recreational phenomena as experience rather than merely as activity. There has been support in the literature for approaching the study of leisure related phenomena from an experiential perspective (Kelly 1978, 1980; Iso-Ahola 1979,

1980). This study delved into river recreation experience phenomena from the recreationists' own perspectives and intuition.

The purpose of this study was to examine the nature and salient attributes (e.g., environmental and social) of river recreation visitors and the subjective meanings they ascribed to their recreational experiences on the Delaware River through grounded, naturalistic inquiry methods. This research was precipitated by a need to clearly identify the nature of river users and elements of their experiences so as to assist managers in understanding what contributes to and planning for satisfactory and appropriate river experiences.

Methods

Research Design

This study utilized a grounded, emergent, qualitative design to uncover the salient attributes, dimensions, conditions, and meanings recreational visitors attach to their river experiences. This approach was used since it is expansionist, discovery and process oriented, provides real, rich, deep, and valid descriptive narratives which are holistic in constitution, and facilitate understanding and meaning (Reichardt and Cook 1979:10).

Population and Sampling

This investigation was conducted at two river segments in the Northeast under the management of the National Park Service: the Upper Delaware National Scenic and Recreational River, which stretches 73.4 miles from Hancock, New York to a spot just downstream of Cherry Island near Millrift, Pennsylvania and Sparrow Bush, New York (Conference of Upper Delaware Townships 1986:59); and the Middle Delaware National Scenic and Recreational River, which flows 40.6 miles from just downstream of Port Jervis, New York to the geologic notch known as the Delaware Water Gap (Delaware River Basin Commission 1993:III-12). The population of this study included all river recreationists associated within the riparian corridor of the Upper and Middle Delaware River segments during data collection periods. Sampling was conducted at twenty-five river sites on 202 observation occasions; 158 interviews with recreationists were carried out. Additionally, eight background information gathering research visits were also made to related agencies (e.g., National Park Service District Offices, canoe liveries, historical societies, citizen advisory councils, local newspaper offices). The sampling of sites and subjects was inductively directed based on the determination of their theoretical relevance. Multiple visits were made to each site to account for different times of the day, week, weekend, season, or holidays. Sampling was conducted with the intent to uncover the typical as well as atypical phenomena. A purposive sampling plan was developed. The sampling process was also guided by application of Wiseman's (1974:326) criteria of adequacy for determining the relative importance of a finding in order to reduce the potential mass of irrelevant data:

- (1) Is it significant because it affects a great many people?

- (2) Is it significant because it illustrates or reveals something of a more general (and significant) nature about human behavior?

Instrumentation

The study investigator served as the primary, iterative research instrument in an ongoing process of gathering, coding, and analyzing data. Triangulated data collection strategies included investigator conducted on-site river recreation observations, interviews with river recreationists, and a researcher compiled reflexive journal. To meet the necessary demands for establishing trustworthiness (i.e., reliability, validity, objectivity) in a qualitative study, the standards of credibility, transferability, dependability, and confirmability as respective analogues to internal validity, external validity, reliability, and objectivity (Lincoln and Guba 1985:189, 219, 300-332) were implemented. Strategies such as the triangulation of techniques, prolonged observation and exposure in the field, a search for negative cases, and a cross-checking of sources contributed to the credibility of the data, while thick, rich description aided its transferability, and auditing techniques (e.g., transcript and reflexive journal paper trails) supported data dependability and confirmability.

Data Collection and Treatment

A purposive sampling plan guided data collection at observation and interview sites. Observations were conducted and field notes collected in an unobtrusive manner. Structured or unstructured interviews were administered according to the availability of time and willingness of river recreationists. Structured interviews included a set of pre-established questions (e.g., What were the salient attributes of the recreational visitor experience?; How did river recreationists define "appropriate recreational use" of the Delaware River?; etc.), whereas unstructured interviews consisted of open-ended, probing questions which permitted opportunities to uncover richness in the data, provide clarification on particular topics, and delve more deeply into the nuances and meanings river users associated with their river experiences.

Data collection, coding, and analysis were conducted as an inductive, iterative process. The data were prepared and recorded in the format of observation, interview, and reflexive journal transcripts. These data transcripts were then treated by applying Glaser and Strauss' (1967) Constant Comparative Method of Qualitative Analysis to code, process, and analyze the various emergent categories, properties, and dimensions inherent in the data. Open, axial, and selective coding techniques were performed on the data. Procedures that serve to promote theoretical sensitivity during the data coding process were utilized: these steps helped to break the data apart and then assisted in piecing the data back together around an emergent core axis. The data were transformed into narrative themes that explored the manifold concepts, categories, properties, and dimensions which were grounded in the data set. These themes served as a basis for comparability across study sites, and represented an idiographic and holistic versus a nomothetic explanation of phenomena associated with this study.

Findings

The principal focus of this investigation was concerned with answering the central question and research problem, "What is the nature of river recreationists and their recreational experiences, and the meanings they attach to these experiences on the Delaware River?" Results of this study were represented in several thematic axes as they emerged during the course of this qualitative inquiry. These thematic axes were discovered to revolve around the core theme of "The Delaware River".

The Delaware River and Its Characteristic Influence

Rivers occupy a special place in our history, culture, psyche, and soul. Numerous stories have been written about rivers: Twain's Life On The Mississippi; DeVoto's Across The Wide Missouri; Wolfe's Of Time and The River; Thoreau's A Week On The Concord And Merrimack; and Naipaul's A Bend In The River. Rivers are associated with the theme of wonder (DeVoto 1947). The influence of rivers courses through the exploration and settlement of our nation, the establishment of our commerce, literature, art, and, not the least of these, our recreational pursuits. The Delaware River is one of the significant rivers that has left its imprint on regional culture, and more recently, has shaped people's recreational interests and opportunities.

The Delaware River was found to attract a wide range of recreational users, some of whom were first-time visitors while others returned for repeated visits. A characteristic shared by many of these recreationists was their concern for and attachment to the outstanding aesthetic and environmental features associated with the Delaware River Valley. These strong connections occurred even though the Delaware River, while considered an aesthetic resource, is not usually associated with an accolade of superlatives; that is, the Delaware River is not the fastest river, not the most challenging whitewater river, nor the most remote river. Yet, the Delaware River seemed to evoke strong feelings of affection, loyalty, and attachment among a variety of recreational visitors, whether local or non-local users in terms of their points of origin. The Delaware River seemed to symbolize the experience of a very special place, as measured by the comments of recreational visitors to this area who developed and expressed strong attachments to this river valley.

A range of comments indicating recreational visitor affection for the river were noted. These comments reflected the following feelings for or attitudes toward the river as a place: possessiveness (e.g., "my river" or "our river"); gravitation to and fascination with water or water-oriented activities (e.g., "I never get tired of it"; or expression of being mesmerized by watching the flow of the river); protectiveness (e.g., "I would like to see the river remain unpolluted and the area kept from becoming too built up"); personal or family/group recreation tradition (e.g., "We come up here every year or so for a reunion"); leisure identity (e.g., "I'm a kayaker/canoeist/angler..."; "I/We made it through Skinner's Falls without tipping over the canoe"); and recreational

symbolism inherent in this environment (e.g., "It's being able to know firsthand what it was like for the pioneers, such as the rugged individualism and sense of self-sufficiency, being a risk-taker engaged in adventure, witnessing the breathtaking beauty, and experiencing the frontier spirit and self-renewal associated with wild areas."). These Delaware River related phenomena seem to be similar to other research indicating the existence of a special relationship between human activity and the places or settings in which they occur (Proshansky, Ittelson, and Rivlin 1970; Tuan 1977). The relationships between recreational engagements and the physical settings in which they occur (Williams 1985) and the dimensions affecting attachment to these places (Moore and Graefe 1994) have been studied. Perhaps artist Alan Gussow's (1972:27) observations about our sense of place best captures the essence of the emotional qualities some river recreationists develop towards the Delaware River:

...as humans we also require support for our spirits, and this is what certain kinds of places provide. The catalyst that converts any physical location...into a place, is the process of experiencing deeply. A place is a piece of the whole environment that has been claimed by feelings.

Aside from aesthetic and affective qualities associated with the Delaware River, the river valley possesses a unique set of biophysical, sociocultural, legislative, and management characteristics that were influential in attracting recreational visitors to the area. Biophysical attributes included clean river water, exceptional trout, shad, and eel fisheries, wildlife to observe, and a location within the vicinity of major eastern metropolitan areas. Historical-sociocultural-economic attributes of the setting provided a special appeal to visitors. The cultural roots of the river valley can be traced to the earliest days of settlement of this nation. Remnants of that history remain as National Historic Landmarks or are included on the National Register of Historic Places. "Heritage Tourism" (Curtis 1993), a special brand of tourism which appeals to outsiders, generates important economic revenues while it contributes to the preservation of the traditional quality of life in a community. The existence of numerous canoe and raft liveries made river float trips especially attractive and convenient for recreationists, and the monies generated made important contributions to the local economy. River users enjoyed the legislative and management attributes that made the Delaware a special river in the Northeast by virtue of its designation in the National Wild and Scenic Rivers System. Not all river users were aware that the river was technically part of the national system of protected rivers, but most visitors had an inkling that the Delaware was a special park and were glad that it was recognized and set aside for its special qualities. Recreationists, overall, were supportive of the management attributes associated with the river, which allowed them a great range of freedom to use the resource so long as the various types of river use did not degrade the resource or encroach upon other peoples' freedom to enjoy the river. Public awareness and affection for the biophysical, historical-sociocultural, economic, and legislative roots and significance of the Delaware River as a special place provide powerful

incentives for public participation in caring for and managing the recreational resource appropriately.

The following provides an illustration of the importance of the Delaware River as a place and what made it special to a river recreationist, whose thoughts reflect the sentiments of numerous other river visitors. A fellow from Manhattan, New York City spoke of his experiences at the Delaware River with the study investigator while onsite at Skinner's Falls, New York. This river user identified himself in multiple experiential roles as an advanced canoeist, kayaker, camper, and nature observer. He thought that it was wonderful and very farsighted to legislatively designate the river for resource protection and public use. He considered the Delaware River to be practically in his own backyard, so to speak, given its proximity to New York City. This avid outdoorsman explained that he had canoed or kayaked rivers in the western United States and on other continents that possessed a grandeur exceeding the Delaware River for beauty or challenge. Yet, he expressed a preference for the Delaware River; it was home to him. It was not a matter of one particular factor that made the Delaware a compelling place for him, but rather a combination of things. He spoke of the river as being a nice, verdant setting to be in during the summer. While the river valley did not have the spectacular peaks lining the area as found out west, he described the Delaware River Valley as having a special beauty of its own. He spoke of the rural character of the area and its history. He was grateful that, in this day and age and proximity to the eastern megalopolis, the Delaware River was still relatively untouched and that U.S. Congress acted to protect its outstanding qualities. The fact that a lot of "tacky", modern tourism effects had not invaded the area was also important to him. He emphasized that the Delaware River was a great place to bring his children to share and pass on his love of the outdoors and watersports with them, and have the opportunity to teach them ethical conduct in the outdoor tradition. Furthermore, he found that it was very convenient and feasible in economic, travel, and temporal terms to enjoy the Delaware River on numerous repeat visits.

Overall, the river provided visitors with some good opportunities to enjoy the out-of-doors, pass the time in an interesting way, and have some lighthearted fun. Many of these individuals were introduced to the river through a family member or friend. For some river users, however, the attachment to place went deeper: the river and the events it supported were an integral part of a visitor's life and lifestyle, and the river recreation experiences contributed meaning to the user's life. The river was a mesmerizing scenic amenity over the seasons of one's life. The river provided a source of mental and physical refreshment to visitors with its ever changing vista and possibilities for adventure. The river was a steadfast companion and confidant: a place where one could go to pass the time, enjoy a spot, consider one's thoughts, or leave the world behind. The river was a constant feature in one's life: something taken for granted as always being there, in a world that is otherwise adrift in change.

Discussion and Implications

Qualitative studies such as this one provide a window of opportunity to discover information that may be difficult to extract through quantitative study approaches. That is, a sense of the quality and meaning of a visitor recreational experience may not be satisfactorily revealed or represented by numbers alone. Qualitative studies which display narrative themes grounded in data gathered firsthand from the users provide a fuller palette of the "colors" reflected in their experiences and the finer "shadings" of meanings gained as a result of their recreational encounters. A grounded, qualitative approach also permits us to know and verify the intrinsic elements and characteristics which are essential to outdoor recreation experiences according to the participants. In an era of economic constraint and restraint, it is critical for managers to know that which is sacrosanct about outdoor recreation experiences to recreationists, so these components may be preserved intact or altered in the least intrusive manner.

Outdoor recreation resource managers need to have an understanding of the freedom recreational users have in designing either a primitive style river camping trip or a commercial livery campground style trip, especially on the Upper Delaware River. Numerous livery sponsored river trips were available, but they represented only one style of river experience. Some river users preferred to organize their own trip, but found it difficult to plan the overnight camping component if they did not want to stay at commercial campsites, since public sites were very limited in availability. Provision for the greatest range of recreational styles would permit river users greater freedom of choice and accompanying satisfaction associated with their river trip.

The notions of aural and personal space seem to be culturally relative phenomena. These factors warrant further consideration and monitoring in terms of how they affect appropriate recreational use and visitor satisfaction. These elements are especially important to monitor as the mix of recreation visitors becomes more ethnically diverse and the prospect of discordant norms of behavior among visitors increases. Management strategies may be needed to establish standards for appropriate behavior at recreational sites to reduce the potential for conflicts. Related to this, managers need to address the role of outdoor recreation as a facilitator of increased cultural understanding among diverse peoples to help reduce conflicts among visitors, and to expand appreciation for and the wise use of outdoor recreation environments. Furthermore, managers need to consider how to mediate the behaviors urbanists bring into park and recreation lands so some of those behaviors are more appropriate and sensitive to the rural character of outdoor recreation settings (e.g., through education and interpretation). Related to this, managers and researchers could address the relationship between nature appreciation and the exhibition of respectful outdoor recreation behavior norms.

Recommendations for Further Research

Mark Sagoff (1992) wrote, "We become Americans by becoming native to this place." National Park visitors now reflect the diversity of the population. Future research may address the role of leisure acculturation, that is the role and influence of outdoor recreation places in the cultural assimilation and acculturation process of people from diverse ethnic backgrounds in this country. Cultural assimilation and acculturation is a two-way process, wherein new members of society are affected by the existing culture, and they in turn impart distinctive influences upon the society at large and its institutions. Research will be needed that investigates the types of conflicts that erupt when different cultural mores, attitudes, and traditions interplay and overlap in outdoor recreation settings. Additionally, the National Parks system is a uniquely American institution, tradition, and experience; how do experiences within the system contribute to diverse peoples' sense of and attachment to place, and thus contributes to their becoming native to a place?

Further research which incorporates qualitative methodologies in outdoor recreation studies is also suggested. The recreation experience and the numerous roles or "hats" that users "wear" (e.g., angler/canoeist/picnicker/nature observer) are multidimensional and complex in nature, necessitating the selection of research methods best suited for the research problems to be examined. Furthermore, the application of qualitative methods to leisure phenomena provides an opportunity to enhance the validity of comparable findings gathered through quantitative approaches across the leisure studies field. More specifically, qualitative methods may contribute to the confirmation of what has been found through quantitative studies or they may help to reveal new avenues where research is needed, since qualitative inquiries help us to go beyond the typical "forced choice" selections associated with quantitative designs. Another value of phenomenological based studies rests in their ability to shed new light on commonplace topics so they may be viewed anew. The expanded understanding of leisure phenomena and new directions for further exploration arise from this process in a manner as reflected in one of T.S. Eliot's (1970:208) poems:

We shall not cease from exploration
And the end of all our exploring
Will be to arrive where we started
And to know the place for the first time.

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INCREASING MICHIGAN BOATER

COMPLIANCE WITH THE CLEAN VESSEL ACT

IN USE OF PUMPOUT AND DUMP STATIONS:

INFORMATION AND EDUCATION NEEDS AND

PREFERENCES

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To respond to the federal Clean Vessel Act and be eligible for related federal dollars to expand and improve facilities for recreational boat sewage disposal, states with coastal waters must develop a plan for a boat pumpout grant program. In addition to inventorying existing pumpout and dump stations, assessing numbers of boats with portable and installed toilets, and determining current boater use of pumpout facilities, understanding how boaters access and use boating information is a critical element of the planning process. This study, part of a larger Michigan boating study, focused on boaters' use of on-boat toilets and pumpout stations, barriers to use of this equipment, and the types of information and education sources used and preferred by boaters for getting boating information.

Introduction

Michigan residents and visitors from across the country are attracted by the numerous water resources present in Michigan. With its 3,200 miles of Great Lakes shoreline and numerous inland lakes and rivers, Michigan attracts many boaters and other water-based recreationists. For years, Michigan has been identified as one of the top two or three states for boating activity. In 1994 Michigan had 555,000 active registered boaters (of 770,000 total unexpired registrations) who reported 4.8 million boat days on the Great Lakes and 8.6 million boat days on inland lakes (Stynes, Wu and Mahoney, 1995). With this much boating use, the potential exists for extensive water quality degradation resulting from improper disposal of sewage from boats. While boaters certainly are not the sole source of potential sewage contamination of Great Lakes and inland waterways, they have been identified as one group to target for improved handling of sewage in a larger effort to reduce pollution of Michigan's waters. Because Michigan's coastal waters—composed of hundreds of bays, estuaries, river mouths, and harbors—do not enjoy the benefits of oceanic tides or longshore currents to flush or dilute pollutants, the potential for contamination from any accumulation of sewage is increased. Additionally, for Great Lakes waters there is no three-mile

limit from shore beyond which boats are allowed to dump treated sewage as are boats in ocean waters.

In 1992 federal legislation in the form of the Clean Vessel Act (PL 102-587) was passed in an effort to help reduce boat sewage pollution in US coastal and Great Lakes waters. The Act provides federal money to coastal states (including Great Lakes states) to increase the availability of sewage pumpout and dump stations for boats having Type III marine sanitation devices (either installed holding tanks or portable toilets). To access this money, states are required to submit a plan for providing sufficient numbers of pumpout and dump stations to meet boaters' needs, to increase access to and ease of use of these stations, and to otherwise facilitate their use by boaters. Part of this effort includes determining 1) boaters' awareness of relevant regulations, location of pumpout and dump stations, and how to use them; 2) boaters' current use of and need for pumpout and dump stations; and 3) boaters' used and preferred sources for boating information, including information about pumpouts and dump stations. By understanding these elements of boaters' awareness and behavior, an information and education plan can be developed as part of a total program for providing and facilitating increased use of pumpouts and dump stations by recreational boaters.

In some ways, Michigan had a head start on dealing with recreational boat sewage because its coastal waters were designated in 1987 as "no discharge areas" by the US Environmental Protection Agency (EPA) under Sections 312(f)(3) and 312(f)(4)A & B of the Clean Water Act. In response to that legislation, Michigan required all marinas with a capacity of 15 boats or more either to provide a pumpout facility or to have an agreement with a nearby marina to provide those services. That program and the Clean Vessel Act Pumpout Grant Program are administered in Michigan by the Michigan Department of Natural Resources' Land and Water Management Division. Through these programs, Michigan is attempting to provide additional pumpout facilities where needed and better facilitate boaters' use of those facilities.

Purpose of the Study

The overall purpose of this study is to develop an information and education plan to communicate more effectively with Michigan recreational boaters, marina operators and the boating industry about the Clean Vessel Act and the location and use of sewage pumpout and dump stations, and to increase use of these facilities.

The supporting objectives of the study were to:

- determine the actual number and location of sewage pumpouts and dump stations serving Great Lakes boaters in Michigan;
- determine boaters' current ownership of installed and/or portable toilet facilities on their boats;
- determine boaters' current use of pumpouts and dump stations;
- identify barriers and constraints to boaters' use of on-board toilets, pumpouts and dump stations;

- identify boaters' sources of boating-related information, particularly about pumpouts and dump stations;
- identify boaters' preferred sources and locations for boating-related information, particularly about pumpouts and dump stations.

Methods

The information and education study was one part of a much larger Michigan recreational boating study, which included 1) a marina census (on-site inspections and interviews); 2) general boater survey (mail); 3) transient boater survey (on-site survey distribution); and 4) information/education and environmental attitude survey (mail survey plus focus groups). Some results from the other related studies will be incorporated in this paper; however, the methods and results will not be discussed in detail. For information, see Report 1 (Talhelm et al., 1995), Report 3 (Stynes, Wu and Mahoney, 1995), and Report 4 (Talhelm et al., 1995), all available from the Michigan Department of Natural Resources (DNR).

The information/education portion of the study used two primary data-gathering techniques: a mail survey and a series of three focus groups.

Mail Survey

The information/education mail survey, which used a sub-sample of respondents from the general boater survey, was conducted in November and December of 1994 after responses from the general boater survey were received. (The general boater survey used a stratified random sample of 6,000 from the total Michigan boater registration list of 901,000. This sample was stratified by geographic region and boat size class, with coastal boaters and owners of large boats being more heavily sampled.) The target sample size for the information/education survey was 2,000. Because this group was stratified only by boat size class and not by county or region, the smaller sample size was sufficient. The actual sample size of 1,949 was drawn from respondents to the general boater survey who indicated willingness to participate in a second survey. This survey was not included with the general boater survey because the combined length, which would have been extensive, probably would have reduced the response rate on both. The sub-sample was used so that responses from the general boater survey could be linked with those of the information/education survey and questions did not have to be repeated.

The mail survey was administered using a modified Dillman procedure (Dillman, 1978). Reminder postcards were sent to all respondents within 10 days of the original mailing. No second survey was sent unless the respondent requested one after the postcard prompt.

The sample was stratified by boat size class, with more drawn from boaters owning large boats because they are more likely to have installed and/or portable toilets than owners of small boats, for whom the questions might have seemed irrelevant. The final sample size of 1,949 was less than the target sample

size of 2,000 because not enough general boater survey respondents owning boats in Class Size C (21-28' boats) indicated a willingness to complete a second survey. Of the 1,949 surveys mailed, thirteen were undeliverable, three were returned and noted as "irrelevant" by the respondents, and two were marked with "respondent deceased," resulting in a final sample size of 1,931.

Boat Size	Original Sample Size	Sample Size adjusted for Undel/Irrel
≤ 16'	400	400
17-20'	400	395
21-28'	549	541
> 29'	600	595
TOTAL	1,949	1,931

The overall response rate, based on the original boat size classification scheme upon which the sample was drawn, was 62%. Within class sizes, the response rate ranged from 58% to 66% (see below).

Boat Size	Response Rate
< 16'	63.0
17-20'	63.0
21-28'	58.0
> 29'	66.0
OVERALL	62.0

Before analysis, 56 questionnaires were removed from the database either because the respondent stated having multiple boats (rather than the single boat corresponding with the registered boat upon which the sample selection was based) or because some other factor rendered the data unusable. With these surveys removed, the final number of usable questionnaires was 1,211. Of this total, the number and percent of the total respondents within each boat class size (before weighting) was:

Boat Size	Sample Size	Percent
≤ 16'	253	20.9
17-20'	248	20.5
21-28'	314	25.9
> 29'	396	32.7
TOTAL	1,211	100.0

Because there are many more small boats than large boats in Michigan, and because the original sampling scheme over-sampled the large boats, the responses were weighted to more accurately reflect the profile of boats of different sizes in Michigan. Based on the boat size profile weights, the percent of respondents with boats in each class size is listed in column A below. However, because some respondents own more than

one boat and completed the information/education survey based on a different boat from the one for which they were sampled, an adjustment to the weighted percent had to be made. Column B shows the revised weighting for each boat size class which was used for the analysis of survey data.

Boat Size	(A) Original Boat Size %	(B) Revised Boat Size %
≤ 16'	58.5	54.5
17-20'	21.4	25.9
21-28'	15.4	15.8
> 29'	4.7	3.8
TOTAL	100.0	100.0

To check for response bias, several characteristics (variables) of the respondents to the environmental attitude/information survey were compared with those of respondents who did not receive this survey (by boat type, boat class, region of residence, place where boat is kept, and whether or not they have any type of toilet on board). Minimal differences exist, and all of them can be explained by the over-sampling of large boat owners for the environmental attitude/information survey. Therefore we can be reasonably confident that no major non-response bias exists across those who responded to the general boater survey.

Focus Groups

Focus groups were used for the information/education portion of the study for three reasons: 1) to look for corroboration for results of the mail questionnaire; 2) to encourage candid discussion about boaters' use of and/or barriers and constraints to use of on-board toilets; and 3) to obtain more in-depth information about boaters' use of pumpouts and dump stations and their use of boating-related information systems.

Three focus groups were conducted in different parts of Michigan during early February of 1995. Respondents were selected from a list of registered boaters living within a 25-mile radius of each site and who were NOT on the sampling list for the general boater survey. An attempt was made to get representation from owners of both large and small boats, and both males and females. However, owners of small boats were less likely to feel they could contribute anything (size of boat, non-use of most boat facilities). Few females were listed on the boat registration list and, of those who were, many had unlisted phone numbers. Therefore, very few females and small boat owners participated in focus groups. (However, many of the focus group respondents owned more than one boat, both large and small. Some owned as many as 15 boats.)

Participation in the focus groups was 100% of those recruited, with the exception of one person for the Grand Rapids group who called about a week ahead of time about an unexpected schedule conflict. Because the focus group room was so small, no effort was made to replace this person. Group sizes varied depending on the size of the focus group research facility at each site.

Southfield (Detroit area)	13	participants
Grand Rapids	8	participants
Traverse City	12	participants

Focus group discussion addressed a variety of boating service and facility satisfaction issues, with a focus on boat toilets/pumpout and dump station use and sources of boating information. After introductions and an orientation to the session, the following outline was used to guide discussion.

1. Boaters' satisfaction with the following, based on the 1994 boating season:
 - a. Availability of boating access sites (public/private)
 - b. Availability of marina services (location, hours of operation, etc.)
 - c. Quality of marina services
 - d. Access to and quality of information about boating opportunities/facilities/regulations
 - e. Water quality
 - f. Fishing quality
 - g. Crowding perceptions
2. Boaters' use of on-board toilets, pumpouts and dump stations:
 - a. Type of toilet on boat
 - b. Use or non-use and why
 - c. Perceptions of boat sewage as a water pollution source
 - d. Personal procedures for disposing of sewage
 - e. Reasons that some other people do NOT use pumpouts/ dump stations
 - f. Awareness of existing pumpouts/dump stations; sources they used for information about pumpouts and dump stations
 - g. Cost issues related to pumpout/dump station use
 - h. Convenience (or lack of) for using pumpouts/dump stations
 - i. Their recommendations for increasing boaters' use of pumpouts and dump stations
 - j. Recommended providers of pumpouts and dump stations
3. Information sources for boating
4. Other issues
 - a. Experiences with and reactions to MI Department of Natural Resources' (DNR) boating regulation enforcement responsibilities
 - b. Identification of top 3 things that DNR could do to improve boating experiences
 - c. Identification of top 3 things that private boating industry could do to improve boating

- d. Identification of top 3 things that either the DNR or private industry could do to facilitate or encourage boaters to use pumpouts and dump stations
5. Miscellany. Any other comments/recommendations about MI boating

Each focus group session lasted about two hours, considerably longer than planned. Most participants were active discussants in all sessions.

Results

Factors Influencing Recreational Boaters' Use of Pumpouts and Dump Stations

Results for this portion of the report were taken from a combination of mail survey results and focus group comments. (Note that survey results are reported on weighted rather than raw data so that they are representative of the Michigan recreational boat fleet.)

Of those respondents with boats having any type of toilet on their boats, 55% had portable toilets and 45% had installed toilets. Only 3% indicated use of any other type of toilet system, which included pails, cans, portable urinals, a disposal chemical system, a self-contained unit with deck discharge, and "peeing over the rail."

For respondents having boats with toilets, it appears that the greatest use of facilities is of pumpout stations for boats with installed toilets, though some portable toilets (8%) appear to be emptied at pumpout stations. Those who have portable toilets tend to dump most often at home (73%). Some boaters use dump stations (20%), though it is unclear as to whether low use is due to the low number of dump stations provided at marinas and launch sites or because boaters simply find it easier to dump at their homes or cottages. Additionally, some boaters dump their portable toilets in public restrooms.

About 87% of all boats in the Michigan fleet do NOT have toilets of any kind, and so have no need for sewage pumpouts and dump stations. However, based on handwritten comments on the survey and from focus group discussion, small boat users are the ones who have the greatest difficulty finding ways to dispose of waste (this includes the lack of publicly accessible restroom facilities on shore as well as lack of toilets on their boats). Therefore, they are the ones most likely to urinate directly into the water or to use buckets and cans which are then dumped overboard. (This group is not represented in the data discussed above.) Focus group discussion indicated that all boaters, regardless of boat size, prefer to use land-based restroom facilities whenever possible and limit their use of both portable and installed toilets to when they are cruising or too far from a shore facility to make access quick and easy. Therefore, a major concern is the lack of on-shore, publicly-accessible restroom facilities and lack of places to dock temporarily while using on-shore restroom facilities.

Beliefs about Convenience of Using Pumpouts and Dump Stations

Respondents were asked a series of questions about factors that could facilitate or inhibit their personal use of pumpouts and dump stations. Overall, about one third of the respondents did not answer the question. Of those who did respond to the question, for all factors except "probability of getting caught," between 35% and 53% of the respondents said they "did not know" what they believed about pumpout station convenience factors (e.g., appropriateness of cost, ease of finding and using stations, proximity of stations to other boat services and facilities).

For this question, nearly 70% of respondents either did not respond or "did not know" if the cost of using pumpout stations was "about right." However, comments to open-ended questions and in focus group discussion indicate that high cost of pumping out tanks is a major deterrent and/or source of aggravation for boaters, even for those who do comply. Inconsistency of fees from place to place also is frustrating to boaters, who indicated finding fees ranging from \$1.00 to \$15.00 for a single pumpout. Those who use pumpouts and dump stations, especially if they boat regularly in a familiar area, tend to know where they are located and the hours of operation. Most do not have much trouble getting to or using them, nor do they have to wait in very long lines. Focus group boaters said that most boaters who slip their boats at a marina and boat in that area regularly, plan to use the pumpout stations during off-peak times to avoid waiting in lines. It is the transient and occasional boaters who find they have to wait in lines, particularly during peak holidays and weekends. Pumpout stations, where they exist, tend to be near other boat services. Most boaters do not have a concern about how long it takes to actually pump out a holding tank.

A variety of additional comments made by focus group participants support many of the questionnaire responses. In many cases, boaters pump out holding tanks while their fuel tanks are being filled; therefore, emptying holding tanks at such times is not considered an inconvenience. While there is strong sentiment among boaters, especially "serious boaters" (those with large boats and many years of experience), that almost everyone they know does actually use pumpout stations, most boaters do not think there is a strong likelihood that they will "be caught" if they dump directly into the lake.

Reasons for Non-use of Pumpouts and Dump Stations by Recreational Boaters

When asked in an open-ended question what they think are the main reason(s) that people do not use pumpouts or dump stations, the most often reported reasons were related to people's attitudes: laziness, being "too cheap," being inconsiderate and uncaring of other people and the environment, and generally being "low lifes." Often responses were given in bundles of two and three reasons (e.g., "lazy and cheap"). Also frequently reported as a reason for non-use was "general inconvenience." However, it is difficult to determine the specific factors contributing to this inconvenience. General attitudes of people are difficult and slow to change, and "general inconvenience" is difficult to define. Therefore,

management agency priorities probably should be placed on those factors which agencies and organizations can control and strategies they can implement. In the list of the top six reasons for non-use of pumpouts and dump stations (see Table 1), the most frequently mentioned controllable factors for boaters' non-use of pumpouts and dump stations are lack of education and information, and lack of sufficient numbers of facilities.

Table 1. Top six reasons boaters believe people do not use pumpouts and dump stations.

Reasons *	# of Resp (wtd)	% of Total Resp	% IDing Factor
People are lazy	63,635	20.3	27.8
Inconvenient (undefined)	42,322	13.5	18.5
People don't care (about people, environment)	31,098	9.9	13.6
People are "cheap," costs are too high**	27,392	8.8	12.0
Lack of education & information **	26,352	8.4	11.6
Lack of facilities (too remote, too far, at sea)	18,588	5.9	8.1

* Respondents could list up to four separate reasons.

** Factors printed in bold font are "controllable" by DNR or other agencies/organizations.

An additional comment frequently made (to this question and to several others, as well as during focus group discussions) was that boaters believe that the small amount of sewage dumped by recreational boaters is minuscule compared with other sources of water pollutants (e.g., sewage overflow from municipalities, dumping from commercial and foreign boats, agricultural runoff, and industrial discharge). Many believe that recreational boaters are inequitably singled out for enforcement and "hassle" when the major polluters appear to be "allowed" to discharge with minimal or no penalties.

Factors That Could Encourage Increased Use of Pumpouts and Dump Stations

When asked in the mail survey how effective each of a variety of strategies would be in increasing recreational boaters' use of pumpouts and dump stations, respondents identified that all the listed strategies could have some positive effect on increasing boaters' use of pumpouts and dump stations. However, those identified as being the five most effective include (in order by mean response) 1) strict enforcement of regulations; 2) more convenient location of facilities; 3) greater ease of maneuvering boats to dock; 4) better signs, brochures and other information; and 5) provision of more facilities (especially of dumps and in areas of highest boating use). Improved design of facilities (toilet systems and pumpout stations), extended hours of operation, shorter waiting lines, reduced cost to use facilities,

and provision of mobile pumpout facilities were also supported as effective to some degree.

In the open-ended question asking for recommendations for improving the availability and convenience of sewage dumps and pumpout facilities, education and information (18.5%), enforcement (12%), and development of more facilities (8.5%) were the most often cited strategies (see Table 2). There appears to be a contradiction in boaters' perception of the enforcement issue. On one hand, enforcement is strongly supported as a way to reduce illegal, dangerous or unwanted behavior—when it is for "the other guy." At the same time, there is strong sentiment that marine patrols (DNR, sheriffs, Coast Guard, etc.) focus too much attention and effort on recreational boaters, especially with "routine safety checks," in a way that "hassles" and is not customer service-oriented. There is some expression of suggestion that marine patrol officers should work first to educate boaters and provide information before administering sanctions (e.g., giving tickets, fines, etc.). A host of other ideas for improving the availability and convenience were identified also, but much less frequently than the top three. These included: a variety of design ideas, provision of self-service coin-operated and mobile pumpout stations, increased hours of operation, proper maintenance of facilities, and miscellaneous financial and other incentives for boaters and marina operators.

Table 2. Top three boaters' recommendations for improving availability and convenience of pumpouts and dump stations.

Recommendations *	# of Resp (wtd)	% of Total Resp	% IDing Strategy
More information and education	20,348	17.2	18.5
Enforcement (include fines, inspections, confiscation)	13,198	11.2	12.0
Provide additional facilities (require at all marinas, boat launches, harbors)	9,398	7.9	8.5

* Respondents each could list up to four separate reasons.

Recreational Boaters' Use of Information Sources

The mail survey was structured so that boaters first were asked to identify their primary sources of information related to boating. Most respondents checked more than one source, with source preference probably dependent on the type of information desired. Word-of-mouth (other boaters) was the primary source of information, followed by marina operators, boat stores, and boating magazines, suggesting that the boat industry and private sector are heavily involved in transmitting boating-related information. While nearly 30 different magazines were listed as a source of boating information, by far the most frequently mentioned was Lakeland Boating (75 respondents). When weighted, the most read magazine is still Lakeland Boating (13.2%). The next most often read (about

10% of boaters for each) are WoodenBoat, Boat US, and Classic Boat. Many boaters reported that they subscribe to more than one magazine. Yacht clubs were also listed as a source of boating information. In Table 3 are listed the respondents' primary sources of general boating information.

Respondents then were asked about their preferred sources of information related specifically to location and their use of sewage pumpouts and dump stations. For the most part, preferred sources for this type of information differed markedly from general boating information sources. The only exception was continued reliance on marinas and marina operators. The most preferred information sources included signs, marina operators, and brochures and pamphlets (see Table 4). While identified by a small number of respondents, the most frequently mentioned "other" sources (from open-ended question) included 1) information provided with boat registrations and renewals; 2) placement of pumpout station logos on charts, maps and harbor guides (including the DNR Harbor Guide); and 3) television spots.

Table 3. Primary sources of general information about boating activities, services and facilities (weighted).

Sources for General Boating Information	% Using Source
Word-of-mouth	69.4
Boat and marine stores	38.5
Government agencies	38.4
Launch sites	34.1
Marinas, marina operators	31.6
Boat shows	28.0
Boating magazines	23.8
DNR Harbor Guide	14.5
Other (non-DNR) harbor guides	6.7
Michigan Boating Annual (MBIA)	2.6

Table 4. Preferred sources of information about pumpouts and dump stations (weighted).

Preferred Sources for Pumpout/Dump Station	% Preferring Source Information
Signs	79.0
Marinas, marina operators	46.1
Brochures and pamphlets	47.5
Magazines and newsletters	25.5
Other boaters	23.5
Telephone hotline	21.5
On-line computer information sources	9.2
Videos	2.3

When asked in an open-ended format what they believed to be the single most effective media source and location for information about sewage pumpouts and dump stations, more than 20 different media formats and more than 25 different

locations were identified. However, by far the most preferred media formats included signs (large, standardized, and visible from the water) (26%), and brochures and pamphlets (20%). The next preferred sources included magazines and newsletters, telephone hotline, newspapers, and marina operators (however, all of these were much less preferred than signs and brochures). (See Table 5.)

Table 5. Top six boat owners' "single preferred media format" for receiving pumpout/dump station information (weighted).

Single Preferred Media Source	% Preferring Source
Signs	25.8
Brochures and pamphlets	20.0
Magazines and newsletters	8.4
Telephone hotline	7.9
Newspapers (local)	7.8
Marinas, marina operators	6.9

By far the most preferred locations for receiving pumpout information were marinas and launch sites, both public and private. The next most preferred locations were in boaters' "local area" (many identified their own town or county). While considerably less preferred than the top three locations, the DNR and Secretary of State's offices were ranked fourth as locations to get information. (For details about specific preferred locations for receiving pumpout information, see Table 6.)

Table 6. Boat owners' single preferred location for receiving pumpout/dump information (weighted).

Single Preferred Location for Pumpout Information	% Preferring Location
Marinas (public and private)	21.1
Boat launch sites (public and private)	20.6
Local area	20.1
DNR, Secretary of State's offices	7.9

During the focus group sessions, similar information sources and locations were identified. However, there was extensive discussion about whose responsibility it should be to provide this information. Many believed that DNR (i.e., "government") should not be interfering with boating and should not be responsible for disseminating information about pumpouts and dump stations. Private industry, they believed, should play a major role in disseminating the information, particularly because boaters frequently use private industry services (boat dealers, marine supply stores, marinas). On the other hand, discussions frequently evolved to recommending that "DNR should provide" the information to boaters, either directly to their homes, through private marinas and stores, or with boat registration materials.

Discussion and Recommendations: Plan for Provision and Distribution of Information about Pumpouts and Dump Stations

Provision of Sewage Pumpouts and Dump Stations

While many boaters either do not use (or do not need to use) sewage pumpouts and dump stations, and many believe that both services and information are adequate, a large number of boaters presented numerous recommendations for improving access to and use of pumpouts and dump stations as well as improving education and information distribution systems. It appears from combined results of the boating studies that perceived adequacy of facilities (in availability, maintenance and service) is largely dependent upon where the individual boat owners do most of their boating. Such differences were noted in focus group discussions, too, where people who boat in the southeast (where there is a high level of boating and heavy demand on facilities) and in more remote areas with limited facilities and few harbors of refuge (e.g., Mackinac Island, Isle Royale) are more likely to express a need for more boating services in general, including pumpouts and dump stations.

Based on these results, it is recommended that additional pumpouts and dump stations be constructed in those areas where there is expressed need rather than simply saturating the coastline with regularly placed pumpouts and dump stations. Some respondents did suggest requiring that pumpouts and dump stations be provided at ALL marinas, gas docks and boat launches. In greatest statewide facility demand is provision of and information about dump stations for boaters who use portable toilets.

While recognizing a need for additional pumpout and dump station construction in some areas, respondents also expressed strong sentiment that effort and monetary resources be focused also on other factors. Based on their comments, recommendations include the following:

- Pumpout stations should be separated from fueling stations/gas docks so that those wanting only to empty holding tanks can do so without waiting in gas lines. (On the other hand, boaters commented that it is convenient to pump out holding tanks while filling fuel tanks. This may indicate that, in addition to providing pumpouts located at fueling stations, additional pumpouts [or perhaps longer hoses, or multiple hoses] located away from fuel pumps be provided.)
- Focus on design elements (in coordination with industry)—of installed toilets, pumpout station systems, docks, and access routes to pumpout station locations:
 - standard connectors, adapters for hose
 - tight seals on pumpout systems (toilet to pumpout station)
 - multiple hoses on pumpouts (to allow service to more than one boat simultaneously).
- Regularly inspect and assure that pumpout stations are maintained and function properly.
- Increase hours of operation (or at least match hours of operation with peak harbor use times, such as mornings and evenings).
- Do not allow docking space adjacent to pumpout stations to be used for boat slippage, which renders the pumpout stations inaccessible.
- Provide (require?) competent, trained and customer-friendly personnel at docks near pumpout stations (both public and private facilities) who can assist if problems arise.
- Provide more coin-operated, self-service pumpout systems (these are available at all hours, are more efficient, do not require paid staff, and allow the price for pumping to correspond with the volume disposed).
- Provide portable, mobile pumpout units which can be wheeled or floated (especially in locations where boats anchor or moor away from docks) to boats, especially the larger ones which have difficulty maneuvering to some pumpout station sites.

Another issue that was raised (discussed extensively during focus groups) with regard to use of toilet facilities was the need for more open-to-the-public restroom facilities on shore. Most boaters prefer to use on-shore facilities when they can; small boat owners believe they are limited to the on-shore/over-the-side choice. Most on-shore restroom facilities, where they exist, have restricted access or, in the case of some pit toilets, are not adequately maintained. A related issue is the need for adequate, temporary dock space (away from launch ramps) where boats can be tied while boaters use on-shore facilities. Provision of on-shore facilities would help reduce dumping directly into the lakes.

As discussed earlier, there seems to be disagreement among boaters about the role of law enforcement and boating activity, especially with regard to the issue of toilet use. Some want more and stricter enforcement; others want less. Regardless of the viewpoint, there seems to be mutual agreement that enforcement officers should be trained in "customer service," including positive communications strategies, education techniques, and provision of information messages/brochures. They should first try to inform and educate boaters before imposing sanctions.

Education and Information Systems

No single source or media format for receiving information about location, use, and rationale for pumpout station use was identified; rather, numerous sources and locations were strongly supported. Based on these results, and in accord with human tendencies to filter out much of the information constantly bombarding them, it is recommended that an integrated system be designed and implemented to disseminate information about use of pumpouts and dump stations. As indicated by boaters, there is a need for both education and information. (In this context, education is intended to mean

1) educating people about the biological and physical impacts of dumping raw or chemically treated sewage into the lake; 2) Great Lakes ecosystem and its benefits; 3) instilling a sensitivity to or resource ethic about preserving water quality; and 4) boaters' responsibility and contribution to protecting lake resources. Information refers to communicating information such as location of pumpouts and dump stations, how to use them, hours of operation, costs, etc.) Both education and information strategies are described below; however, first priority should be given to the information system because it has potential for the most immediate impacts and benefits.

Education is a long process and cannot be accomplished quickly or with a single "message." It should involve collaboration with organizations already teaching about the environment in general (school systems, nature centers, Extension specialists, youth groups, etc.). Information, materials and activities about the Great Lakes ecosystem, its health, and history can be incorporated into existing programs and curricula. Perhaps the boating industry (marina operators, Michigan Boating Industry Association [MBIA], boat dealers) could cooperate by sponsoring publication and distribution of materials, providing special training sessions, or simply by providing (and recommending) information materials through their marinas and stores.

It may be possible to work with the Power Squadron or Coast Guard to incorporate within their boating safety courses units about the Great Lakes ecosystem, the importance of protecting water quality, and suggestions about what boaters can do (technology, behavior, etc.) to contribute positively to water quality protection.

Additionally, mass media messages can be used, particularly during peak season, to remind boaters about their responsibility to properly dispose of sewage. Short TV spots, columns in local newspapers, short articles in yacht club magazines or bulletins could be used. Information could be provided about where to get detailed information or maps. Public Service Announcements, designed specifically for this purpose, could be developed in print, video, and audio format for publication and broadcast.

Information should receive the highest priority. A universal logo to identify pumpout stations and/or dumps should be designed. This should be used in a variety of venues.

- Install large, standardized signs (with pumpout station logo or icon) at harbor entrances, marina entrances or other appropriate locations (depending on physical layout), where they are easily visible from the water, to indicate that pumpouts and/or dump stations exist.
- Install duplicate signs, if needed, to further indicate exactly where in the marina or harbor they are located.
- Design clear, simple brochures (with both a map locating existing pumpouts and dump stations and a description of other relevant information [e.g., hours of operation,

attended or self-serve, cost, coin-operated or not]) which can be distributed through a variety of channels:

- provide brochures at marinas and boat launches;
- distribute brochures with boat registration and registration renewal notices (because this occurs in a three-year cycle, other outlets are needed also);
- provide brochures as an insert in Michigan or regional boating magazines, such as Lakeland Boating (perhaps publishers would consider cooperating by inserting them free of charge [as a print media public service announcement] if brochures are designed and printed by the State);
- insert brochures in DNR Harbor Guides;
- provide supplies of the brochures for distribution at boat shows, boat supply stores, DNR offices, state park offices, etc.
- As new Harbor Guides, charts, maps and other guides are printed, add the standardized pumpout station icon to those publications.

In general, important elements to remember in developing an effective information system are to provide consistent, repetitive, and accurate information in an integrated way in places the target audiences already frequent or where they receive services. Where possible, the information should be disseminated through existing, well-used channels. Consequently, cooperation in the design and implementation of an integrated information system should include representatives from the DNR, boating industry, marina operators, and enforcement officers. Each group must be committed to the mission of the information system, must facilitate its delivery, and be willing to provide the intended service in a timely, friendly manner.

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MANAGING NEW FORMS OF RECREATION IN HERITAGE AREAS

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During the recent public consultation on proposed revisions to Parks Canada Policy (1979) the subject of the appropriateness of recreation activities services and facilities became a major issue. The paper describes the history of appropriate activities assessment in Parks Canada, Parks Canada's response concerns raised by the public and its initial success in implementing the Proposed Framework for Assessing the Appropriateness of Recreation Activities in Protected Heritage Areas.

History of Appropriate Activity Assessments

The principle that only certain recreation activities are appropriate to the setting of protected heritage areas is well established. In response to the tremendous growth in the number and variety of types of recreation use in national parks (e.g. backcountry use, motorized recreation such as snowmobiles and watercraft), Parks Canada Policy (1979) confirmed that not all types of outdoor recreation activities are appropriate to national parks. Furthermore, the 1979 Policy stated that Parks Canada would encourage those activities that foster public understanding, appreciation and enjoyment and which require a minimum of built facilities.

In the early 1980s, a process to assess the appropriateness of a recreation activity on a national basis was developed and tested using several activities (e.g. hang gliding, dog sledding, and trail bicycling) (Elliot, 1982), (Francis, 1982), (Mullen, 1982), (Bronson, 1983a; 1983b; 1984; 1985). The approach was innovative because it strived to be comprehensive through a workshop approach, and involved Parks Canada staff and stakeholders (participants, environmental groups, national organizations) to develop a position regarding the activity.

At this time, the basic concepts of the Visitor Activity Management Process (VAMP) were being established (Parks Canada, 1985b). VAMP had a significant influence on the criteria selected for appropriate activity assessments at the national level. This work in turn led to a proposal that the appropriateness of activities be assessed at the field level as part of VAMP.

The idea of appropriate activity assessments was premature and several shortfalls emerged:

- the complexity of the task had been underestimated;

- there was a lack of supporting social science information;
- Parks Canada became involved in an extended pilot project; and
- the assessments became complicated by political lobbying.

The national assessment of new activities was never fully established and no assessments have taken place since 1987. Several parks adapted the national approach to assess the appropriateness of activities at the field level (Tierney and Mcleod, 1985 and Nilsen, 1987) but these were never fully tested or widely adopted.

In 1990, Parks Canada initiated a process to revise and update the 1979 Policy. When a revised draft went to public consultation, the public and interest groups were quick to point out that key statements of principle stating that "not all types of recreation use are appropriate" had been omitted. In fact, this became one of the most frequently cited public criticisms of the proposed policy.

In response to the comments, the following steps were taken and incorporated in the Guiding Principles and Operating Policies (1994)[hereafter cited as Parks Canada Policies]:

1. One of the 10 Guiding Principles now addresses the question of appropriate activities;
2. Statements about appropriate use were re-instated in various activity policies;
3. A definition of an appropriate activity was included;
4. A requirement to specify the type and range of outdoor recreation activities and their supporting facilities at the park level as part of management planning was included; and
5. A set of criteria were defined to assess the appropriateness of the provision of services and facilities.

In essence, some of the principles of VAMP were incorporated in the policy and encouraged managers to answer the important questions:

- Who do we serve?
- What activities does Parks Canada support?
- Why should these activities be supported?
- Where should these activities be supported?
- When should these activities be supported?
- How (under what conditions) should they be supported?

Scope of Appropriate Activity Assessments

The activities which will be considered for appropriate activity assessments are those, which on a national basis, are allowable in heritage areas.

An allowable activity is defined as:

- One which does not contravene the National Parks Act and Regulations or Parks Canada Policies and which may also be appropriate to the conditions in a specific heritage area (Parks Canada, 1988b).

Examples of allowable activities include: backpacking, boating, camping, canoeing/kayaking, climbing, cycling, picnicking, pleasure driving, rafting, sail sports, skindiving, snowmobiling, snowshoeing, surfing, and swimming.

An appropriate activity is one which:

- is consistent with these [Parks Canada Policies] and the protection of ecological and/or commemorative integrity of protected heritage areas;
- is especially suited to the particular conditions of a specific protected heritage area, and
- provides the means to appreciate, understand and enjoy protected heritage area themes, messages and stories (Parks Canada Policies, 1994).

For example, trail bicycling is an allowable recreation activity in national parks, yet it may not be appropriate to the setting of a particular national park such as St. Lawrence Islands.

The Proposed Framework

The provision of opportunities for recreation activities is one important means of encouraging public understanding, appreciation and enjoyment of natural and cultural resources. Such first-hand experiences are a key method of fostering protection of these areas through environmental citizenship and stewardship. This principle is now reaffirmed in Parks Canada Policies (1994):

Opportunities will be provided to visitors that enhance public understanding, appreciation, enjoyment and protection of the national heritage and which are appropriate to the purpose of each park and historic site. Essential and basic services are provided while maintaining ecological and commemorative integrity and recognizing the effects of incremental and cumulative impacts.

Public opportunities are provided for in ways that contribute to heritage protection and national identity objectives, and that build public support for, and awareness of, Canadian heritage.

This commitment also presents challenges to protected area managers who must daily make informed decisions on the appropriateness and management of recreation activities. These

decisions must recognize that protection of ecological and cultural integrity is of highest priority in the establishment and operation of designated heritage areas. Parks Canada Policies state:

Parks Canada recognizes the need for control and management of appropriate activities. Public demand alone is not sufficient justification for provision of facilities and services in support of appropriate activities.

Services, facilities and access for the public must directly complement the opportunities provided, be considered essential, take account of limits to growth, and not compromise ecological and commemorative integrity nor the quality of experiences. They must be consistent with approved management plans. Also, they must reflect national standards for environmental and heritage protection and design, as well as high-quality services, the diversity of markets, equity of access considerations for disabled persons and visitors of various income levels.

Often these decisions must be made quickly, using the best available knowledge and research while giving full consideration to both the short-term and long-term consequences. The decisions must also withstand public scrutiny and be defensible by the Minister.

To assist protected area managers in addressing these important challenges and to fulfil policy requirements, a flexible tool for assessing the appropriateness of recreation activities at field locations has been developed. It was developed using Parks Canada's considerable experience and expertise in managing diverse visitor activities. The framework uses a checklist approach and is designed to complement and support implementation of the Visitor Activity Management (VAMP), Natural Resource Management, Management Planning, and Environmental Assessment and Review Processes (EARP) (Parks Canada, 1985a,b,c; 1991; 1992b).

The Goal of an Assessment

The goal of an appropriate activity assessment is to develop a management position regarding a particular outdoor recreation activity. There are three possible outcomes from an assessment.

1. An activity will be actively supported.
2. An activity will be permitted but not actively supported.
3. An activity will be prohibited from taking place.

Situations Requiring an Assessment

There are different situations which could generate the need for an Appropriate Activity Assessment:

1. The development or review of a management plan;

2. The development or review of a service plan and/or public safety plan; or
3. An independent assessment of an issue or new activity between management plans.

Steps in Completing an Assessment

There are five steps to completing an Appropriate Activity Assessment. A summary of the steps are presented here. For a more detailed description please refer to the technical paper - *A Proposed Framework for Assessing the Appropriateness of Recreation Activities in Protected Heritage Areas* (Parks Canada, 1994b). Parks Canada has also developed an electronic presentation/training package in conjunction with the Department of Recreation and Leisure Studies, University of Waterloo (Avedon, E. and Mighton, L. 1994).

Step 1: Setting the Context for an Assessment

Define the context of the activity assessment.

1. Is the activity new to the heritage area, an evolving activity or the result of a changing heritage area situation?
2. Outline the perceived issues relating to the activity.
3. Identify the goals and objectives of the assessment.

Step 2: Identification of Issues and Opportunities

There are ten criteria under which all of the issues and opportunities associated with the assessment of an activity are to be identified. The criteria can be viewed as a checklist.

1. Heritage Area Management Context
2. Visitor Experience Opportunities
3. Setting Opportunity
4. Heritage Theme Presentation
5. Market Expectations
6. Visitor Conflict
7. Visitor Risk Management
8. Heritage Area Services and Facilities
9. Co-operative Activities/Regional Integration
10. Environmental Impact

The headings are organized and presented using the basic VAMP concept. The concept illustrates that the provision of visitor opportunities must be within the context of Parks Canada's mandate and objectives. In defining these opportunities, one must also respect natural and cultural resources features/values and give consideration to public needs and expectations. Once the visitor opportunities that the heritage area is capable of providing are defined, one can begin to determine the activities, services and facilities that are necessary to provide high-quality visitor experiences consistent with Parks Canada's mandate.

Questions related to the first three criteria examine the heritage area management context and its relationship to visitor experience and setting opportunities. In essence: Does the heritage area have the resource base to support the activity and do the visitor experience opportunities provided by the activity

complement policy and long-term management orientation for the heritage area?

Questions grouped under the next six criteria focus on assessing the suitability of the activity to the environment. They examine the ability of the activity to present heritage themes and support visitor demand, the potential for visitor conflict, visitor risk management issues related to the activity, infrastructure needs/costs, co-operative activity potential and regional integration opportunities and issues.

Once the relative scale of the potential service offer is understood, then the last criteria, the environmental impact of the activity can be assessed using the initial screening component of EARP. It must be remembered that appropriate activity assessments are just that, preliminary assessments. If the results of an assessment show that an activity has some merit for a heritage area, then a service offer can be outlined based upon the service planning principles found in *The Guide To Service Planning*, 1988a.

Step 3: Synthesis

At this stage of the appropriate activity assessment all of the issues and opportunities related to the activity have been described. It is now time to take a more analytical approach, to identify the key issues and constraints, to identify potential solutions to issues and finally, to develop a management position towards the activity. To arrive at a synthesis, use the information from Step 2 to answer the following questions:

1. Does the heritage area have the resource capability to support the activity?
2. Is the activity suited to the heritage area environment?
3. How feasible is it for the heritage area to support the activity? Does the area have the human and financial resources to support the activity?
4. What are the key management issues emerging from the assessment of the activity?
5. What management alternatives are available to deal with the issues? For example, can a combination of direct (enforcement, zoning, rationing use, restricting activities, and indirect (physical alterations, information dispersal, economic constraints, management strategies (Loomis, 1985. be used to manage the activity? Are there partners and locations outside of the heritage area that are better suited to supporting the activities?
6. Are there viable options which can be selected?
7. Are there some issues that are not within the power of heritage area managers to resolve?
8. What is the impact of these issues?

Establishment of a Management Position

Using the information assembled thus far, the next task is to describe the heritage area's management position towards the activity. The possibilities range from encouraging the activity through to prohibiting it within the heritage area. If the management decision is to identify the activity as a supported

or permitted activity, a brief future service offer description should be prepared (see Step 4).

If the management decision is to identify the activity as a prohibited activity, a brief synopsis of the rationale for the decision should be prepared to document and justify the position taken.

Supported Activity

There are very few concerns related to the introduction of these activities because they relate positively to all aspects of heritage area management. The following checklist can be used to verify the appropriateness of an activity.

- Respects mandate of Parks Canada and the heritage area management objectives.
- Maximizes opportunities for appreciation, understanding and enjoyment.
- Supports presentation of natural and cultural resource themes and values.
- Activity is suited to the natural and cultural resource base.
- Responds to public needs and expectations.
- Provides high quality opportunities for heritage theme presentation.
- Can be supported using existing services or those which can be added within available resources.
- Can be supported with existing facilities or minor modifications to existing facilities.
- Can be operated within the context of existing budgets and person year allocations.
- Supports high priority Visitor Activity Groups
- Does not compete with existing opportunities outside of the heritage area.
- Provides opportunities for cooperative management, community support.
- Creates management benefits (e.g. revenue generation).
- Provides opportunities for new clientele.

An **example** is the bicycle trail network in Kouchibouguac National Park. The park was able to diversify opportunities available to visitors, while at the same time take advantage of existing roads and trails. The flat terrain is suited to the family orientation of the park's clientele.

Activity Permitted but not Supported

Generally these are activities which do not place significant demands on the heritage area's natural, cultural or financial resources and which only appeal to a limited visitor market, or are activities whose long-term popularity is untested. The superintendent may give permission without supporting the activity. This can provide the heritage area with the opportunity to assess the viability of the activity without establishing a long-term commitment.

An example of this type of opportunity is snowshoeing. It is an activity whose impact and popularity is generally limited, meaning that while heritage areas do not go out of their way to accommodate the activity, they also do little to regulate it.

There are pitfalls to this approach in that it is seldom easy to get rid of an activity once it has been permitted (e.g. snowmobiling).

Prohibited Activity

These are the activities that have significant constraints which render the activity incompatible with the management goals of the heritage area. Typically the constraints relate to the most important aspects of the Parks Canada mandate, that of the protection and conservation of a heritage area's natural and/or cultural resources. Attributes of discouraged or prohibited activities include the following.

- Directly inconsistent with one or all of the following: federal, provincial or municipal laws, National Parks Act, Parks Canada Policies, management directives, management plan, ecosystem conservation plan, service plan and public safety plan.
- Significant environmental, cultural and social impacts associated with the activity.
- Activity offers limited opportunities to appreciate and understand the heritage area themes.
- Activity does not relate directly to: the appreciation, understanding and enjoyment of a heritage area's purpose and objectives; ensuring ecosystem or commemorative integrity.
- Highly specialized activity appealing to a limited numbers of individuals.
- Activity requires more than a minimum of built facilities.
- High cost to develop services and facilities in support of the activity.
- Will result in negative effects upon or conflict with other heritage area users.
- Competes with existing opportunities available outside of the heritage area.
- Significant visitor risks and/or liability issues.

An example was the decision to eliminate frontcountry camping in Point Pelee National Park. Other potential constraints which could preclude an activity from taking place are activities with an excessively high level of risk for participants (e.g. para-gliding), or activities for which the cost to develop and manage is excessive in relation to the number of participants (e.g. paved in-line skating trails).

Step 4: Describe Future Service Offer

This step involves preparing a brief future service offer description for the new activities which are to be permitted or promoted as per the *Guide to Service Planning*. This can be in the form of a one or two page summary which includes headings such as objectives, discussion, levels of service, service priorities, and action items.

The future service offer description becomes an important tool for the introduction and subsequent management of new appropriate activities. This description can be later updated and integrated into the new or revised service plan.

Step 5: Implement and Monitor

Once a management position is agreed upon and a service offer description is prepared, a brief implementation strategy, including appropriate monitoring actions, should be started. An important component of the implementation is to communicate to staff, stakeholders and the public which activities will be supported, discouraged or prohibited and under what conditions this will occur.

Discussion and Implications

The preceding description of Parks Canada's experience in responding to a major policy issue with a practical innovative tool has led to some initial success stories. Pilot applications of the proposed framework at Bruce Peninsula National Park, Fathom Five National Marine Park, Waterton Lakes National Park, Jasper National Park, Banff National Park and the Bar U Ranch National Historic Site have demonstrated that the approach can be adapted to a variety of situations and can produce important benefits to managers.

These include:

- helping the superintendent and staff at individual heritage areas to make informed and documented management decisions about the types of recreation opportunities offered to the public;
- guiding the development of a management position regarding these specific opportunities;
- providing a consistent framework within which activities can be assessed for their ability to contribute to the appreciation, understanding and enjoyment of heritage areas;
- assisting in the implementation of Parks Canada's decision making frameworks such as: Visitor Activity Management (VAMP), Natural Resource Management, Management Planning and Environmental Assessment and Review Processes (EARP);
- contributing to the protection of heritage resources by helping to apply EARP at the earliest possible stage consistent with Parks Canada's Management Directive 2.4.2;
- pro-actively contributing to Visitor Risk Management;
- guiding the provision of services and facilities and the development of service standards;
- contributing to wise allocation of financial resources by only supporting activities which are consistent with the National Parks Act, Parks Canada Policies and the specific role of the heritage area;
- considering visitors' needs within the context of the protection and conservation of heritage resources; and
- assisting managers to assess quickly proposals for new offers of service by partners and stakeholders (e.g. guides, outfitters, tour operators) which will lead to improved service to the public and enhanced regional integration.

The proposed framework has also been integrated with Parks Canada's Visitor Risk Management program (Parks Canada, 1994c) and associated Visitor Risk Management Training that is currently being implemented.

Now the time has come to share the accumulated knowledge, experience and innovations more widely so that the proposed framework can be tested in as many situations as possible and subsequently refined.

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CROWDING ON THE BEACH: EXAMINING THE PHENOMENA OF OVER- AND UNDER-MANNING IN ALTERNATIVE ENVIRONMENTS

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Crowding has been one of the most studied phenomena in the field of outdoor recreation, both directly and indirectly as it relates to social carrying capacity or visitor satisfaction. Few researchers have examined environments where too few people, or under-manning, might be as much a concern as too many people, or at least where higher densities are expected. This paper examines the traditional crowding model by testing relationships between observed density and perceived crowding, as measured by the standard 9-point crowding scale in a study of Delaware ocean beach users. However, we also attempt to examine the phenomena of under-manning using a 9-point, double-ended "influence of others" scale that provides a measure of over- and under-manning. Both models are further expanded to include other predictor variables including motivations for the visit. Finally, the traditional satisfaction model is tested using two different measures of crowding to predict overall satisfaction as measured by both a 10-point overall satisfaction scale and a separate measure of willingness-to-pay for beach recreation.

Introduction

Many researchers have examined a crowding model suggesting a causal link between visitor density and perceived crowding; while others have examined the impact of density and/or crowding on visitor satisfaction, commonly referred to as the "satisfaction model" (Heberlein and Shelby, 1977; Manning, 1986). In measuring crowding, also known as over-manning, some have attempted to measure crowding directly by asking

users the extent to which they felt crowded, typically on a nine-point scale from not at all crowded to extremely crowded. Others have posed hypothetical density levels and asked respondents to indicate their reaction to the various proposed densities and/or contact levels. However, most of the studies dealing with crowding or over-manning have dealt with wilderness, backcountry or other semi-primitive environments where motives associated with solitude are often cited (or assumed).

Crowding is defined as a negative psychological evaluation of a certain physical density or number of encounters (Altman, 1975). This was theorized to be associated with a reduction in enjoyment or user satisfaction (Wagar, 1964, Alldredge, 1973). Physical density is an objective measurement, often referred to simply as density, and usually refers to the use level without any evaluative component. Technically speaking density is a measure of the number of objects per unit area. However, density is most often used as a synonym for use level. Relative density typically refers to a rank ordering of number of users, with one level being more dense than a lower level.

Gramann and Burdge (1984) divided crowding based on social interference theory into three types, goal-related crowding, behavioral crowding, and physical crowding. Social interference theory is a conceptual foundation that suggests that crowding is a negative evaluation of incompatibilities between a level of physical density and the valued psychological goals or expectations a person holds for an experience. Goal-related crowding was defined as the degree of density-compatibility of valued psychological goals motivating a behavior. For example, if a major goal for participating in a certain activity is solitude, perceived crowding would interfere with the realization of the goal.

There have been a number of crowding models proposed in the literature (Wagar, 1964; Altman, 1975; Shelby and Heberlein, 1986; Kuss et al., 1990; Drogin and Graefe, 1990). Some of the major determinants of crowding suggested by these models include use level or physical density (Wagar, 1964); as well as, actual, perceived, reported, expected and preferred contacts (Shelby, 1976). Also, past experience and level of specialization (Graefe et al., 1985); type, location and duration of contact (Ditton et al, 1983) and degree of environmental impact and site degradation (Vaske, Graefe and Dempster, 1982) have all been shown to influence perceived crowding. Crowding varies by time or season of use; by location of contact or spatial distribution of use level; by resource abundance or availability; by resource accessibility or convenience; by type of use and depending on management actions (Shelby et al, 1989).

To measure perceived crowding many studies use a single item that asks visitors to indicate how crowded they felt (see Shelby, Vaske and Heberlein, 1989 for a more complete listing of studies using the nine-point crowding measure). This item, developed by Heberlein and Vaske (1977) has been well accepted and used in many studies. Shelby, Vaske and Heberlein (1989) suggest a compression of this 9-point scale into a two-category variable (not crowded [1-2] and crowded [3-9]). They reviewed, compared, and analyzed 35 studies that

used the 9-point crowding scale. They suggest that the compression will facilitate inter-site comparisons and allow managers a simple and quick instrument to gauge crowding problems. There has also been a scale proposed by Ditton, Fedler and Graefe (1983) that attempts to measure the impact of others on the visitors' enjoyment. This 7-point scale asked users to rate the effect of the number of others encountered ranging from positive, where it increased enjoyment, through neutral to a negative determination where their enjoyment was reduced. This scale was later expanded to a 9-point scale measuring the impact of others on enjoyment by Graefe and Drogin (1989). This "impact of others" scale offers an insight into the phenomena of 'undermanning' (Wicker, 1973; Heberlein, 1977). Undermanning is the reverse of crowding, where a user makes a negative evaluation of density as being too few people to realize their goals. For example, if you go to the beach to meet new people and socialize, you would not be able to realize this goal if the beach was deserted.

However, for the most part, the efforts to examine crowding and social carrying capacity reported to date have typically studied wilderness, backcountry and/or other low use areas. These areas typically experience low density use and visitors often express solitude as a goal or motive. There have been a few studies that examined high density use areas, such as the beach. McConnell (1977) examined the impact of congestion and other site qualities on beachgoers willingness to pay for Rhode Island beaches and found no significant relationship. When he controlled for other variables the relationship was significant but varied substantially from beach to beach, suggesting different types of beach may attract users with contrasting attitudes about crowding.

Methods

The data used in this analysis was collected from beachgoers in five Delaware ocean beach communities during the summer of 1993. Five-hundred and sixty-two on-site personal interview surveys were completed by two interviewers on 34 sampling days over the 5 beaches in June (n=96), July (n=225) and August (n=242). The interview counts for each beach are as follows: Rehoboth Beach, 129; Dewey Beach, 118; Bethany Beach, 115; South Bethany Beach, 96; and Fenwick Island Beach, 104. These beaches vary in size, level of use, degree of facility and amenity development and other beach attributes. This data was collected as part of a larger project assessing the economic benefits of coastal beaches and shoreline protection projects. The survey instrument included a variety of questions addressing users' attitudes and opinions on crowding, satisfaction, willingness-to-pay, motives for visiting the beach, as well as socio-demographic characteristics and a variety of other measures.

Relative density was measured using an interviewer estimate of beach use level based on a 5-level scale (1=light, 2=light-moderate, 3=moderate, 4=moderate-heavy, 5=heavy). The density estimates were conducted by only two field personnel and showed a high degree of consistency suggesting a reliable indicator of beach density. Crowding was measured using two

different scales. The more common 9-point crowding scale that asks respondents to indicate how they would describe the level of perceived crowding from 1=not at all crowded to 9=extremely crowded. An alternative measure of crowding was also used. This measure asks users how the number of people impacted their enjoyment of the beach, also a 9-point scale. However, this scale allows positive, neutral and negative evaluations of use level with 1=increased enjoyment, 5=no impact, and 9=decreased enjoyment. Visitor overall satisfaction was measured using a 10-point scale, with 1 = worst possible trip and 10 = perfect trip. Willingness-to-pay was also used to estimate visitor satisfaction, based on the assumption that visitors who were more satisfied would be willing to pay more for the experience. In addition, motives for choosing which beach to visit were measured.

Results and Discussion

Density

Relative density varied across the sample with 19% of the surveys completed on days classified as light use, 29% on light-moderate, 37% moderate, 14% moderate-heavy, and 1% heavy use days. Heavy use was described as the highest physical density with very little beach visible between users and their belongings, approaching the physical carrying capacity.

Crowding

As can be seen in Figure 1, crowding results across all of the beaches indicated a significant difference between the two crowding measures. The "impact of others" scale suggested that, overall, most users did not feel that the beaches were crowded with a mean value of 4.5. For example, almost one-third of the respondents indicated the number of others actually increased their enjoyment and slightly more than half said the number of others had no impact on their enjoyment of the beach on the day they were surveyed. Using the standard "perceived crowding" scale about half the visitors indicated a 5 or higher with a mean value of 4.7, implying moderate or extreme crowding.

Table 1. Comparison of crowding measures: "Perceived crowding" vs. "impact of others"

Impact of Others	Perceived Crowding			
	Not at all Crowded	Slightly Crowded	Moderately Crowded	Extremely Crowded
Increased Enjoyment	64%	40%	16%	9%
No Impact on Enjoyment	28%	55%	60%	31%
Decreased Enjoyment	8%	6%	24%	59%

Table 1 shows the crosstabulation of the two crowding measures. Only the bottom row, reporting decreased enjoyment due to the number of others fits the researchers' definition of crowding as a negative evaluation of density. For example, 59% of those who rated the conditions as extremely crowded (8-9) indicated that the number of others decreased their

enjoyment. On the other end of the scale, 64% of those indicating that it was not at all crowded (1-2) said that the number of others increased their enjoyment. These people tend to fit the traditional definition of crowding where low crowding levels increased enjoyment and high levels of perceived crowding decreased enjoyment. Interestingly enough, 9% of respondents who indicated it was extremely crowded said the number of others increased their enjoyment. These individuals appear to enjoy crowded conditions. On the other end of the scale are the visitors who may be experiencing undermanning. These respondents indicated that it was not at all crowded and the number of others decreased their enjoyment, suggesting they would like to have seen more people.

Satisfaction

Satisfaction was operationalized by asking visitors to rate, on a scale of 1 to 10 (with 10 being perfect), the overall quality of their beach experience on the day they were interviewed. Using this indicator, visitors appear to be very satisfied with an overall mean satisfaction value of 8.4. Only 5% of respondents rated their experience as a 5 or less, while almost one-quarter (23%) rated it a perfect 10 and another one-quarter rated their experience as a 9 (Fig. 2). High levels of satisfaction are not uncommon in recreation studies; however, these ratings seem to indicate that visitors to the Delaware beaches are very satisfied with the overall quality of their experience.

Visitors' willingness to pay, a second indicator of visitor satisfaction based on the work of Alldredge (1973), and Clawson and Knetch (1966), was measured using a two-part question. The first part used a dichotomous choice question that asked if the respondent would be willing to pay a use fee of a specific dollar amount (between \$1 and \$5) per person to use the beach. Fifty-six percent of respondents indicated they would pay the proposed fee amount. As a follow-up respondents were then asked what was the maximum amount they would be willing to pay for a day at the beach. The average that respondents were willing to pay to use Delaware beaches was \$3.01 per person per day. As shown in Figure 3, almost 23% of respondents indicated their willingness to pay was zero; however many of these were later classified as protest bidders (Falk, Graefe, and Suddleson, 1994). The modal WTP was \$5.00, possibly indicating a digit bias. Only 10% of respondents were willing to pay more than \$5.00.

When the two satisfaction measures were cross tabulated few trends became obvious and none were statistically significant. Visitors with low levels of reported satisfaction (1-6) tended to be willing to pay less than those reporting higher levels. However, those reporting the highest levels of satisfaction were not willing to pay more than slightly less satisfied visitors. One possible reason for the lack of observed differences might be because overall there was little variation across the quality rating.

Past studies have used a variety of measures to test the relationships between user density, perceived crowding and visitor satisfaction. Bivariate product moment correlation coefficients (Pearson's R) calculated for all indicators for comparative purposes are shown in Table 3. Relative density

(DENSITY) was significantly correlated to both measures of crowding, the perceived crowding (CROWD) and "impact of others" (ENJOY) scales with Pearson's R of 0.40 and 0.22 respectively. The "impact of others" scale was the only indicator significantly correlated to overall satisfaction (QUALITY) and was also not surprisingly correlated with the other indicator of crowding. Visitors' willingness to pay (WTP) was not correlated to any of the other measures.

Table 2. Comparison of overall quality and willingness-to-pay.

WTP	Overall Quality Rating				
	1 - 6	7	8	9	10
\$0.00	38%	26%	20%	19%	25%
\$0.01-\$1.00	21%	11%	13%	16%	16%
\$1.01-\$2.00	15%	14%	19%	19%	15%
\$2.01-\$3.00	12%	14%	12%	13%	11%
\$3.01-\$5.00	12%	24%	27%	23%	27%
> \$5.01	6%	11%	10%	10%	6%

Table 3. Zero order correlation of all measures.

	DENSITY	QUALITY	CROWD	ENJOY	WTP
DENSITY	1.00				
QUALITY	-0.01	1.00			
CROWD	0.40**	0.00	1.00		
ENJOY	0.22**	-0.11**	0.49**	1.00	
WTP	0.06	0.02	0.04	0.03	1.00

Regression Models:

The simple "satisfaction model" where density predicts satisfaction was not significant for either satisfaction measure, willingness to pay or overall visitor satisfaction. However, the simple crowding models where density predicts crowding were significant. For example density predicted 16% of the variance in perceived crowding with $B=0.40$ and $B=0.22$ and $R^2=0.05$ for the "impact of others" scale. The expanded satisfaction model (Fig. 3) where density predicts crowding and crowding in turn predicts satisfaction was significant for overall quality as an indicator of satisfaction, but not for visitors' willingness to pay. This relationship was very weak with only 1% of the variance in overall satisfaction predicted by this configuration.

Based on the crowding literature and the goal interference model it was posited that including visitors' motives might add to the predictive power of the expanded satisfaction models. Motives were operationalized in this study through a series of statements that asked visitors their level of agreement to a list of reasons why they chose to visit a particular beach. Table 4 shows the percentage of respondents agreeing or strongly agreeing with each statement for all of the beaches and the label assigned to the statement in the regression models. It is notable that only 18% of respondents indicated that they came to the beach to be with a large number of people. In contrast, 37% indicated they came for solitude. However, 90% of respondents indicated socializing as a reason they came to the beach. The remainder of the list of possible motives tend to address physical beach attributes or available amenities.

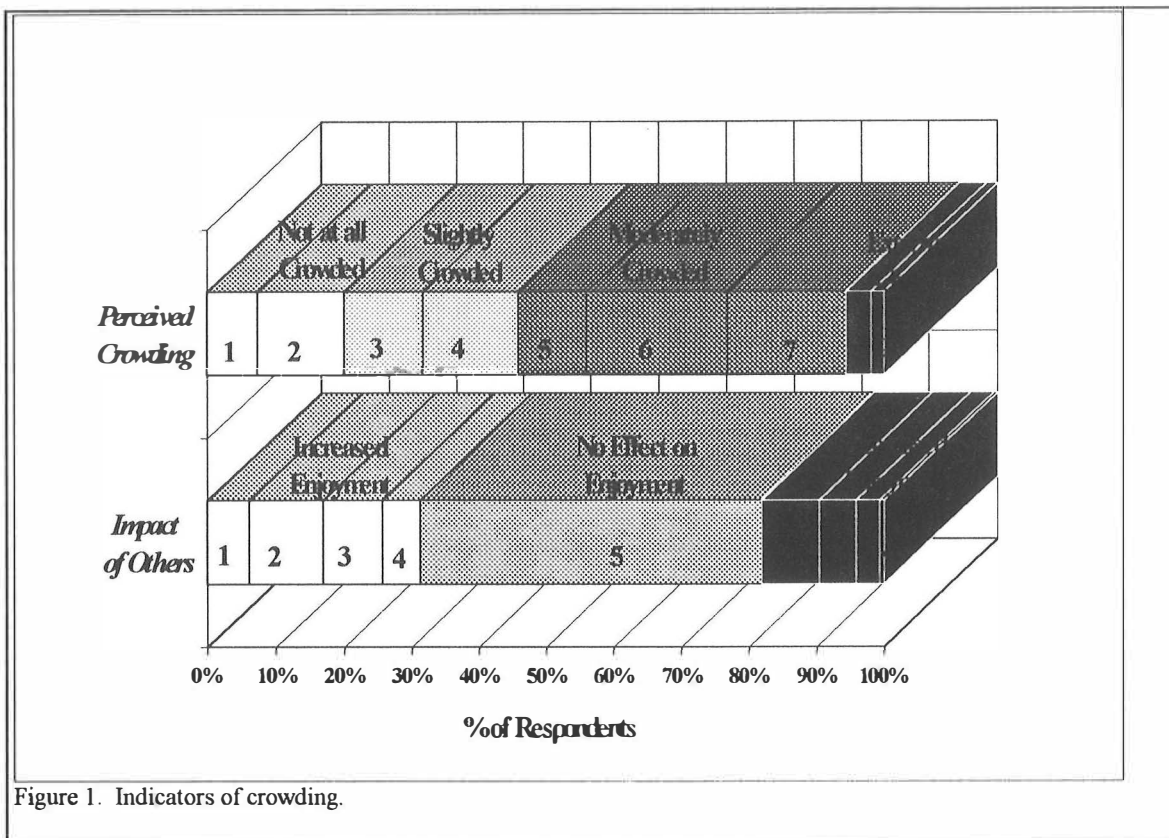


Figure 1. Indicators of crowding.

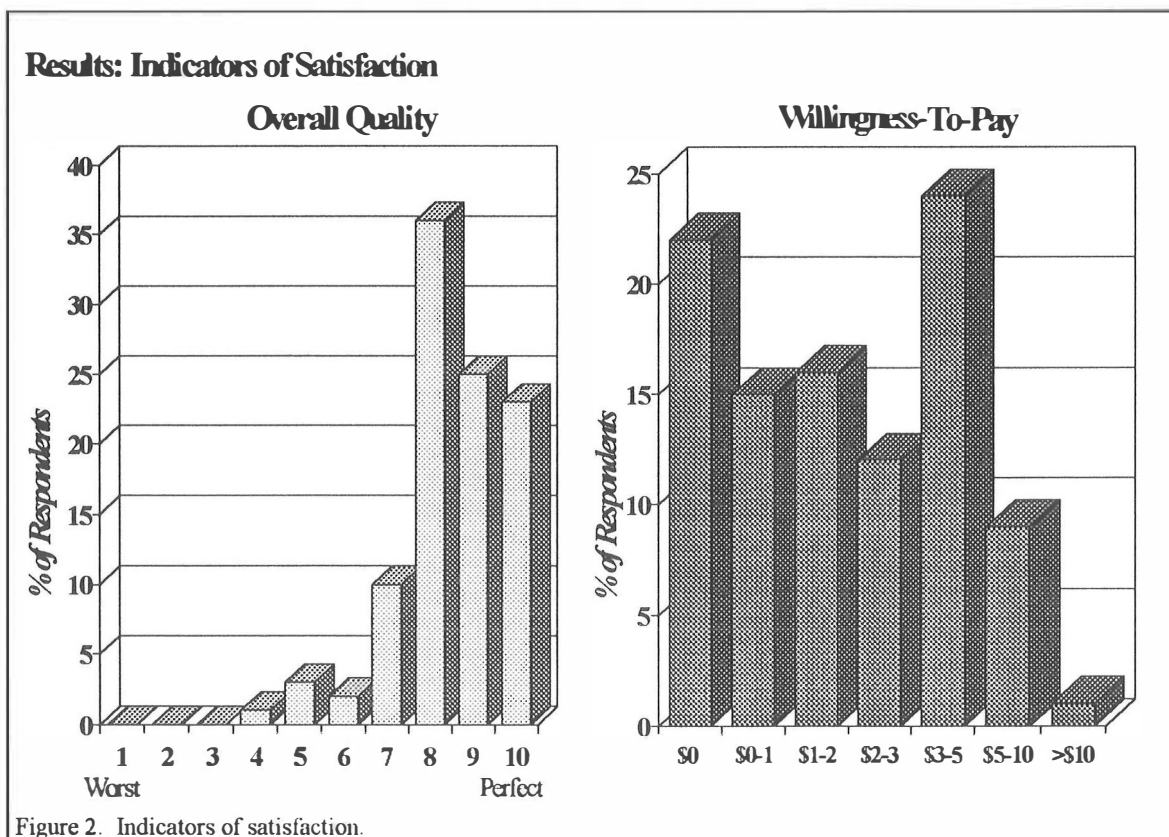


Figure 2. Indicators of satisfaction.

However, motives addressing socialization and solitude did not enter the model. With the motives included, 5% of the variance in visitors' willingness to pay was explained by the expanded model (Fig. 4). For willingness to pay the strongest predictors tended to be the inexpensive nature of visiting the beach and the proximity of the beach to their residence. Overall quality, also shown in Figure 4, was predicted by perceived cleanliness and width of the beach. While perceived crowding was predicted by observed density, availability of rentals and beach width; the "impact of others" was predicted by density, availability of rentals, beach width, proximity to their residence and perceived scenic quality.

Table 4. Reasons why respondents choose to visit the particular beach where they were interviewed.

Motive Statement	Label ¹	% of Users ²
To be with a large number of people	(NUMBER)	18%
It has public restrooms	(RESTROOM)	32%
For solitude or to be alone	(SOLITUDE)	37%
There are adequate concessions/rentals	(RENTALS)	52%
There is little/no cost to enjoy it	(CHEAP)	76%
It is wide enough to enjoy my activities	(WIDE)	85%
It is close to my home/rental unit	(CLOSE)	86%
To socialize with friends, family and others	(SOCIAL)	90%
The beach is kept clean/attractive	(CLEAN)	93%
To engage in beach related activities	(ACTIVITY)	95%
To enjoy the visual qualities of the beach	(SCENERY)	97%

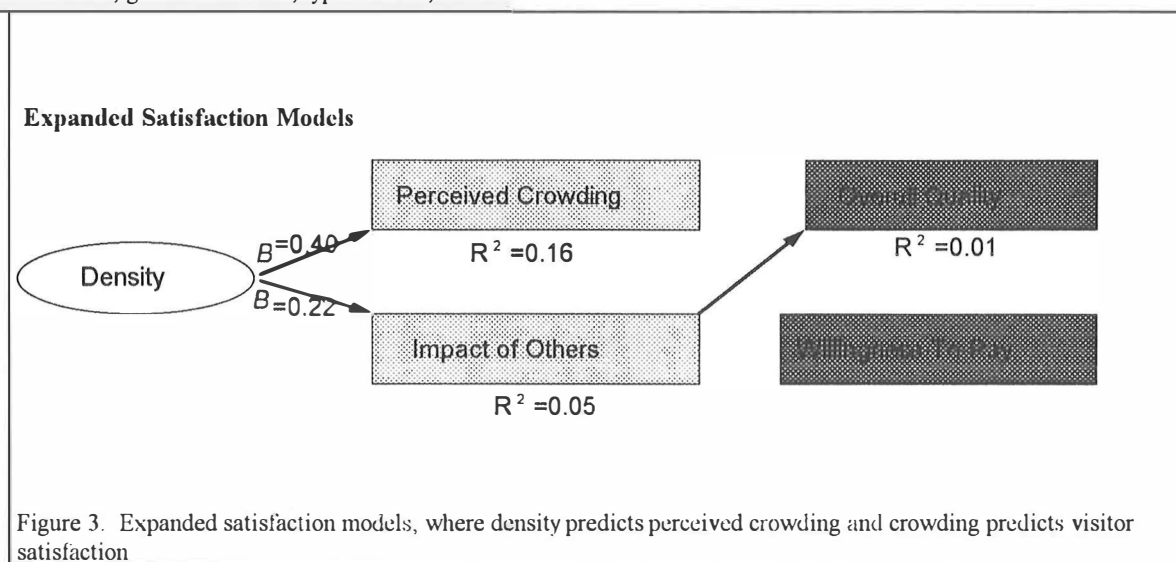
¹ Variable label used to indicate the statement in the models

² Percent agreeing or strongly agreeing with the statement

McConnell (1976) and others suggested that differences in beach attributes and type of beach may influence variation in willingness to pay. To test this we classified each of the five beaches in one of two types, Type I and Type II, based on geographic location, general use level, type of users, ease of

access, size of beach, and overall level of development. Type I beaches were more northern, tended to have generally higher use levels, were used more by nonresident singles and families, access was easier with public parking and large highways, beach area tended to be larger, and both the beaches and the area in general were more developed with more amenities (public parking, restrooms, beach rentals, concessions). Rehoboth Beach and Dewey Beach (n=247) were classified as Type I beaches. Type II beaches are located to the south, have lower use levels, are used mostly by resident families, with few visitors or singles, access was more limited with little public parking and smaller highways, beaches were smaller and less developed with fewer facilities and amenities. Bethany Beach, South Bethany Beach and Fenwick Island (n=315) were classified as Type II beaches.

Figures 5 and 6 show the expanded satisfaction models for both types of beaches. The relationships between density and crowding tend to be slightly lower than those observed for wilderness and backcountry areas. The results of these tests indicate the density/crowding models are valid for both types of beaches. The relationship between density and perceived crowding, however, was more significant on the Type II beaches with 45% of the variance in perceived crowding explained by density and two of the beach attribute motives, availability of concessions/beach rentals and width of the beach. These beaches typically experience lower densities and are more like the wilderness and backcountry research from which these models came. The other crowding indicator also differed significantly between the type of beach, but in the other direction. Almost twice as much variance in the impact of others measure was explained in the model for Type I beaches (14% for Type I vs. 8% for Type II). This difference may be due to the double-ended nature of the impact of others scale, allowing for the more social nature of these beaches where higher visitor density is not necessarily bad.



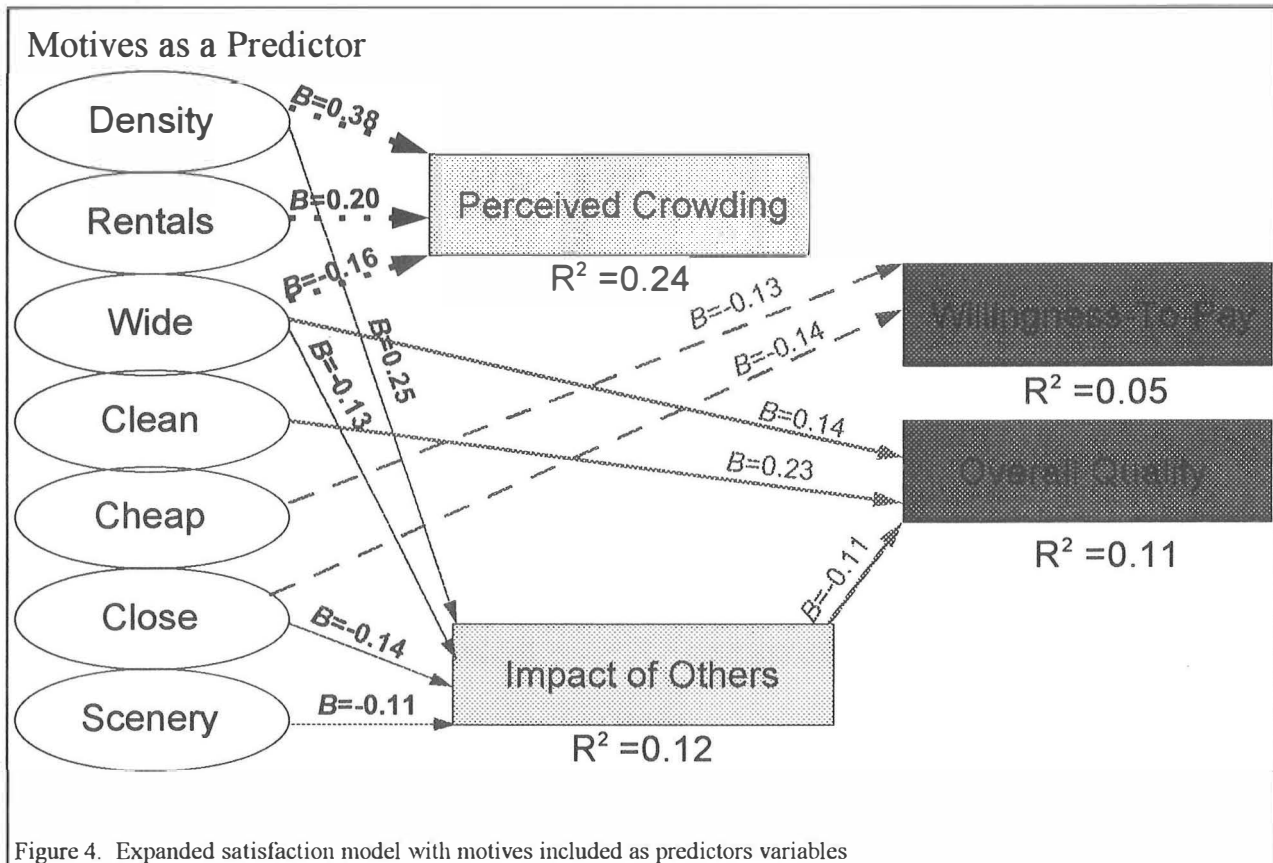


Figure 4. Expanded satisfaction model with motives included as predictors variables

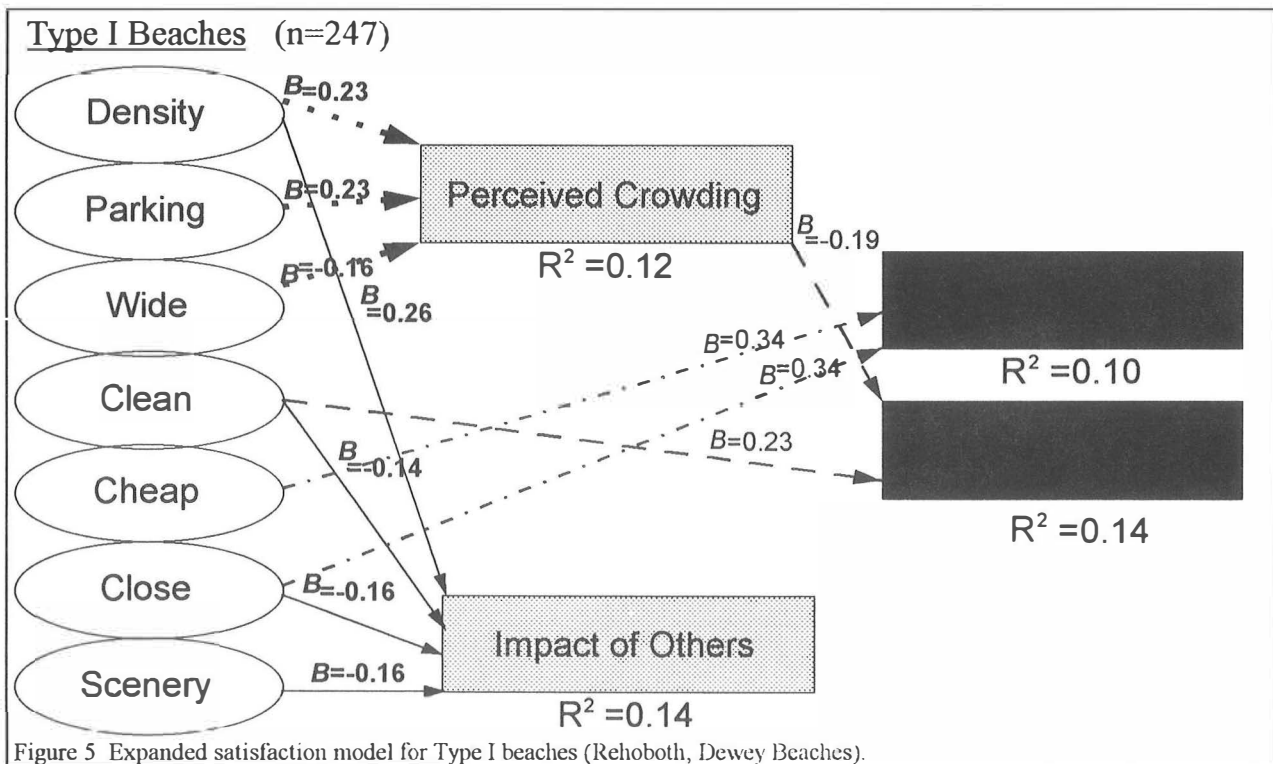


Figure 5 Expanded satisfaction model for Type I beaches (Rehoboth, Dewey Beaches).

The indicators of quality were not predicted well by either measure of crowding (R^2 's in the 0.03 to 0.14 range), but were more often related to beach attribute and amenity motives. The satisfaction model using the 10-point overall satisfaction scale exhibited this trend in Type II beaches, but in the Type I beaches perceived crowding did enter the model. However, the separate measure of willingness-to-pay was found to be not significantly related to any of the crowding predictor variables and the predictive power of the models was very low.

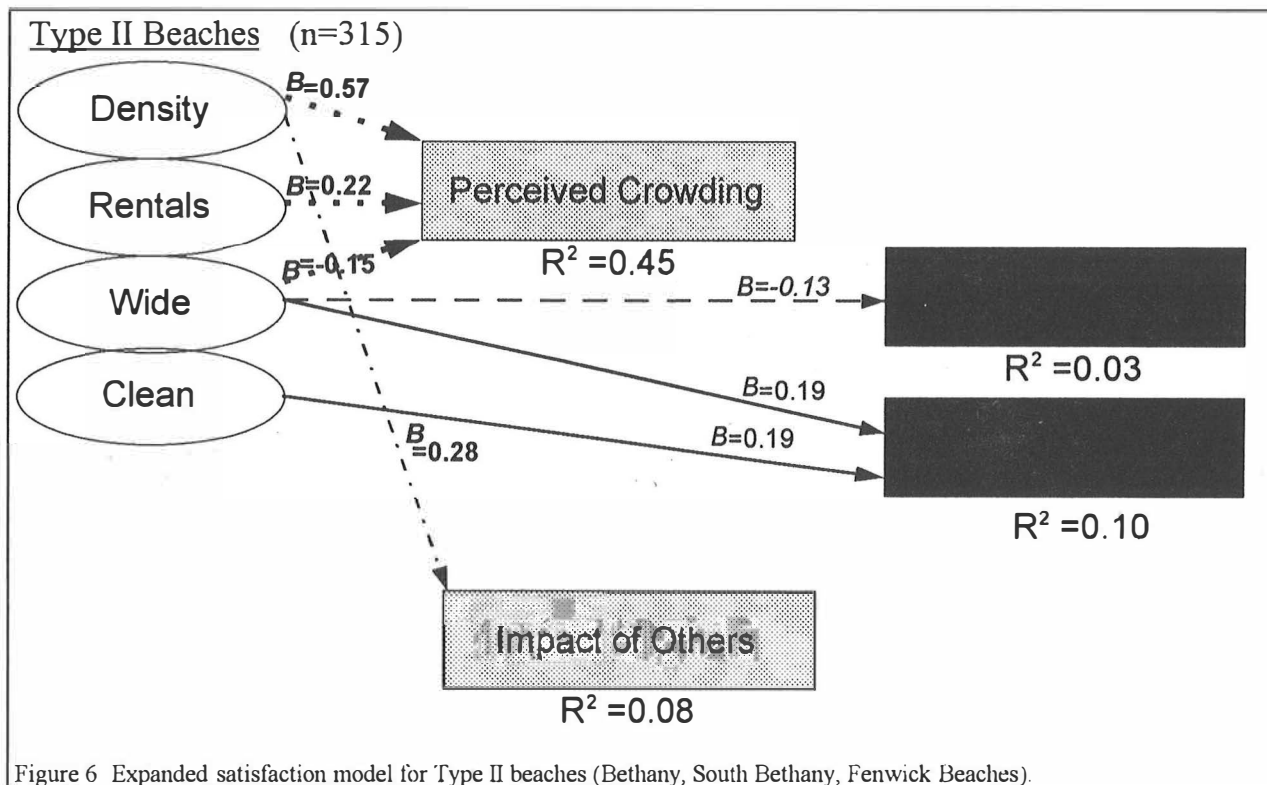
As stated before, most of the original work on perceived crowding and visitor satisfaction was completed in wilderness, backcountry or other low use recreation areas. This research lead to the development of many of the theories on visitor attitudes and preferences still used today. Additionally, these original theories often form the rationale for carrying capacity determination and visitor impact management. This analysis seems to indicate that visitors to intensively used recreation areas tend to react similarly to those using less developed and low use areas. The simple satisfaction model where density predicts satisfaction is not well supported in either traditional settings or in this study of the beach environment. Manning (1986) reviewed 27 studies and found only limited support for this model. Shelby, Vaske and Heberlein (1989) review 35 studies and came to a similar conclusion. Our results also found no significant relationship between density and satisfaction. The simple crowding model, testing the relationship between density and perceived crowding was significant with between 5% and 16% of the variance in perceived crowding predicted by density. The backcountry models tended to predict crowding better with between 5% and

40% of variance explained. The crowding-visitor satisfaction link in the backcountry studies found a weak relationship, with R -squares in the range of (-0.05) to (-0.20). This model was not well supported in our analysis with an $R^2=0.01$. Further adding in motives increased the reliability of the models, but motives that entered the model tended to address beach attributes and amenities. In the backcountry, motives, usually dealing with solitude, played a large role. Like McConnell (1977) we found limited support for the relationship between willingness to pay and density and/or crowding.

When taken together our results tend to support the traditional crowding and satisfaction theories. However, caution should be used when applying these theories and concepts developed for backcountry and wilderness settings to more developed and intensively used front country settings. As more researchers and managers examine crowding and carrying capacity issues in front country settings they need to be aware of the historic roots before applying theoretical models that were developed for different conditions.

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ENVIRONMENTAL
PERCEPTIONS AND
RECREATION
RESOURCE
MANAGEMENT

ENVIRONMENTAL ETHICS, VALUES, AND BEHAVIOR: AN EMPIRICAL APPROACH TO DESIGNING NONFORMAL ENVIRONMENTAL EDUCATION PROGRAMS

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Data collected through a visitor survey in the Vermont State
Park System were used to define the range of environmental
ethics, values, and behaviors which park visitors exhibit and to
identify relatively homogeneous subgroups of park visitors.
Results were used to develop principles for designing park-
based environmental education programs.

Introduction

Environmental learning occurs in many formal and nonformal
contexts and consists of many different messages, ranging from
school-based environmental curricula to mass media
conservation education. An individual's set of environmental
beliefs and behaviors reflects the integration of these learning
experiences.

In this study, sociological research was used to clarify how state
parks can more effectively engage in nonformal environmental
education. Parks have an important role to play in fostering
environmentally responsible behavior because they:

1. are places where people develop concern for nature
through contact with natural settings;
2. provide opportunities for learning about natural
systems;
3. enable people to experience an alternative to more
degraded environments; and,
4. are places where people spend their leisure time and
seek out new experiences.

Research can help park-based educators more effectively
communicate about environmental issues by understanding the
characteristics of their audience. Park-based educational
experiences are inherently short in duration and lack follow-up.
Under these conditions, imposing inappropriate ideas and
expectations that conflict with listeners' values and beliefs may
jeopardize communication.

By defining the range of environmental ethics, values, and
behaviors which park visitors exhibit, and by identifying
relatively homogeneous groups of park visitors based on these
characteristics, educational programs can more effectively
strive to present stimulating and challenging ideas without
inducing counterproductive ideological confrontation.

Educators who seek to increase awareness of environmental
issues and motivate people to engage in environmentally
responsible behavior need to know about:

1. the ethical perspectives through which park visitors
perceive nature (environmental ethics) so they can
design programs that will not alienate people, but
rather build on their existing belief systems;
2. what brings visitors to parks and what visitors expect
from their experience there (values for parks) so they
can develop education programs which do not
obstruct the realization of park visitors' expectations;
and
3. visitors' current levels of environmental awareness
and behavior (environmental behavior) in order to
assess the types of skills and knowledge which would
benefit their audiences.

Objectives

Survey data were used to construct a profile of Vermont state
park visitors. Principles for designing environmental education
programs, based on park visitors' range of environmental ethics,
values for parks, and environmental behavior indicators were
developed.

Methods

In the summer of 1993, visitors to forty-five Vermont state
parks were given questionnaires as they began their visit. Each
selected visitor was asked to complete the questionnaire by the
end of their park visit and return it via U.S. mail.
Questionnaire booklets were postage-paid and pre-addressed to
the University of Vermont.

Questionnaires were distributed according to a stratified
randomized distribution schedule that indicated which days and
times park staff were to offer questionnaires to entering
visitors. The one hundred questionnaires allotted to each state
park were distributed randomly over 396 time segments of the
sampling period (six daily time segments over a sixty-six day
sampling period). Some state parks fell short of complete
distribution of the one hundred allotted questionnaires due to
low visitation or lack of staff. A total of 3547 questionnaires
were distributed. Study results are based on 2,164 returned
questionnaires, representing a response rate of 61%.

Background

Environmental Ethics

Fundamental beliefs regarding humans' relationship with nature
are one component of this study's attempt to characterize the
audience of Vermont state park visitors. Table 1 presents a

framework for empirical measurement of environmental ethics drawn from the theoretical, historical, and empirical literature (Devall and Sessions 1985, Graber 1976, Hargrove 1989, Kellert and Berry 1979, Kellert 1980, Leopold 1949, Nash 1989, Rolston 1989, Stone 1972, Valliere 1994 and White 1967).

Table 1. Definitions of environmental ethics.

Ethic	Measurement definition
Threat to Survival	Nature can be dangerous to human survival.
Nature as Evil	Nature is sometimes evil.
Storehouse of Raw Materials	Nature is a valuable storehouse of raw materials.
Religious Dualism	Humans were created as fundamentally different from other living things.
Secular Dualism	The ability to think makes humans fundamentally different than other living things.
Anthropocentric Humanitarianism	Cruelty toward animals makes people less human.
Efficiency	The supply of goods and services provided by nature is limited.
Quality of Life	Nature adds to the quality of our lives.
Ecological Survival	Human survival depends on nature and natural processes.
Religious/Spiritual Duty	It is our religious/spiritual duty to take care of nature.
Future Generations	Nature will be important to future generations.
God's Creation	Nature is God's creation.
Mysticism	All living things have a spirit.
Humanitarianism	Animals should be free from needless pain and suffering.
Animism/Pantheism/Organicism	All living things are sacred.
Liberalism - Evolution	Humans are related to other living things through evolution.
Liberalism - Ecological	Humans are related to other living things through ecological processes.

To measure park visitors' environmental ethics, respondents were asked the extent to which they agreed or disagreed with each of the above seventeen statements. This battery of statements and the typology of environmental ethics it represents measures three key concepts:

- 1) *Anthropocentric-biocentric continuum*: Responses can be used to measure whether an individual believes that human moral relationships with nature should be determined by human needs alone or by the intrinsic rights of both humans and non-humans.
- 2) *Ethical extensionism and egalitarian ethics*: Responses can be used to measure the extent to which individuals' subscribe to ethical extensionism -- the progressive

extension of moral consideration to an ever-widening spectrum of human and non-human communities -- as well as egalitarian ethics -- the set of environmental ethics in which non-humans are perceived as the moral equals of humans.

- 3) *Secular, religious, and spiritual beliefs*: Responses can be used to measure the extent to which environmental ethics are based on secular, religious, or spiritual beliefs. Secular environmental ethics are based in rational thought. Religiously-based ethics draw upon institutional religious teachings. Spiritually-based ethics draw upon beliefs regarding spiritual qualities of nature.

Values for Parks

Documenting the distribution of values for nature among visitors to Vermont state parks clarifies the range of expectations members of this population bring to their park visits.

Many theorists have described the ways that value is assigned to nature (Godfrey-Smith 1979; Kellert and Berry 1979; Manning 1989; Milbrath 1985; Nash 1983; Petulla 1980; Rolston 1989; and White 1967). Based on these descriptions, a typology was developed to assess the prevalence of fourteen values for nature, as they apply to state parks, among sampled park visitors (see Table 2).

Table 2. Park values.

Recreation	Spiritual
Historical	Cultural
Therapeutic	Aesthetic
Ecological	Scientific
Educational	Solitude
Intellectual	Moral/ethical
Economic	Resource

Environmental Behavior

A number of studies have attempted to understand the development of environmentally responsible behavior and to test the predictive power of associated variables (Hines, Hungerford and Tomera 1987; Hungerford and Volk 1990; Ramsey, Hungerford and Tomera 1981; Sia, Hungerford and Tomera 1986; Sivek and Hungerford 1990). For this study, the model proposed by Hungerford and Volk in 1990, which uses seven key indicator variables to predict level of environmental behavior, was adopted (see Table 3).

According to the model, an individual who exhibits development of many of these variables is more likely to behave responsibly toward the environment (Hungerford and Volk 1990). An environmental education program which promotes these characteristics may be expected to contribute to fostering environmentally responsible behavior.

Table 3. Definitions of environmental behavior indicators.

Indicator	Definition
Environmental sensitivity	Empathy for nature created through long-term contact
Knowledge of environmental issues	Understanding of the dynamics of environmental problems
Personal investment in environmental issues	Commitment to resolving environmental problems
Knowledge of environmental action strategies	Familiarity with mechanisms for preserving environmental quality
Skill in using environmental action strategies	Ability to use mechanisms for preserving environmental quality
Internal locus of control	Belief one's actions will achieve desired results
Intention to act	Intention to engage in environmental behavior

Results and Findings

Environmental Ethics

The environmental ethics data gathered for this study suggest that, overall, respondents subscribe to stewardship and conservation ideas based on ethics which acknowledge limits to natural resources and human dependence on nature for diverse benefits, now and in the future. It also appears that most respondents are located near the center of the anthropocentric-biocentric spectrum. Fewer respondents expressed support for strongly anthropocentric or biocentric beliefs than agreed with stewardship and conservation ideas which reflect concern for nature based on self-interest or religious teachings. It is apparent that religion still plays a significant role in many respondents' ethical approaches to nature and that moral consideration for non-humans has been integrated into respondents' environmental ethics, but is not yet as prevalent as more traditional ethical perspectives.

Values for Parks

Responses to values questions suggest a hierarchy of values for parks. While traditional values, such as recreation and appreciation of natural beauty, are still perceived as most important, less traditional values such as opportunities for learning about, protecting, and respecting nature are also important to many respondents. It seems that most respondents do not perceive parks as places for religious or spiritual experiences, but do largely anticipate that natural park settings will facilitate personal reflection and development of physical and mental well-being.

Environmental Behavior

Overall, respondents reported significant development of all seven indicators of environmental behavior, although the variable knowledge of environmental issues appeared to be slightly less developed.

In general, there was little variability among responses to environmental behavior questions. This may reflect genuine patterns of strong environmental concern, involvement, and action among respondents, or may indicate insensitive measurement strategies. The environmental behavior component of this study can be considered exploratory research as questionnaire items were designed specifically for this study.

State Park Visitor Subgroups

The above analysis provides insights into the range of environmental ethics, values, and behavior of respondents and the degree to which these characteristics are more or less dominant among the total population of state park visitors. For the purpose of designing park-based, nonformal environmental education programs, it is useful to identify relatively homogeneous groups of park visitors based on these variables.

Using cluster analysis to group respondents based on the similarity of their responses to environmental ethics questionnaire items, four distinct subgroups were identified. Names were assigned to these subgroups according to their dominant ethical orientation. Table 4 describes the characteristics and the educational approaches recommended for each subgroup.

Recommendations

Education programs in Vermont state parks may be expected to draw participants who exhibit the full range of environmental ethics, values, and behaviors identified through this study. Consequently, environmental educators need to design programs which accommodate the characteristics of all types of visitors. This can be done by emphasizing points of commonality among park visitors, as well as presenting environmental messages through multiple topics and activities. Comprehensive educational strategies which provide programs oriented toward all four park visitor subgroups may be the most effective mechanism for integrating the greatest number of people into park-based, nonformal environmental education.

Emphasize Commonality

Nearly all respondents expressed agreement with four ideas: 1) nature adds to the quality of our lives, 2) nature will be important to future generations, 3) humans depend on nature for survival, and 4) the supply of goods and services from nature is limited. Environmental educators may assume that protecting nature is important to park visitors and that members of their audiences believe it is important to treat nature carefully. Consequently, educational programs can focus on human impacts on natural systems and ways to diminish these impacts without undue concern about alienating participants or presenting inappropriate messages.

There was nearly universal agreement regarding the importance of several park values, suggesting that park-based environmental educators can assume that: 1) ecological and ethical values are important to most park visitors, 2) park visitors would welcome activities which emphasize recreation and appreciation of natural beauty, such as hikes or visits to

Table 4. Characteristics and recommended educational approaches for park visitor subgroups.

Characteristics	Approaches
Spiritually-based stewardship (42%)	
• Diverse ethical perspectives: dualistic and egalitarian • Religiously- and spiritually-based ethics • Minimal acceptance of spiritual, cultural, and scientific value of parks • Slightly higher internal locus of control and skill in environmental action	• Biocentric and anthropocentric reasons for environmental behavior • Holistic approach • Opportunities to express care for nature and engage in contemplative activities
Religiously-based anthropocentrism (25%)	
• Dualistic and religiously-based ethics • Minimal acceptance of spiritually-based ethics and natural rights ideas • Minimal acceptance of spiritual, cultural, and scientific park values • Less concern for environment; lower internal locus of control, knowledge of and personal investment in environmental issues	• Anthropocentric reasons for environmental behavior • "Active" programs such as wildlife observation • Explore dynamics of environmental problems • Opportunities for contemplative activities
Secular ethical extensionism (16%)	
• Rejects religious dualism • Some acceptance of secular dualism • Minimal acceptance of religiously- and spiritually-based ethics • Egalitarian ethics • Rejects spiritual and cultural park values • Minimal acceptance of intellectual and scientific value of parks • Higher knowledge of environmental action strategies • Slightly lower intention to act and skill in environmental action	• Biocentric and anthropocentric reasons for environmental behavior • Rational approach • Opportunities for engaging in environmental action • "Active" programs such as wildlife observation • Assume understanding of dynamics of environmental problems
Spiritually-based biocentrism (16%)	
• Rejects anthropocentric and dualistic ethics • Egalitarian ethics • Religiously- and spiritually-based stewardship and biocentrism • Spiritual value of parks • Slightly more development of five environmental behavior indicators	• Biocentric reasons for environmental behavior • Holistic approach • Opportunities to express care for nature and engage in contemplative activities • Investigation of natural phenomena

scenic overlooks, and 3) park visitors would not respond favorably to programs or activities which emphasize consumptive use of park resources.

Based on environmental behavior variables, environmental educators may assume that their audience members exhibit some development of several characteristics associated with environmentally responsible behavior: 1) empathy toward the environment, 2) identification with specific environmental issues, 3) awareness of ways to maintain environmental quality, and 4) a sense of empowerment for achieving desired outcomes. This knowledge can enable environmental educators to focus their efforts on facilitating development of other characteristics which are not as prevalent such as knowledge of environmental issues and skill in using environmental action strategies.

Offer Diverse Opportunities

In order to develop programs which are appropriate to all types of park visitors, environmental educators may need to present some messages through a variety of topics and activities.

Environmental ethics that revealed considerable polarity among respondents include: 1) nature deserves respect because it embodies a larger spiritual purpose, 2) nature is subordinate to humans based on religious teachings, and 3) nature threatens human survival. To avoid a clash with program participants' beliefs, environmental educators can present messages that are compatible with multiple ethical perspectives. Educators may present both anthropocentric and biocentric reasons for engaging in environmentally responsible behavior. For example, a park sign could remind visitors not to wash their dishes in waterways because of the negative impacts for both aquatic communities and human recreation. With this approach, individuals who respect the integrity of aquatic ecosystems and those who are motivated more by human concerns will both receive messages which make sense to them.

Respondents exhibited diverse beliefs regarding the importance of spiritual, intellectual, scientific, and cultural park values, signaling differences in the types of experiences which they desire during their park visits. Consequently, environmental educators may choose to offer several kinds of educational programs which emphasize different park values. Group hikes designed to explore parks' natural features (recreation, aesthetic), demonstrations of traditional activities of Native Americans and early European settlers (historical, cultural), posted information about park-specific environmental threats (ecological, moral/ethical), nature writing workshops (intellectual) and wildlife observation programs (educational) all provide very different types of experiences. Each of these activities will appeal to some segments of the park visitor population, but not others. By offering a wide range of formats and topics, a greater proportion of park visitors may be included in nonformal environmental education.

The environmental behavior indicator, knowledge of environmental issues, revealed important differences among respondents. Although many respondents appear to be aware of the sources of environmental problems, some seem to be less

knowledgeable in this area, suggesting that an important objective of park-based environmental education should be to emphasize the dynamics of environmental problems. However, since members of their audiences may already be somewhat familiar with major environmental issues, environmental educators may be challenged to design programs which integrate both basic and complex information and ideas about environmental issues.

Address Park Visitor Subgroups

State park environmental educators can develop comprehensive educational strategies that address specific subgroups of park visitors. These comprehensive plans would ensure that environmental education opportunities appropriate to most types of park visitors are available. Although it isn't possible, or even desirable, to direct members of different subgroups toward specific educational programs, activities that are designed specifically for one of the four park visitor subgroups identified in this study can be expected to attract members of that subgroup, and present opportunities for environmental education that are appropriate for them. Table 4 suggests several recommended educational approaches for each park visitor subgroup.

The religiously-based anthropocentrism subgroup may merit the highest priority for specific attention in environmental education programming because they exhibited the least acceptance of limits to nature's provision of resources and the greatest agreement with human-centered ethical positions. The spiritually-based biocentrism subgroup may not be the highest priority for specialized environmental education offerings because they exhibited considerable development of all seven indicators of environmental behavior, suggesting that they are likely to engage in environmentally responsible behavior.

Conclusion

Enhanced understanding of the people who visit the Vermont state parks provides an opportunity for environmental educators to develop more focused and potentially effective programs through the selection of more appropriate content and media. Park visitors perceive opportunities for learning about, protecting and respecting nature as important reasons for having parks. This suggests that park management priorities should shift accordingly by expanding the emphasis placed on parks' educational and ecological roles.

Other nonformal environmental education settings may benefit from a similar research effort. Nonformal environmental education already occurs in many settings, often without the benefit of a systematic understanding of its possibilities or impacts. Increased recognition of the potential for nonformal settings to contribute to fostering responsible environmental behavior may lead to more effective use of these opportunities.

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NEGATIVE PERCEPTIONS OF NATURAL ENVIRONMENTS AND RECREATION ACTIVITY PREFERENCES

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Underlying a lack of interest in wildland recreation activities may be a negative perception of wildland environments. Existing literature, primarily limited to studies of children and adolescents, tends to support this hypothesis. Developing interest in wildland recreation among individuals, from families not involved in outdoor activities, may require attention to increasing comfort levels in wildland environments.

Introduction

Perceptions of the setting in which an activity takes place plays a significant role in preference for that activity. In recent years, recreation researchers have made theoretical and empirical links between wildland setting attributes and recreation choice behavior and satisfaction. Conversely, there is some evidence suggesting that perceptions of wildland environments also play a role in lack of interest in wildland recreation. If wildland environments are negatively perceived, the activities that take place in them are also likely to hold little appeal. This paper reviews the evidence that some segments of the population may hold negative perceptions of wildland environments and hypothesizes that these perceptions underlie lack of interest in wildland recreation activities.

Demand studies tell two stories. These studies report participation rates, but they also implicitly report rates of nonparticipation. A review of the available data suggests that few wildland recreation activities are popular with even a simple majority of the population and that some demographic groups are underrepresented in wildland recreation (Dwyer, 1994).

Evidence that wildlands are negatively perceived is quite limited. Although there are several reasons for this, one explanation may be that negative reactions to wildland environments are rarely observed and therefore, have not captured the attention of researchers. In developed societies, contact with wildland environments is almost always through self-selected recreation activities. People who dislike wildland environments simply avoid them.

Supporting Literature

Although there are literally hundreds of books extolling the virtues of nature and the environment, almost no literature exists addressing negative reactions. Nash (1982), in *Wilderness in the American Mind* provides historical documentation of how wilderness was negatively perceived by European settlers in North America. McPhee (1989), has documented extreme efforts taken to control nature. Tuan (1979), in *Landscapes of Fear* discusses environments that are feared but carefully avoids discussing natural environments. Cohen (1984), in *Prejudice Against Nature* discusses naive notions about nature.

While a few studies, such as LaPage & Cormier (1977), have documented that some adults perceive activities like camping as dirty, empirical evidence of negative reactions to natural environments comes almost exclusively from studies of children taken on school field trips to wildland areas. While there is a difference in maturity between children and adults, these studies are instructive because school children are a cross-section of their communities for their age cohort, and include individuals from both families that do and do not participate in wildland recreation. Attendance at these programs is part of a mandatory school day. Unlike an adult, contemplating which recreation activity they will participate in, students have little choice but to go on the field trip.

Kostka (1976), in an evaluation of nature center programming found urban students held more negative attitudes towards the environment after a school field trip than before, while suburban groups developed more positive attitudes. Falk, Martin, and Balling, (1978) documented that urban students, unfamiliar with woodlands, could not concentrate on ecology labs held in a wood lot. Observations suggested that the strangeness of the environment was overwhelming and students spent their time speculating about the danger of benign natural objects. Wendling and Wuench (1985) found that 21 percent of a group of students who participated in a residential environmental education program reported that they would have preferred to have stayed in school, although no explanation is given for this response. Bixler, Carlisle, Hammitt, and Floyd (1994) collected examples from park naturalists and environmental educators of fear and discomfort reactions they observed from urban students. Twenty-three categories of negative reactions were identified but they could be reduced to fears and anxiety about animals and people, concern about becoming lost, disgust reactions to insects/spiders and the dirtiness of the outdoors, and discomfort

from weather extremes. Using 1,200 middle school and high school students, Bixler, Floyd and Hammitt (1994b) documented that high expectations of encountering feared objects such as snakes and spiders, plus getting lost in the woods were positively related to preference for manicured park environments and negatively related to preference for wildland environments.

With adults, nonparticipation is not necessarily evidence of negative perceptions of the environment, but some studies suggest the need to further explore the link between negative environmental perceptions and recreation activity preferences. Studies by clinical psychologists consistently document that phobias of animals associated with wildland environments, such as snakes and spiders, are over-represented in adult populations (McNally, 1987). Other studies suggest that park usage and landscape preferences may be partially mediated by concerns about safety (Schroeder & Anderson, 1984; Talbot & Kaplan, 1984; Westover, 1986) while wooded environments characterized by dense vegetation and limited visual penetration tend to receive lower preference ratings from most respondents (Ulrich, 1986).

Preliminary unpublished research findings by the authors of this article suggest that people who hold negative perceptions of wildland environments also dislike wildland recreation activities. These studies go beyond preference for recreation activities and document decreased preference for natural resource careers and school science labs as a function of negative perceptions of the environments associated with them.

Solutions

Site managers, faced with crowding and recreation related resource damage, might wonder why anyone would want more people to become interested in wildland recreation. The concern is not so much with quantity of users but with diversity. On-site studies and recreation participation studies suggest that wildland recreationists are more likely to be Anglo, male, college educated, and from a middle class background (Hendee, Stankey, & Lucas, 1990; Young, 1983). Increasing preferences for wildland environments and recreation should translate into increased demand for new parklands, more cultural diversity among employees in natural resource careers, and even shifts in home landscaping tastes (Nassauer, 1993).

Changing negative perceptions of wildland environments may be difficult. For someone lacking extensive direct experiences with wildland environments, interpretations of these often complex environments are more likely to be based on what has been learned indirectly from television (Cantor & Omdahl, 1991) and family and peers. Bixler et al (1994a) reported that urban children on field trips often expressed anxiety about encountering nonindigenous animals (lions, tigers, alligators, bears, monkeys) and concerns about crazy people and movie monsters in the woods. These reactions are based on the acceptance of unrealistic depictions of wildland environments because no other concrete reference point was available. Falk et al (1978) demonstrated that the extreme novelty of wooded

areas overwhelmed students to the point they could not focus on a science lab (see Russell 1973). These studies suggest that it is essential that individuals have contact with wildland environments at an early age so that negative and sensational depictions of wildland environments seen later in life will be rejected as false. The problem of the extreme novelty of wildland environments overwhelming students (Falk et al 1978) suggests that early childhood experiences must be frequent. Natural resource based parks and nature centers may wish to establish day care centers that target preschoolers of families that are not active in the out-of-doors.

Along with frequent experiences, there may be a need for lengthy experiences. Bixler et al identified general discomfort with being out-of-doors because of extreme temperature (too hot, too cold) along with irritation from flying insects as a source of environmental discomfort. Helson (1959) introduced the concept of adaptation level to explain, among other things, avoidance behaviors. Through daily experience, individuals develop a level and tolerance range for any number of ambient environmental factors such as air temperature. When the air temperature is outside a person's comfort zone they become unpleasantly aroused and either adapt (put on a coat) or retreat to a place that is within their comfort range. In many cases, knowing that it is very hot or cold outside may lead someone to choose an indoor activity. Individuals who spend most of their time in places with central heating and air conditioning are less likely to be tolerant of the temperature range in outdoor settings. Lengthy and frequent experiences in wildlands may help individuals develop a wider comfort range.

Providing opportunities for skill development in several wildland recreation activities should help provide a sense of achievement. The latter being an important motivational component in wanting to repeat an experience. More research and curriculum development needs to be done which identifies the hierarchy of skills necessary for someone to both want to, and be able to carry out an activity. For instance, swimming skills combined with a comfort level with natural water bodies (lakes, rivers, and oceans as opposed to swimming pools) may be important prerequisites for developing an interest in canoeing and kayaking. Additionally, developing wayfinding skills may be pivotal in carrying out an activity without assistance. Wayfinding skills include being able to identify a potential recreation location, seek information about the appropriateness of that location, plan an appropriate route with a map, and successfully travel to the site and back (Carlisle, Bixler, & Floyd, 1994). Considering the importance of family socialization into recreation activities (Kelly, 1974), research needs to be done to better understand both the skill and motivational components that are necessary to successfully introduce individuals to wildland recreation, particularly when their family is not already involved. Many of these skills may be subtle and implicitly transmitted by families active in the outdoors.

Conclusion

Being socialized into wildland recreation is one path to valuing wildland environments. Likewise, feeling comfortable in wildland environments may be a prerequisite for establishing a lifelong pattern of participating in wildland recreation. This paper has asked the question "Why don't some people participate in wildland recreation?" and established through a literature review that one of the many reasons may be negative perceptions of wildland environments. For individuals with limited exposure to wildland environments, these areas are often perceived as dangerous and uncomfortable. A better understanding of the socialization processes inherent in families that are active in wildland recreation can help recreation professionals design programs that increase the sense of security and environmental competencies in those who are less than enthusiastic about wildlands.

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COMPARING QUANTITATIVE AND QUALITATIVE APPROACHES TO CHARACTERIZING FOREST RECREATION ENVIRONMENTS

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This exploratory study examines the use of qualitative and quantitative data to evaluate forest scenic value. Short, open-ended reactions and rating scales are used as response formats to describe landscape character and recreational behavior. Respondents are unsolicited 1994 New York State Fair-goers who volunteered to complete evaluations of a set of photographs of forested scenes. Analysis of the data looked for possible relationships between a respondent's reported frequency of participation in a recreational activity and their visual characterization of the forested sites. In addition, this study demonstrates a systematic approach for analysis of qualitative data.

Introduction

The need to address forest non-market values came to the forefront as more and more people accessed "wilderness areas." The impacts of growth and development began to encroach into the vast expanses of areas once thought of as natural or forever wild. New policies, regulations, and legislation required non-market values, such as recreation and scenic quality, be considered in the management of National Forests and other natural areas. Four primary laws establish this requirement at the federal level. The Multiple-Use Sustained-Yield Act of 1960 requires that National Forests be managed for the full range of forest products, including outdoor recreation. The National Environmental Policy Act of 1969 is more specific, requiring that federal agencies, "identify and develop methods and procedures ... which will ensure that presently unquantified environmental amenities and values may be given appropriate consideration in decision making along with economic and technical considerations" (42 U.S.C. s4332) so as to assure "productive and esthetically ... pleasing surroundings" (42 U.S.C. s4331). The Forest and Rangeland Renewable Resources Planning Act of 1974 and The National Forest Management Act of 1976 reinforce the mandate for

consideration of amenity resources, specifically identifying aesthetic along with wildlife, recreation, and wilderness resources. It emphasizes the evaluation of tradeoffs while comparing feasible management alternatives. The purpose is to protect the aesthetic experience, and not an abstract picture.

However, these acts neither suggest nor endorse any specific guidelines or recommendations for the incorporation of these amenity values into forest management plans. Managers found it necessary to collaborate with researchers to determine how users perceive forest amenities. The analyses of these perceptions are to serve as a basis for the much needed guidelines and recommendations. The interested parties are left to choose from available analytic approaches or devise their own. To date, these methodologies primarily rely on quantitative research approaches that inherently strive to find an average condition represented by a mean value. The mean values are usually arrived at by analysis of the participants as a group. There is limited opportunity to look at individual responses and the significance they may have (Shafer 1969).

The reliance on quantitative methods raises a number of questions, particularly in the area of forest scenic preferences. Is it possible that the use of quantitative to the exclusion of qualitative analysis is obfuscating more intriguing questions (Fish 1995)? This study is a tentative first step toward exploring the application of qualitative analysis to the investigation of forest recreation and visual quality. The researchers supplemented traditional rating scales (Gobster & Chenoweth 1989) with short qualitative responses to find out more about people's experience in the forest and how effective the quantitative scales are in describing this experience. Based on the theories of analytic induction, this study seeks to explore the following questions:

1. Are the pre-determined rating scales provided to respondents for their evaluations definitive enough to inform the research purpose?
2. Do respondents assign similar connotative meanings to the descriptors used at either end of bi-polar scales, and are these meanings similar to those intended by the researchers?
3. Are respondents' evaluations of scenic quality based solely on visual stimuli, or are their responses influenced by other sensory stimuli?
4. Are the concepts represented by a researcher's survey instrument the same concepts attended to by the respondents?

Outdoor recreation management presumes that the quality of recreation experiences is dependent on site attributes. Clark and Stankey (1979) recognized that recreational value is a function of the perceived opportunity of a location to provide for certain activities and experiences. This raises the question whether scenic beauty is a site amenity that contributes to a recreational activity? There are only few studies that consider the relationship between visible forest qualities as site

attributes and their interaction with participation in recreational activities (Levine & Langenau 1979; Brunson & Shelby 1992). This study assumes that there is a relationship and uses both quantitative and qualitative methods to investigate the long standing assertion that perceived diversity contributes to scenic value (Kaplan & Wendt 1972).

Qualitative Analysis

The qualitative approach used in this study is based on the conceptual process called 'grounded theory' (Glaser & Strauss 1967). Shelly (1995) describes this approach as a spiraling process moving from inductive inferences drawn from the data through deductive verifications of those inferences against the data. This is unlike the traditional application of quantitative analysis through the scientific method where the process begins with an abstract hypothesis that directs the investigator's attention, moves to a focused data collection, and ends with the data analysis implied by the original hypothesis. The spiraling process of qualitative analysis typically begins with concrete data representations of the studied phenomena and moves to abstract representation in the form of descriptions, principles, or theories. However, it then requires further data collection to fill in the gaps and continue the analysis to extend the theory. Figure 1 illustrates this process, where the observational data base is text files compiled from interviews, field notes, documents and the like. The interpretive knowledge base is created through coding categories, descriptions, research-generated relations, and working hypotheses.

Researchers employing qualitative analysis techniques often find their results scrutinized for perceived lack of rigor, as measured by reliability and validity. However, it is essential for the reader to realize that "the usual canons of 'good science'...require redefinition in order to fit the realities of qualitative research, and the complexities of social phenomena that we seek to understand" (Strauss & Corbin 1990).

The concept of reliability refers to the consistency or stability of a measure from one use to the next. The reliability of a qualitative analysis is examined across a set of studies to see if similar results are found. In qualitative studies, issues of methodological consistency within a given study become more important. For example, did the researcher use concepts consistently throughout the study? Are the researcher's findings based on a methodical progression through data instances? The researcher must demonstrate that data collection and analysis is systematic. Shelly (1995) contends that the question of reliability in a qualitative study is a question of whether another research could apply the logic of the study to the same data and obtain similar findings.

Validity in qualitative research relates to the similarities between the way the researcher represents the research findings and the way phenomena actually exist in the field (Myers 1994). The validity of generalizations can be ascertained through qualitative analysis techniques. For example, the occurrence of disconfirming data instances would require the researcher to reexamine definitions of constructs to better define the circumstances under which they will occur, therefore improving their validity (Shelly 1995).

With these concepts of reliability and validity in mind, the Qualog computer software program is used in the analysis portion of this study. Qualog provides researchers with the means for keeping a chronological account of conceptual activities and associated mechanical tasks (Shelly & Sibert 1992). It also facilitates hypothesis testing through systematic retrieval of data that operationalize deductive inferences back into the data. As with any other computer application it should be clear that the program cannot actually perform analysis for the researcher. It does however, leave the researcher to concentrate on conceptual rather than mechanical tasks.

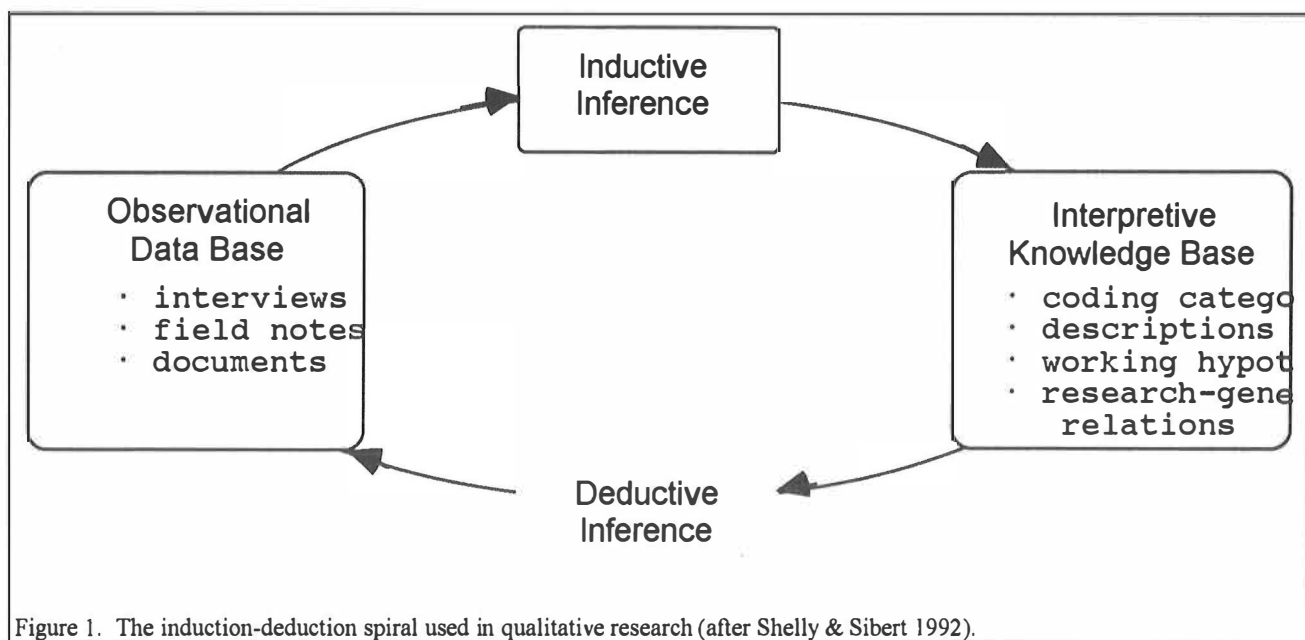


Figure 1. The induction-deduction spiral used in qualitative research (after Shelly & Sibert 1992).

Study Methods

Survey data for this paper were collected at the 1994 New York State Fair in Syracuse, New York. The Fair ran from August 25 through September 5. The photographs to which participants responded were on display at an indoor booth set up by the State University of New York, College of Environmental Science and Forestry.

Five boards were assembled, each displaying four 8-by-10 inch color photographs arranged in random order. The photographs show scenes representative of northern hardwood forests. The scenes are selected to illustrate a broad range for each of five specific forest attributes: species composition, visual penetration, slash, ground cover, and big trees. The boards were displayed one at a time over the 12 days of the fair. Participants in the study are unsolicited fair-goers. All 169 completed surveys are used in the analysis.

Survey booklets, clipboards, and pencils were readily available to participants at a table set next to the photo board on display. Also on the table, and contained within each survey booklet, were an introduction to the study and instructions for completing the survey. The booklets are divided into three parts. The first part gathers background information including age, gender, ethnicity, education, and the type of place they had grown-up (i.e., large city, suburb, country). They also reviewed a list of 20 outdoor recreation activities and identified the frequency in which they participated in them.

The second part of the survey booklets contains a series of seven-point bi-polar rating scales. Participants evaluated each of the four photographs displayed on the photo-board using a set of 24 scales. Every participant applied the 24 scales to each of the four photos.

Open-ended questions comprise the third part of the survey booklet. For the open-ended questions, the participants are told to, "Imagine that you could own some forested land." The questions ask, "What is it about any forest land that makes it especially **desirable** to you?" and "What is it about any forest land that makes it especially **undesirable** to you?" Responses to each question are typically a couple of phrases with around 10 to 20 descriptive words.

Findings

Analysis of the qualitative data began by looking for similarities or patterns in the open-ended responses. It was expected that a review of these responses might yield some interesting patterns. For example, it was thought that since respondents were asked to provide information about their participation in outdoor recreation activities, their open-ended responses would include some reference to forest attributes that either support or detract from their recreational experiences.

Patterns became evident in various forms. There are data instances that include the same word, or group of words, across

many respondents (e.g., "wildlife", "diversity", or "evidence of logging"). There are also instances of responses that include phrases describing what seem to be similar attributes of the forest (e.g., "wide variety of flora and fauna", "the beauty of the different healthy species of trees, plants, etc.", and "a variety of tree species is nice").

Diversity

The most prominent pattern seen in the open-ended responses is references to diversity and variety. These responses simply state the word diversity or variety, or include them in a phrase describing what the respondents associate with diversity. Examples of this from the desirable characterizations include, "Diversity of plants at all levels", "Diversity of animal habitat", and "Healthy vibrant growth with a lot of diversity". However, the inclusion of diversity is not limited to the desirable files. Many of the undesirable characterizations make reference to the **lack** of diversity, for example, "no diversity" and "Boring -- lack of diversity". It is evident that this group of respondents consider diversity in forested environments a desirable characteristic. Those respondents mentioning diversity are referred to as the Sayers, while the rest are NoSayers.

In the quantitative data, one of the bi-polar rating scales is anchored by diverse and uniform. In the selection of the four photographs for each of the boards there was a conscience effort on the part of the researchers to show a broad range of the forest attribute being tested. This was done to maximize diversity across the four photographs. It was expected that this would show up in the analysis of the diverse-uniform rating scale.

These data provide two ways to determine how sensitive a respondent is to diversity in forested environments. First are those who had and had not used comments about diversity or variety in their open-ended responses -- the Sayers and the NoSayers. Sensitivity to diversity can also be investigated through the difference between a respondent's maximum and minimum (i.e., range) diversity ratings. There is a group using a higher range (4, 5 or 6) and another with a lower range (0, 1 or 2) to characterize the four scenes on the board. The researchers expected to find that the group that had written about diversity would have a greater range of uniform-diverse ratings across the four photographs. The cross-tabulation indicates a very weak relation between these two ways of expressing sensitivity to diversity ($\chi^2 = 2.07$, $p = .150$, and a Fisher Exact Test = 0.1739). The lack of a significant relationship may be from differences in connotative meaning assigned to the term diversity by the respondents. Diversity had a rather narrow interpretation relating to just what is seen in the context of the rating scales. However, in the context of the open-ended questions, diversity seemed to be associated with many environmental characteristics.

Table 1 reports for each of the five boards the means and 95% confidence intervals for the diverse-uniform scale and the diversity scale range. Separate values are given for the Sayers and NoSayers. Even with the relatively small sample sizes, there are significant differences between the mean ratings for

Table 1. Means and 95% confidence intervals of diversity and range in diversity ratings from those using and not using diversity to describe the forest.

	Diverse-Uniform		Diversity Range	
	Mean	± 95% CI	Mean	± 95% CI
BOARD 1: Species Composition (15, 5)				
SayDiverse	4.45	0.736	3.60	0.877
NoSayDiverse	3.58	0.603	2.80	1.102
BOARD 2: Visual Penetration (11, 21)				
SayDiverse	3.91	0.523	3.27	0.684
NoSayDiverse	3.73	0.360	3.00	0.604
BOARD 3: Slash (9, 20)				
SayDiverse	4.17	0.528	2.78	0.757
NoSayDiverse	3.45	0.312	2.55	0.707
BOARD 4: Ground Condition (14, 52)				
SayDiverse	3.80	0.495	3.79	0.909
NoSayDiverse	3.84	0.240	3.38	0.404
BOARD 5: Big Trees (3, 23)				
SayDiverse	3.83	1.177	1.33	0.800
NoSayDiverse	3.64	0.313	2.91	0.616

The number of respondents are indicated after the board theme as (SayDiverse, NoSayDiverse).

the scenes representing species composition and slash. The Sayers tend to rate the forest scenes as being less diverse than the NoSayers. The Sayers also use a greater range in the diversity scale than the NoSayers. The single exception is for the Big Tree scenes where the NoSayers are significantly more likely to see a greater range in diversity among the scenes than the Sayers. The researchers are inclined to agree with the Sayers' rating in this case; there are no scenes with really big trees (e.g., 3 foot diameter).

Visual Quality

The instruction booklet's title and introduction clearly stated that the focus of the study was forest visual quality. The heading of the poster hung beside the photo-boards to introduce the study states, "Come tell us what you see." The researchers anticipated open-ended responses that spoke of aesthetics, scenic beauty, or visual quality. However, very few of the responses contained explicit references to these concepts. Instead, people spoke about the forest in terms of wildlife, diversity, and nature undisturbed by people. This suggests that perhaps the experience of the forest, or at least what people find desirable and undesirable about the forest, is not limited to what they see. "Species variety, shade, terrain variety, sounds (not man made), smells (not man made), hiking trails" and

"Quiet, except for birds and mammals" are examples of responses that include references to other senses contributing to the experience of forest.

Also, the open-ended responses suggest that a description of the forest experience will include attributes other than just the physical ones. A pattern of responses that was coded "ambience" brought together all the responses that wrote about the feelings the forest invoked in them or how they felt when they were in a forested environment. These respondents will again be referred to as the Sensors, and those who did not talk about ambience will be the NoSensors. Examples of ambience data instances include: "Serenity and peaceful," "Relaxing atmosphere away from it all," and "Quiet, serene, and thought-provoking."

The researchers expected to find significant differences between the ratings of the Sensors and NoSensors on some of the quantitative scales. Those of particular interest for this comparison were the connotative scales describing attributes of the forest that influence the ambience experienced in the forest. These included the bi-polar anchors: boring-exciting, beautiful-ugly, diverse-uniform, open-closed, warm colors-cool colors, and dark-light. ANOVAs performed between the Sensors and NoSensors for these scales revealed no significant differences ($p > .05$). However, significant relationships were found for the scales anchored by neat-messy understory, neat-messy forest, and large trees dominant-large trees not dominant in the understory.

Summary

Earlier in this paper four questions were chosen to investigate in this study. While the study's findings are not conclusive, these researchers feel that this study began the exploration of the relationship between quantitative and qualitative responses. In particular, it helped to find out more about what people experience when in forested environments.

Regarding the question of whether the pre-determined rating scales were definitive enough to inform the research purpose, the analyses described in the diversity section suggest perhaps not. When the researchers developed the quantitative scales the diverse and uniform scale was included to explore how diversity with a scene -- as a spatial attribute -- contributed to forest visual quality. A comparison between the qualitative and quantitative analyses revealed that diversity had a rather narrow interpretation in reference to the rating scales. However, in the context of the open-ended questions, diversity seemed associated with many environmental characteristics. It appears that the term diverse is anything but definitive when used by the public in this context. This leaves inconclusive results about the relationship between the diversity of a scene and its visual quality. The connotative meaning respondents are giving to diversity needs further exploration. It may be necessary to reexamine the anchors of this scale and assign other descriptors that may be more successful at exploring that concept.

Again looking at the qualitative responses associated with diversity, it appears that respondents assign different connotative meanings to the descriptors at either end of bi-polar scales. Within the open-ended responses diversity is mentioned alone with no context, or in other instances it is mentioned in association to wildlife, flora, or topography. There are also instances where variety is mentioned in similar ways.

Those open-ended responses coded for ambience reveal that sensory stimuli other than visual are significant contributors to respondents' experiences in forested environments. These responses included references to sounds, smells, and touch. It may not be possible to isolate each of these to determine the extent they influence the forest experience. However, further study may be able to explore how these factors interact.

The researchers set out to explore the experience of the forest with a focus on visual qualities. It is clear from these results that respondents do not react to just the visual aspects, but a collection of factors. These factors, as expressed in qualitative responses, begin to inform researchers about other concepts to which respondents may attend when asked to relate their forest experiences.

Future Study

This study did not reveal any strong response patterns relating perceived diversity to scenic value. However, results do suggest that people have more to tell researchers about what they experience in the forest than the more traditional rating scales allow. Also, while the open-ended responses in this study are limited to short answers, this appears to be more a methodological issue than an unwillingness to complete surveys with open-ended questions.

Future studies of this type will concentrate on smaller groups of people to allow for longer, more in-depth interviews. This also permits follow-up interviews, if necessary to get clarification on responses. For example, it would be a great boost to the study described here to meet again with some of the respondents and ask them to elaborate some of their responses, such as the meaning of diversity. This might yield some clarification about what these terms mean to them and also reveal patterns that differentiate among types of recreationists.

The next step is to conduct the data collection portion of a similar study in the field rather than relying solely on slides. Conversations with private forest landowners while visiting with them on their property has provided anecdotal evidence that when in the environment under study -- in this case the forest -- respondents are provided with many more cues for discussion than those provided to them in photographs selected by the researchers. Another possible topic of study is to examine if responses are based solely on the attributes represented in the photograph or is the photograph simply a cue to remind people of their past experiences in similar environments.

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**OUTDOOR
RECREATION:
SATISFACTIONS AND
CONFLICTS**

INFLUENCES ON PERCEIVED CROWDING AND SATISFACTION ON THE BLUE RIDGE

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This study investigated levels of perceived crowding and satisfaction of visitors to the Peaks of Otter region of the Blue Ridge Parkway. Regression analysis was used to examine the relationship between overall satisfaction of the visitors, the visitors' perception of crowding, and the factors hypothesized to influence perceived crowding. A small but significant correlation between satisfaction and perceived crowding ($r^2=.01$) was found. A second analysis was performed to examine variables related to visitors' perception of crowding. Four variables were used: age, previous visits ($r^2=.11$), tolerance level ($r^2=.13$), and user expectation ($r^2=.09$). Three of the variables were significant at the .05 level; however, age showed no significant correlation to perceived crowding.

Introduction

The 470 mile Blue Ridge Parkway is located in the western portions of Virginia and North Carolina. It passes through 29 counties and six congressional districts. Adjacent lands include four national forests, the Cherokee Indian Reservation, and 4,000 to 5,000 parcels of private land along the route. For the purposes of this study a unique portion of the Blue Ridge Parkway was utilized. Specifically, the Peaks of Otter region, a part of the Roanoke Valley District was the focus area of this study. The Roanoke Valley is the closest urban area to the Blue Ridge Parkway in Virginia and introduces a wide visitor diversity to the trail systems and parkway.

During the period from 1979 to 1988, annual visitation to the Blue Ridge Parkway rose from fifteen million to almost twenty six million people. As visitation rises, managers and planners must determine how this phenomenon influences the visitor's experience. This study investigated visitors' perceptions of crowding and how those perceptions influenced overall satisfaction with their visit. The following groups were included in this sample: motorists, hikers, mountain bikers, campers, and nature enthusiasts (bird watchers, wildflowers,

etc). Backpackers were excluded from participation because of the restriction of camping along the trail system.

Methods

The Peaks of Otter region has a visitors center located at the northern intersection of Route 43 and the Blue Ridge Parkway. Average traffic during the week to the Visitor's Center is approximately 100 people per day. During the weekend, average visitation is between 300 to 400 people and has risen to 1200 in one day. In order to limit the possibility of imposing upon the individuals, visitors were asked at the center if they would like to participate in the survey and only volunteers were accepted. Due to diversity in visitation during the week, subjects were approached during randomly selected time blocks at the Visitor's Center. A total of 435 subjects completed the survey instrument between October 1, 1994 and October 31, 1994. This period is commonly known as the period of peak yearly visitation due to the coloration of the autumn foliage.

Raw data was compiled and entered into The Statistical Package for the Social Sciences (SPSS) for analysis; data were then checked for accuracy. A reliability analysis was performed using the cronbach alpha scale. A series of multiple regression analyses were performed in order to examine significant correlations between variables. A descriptive analysis was then performed to provide general information regarding the population of visitors.

Results

The following data sets reflect the results of a multiple regression analysis performed using these variables:

Analysis I:

dependent variable:	Satisfaction
independent variable:	Perceived crowding

Analysis II:

dependent variable:	Perceived crowding
independent variables:	User expectation
	Previous visits
	Tolerance level
	Age

The relationship between perceived crowding and visitor satisfaction (analysis I) was examined with a multiple regression analysis (see table 1). This depicts an inverse relationship between the level of perceived crowding and the level of satisfaction of the visitor. As the visitors' level of perceived crowding increases; their levels of satisfaction with their visit decreases. This finding is consistent with the previous research by Shelby and Heberlein (1981). Analysis II looks at perceived crowding as a dependent variable and tests the significance of the relationship with the following variables:

- A) The visitors' expectation of the density level. If the visitors' expectations regarding the number of other users are exceeded there will be an increase in the level of perceived crowding. This hypothesis was supported (see table 2).

- B) The number of previous visits of the users to the region. If the visitor has previously come to the area, the visitors would have a preconceived understanding of what to expect; hence, influencing their opinion of the density level. This hypothesis, however was not supported by the regression analysis (see table 3).
- C) The visitors' level of tolerance proved to be a significant finding (see table 4).
- D) The age of the visitors (no correlation, see table 5).

Table 1. Regression analysis for perceived crowding to satisfaction.

Variable	Multiple R	R ²	T Value	Sign. T value
Perceived crowding	.10894	.01187	-2.281	.0231

Table 2. Regression analysis for user expectation to perceived crowding.

Variable	Multiple R	R ²	T Value	Sign. T value
User expectation	.30749	.09455	6.724	.0000

Table 3. Regression analysis for previous visits to perceived crowding.

Variable	Multiple R	R ²	T Value	Sign. T value
Previous visits	.34419	.11847	3.423	.0007

Table 4. Regression analysis for tolerance level to perceived crowding.

Variable	Multiple R	R ²	T Value	Sign. T value
Tolerance level	.36573	.13376	6.189	.0000

Table 5. Regression analysis for age to perceived crowding.

Variable	Multiple R	R ²	T Value	Sign. T value
Age	.2117	-.1251		

Discussion

The purpose of this study was to investigate the relationship of the influences of the visitors' perception of crowding and satisfaction on the Blue Ridge Parkway. The variables hypothesized as being relative to perceived crowding were: (1) the visitors' expectation of the density level of the area, (2) the number of previous visits to the area, (3) the tolerance level of the visitor, and (4) the age of the visitor. With regard to satisfaction, it was the purpose of this study to find out if the

visitors' perception of crowding had a negative influence on the overall satisfaction with their visit.

This study was conducted at a specific location on the Blue Ridge Parkway and to the visitor this area could be perceived as a primary destination. Assuming the visitors had a preconceived idea of how many people they expected to encounter upon arrival, this study measured whether or not that expected density level was exceeded and if this had an effect on their perception of crowding. It was found that in fact, if the expected density level was surpassed then the visitors' perception of crowding was elevated as well.

When the number of previous visits was analyzed with respect to perceived crowding, an unexpected finding was discovered. As the number of previous visits to the area increased, so did the level of perceived crowding. One possible reason for this is that the visitor develops a certain identity or familiarity with the area and this instills a sense of ownership known as "place attachment" (Mowen & Williams, 1994). The visitor then feels encroached upon even if density levels remain the same.

Tolerance level was measured as a third variable in this study, where if the visitors' level of tolerance to various extraneous acts of other people (i.e. generators running) is low, then their level of perceived crowding is high. Carrying capacities for recreation have been difficult to determine because of the tendency to consider the perception of crowding as a generalized human value (Schreyer & Roggenbuck, 1978). This analysis did, in fact, reveal a negative relationship and suggests an individualistic relationship to perceived crowding. This research suggests that from a management stand point one must recognize that all visitors are different and are affected by certain behaviors in varying degrees.

The fourth variable tested for association with perceived crowding was the age of the visitor. It was hypothesized that as the visitor gets older, he/she would be more sensitive to density levels and the level of perceived crowding would increase. This research revealed no significant correlation between the age of the visitor and the level of perceived crowding. As the "baby boom generation" ages, this population of visitors and others should not be more likely to experience crowding.

Finally, the variable perceived crowding was found to have an inverse relationship to overall satisfaction. When the level of perceived crowding increased, the level of satisfaction decreased to a small degree. Although this finding was statistically significant, it is important to consider that density levels are only one factor having an impact on the visitors to the Blue Ridge Parkway. Managers of outdoor recreation sites are faced with a difficult decision as use density continues to increase. Aside from ecological degradation of resources, is visitor satisfaction reason enough to encourage use limits? How many visitors is too many? Can other influences on visitor perceptions be used to maintain satisfaction? The answers to these and other questions are important determinants to the future of outdoor recreation resources and continue to justify the need for further research.

Implications for Management

Implications for management are varied. The finding of a positive relationship between expectation and levels of perceived crowding imply an avenue for improving management. This phenomenon could be used as a management tool for amenity resources and from an advertising standpoint. Information is important to the visitor. A good information system improves personal decision making, promotes general welfare, and protects the resource where the activity takes place (Jubenville & Twight, 1993). If the visitors know what to expect with regard to density prior to their arrival, then possibly the visitors' perception of crowding would decrease or stay the same. Based on the finding of an inverse relationship between perceived crowding and satisfaction; theoretically, the overall satisfaction of the visitor would be heightened.

The measure of tolerance level compared to perceived crowding indicated that as people become less tolerant, they perceive a higher level of crowding, and hence are less satisfied. This finding could play an important role in the field of future park design and development. If parks are designed with relative diversity regarding physical space and reflecting the needs of the visitor, certain behaviors and circumstances could be avoided. Designers could provide plans for areas of remoteness as well as areas for larger gatherings.

The two variables that were not statistically significant in this study were "previous visits" and "age", however, this was an important finding. It is important to recognize that age had no significant correlation with perceived crowding, implying that there should be no difference in the management of parks with respect to the various ages of the visitors. It should also be stated that more research is needed to investigate social paradigms of various age groups. The number of times people previously came to the Peaks of Otter was a significant finding, however, in the opposite direction from the one hypothesized. As the number of previous visits increased, so did the level of perceived crowding. This might simply be an aspect of human nature, the important fact here is that even though the more the visitor frequents the area the higher the level of perceived crowding, the visitor is *still* returning to the area.

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USER EVALUATION OF ADIRONDACK FOREST

PRESERVE CAMPGROUNDS

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Campers were surveyed to measure their satisfaction with facilities and conditions at New York State Department of Environmental Conservation campgrounds on Forest Preserve lands within the Adirondack Park during 1993. Respondent ratings of campground facilities and conditions and public recreational access collects information on the effectiveness of management activities to provide the services and facilities sought by users.

Introduction

In 1993, the New York State Department of Environmental Conservation (NYSDEC) requested that a study be conducted to evaluate user experiences at NYSDEC campgrounds within the Adirondack Park. The NYSDEC concerns were that managers should be aware of user ratings of the campground experience and use this information to adjust management and planning at campgrounds rather than managing to minimize user complaints. The NYSDEC was interested in developing a condensed user evaluation survey or "report card" that was easy to use in subsequent years and was modeled after previous research (LaPage and Bevins 1981, Connelly et al. 1986 Alexander 1995).

The facilities at NYSDEC campgrounds are designed for tents, camping trailers, and small truck campers and motor homes. The emphasis is on more rustic facilities without hookups and at a modest price. A wide variety of campsite and campground conditions (e.g., distance between sites, proximity to lakes/rivers) exist within the NYSDEC campground system in the Adirondack Park.

The 44 NYSDEC campgrounds in the Adirondack Park on Forest Preserve lands sold 105,318 camping permits in 1993. Total attendance was estimated at 921,533 user days based on an average of 2.5 days per party and 3.5 individuals per party. The total number of camping permits sold at the Adirondack Forest Preserve Campgrounds has fluctuated from 105,318 to 121,509 over recent years depending on weather conditions, economic changes, and other factors (Table 1).

Table 1. Adirondack Forest Preserve campground permits sold during 1987 through 1993.

Year	Number Of Permits Sold
1993	105,318
1992	115,539
1991	121,509
1990	n.a.
1989	118,178
1988	121,414
1987	107,724

The state, county, or province of residence reported by the 1992 camping permit holders for the Adirondack Forest Preserve campgrounds are shown in Table 2. The majority (68%) of permit holders are from New York State. The 14 northern New York and Adirondack counties and the more urbanized counties account for most attendance within the state. Over 37,000 permit holders came from other states or provinces; this represents 32 percent of all permit holders in 1992.

Table 2. Residence area of Adirondack Forest Preserve campground permit holders in 1992.

Residence Area	Number Of Permits Sold
Northern New York 14 Counties	29,330
Eastern New York 16 Counties	24,417
Central New York 15 Counties	11,070
Province Of Quebec	10,506
New York City, Long Island, And New Jersey	9,611
Other U.S.	8,952
Western New York 10 Counties	7,056
Vermont, Connecticut, Massachusetts	6,749
Province Of Ontario	4,868
Unknown	1,858
Other Countries	974
Other Canada	148
Total	115,539

Methods

In February, 1994, a random sample of 878 campground registrations was selected from the 105,318 camping permits sold during 1993. These campers were sent a mail survey about their 1993 camping experiences. Forty-nine of those selected were undeliverable due to incomplete addresses or the addressee had moved. Of those deliverable, 485 were returned (59% response rate) and used in the following analysis.

Analysis of the data and statistical tests were conducted using the Statistical Package for the Social Sciences (SPSS/PC).

Results

Respondents reported camping an average of 20.5 years in New York State and 18.1 years in the Adirondack Park over their

lifetimes. Only a minority of campers reported camping three years or less in New York State (15%) and in the Adirondack Park (22%).

In 1993, respondents reported taking 4.1 camping trips to the Adirondack Park and the majority of them were to NYSDEC Forest Preserve campgrounds (average 3.5 camping trips). The average length of stay reported by the respondents was 5.2 days in 1993. In 1992, 78 percent of the 1993 campers had camped one or more times in the Adirondack Park (average 4.4 camping trips). In 1991, 76 percent of the 1993 campers had camped one or more times in the Adirondack Park (average 4.2 camping trips). While not every camper returns every year, most do return frequently over a five to ten year period.

The type of camping equipment used in 1993 by the respondents and their group included: tents (73%), camping trailer or "pop-up" (19%), travel trailer (16%), motor home or van camper (14%), and truck camper or pickup truck cover (8%).

The majority of campers rated the NYSDEC campground facilities as good to excellent (Table 3). The cost of camping fees per day was more often rated fair to good. The additional services and facilities reportedly needed at NYSDEC campgrounds were: electrical and water hookups (14%), more showers and toilets (14%), campground grocery and supply store (13%), more recreational activity facilities (7%), and boater access and launch sites (6%). The three things they liked most about staying in a NYSDEC campground in 1993 were: the natural scenery (25%), the condition of the site (19%), and the lack of crowding (19%). The three things they liked the least about staying in a NYSDEC campground in 1993 were: the registration and reservation system (16%), crowding (15%), and the bathrooms and showers (13%).

Overall, campers reported that they were satisfied (44%) to very satisfied (50%) with their 1993 camping experiences at Adirondack Forest Preserve campgrounds. Only a small percentage of the respondents were undecided (4%) or dissatisfied (2%). No respondents reported being very dissatisfied.

All four campground related facility and condition variables (Table 3) were significantly associated (Chi-square > 74, 6 df, $p < .05$) with the overall satisfaction score when the dissatisfied and undecided categories were combined to provide enough cases for analysis of those categories. A discriminant analysis

using these four variables correctly predicted the overall satisfaction rating in 60% of the classifications. The respondent variability and unpredictability in some variables appears to relate to local conditions and situations that indicate the need for some improvements at some campgrounds.

No statistically significant association (Chi-square test with $p < .05$) was found between overall campground facility and condition satisfaction and any of the three following variables: number of years camping in New York State, number of years camping in the Adirondack Park, and the number of camping trips to the Adirondack Park in 1993. Six categories of the number of years of camping was used for this analysis (e.g., the first category was 1 year, second category was 2 to 5 years).

During their 1993 camping trips to the Adirondack Park, respondents reported that they or other members of their group participated in a wide variety of other recreational activities: hiking (79%), fishing (61%), photography (54%), canoeing (54%), nature study (50%), motor boating (42%), biking (31%), swimming (21%), and backpacking (15%).

In general, respondents rated the public recreational access facilities (beyond campgrounds) in the Adirondack Park during 1993 as good (Table 4). The most highly rated facilities were the number and length of trails and public access to the trails. The number of visitor and information centers available received the lowest rating.

Overall, campers reported that they were satisfied (34%) to very satisfied (53%) with the public recreational access facilities and conditions in the Adirondack Park during 1993. Only a small percentage of the respondents were undecided (9%), dissatisfied (3%), or very dissatisfied (1%).

All ten public recreational access facilities and conditions variables (Table 4) were significantly associated (Chi-square > 33, 6 df, $p < .05$) with the overall satisfaction score when the dissatisfied, very dissatisfied, and undecided categories were combined to provide enough cases for analysis of those categories. A discriminant analysis using these ten variables correctly predicted the overall satisfaction rating in 57% of the classifications.

Table 3. Ratings on the New York State public campground facilities and conditions in the Adirondack Park during 1993 by those returning a mail survey.

Facilities & Conditions	Excellent	Good	Fair	Poor	Total
The cleanliness and condition of campgrounds	41%	45%	11%	3%	100%
Availability of recreational facilities at the campground (e.g., hiking trails, swimming beaches)	37%	52%	9%	2%	100%
Availability of tent sites or trailer sites	36%	49%	13%	2%	100%
Cost of camping fees per day	21%	46%	26%	7%	100%

Table 4. Ratings on the public recreational access facilities and conditions in the Adirondack Park during 1993 by those returning a mail survey.

Facilities & Conditions	Excellent	Good	Fair	Poor	Total
Length of trails	29%	63%	7%	1%	100%
Number of trails	32%	55%	11%	2%	100%
Public access to trails	24%	64%	11%	1%	100%
Highway directional signs for recreational access & facilities	23%	63%	12%	2%	100%
Trail signs and markers	20%	57%	18%	5%	100%
Public access to waterways	21%	53%	19%	7%	100%
Number of visitor & information centers available	15%	57%	25%	3%	100%
Trail maps & information	17%	55%	20%	8%	100%
Size of parking lots	16%	56%	21%	7%	100%
Number of parking lots	14%	56%	21%	9%	100%

No statistically significant association (Chi-square test with $p < .05$) was found between overall public recreational access facility and condition satisfaction related to the Adirondack Park and either the number of years camping in the Adirondack Park or the number of camping trips to the Adirondack Park in 1993. Six categories of the number of years of camping was used for this analysis (e.g., the first category was 1 year, second category was 2 to 5 years).

Overall satisfaction with Forest Preserve campground facilities and conditions and overall satisfaction with public recreational access facilities and conditions were associated at a statistically significant level (Chi-square = 183, 4 df, $p < .05$).

Discussion

One of the expected results was that satisfaction would be related to the number of years of camping experience or the number of camping trips to the Adirondack Park in 1993. However, no statistically significant association was found between overall satisfaction and the number of years camping in New York State, the number of years camping in the Adirondack Park, and the number of camping trips to the Adirondack Park in 1993.

Overall campground users at NYSDEC facilities on Forest Preserve lands within the Adirondack Park were satisfied or very satisfied with the facilities and conditions they experienced in 1993. The NYSDEC staff and volunteers are to be credited with well serving the users in 1993. However, some locations do need improvement as indicated by some survey respondents. The sample size did not permit analysis of individual campgrounds but such a future study could measure the specific locations where improvements need to be made (i.e., the variation between responses at different locations in the current study suggests that such an analysis would be an appropriate next step in the evaluation of customer satisfaction). The methodology used in the Ohio State Park system involves sufficient sample size in each park to work as a feedback loop in their statewide commitment to the Total Quality Management approach (Alexander 1995). A similar customer satisfaction "report card" technique could assist campground managers at NYSDEC facilities as well.

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THE 1994 LAKE GROTON RECREATIONIST

SURVEY: POLICY OPTIONS FOR RESOLVING

LAKE USER CONFLICTS

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Residents and visitors were surveyed by mail and on-site, respectively, regarding recreation activities, conflicts, and attitudes toward developing additional public access to Lake Groton, a 404-acre lake in northeastern Vermont. Study results concluded that residents were significantly more likely than visitors to have boats at the lake, partake in more boating-related activities, and experience conflicts with other recreationists. Little support was discovered among residents and visitors for increasing public access to the lake; however, some support was discovered for limiting boat horsepower and speed to reduce conflicts among recreationists.

Introduction

Water is the focal point of outdoor recreation opportunities for many Vermonters and visitors to the state. Access to many water-based recreational activities is from private camps and homes surrounding the shorelines of lakes and ponds, as well as from publicly owned areas such as state parks and town beaches. While there is a limited number and unequal distribution of lakes and ponds around the state, the demand for lake recreation facilities and access has been projected to increase in the future (Vermont Lakes and Ponds Recreation Management Study, 1990).

This paper addresses resource management issues identified in a study of Lake Groton, a 404-acre lake in northeastern Vermont earmarked as a potential location for developing additional public access. Lake Groton is surrounded by state forest land except for 133 shoreline camps and year-round residences. Two state parks, one a day use area with swimming facilities and the other with 79 camp sites and a boat launch, are located on the northern end of the lake. Four additional campgrounds are located within a few miles drive of the lake shore. Other than through private property and registration at the state parks, there is no additional public access to the lake.

In response to the Vermont State Legislature's request for a management and use study of Lake Groton, the Vermont Department of Forests, Parks and Recreation, in conjunction with the Center for Rural Studies at the University of Vermont, conducted mailed and on-site attitudinal and activity surveys of year-round residents and non-resident recreationists. In addition to the survey, boat counts and on- and off-shore activities were monitored and recorded. This paper focusses specifically on the results of the attitudinal survey.

Methodology

Surveys were mailed to all lake property owners and resulted in 104 completed surveys, a response rate of 78.2%. Surveys of non-resident recreationists were distributed randomly to 444 campers and 199 day users between August 4 and September 5, 1994. One-hundred and sixty-seven (167) camper surveys and 68 day user surveys were completed and returned, yielding respective response rates of 37.8% and 34.2%. Frequencies were produced for all close-ended survey items and comparisons were made to determine significant differences between responses of residents and non-resident recreationists, including subgroups of campers and day users. Tests for statistical significance included: T-Tests, cross tabulations and accompanying chi-squares, and non-parametric tests of median responses. Answers to open-ended questions were analyzed and grouped into categories of similar responses.

Findings

Why Respondents Recreate at Lake Groton

In response to an open-ended question, Lake Groton residents offered a variety of reasons for why they owned or rented a summer home on the lake shore. Family ties to the lake and "tradition" were mentioned by 35 survey respondents: "We have spent over 50 years here and have grown to love the scenery, the lake, and the people we see here. We find our peace here." Amenities offered by the lakes's natural environment were also mentioned frequently with specific references by 46 respondents to the area's natural beauty or scenery, peace and serenity, wildlife, and clean water: "A getaway from a hectic business. We find peace, quiet, and tranquility. Love the sounds of the loons, birds, etc. Refreshes us and gives us the get-up for the next week;" and "We love the quietness, the remoteness, and the beauty of the surroundings." The friendliness of the Lake Groton community was an additional common thread in many explanations for why residents chose to own a camp or home on Lake Groton: "In general, it is a friendly lake and friendly people. We think it is an unspoiled, lovely place."

Non-resident campers and day users were asked to select from a close-ended list reasons why they chose to recreate at Lake Groton. As shown in Table 1, the area's scenic beauty was a top response for why non-residents visited the lake. Camping amenities and the location of the lake also were identified frequently as reasons for recreating at Lake Groton, followed by: the quietness there; it was recommended; the area's

environmental quality; tradition; recreation opportunities found there; socializing; and other reasons (Table 1).

Table 1. Why non-resident recreationists decide to visit Lake Groton.

Reason	Total Non-Residents	
	Number	Percent
Scenic beauty	147	62.3
Camping here	142	60.2
Location	125	53.0
Quiet	111	47.0
Friends/family recommended it	74	31.4
Environmental quality	72	30.5
Tradition	68	28.8
Particular recreation available	49	20.8
Socializing	27	11.4
Other	51	21.6

Lake Groton Recreation Activities

Both residents and non-residents were polled regarding their primary recreation activities while at Lake Groton. Table 2 below compares the mean average activity levels for each group. Frequent activities for residents included swimming from shore, relaxing, motorboat cruising, walking or hiking, and fishing from boats. Frequent activities for non-residents included relaxing, walking or hiking, camping, and picnicking (Table 2).

Table 2. Mean^a comparison of activities: residents vs. non-residents.

Activity	Residents	Non-residents
Swimming from boat	0.240	0.148
Swimming from shore	1.644	1.182 ^b
Sunbathing	0.894	0.665
Water skiing	0.740	0.110 ^b
Motor boat cruising	1.144	0.191 ^b
Fishing from boat	1.038	0.403
Fishing from shore	0.692	0.364
Rowing	0.442	0.191 ^b
Sailing	0.442	0.059 ^b
Canoeing/kayaking	0.712	0.432
Sailboarding	0.135	0.004 ^b
"Jet"skiing	0.048	0.000
Paddle boat cruising	0.125	0.136 ^b
Snorkeling/scuba diving	0.135	na
Picnicking	0.394	0.814 ^b
Camping	na	1.475
Walking/hiking	1.096	1.271
Nature observation	0.933	na
Wildlife observation	na	0.780
Relaxing	1.385	1.581
Other	0.173	0.263

a/ A mean score was derived: "primary"=2, "occasional" or "other"=1, not indicated=0.

b/ Significantly different from Resident response (.05 level).

Comparison of resident and non-resident responses yielded a number of significant differences in activity levels. With the

exception of paddle boat cruising, residents reported more frequent levels of recreational boating activity than did non-residents. Resident recreationists reported significantly more frequent motor boat cruising, rowing, and sailing than did visitors. In addition, residents were more apt to water ski and swim from shore and non-residents were significantly more likely to picnic at Lake Groton (Table 2).

Crowding and Conflicts Among Recreationists

Residents who had lived on Lake Groton in previous years and non-residents who had recreated there previously were asked whether they thought the lake had become more or less crowded or had stayed about the same. As shown in Table 3, residents were more likely to perceive the lake as being more crowded than in past years while non-residents reported that crowding at the lake was "about the same." Statistical analysis of a mean "crowding" score revealed significant differences between residents and non-residents with non-residents scoring the lake as being significantly less crowded (Table 3)

Table 3. Perceived change in crowding at Lake Groton.

Perceived change	Residents		Non-Residents	
	Numbe r	Percent	Numbe r	Percent
More crowded	53	53.5	44	27.5
Same	35	35.4	108	67.5
Less crowded	11	11.1	8	5.0
Total	99	100.0	160	100.0
Mean ^a	.424		.225 ^b	

a/ A mean score was derived: "more crowded"=1, "about the same"=0, "less crowded"=-1.

b/ Significantly different from Resident response (.05 level).

Accompanying residents' perception that the lake was becoming more crowded was the reporting of conflicts with other lake users this summer by 33.7% of the resident respondents and 15.1% of non-resident respondents. As shown in Table 4, residents were more likely to report experiencing conflicts than were non-resident recreationists.

Table 4. Recreationists' conflicts with other Lake Groton users.

Did you experience conflicts.	Residents		Non-Residents ^a	
	Numbe r	Percent	Numbe r	Percent
Yes	32	33.7	34	15.1
No	63	66.3	191	84.9
Total	95	100.0	225	100.0

a/ Significantly different from Resident response (.05 level).

Thirty residents identified specific conflicts or problems they experienced with other lake users this summer. Reckless boating (N=12), the presence of a water ski course, (N=5) and "jet skiers" (N=4) were identified as specific sources of conflict, along with trespassing on private property (N=4).

Most conflicts regarding boating focused on excessive speeding and boats coming too close to other lake users (swimmers, anglers, and wildlife) and the lake shore. Complaints regarding the water ski course focused on its "permanent" location on the lake, the accompanying wake of the skiers, and noise of motor boats that began at 8 a.m. and continued "from dawn to dusk." One resident suggested that the course be relocated each year while another suggested a later starting time in the morning. The primary concern regarding personal "Jet skis" focused on the noise generated by these machines. Finally, some residents identified specific occurrences of trespassing including littering, using private property to launch boats, unauthorized use of private docks, and people cutting through private property to avoid paying beach entrance fees.

For non-resident recreationists, reckless or "thoughtless" motor boating was a recurring problem. Twelve campers reported conflicts with motor boats. Two reports suggested potentially serious problems: "power boats going way too fast, in too close, and very near our canoe. Also they don't pay enough attention to swimmers..." and "a speed boat capsized a friend's fishing boat losing all of their gear in the lake." Two campers chose not to boat on the lake because of power boat activity: "...we had rented a boat for family fun, but the lake was too crowded to have much fun--too choppy from power boats" and "we felt the lake was used by too many power boats going at high speed, causing large wakes. In view of this we decided not to canoe." Five day users also mentioned conflicts with motor boats being too fast or noisy: "fast motor boats too near canoes" and "...speed boats and jet skis are a serious marring of peaceful environment. There should be limits to motor size/HP, speed, and hours for motor boating."

Nearly 40% of the Lake Groton residents surveyed (38.7%) reported a need for more law enforcement in the area, while a large majority of non-residents (92.9%) indicated that this was not a need (Table 5). This difference was statistically significant between residents and non-residents including the camper and day user subgroups.

Table 5. Need for more law enforcement on Lake Groton.

More law enforcement needed.	Residents		Non-Residents ^a	
	Number	Percent	Number	Percent
Yes	36	38.7	15	6.9
No	<u>57</u>	<u>61.3</u>	<u>203</u>	<u>93.1</u>
Total	93	100.0	218	100.0

a/ Significantly different from Resident response (.05 level).

Presence of Boats on Lake Groton

Residents were asked if they owned boats, while campers and day users were asked if they had brought boats with them to Lake Groton. Comparison of non-resident to resident responses revealed that residents significantly were more likely to have boats on the lake than were visitors (Table 6).

Table 6. Presence of boats at Lake Groton.

Do you own a boat/Did you bring a boat...	Residents		Non-Residents ^a	
	Number	Percent	Number	Percent
Yes	73	91.3	61	27.0
No	<u>7</u>	<u>8.8</u>	<u>165</u>	<u>93.0</u>
Total	80	100.0	226	100.0

a/ Significantly different from Resident response (.05 level).

Residents surveyed reported owning a total of 187 vessels, while non-residents reported bringing a total of 65 boats to the lake during the survey period. Motor boats were the most popular boat type reported by residents (N=69), followed by canoes or kayaks (N=45), and rowboats (N=33). Non-motorized boats appeared to be the most popular type of boat for visiting recreationists with a total of 36 non-resident respondents bringing canoes or kayaks, four bringing sailboats, two bringing rowboats, and two bringing paddle boats to the lake. Twenty non-resident respondents reported bringing motor boats and one brought a pontoon boat. While motor boats, canoes or kayaks, and sailboats were the most frequently reported boat types for residents and non-residents alike, residents reported significantly more of each of these vessels than did non-residents.

Management Options for Reducing Conflicts

Both residents and non-residents were asked their level of agreement with a variety of proposed recreational use restrictions for Lake Groton. As shown in Table 7, non-residents tended to be more supportive of restrictions than were residents. Residents were significantly more opposed to prohibiting water skiing than were non-residents. Residents and non-residents alike demonstrated some support for limiting motorboat horsepower and boat speed; however, the non-resident respondents were significantly more supportive of these restrictions than were residents (Table 7).

Table 7. Mean^a ratings by respondents for proposed recreational use restrictions on Lake Groton.

Proposed restriction	Residents	Non-Residents
Limit motorboat horsepower	0.295	1.029 ^b
Limit boat speed	0.385	1.180 ^b
Prohibit personal watercraft	-0.151	-0.415
Prohibit motorized vessels	-1.174	-0.218
Prohibit water skiing	-1.170	-0.198 ^b
Limit amount of use	-0.626	-0.190
Restrict certain uses to specific areas	-0.305	0.534
Restrict certain uses to specific times	-0.229	0.443

a/ A mean score was derived: "Strongly agree"=2, "Agree"=1, "Neutral"=0, "Disagree"=-1, and "Strongly disagree"=-2.

b/ Significantly different from Resident response (.05 level).

Conclusions and Recommendations

Results of the surveys of Lake Groton residents and recreational visitors describe the lake as an important resource, offering respite from busy lifestyles with numerous opportunities to enjoy the natural environment. Lake Groton attracts visitors from around the state of Vermont, and beyond, because of its scenic beauty, quietness, environmental quality, and the recreational amenities that are found there. Similarly, many residents choose to live there year-round, or own camps on Lake Groton, because of its natural beauty and the sense of peace and quiet that can be found there. Access to water resource-based recreation is an attraction for residents and recreationists alike; however, it is also a source for potential conflict.

Reckless boating, excessive speeding, and other safety violations were cited by both residents and visitors to the lake. Visitors to the lake do not appear to be contributing to the majority of motorized boating activity as residents and camp owners own and operate the majority of motorized craft. Neither residents or visiting recreationists supported the prohibition of motorized water craft; however, there was support for limiting boat horse power and speed.

Both residents and visitors to Lake Groton did not support the development of additional public access to the lake. While study participants were not asked specifically why they did not support developing new public access points, one can assume that their concerns relate to what they valued about the lake—its scenic beauty, sense of peace and quiet, and overall natural environment. Without further study, one cannot assess accurately the potential impacts of additional access and subsequent increased usage of the lake—its effects on the natural environment, conflicts between recreationists, and the overall quality of recreational experiences on Lake Groton. Conversely, additional study is necessary to understand better the impacts of *not* developing additional public access to Lake Groton—whether this "inaction" will lead to increased usage and deterioration of recreational experiences at other lakes in the region.

Finally, there stands the issue of alternatives: is the development of additional access the only recourse for addressing latent demand for recreational access to Lake Groton? Currently, the public does have some level of access to the lake—through camper registration at Stillwater Campground or visitor registration at Boulder Beach State Park. Additional information is necessary to identify access alternatives and assess the impact of these alternatives on the lake's environment and the recreational enjoyment of those who live or visit there.

In conclusion, the following recommendations are offered:

- 1) Conduct additional study regarding latent demand for recreation access to Lake Groton. The general public can only access Lake Groton through one of the two state parks, or across private property with permission. As the information obtained through this study included

only shoreline property owners and visitors to Stillwater Campground and Boulder Beach State Parks, additional information is needed about potential users of Lake Groton. A survey should be conducted to assess the potential demand for additional recreational access to Lake Groton.

- 2) Encourage boater education and self-policing through the Lake Groton Association. Many of the answers to the open-ended questions on the survey revolved around boat operators violating Vermont's boating safety laws. The Lake Groton Association should take a proactive role in educating members on boating safety laws, rules and regulations (e.g., the 200-foot safety zone). The Association should work with State Police to offer workshops on boat handling and safety, and common boating courtesy. The Association should also encourage self-regulation of users on Lake Groton by encouraging all members to be responsible for their own actions and to approach those residents and recreationists that do not display appropriate behavior.
- 3) Investigate limits to motorboat horsepower and speed as possible use restrictions. While residents and visitors to Lake Groton did not support the need for additional law enforcement on the lake or for a number of specific use restrictions, there was support for limiting motor boat horsepower and speed. The Lake Groton Association should explore petitioning the Vermont Water Resources Board to promulgate rules for acceptable boat horsepower and speed limits.
- 4) Implement a rotating location and schedule for the water ski course. There were a number of complaints about the location of the water ski course and the time of day when it was used most heavily. The Lake Groton Association should work with those residents involved in water skiing to develop a rotating schedule for moving the placement of the course and the time of day when it would be used. This would relieve specific residents from having to bear the entire burden of the noise and obstacles presented from a "permanently placed" course.
- 5) Consider alternatives for creating additional public access to Lake Groton. Vermont State Parks should examine the feasibility, costs, and impacts of upgrading current boat ramp and parking facilities, and the policy of only allowing campers to use the boat access. If the boat ramp at Stillwater Campground was upgraded and available for day use visitors, additional access to Lake Groton would be facilitated.

Finally, Vermont State Parks should continue its membership in the Lake Groton Association and work with residents to ensure a quality residential and recreational environment for all to enjoy.

ACTIVITY ORIENTATION AS A DISCRIMINANT VARIABLE IN RECREATION CONFLICT RESEARCH

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The validity of previously used dichotomous measures of activity participation is examined in relation to an index measure incorporating an assessment of cross-activity participation and intensity of involvement in each activity. Not only is this type of orientation measure important to future conflict research, providing a more accurate depiction of the groups in conflict and a more precise opportunity to study contributors to conflict, but the development of more accurate orientation measures may contribute to other types of recreation attitudinal research as well.

Current Research Topics on Conflict

There has been a renewed interest in recreation conflict research in recent years (Williams 1993). Since 1989, scientists at the Leopold Institute (an inter-agency wilderness management research unit), university cooperators, and others have been involved in a variety of methodology development and application activities dealing with recreational conflict on wildlands. Current research efforts center on 5 important topics.

Alternative Theoretical Approaches

Jacob and Schreyer (1980) suggested a goal interference framework for defining interpersonal conflict and proposing potential contributors to feelings of conflict. This theoretical framework has persisted as a basis of understanding conflict, even though conflict itself and the potential contributors have not been measured in a consistent way. The model itself has only recently been tested in a comprehensive way (Watson, Niccolucci and Williams 1993, 1994). Recently, efforts to expand this framework through incorporating a normative

component (Ruddell and Gramann 1994; Gibbons and Ruddell in press) promises further refinement of this expanded model. Alternatively, there are efforts to develop different approaches to studying recreational conflict, such as the extensive review of social conflict (versus interpersonal conflict) literature by Kajala (1994). There remains a dilemma associated with the difficulty in assessing recreational conflict at the group or subpopulation level, but this is a viable research problem that will soon be addressed.

Contributors to Conflict

Some of the potential contributors to conflict proposed by Jacob and Schreyer (1980) have transitioned as these concepts have been explored and efforts have occurred to relate these various items to conflict measures. These factors typically include mode of experience, place attachment, lifestyle tolerance, and activity specialization (Watson et al. 1993). Some variables slightly outside these proposed contributors have been explored independently and as part of model testing. For instance, Watson and Niccolucci (1993) explored the contribution of place of residence (urban vs rural) to understanding conflict reports.

Effectiveness of Management Interventions

Based on research to understand the contributors to conflict, suggestions have surfaced on how to manage conflict among recreation visitors. For instance, alternative approaches have been proposed to address conflict between hikers and recreational stock users (Watson et al. 1993). Some conflict reports can be traced to behaviors of stock users that could be influenced through education of stock users about the effects of these behaviors, or by subtle changes in facilities or suggested behaviors. There is an additional element of conflict that is more related to perceptions of appropriateness of horses and their impacts in wilderness. It has been suggested that more discussion about the cultural significance of horses in European settlement and Native American society may lessen some conflict feelings. It is believed, however, that some visitors would never accept horses and their impacts in places they recreate, and therefore nothing short of separation of uses would alleviate these feelings of conflict. It is a minority that this action would be required for, but if this is the management goal, it should be effective. No objective evaluations of these potential solutions have been performed. Only recently has a research study been designed specifically to establish baseline conditions, monitor trends in conflict, and assess the success of management applications to influence conflict levels. This research deals with bicycle conflict management and is sponsored jointly by Adventure Cycling, the Lolo National Forest, Recreation Equipment Incorporated and the Leopold Institute.

Obtrusiveness of Management Interventions

Most recreation conflict research has focussed on determining the amount of conflict expressed by one group toward another, most often an asymmetrical conflict situation, where only one group is expressing conflict. The assumption in this research is that if the conflict is understood some actions can be taken to change behaviors or attitudes that will reduce these conflict feelings. Currently, a project is underway to assess the impacts

of various proposed methods of reducing conflict on the quality of recreation experiences for those thought of as causing the conflict. We are using the term obtrusiveness to indicate the negative emotional response visitors attribute to actions initiated by management. We believe that this impact on legitimate users of the resource must be taken into consideration in all efforts to manage conflict.

Measurement Methods

In initiating new emphasis on conflict research, one basic step involved re-examining how conflict has been measured in the past. There was, in fact, several ways it has been measured. One real need is to obtain some agreement on what the primary indicator of conflict should be. There has been a tendency to use measures more associated with attraction theory than conflict theory, and only recently have we moved to more conflict theory-based measures (Watson et al. 1994; Kajala 1994; Ruddell and Gramann 1994). Additionally, refinement of measurement of the potential contributors to conflict is a continual evolving process. New theoretical approaches are leading to newly introduced measurement challenges. Where interpersonal conflict models required improved measurement of personal meanings assigned to places and activities, social conflict approaches suggest the need for not only new measures of social conflict, but also the hypothesized determinants of social conflict, such as the social meanings related to a place, an aspect of the resource, or the activity. The other measurement method of interest currently is the challenge of analysis. We have moved beyond descriptive studies of conflict amount and characteristics of the conflict groups to more sophisticated predictive procedures that relate the contributors to actual conflict reports.

While all of these issues are important and ongoing research topics in recreation conflict, this paper is about one specific problem with measurement and analysis methods. The problem centers around how we classify visitors in recreation conflict studies. Classification of visitors into erroneous conflict groups can hinder our ability to achieve understanding of conflict and its determinants.

Problem With Classification of Visitors

In past recreation conflict research, conflict groups were typically defined based upon the activity individuals participated in on one specific visit to a place. This has been the case in even the most recent studies with little exception. Watson, Williams and Daigle (1991) studied conflict between those who were hiking when they were surveyed, and those who were bicycling when they were surveyed. Watson et al. (1993, 1994) separated groups based upon whether they were hiking or using recreational packstock at the place and time of surveys in Indiana and California. In the past we have seen the same classification method applied to canoeists and power boaters, to skiers and snowboarders, and to walkers, runners, skaters and bicyclists in various studies.

There are two basic problems with this past tendency. Previous research of this kind suggests that many visitors do not strongly

identify with only one of the study groups. It appears that the strength of identification with a single group may vary by activities investigated. For instance, there appears to be substantial overlap between hiking and mountain biking. Mountain bikers also participate in hiking quite often. Hikers may be mountain bikers on other occasions. Hikers and recreation packstock users or skiers and snowmobilers, however, may overlap much less. There is the possibility that visitors are not members of a single group to the extent that we have assumed. This suggests more complex measures of crossover participation will enhance our understanding of reported conflict. Second, recreation conflict research has evolved to incorporation of cumulative measures of conflict, and the most commonly tested contributors to conflict represent cumulative attitudes and perceptions of other groups. Use of these cumulative measures of both dependent and independent variables seems incompatible with the tendency to then discriminate between groups to which we apply the analysis based upon participation in an activity during a single outing. Much as visitors commonly participate in a cluster of activities during a single trip (Daigle, Watson and Haas 1994), they quite likely participate in a cluster of activities over a period of time. Attitudes of visitors toward participants in other activities may be influenced by their own involvement in these other activities.

Methods

A research project aimed at monitoring conflict between hikers and mountain bike riders in the Rattlesnake National Recreation Area provided the opportunity to develop an improved method of classification of visitors for conflict analysis. Conflict between these two groups was initially studied in 1989 (Watson et al. 1991) at this location. The Rattlesnake National Recreation Area contains about 61,000 acres, with the northern, more remote half protected as wilderness. Two major access points provide the majority of use to the area, and both are served by the same access road with parking only slightly separated. It is easy to make contact with visitors entering or exiting the Rattlesnake along old access roads which provide initial access. The Rattlesnake serves the community of Missoula, on the Lolo National Forest, in Western Montana. Missoula is a mixed community of university services, timber industry and tourism businesses. The Rattlesnake use comes almost entirely from Missoula, some of it quite casual, short-term use, with the majority hiking or mountain biking.

During the summer and fall of 1994, a visitor survey was conducted at the two major trailheads to the Rattlesnake. Sampling replicated days and times from the 1989 sample. In the earlier baseline conflict study, random blocks of days were selected, and for each sample day one of the two access points was randomly assigned for visitor surveying. As visitors exited during a six-hour sample day (randomly selected from three possible 6-hour blocks) each group was asked to provide some basic trip information and if they would be willing to participate in a mailback survey dealing with their perceptions of conditions in the Rattlesnake. Each visitor who agreed to

receive the questionnaire (up to 4 visitors per group) was sent an 8-page survey form, intended to provide basic information on conflict feelings and relevant trip data. A follow-up postcard and a maximum of two replacement mailings of the survey provided a response rate of 71%, 1054 usable questionnaires.

The survey was partly a replication of the study done in 1989, in an effort to document changes in conflict levels and serve as a baseline for evaluation of management actions in the future. The portions most relevant to this report included an indication of what activities visitors participated in on this trip, what they had done on previous trips to the Rattlesnake, and the number of times they had done each activity in the Rattlesnake during the last 12 months. Activities listed included bicycling, hiking on trails, and hiking off of trails. From these measures of trip-specific and past activity participation at this one place, an index to orientation toward the two primary activities (hiking and mountain biking) was developed.

Two groups were defined that closely resembled those of other recreation conflict studies. One of these was the hikers. These people had never bicycled in the Rattlesnake. They didn't bicycle on this trip, and they indicated they had never bicycled in the Rattlesnake. A second group consisted of bikers. They had biked in the Rattlesnake but had never hiked there. The other two groups developed from these activity participation variables included one group that had both hiked and biked, on this trip or previous trips, but had hiked more times than they had biked during the last 12 months (introducing an intensity measure to discriminate between categories of visitors) and one group that had both hiked and biked in the Rattlesnake but had biked more times during the past 12 months than they had hiked. Of the original 1054 cases, 924 could be classified in this manner. The rest were either horse riders who used the Rattlesnake for only that purpose or they had hiked and biked with equal intensity during the past 12 months. For the analysis reported here, those who did not fit this four-category classification were dropped. A fifth category of the equal intensity people may be a valuable group to include in future analysis.

A measure of conflict used in the earlier study asked visitors if they enjoyed, disliked or didn't mind meeting each of several different kinds of recreation groups during their visits to the Rattlesnake. They could also indicate they had never met any of a particular type of group. Each person was also asked how big a problem he or she perceived each of several types of visitor behaviors was during the specific trip when they were surveyed. Included in these items were "too many hikers," "too many bicyclists," and "bicycles traveling too fast." The strength of the problem was measured on a scale from "no problem" to "small problem," "moderate problem," and "big problem." "Don't know" was also a possible response. One last set of items included in the analysis reported here was a visitor report of how much various things influence the quality of recreation experiences in the Rattlesnake. "The number of hiking groups seen along the trail" and "the number of bicycles seen along the trail" were among the items evaluated on a 6-point scale from "not at all" to influencing "an extreme amount."

Results

A very simple test of the value of this more cumulative measure of activity orientation over a simple single-trip participation measure is a comparison of the two measures for this sample (Table 1). For the 924 visitors who could be classified on the more cumulative measure, 56 percent were involved in a hiking visit and 42 percent were biking. The amount of crossover in activity participation, and thus orientation toward the two activities, is evident from the cumulative measure: 19 percent had only biked in the Rattlesnake, 36 percent had only hiked, and 46 percent had done both (26 percent more intensive bikers, 20 percent more intensive hikers). This simple comparison illustrates that using the traditional method of classification would lead to 46 percent of those included in any kind of predictive analysis based upon cumulative measures of conflict and cumulative indications of attitudes toward the other groups would be misclassified.

Table 1. Visitor classification, Rattlesnake National Recreation Area - 1994.

Activity Participation on this trip	Percent
Biked on this trip	42
Hiked on this trip	56
Orientation toward the activity	Percent
Strict biking orientation	19
Strong biking orientation, but hikes	26
Strong hiking orientation, but bikes	20
Strict hiking orientation	36

The purpose of much of the conflict research has been to assess the amount of conflict that is occurring. A second simple test of the value of this more cumulative measure of group orientation is to see if any additional insight is gained from examining conflict reports for the four categories of activity orientation (Table 2). For this sample, the primary conflict report came from those hiking on the trip when interviewed. Twenty-one percent indicated they disliked encounters with bicycle riders, 79 percent either enjoyed meeting them or didn't mind meeting them. This 21 percent was not evenly distributed across those who have a strict hiker orientation to the place and those who participate in both hiking and biking. The conflict for strict hikers is exactly twice the level of those who participate in both activities but most intensively participate in hiking. So, the most intense conflict exists for this identifiable group within the hikers, those who have never bicycled at this place.

Table 2. Conflict measures by activity group, Rattlesnake National Recreation Area - 1994.

	No Conflict Percent	Conflict Percent
Activity participation on this trip		
Biked on this trip (conflict with hikers)	98	2
Hiked on this trip (conflict with bikers)	79	21
Orientation toward the activity		
Strict biking orientation (conflict w/hikers)	98	2
Strong biking orientation, but hikes (conflict w/hikers)	99	1
Strong hiking orientation, but bikes (conflict w/bikers)	86	14
Strict hiking orientation (conflict w/bikers)	72	28

Analysis of the question that asked how much of a problem too many hikers, too many bikers, or bicycles traveling too fast was on this visit revealed very different responses for all four groups (Table 3). The four groups reported significantly different levels of problems (ANOVA, $P < .05$). Those who only hiked evaluated bikers as a greater problem than did those hikers who had also biked. Interestingly, those bikers who had also hiked reported hikers to be more of a problem than the strict bikers did. Nearly the same pattern emerged when asked about factors that influenced the quality of recreation experiences in the Rattlesnake (Table 4). Strict hikers were influenced significantly more by biker encounters than were those who both bike and hike. The two groups who

demonstrated crossover in activities did not evaluate each other at different levels, but strict bikers did evaluate hikers as less of an influence than either hiker group evaluated bikers. The typical asymmetrical relationship holds for this type of evaluation of each other as well as in simple conflict measures.

Implications

While this study does not include complex modelling using these new categories of activity orientation, this simple, exploratory analysis suggests the values associated with more careful measurement of activity orientation in future studies. The implications of these findings can be summarized in five ways.

Understanding of Past Research Findings

Watson et al. (1991) found significant differences between hikers and bikers in the earlier study at the Rattlesnake, but speculated that some of the strength of the differences was clouded by lack of accurate perceptions of activity orientation. They speculated that more bikers were also hikers than hikers were bikers, and this difference in crossover extent was important to understanding the conflict between these two groups. In fact, that is exactly what these newer data show. There is a need to acknowledge that there is often crossover between the groups being studied and this crossover needs to be assessed and entered into the analysis. In studies of hikers and recreational stock users by Watson et al. (1993, 1994), it was not considered that some subjects who were hiking at the time of the study may have previously been stock users in the area, and some stock users may have been hikers. Definition of groups in a way that acknowledges this crossover would likely lead to greater understanding of the contributors to conflict achieved by subsequent analysis.

Table 3. Visitor evaluations of strength of problems (1=no problem, 4=big problem), Rattlesnake National Recreation Area, 1994.

Orientation toward the activity	Problem	Score	Significant differences [*]
Strict biking orientation	Too many hikers	1.37	A
Strong biking orientation, but hikes	Too many hikers	1.69	B
Strong hiking orientation, but bikes	Too many bikers	2.44	C
Strict hiking orientation	Too many bikers	2.61	D

*Scores with different letters indicate significant differences (ANOVA, $p < .05$)

Table 4. Visitor evaluations of encounters (1=no influence, 6=extreme influence) with other groups, Rattlesnake National Recreation Area, 1994.

Orientation toward the activity	Encounter evaluated	Score	Significant differences [*]
Strict biking orientation	Hikers	3.43	A
Strong biking orientation, but hikes	Hikers	3.67	A B
Strong hiking orientation, but bikes	Bikers	3.81	B
Strict hiking orientation	Bikers	4.19	C

*Scores with different letters indicate significant differences (ANOVA, $p < .05$)

Influence on Future Measurement of Discriminant Variables

While this type of more thoughtful measurement of orientation in recreation conflict research appears a likely change in future studies, the same considerations in other conflict research seems justified. There is a need for studying social conflict in communities dependent or in close interaction with national forests. Some of the factors potentially contributing to the conflict are directly related to the measure of group orientation, the assumed indicator of different values. For instance, in many communities there are people who have lived in the area for a long length of time. These permanent residents have developed a relationship with the land over several generations. Also present in these communities may be seasonal home owners, newly retired arrivals, and new residents from different geographic, and possibly different cultural, orientations. These groups may differ in basic attitudes toward the natural resources in which they interact. One discriminant variable that comes to mind very readily is the rurality (Willits, Bealer and Timbers 1990) of values each group may be expected to have. Previous conflict research suggests that whether a person lives or was raised in an urban or a rural location may influence some conflict situations (Watson and Niccolucci 1993). The research reported here cautions us from merely classifying people as urban or rural, however, suggesting instead that there are multiple levels of orientation that need to be defined and used in the analysis. Rural residents, seasonal home owners, retirees, new arrivals, as well as week-end visitors to an area may vary greatly in this single orientation in values.

Increase Success of Discriminant Analysis

While the re-analysis of previously reported conflict studies has not occurred at this time, the implications of the findings reported here is that if re-analysis was conducted the differences between the four groups as defined by the more cumulative measure of activity orientation would be sufficient enough to influence statistical models used to classify subjects. If the group identified as only hiking at the place is isolated from those who crossover activities, it is hypothesized that an even more successful discriminant model would develop. Whether different variables would surface to explain the conflict is difficult to foresee, but it is possible, making previous conflict analysis results subject to re-examination.

Suggests Need to More Accurately Measure Orientation

This really simple attempt to explore the crossover between activities and reflect it in a discriminant variable, only opens the door to more advanced methods. In future recreation conflict research, there is a need for thought at the planning stage about how orientation will be measured. In a current study at the Leopold Institute, the method reported here is being compared to a visitor self-report of orientation toward the subject activity groups. It seems worthwhile to determine if objective, index measures such as used here are related to the visitor's own perception of how strongly he or she identifies with the particular groups in conflict. There are other methods of measuring orientation and involvement of recreation visitors (for instance see Williams, Patterson, Roggenbuck and Watson 1993) that would give continuous measures of identity strength

for those types of analyses where this type of measurement scale is needed.

Helps Managers Understand Visitor Character

Maybe most importantly this type of categorization of visitors helps managers understand conflict situations better. The results reported here leads us to acknowledge that people are not clearly divided into hikers and bikers at the Rattlesnake National Recreation Area. People can be both, and they bring these past experiences and orientation toward the place to public meetings, personal visits to the District Ranger's office, and in encounters with others on the resource. Understanding that there is a group that only hikes in the Rattlesnake, and they are much more negative about interactions with bicyclists than some other hikers who also bike there, gives management a greater chance of correctly developing management solutions. This analysis demonstrates that there is greater polarization on this conflict issue than initially suggested, with the greatest negative perceptions of bicycle use consistently expressed by a single group of visitors. Previously, inclusion of all hikers in a group, regardless of whether they had biked before or not, masked the depth of feelings for the hiker only group.

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VISITOR USE AND CONFLICT ON THE CARRIAGE ROADS OF ACADIA NATIONAL PARK

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A survey of visitors to the carriage roads of Acadia National Park was conducted in the summer and fall of 1994. Findings from the survey provide baseline information on visitor use and users, including visitor characteristics, use patterns, potential indicators of the quality of the visitor experience, and perceived problems and management issues on the carriage roads such as crowding and use conflicts. A series of conclusions and recommendations are offered.

Introduction

Approximately fifty miles of carriage roads were constructed on Mount Desert Island between 1913 and 1940. This system of carriage roads was constructed at the direction of John D. Rockefeller to provide horse and carriage driving access to the scenic resources of the island in an unobtrusive manner. Construction of the carriage roads was in part a response to the admission of automobiles to Mount Desert Island. The carriage roads and most of the lands on which they were built were eventually donated to Acadia National Park.

The carriage road system is significant for its state of the art design and construction, which is exhibited in its sensitivity to the landscape, stone bridges, and broken stone road composition. A carriage road experience is found in only one other national park unit and in a few other locations nationwide. The carriage road system is a National Register

Historic Site set amidst the scenic beauty and natural resources of Acadia National Park.

Not surprisingly, the carriage roads have experienced increasing visitor use over the past several years. Different types of visitor use have also been increasing, including walking, running, and bicycling. Increasing visitor use has resulted in some visitor complaints and has generated concern for the quality of the visitor experience. Concern is focused on the amount of visitor use that can ultimately be accommodated on the carriage roads and conflict which may occur between different types of visitors, particularly bicyclists and pedestrians.

In December of 1993, the park initiated a planning process to address this issue. This planning effort adopted the Visitor Experience and Resource Protection (VERP) process being developed by the National Park Service (National Park Service 1993; Manning et al. 1995; Manning et al. Forthcoming a; Manning et al. Forthcoming b). VERP is a planning process for determining and managing the recreation carrying capacity of national parks. A pivotal part of the VERP process is the identification of indicators and standards of the quality of the visitor experience. Indicators of quality are specific measurable variables which are important in determining the quality of the visitor experience. Standards of quality define the quantitative condition of each indicator variable. Carrying capacity is managed through a monitoring program which ensures that standards of quality are not violated.

The planning team suggested a two-phase program of research to provide necessary information for planning purposes. Phase I research would be primarily a scoping process and would focus on an initial survey of carriage road users. The purpose of the survey would be to learn more about visitor use and users of the carriage roads, including visitor characteristics, use patterns, potential indicators of the quality of the visitor experience, and perceived problems and management issues on the carriage roads such as crowding and use conflicts. Phase II research would focus on setting appropriate standards of quality and other issues identified in Phase I research. This paper reports on Phase I research.

Study Methods

The study began with the December 1993 workshop. Based on this workshop and continuing consultation with park staff, a visitor questionnaire was designed. The questionnaire had three primary sections. The first section focused on selected characteristics of carriage road visitors and their use patterns. Study variables included residence of visitor, size and type of visitor group, type of use, use history, point of entrance to carriage roads, length of visit, and locations visited along the carriage roads. The second section focused on exploring indicators of quality of the visitor experience. A battery of open-ended questions probed for what visitors found to enhance and/or detract from the quality of their experience on the carriage roads. The third section of the questionnaire focused on a variety of potential management issues and problems.

Respondents were asked to rate the degree to which they considered each of 26 issues to be a problem on the carriage roads. Visitors were also asked several more specific questions regarding potential crowding problems on the carriage roads.

A sampling plan was designed to obtain as representative a sample of carriage road visitors as possible. The objective of the sampling plan was to obtain 900 completed questionnaires during the summer and fall of 1994. This would provide a sufficient sample size to test for statistically significant differences among selected types of carriage road visitors. Sampling was stratified by 1) season, 2) carriage road entrance point, 3) weekday, and 4) time of day.

Questionnaires were administered by interviewers who volunteered or who were employed by the park. Interviewers contacted visitors at the carriage road entrance points according to the sampling schedule described above. A standardized contact script was used. Visitors were contacted as they exited the carriage roads after having completed their visit. One person per group of visitors was asked to complete the questionnaire, but other members of the party were allowed to contribute to answers. Approximately 180 visitor parties refused to participate in the survey, primarily because of lack of time.

Study Findings

Study findings provide a variety of baseline information about use and users of the Acadia carriage roads, the quality of the visitor experience, perceived management issues and the extent to which these factors vary by type of user. Major study findings are as follows:

1. The primary characteristics of carriage road visitors are as follows:

- A. The vast majority of visitors come from outside of Maine, while a very small percentage are of local origin.
- B. Bicycling is the primary type of carriage road use, while walking/running constitutes nearly one-third of use and equestrian activities comprise less than two percent of use.
- C. The carriage roads are very important to users as the majority report the carriage roads as their primary destination.
- D. Nearly all carriage road visitors come in small groups of family and friends.
- E. Most carriage road users are first-time visitors to the carriage roads.
- F. Visitors use the carriage roads for an average of about two hours.
- G. Use of the carriage roads extends throughout the carriage road system, but tends to be concentrated in two general locations--the Witch Hole Pond/Eagle Lake/Visitor Center area and the Jordan Pond area.

2. The primary qualities of the carriage roads enjoyed by most visitors are the scenic natural beauty of the area and the views

provided by the carriage roads. Secondary qualities which contributed to the enjoyment of the carriage roads include: 1) the quality of the carriage roads themselves, 2) the lack of motor vehicles, and 3) the quiet peacefulness and solitude of the area. Secondary qualities which detracted from the enjoyment of the carriage roads include 1) the steepness of some road sections, 2) road surface too coarse for bicycles, 3) reckless bicyclists, 4) too many people on the carriage roads, and 5) lack of adequate trail signs. Open-ended comments suggest that the vast majority of carriage road users enjoyed their visit.

3. Lack of selected facilities and services along the carriage roads are perceived as the most important management issue by carriage road visitors. Specific facilities and services needed include more parking at major access points, toilets along the carriage roads, and more information/education about carriage road "rules of the road."

4. Behavior of carriage road visitors is probably a more important management issue than sheer number of visitors. Specific behaviors which are problematic include bicycles going too fast, failure of visitors to keep to the right, horse droppings along the carriage roads, and visitors walking or riding off the carriage roads, damaging soils and vegetation.

5. Bicycling is an especially important problem for a substantial percentage of carriage road visitors. Over a quarter of respondents considered bicycling-related issues to be a problem.

6. There are somewhat mixed findings on the issue of crowding on the carriage roads. The sheer number of carriage road users is a problem for a substantial number of carriage road visitors. Over one quarter of respondents reported that too many people using the carriage roads was a problem. However, the vast majority of visitors did not report feeling crowded during their visit. Only a small minority of visitors (8.1%) reported feeling extremely crowded. Moreover, only 13.8% found the carriage roads more crowded than they expected them to be. Visitors saw an average of 39.6 other people during the course of their visit, and the largest group seen averaged 6.5 people.

7. There are important differences between selected types of carriage road users:

A. Local visitors are significantly different than nonlocal visitors in several important ways. While local visitors are a distinct minority of carriage road users, they use the carriage roads much more often and are more likely to consider the carriage roads their primary destination. They are much more likely to be pedestrians, though nearly half use the carriage roads for bicycling. Local visitors tend to consider the peacefulness and solitude of the carriage roads more important than do nonlocal visitors. Finally, local visitors are significantly more sensitive to nearly all carriage road management issues.

B. Pedestrians are significantly different than bicyclists in several important ways. Since a greater proportion of pedestrians are local visitors, these differences are similar to the differences between local and nonlocal visitors described above. Pedestrians visit the carriage roads more often than bicyclists and tend to consider the peacefulness and solitude of the carriage roads more important than do bicyclists. Pedestrians are also more sensitive to many carriage road management issues, especially those concerning the number and behavior of bicyclists.

C. There were few differences between bicyclists who owned their bicycles and those who rented bicycles. Those who owned their bicycles were more sensitive to several carriage road management issues, including the number of bicyclists and overall number of people on the carriage roads.

D. Prior visitors to the carriage roads are significantly different from first-time visitors in several important ways. Prior visitors consider the carriage roads their primary destination more often and consider the peacefulness and solitude of the carriage roads as more important than do first-time visitors. Prior visitors are also more sensitive to many carriage road management issues, including the number and behavior of carriage road visitors.

Conclusions and Recommendations

Based on the above findings from this study, several conclusions and recommendations are offered.

1. This Phase I study should be followed up by Phase II research as planned. The primary focus of this research should be on developing standards for key indicators of quality. The key indicators of quality identified in the present study are the number of visitors on the carriage roads, including different types of visitors, and the behavior of carriage road visitors, including speed of bicyclists, keeping to the right, and travelling off the carriage roads. This research would involve a second survey of carriage road visitors to determine the normative standards of visitors for these key indicator variables. This second phase of research would allow for continued application of the VERP process to planning and management of the carriage road system.

2. An expanded effort should be undertaken to include other interest groups in the planning and management of the carriage roads. Carriage road visitors constitute an important interest group, but information should be gathered from other interest groups as well, including the local residential and business community, Friends of Acadia, and organized user groups such as bicyclists, runners, and equestrians. This might be done most efficiently and effectively through a series of structured focus groups.

3. As a part of the carriage road planning and management process, the park should consider adding selected visitor facilities and services. Facilities such as parking and toilets should be provided in relation to the amount of use allowed on the carriage roads. Moreover, additional visitor information/education services are likely to reduce visitor behaviors which contribute to resource impacts and conflicts among visitors.

4. Since visitor behavior may be as much of a problem as sheer number of visitors, special attention should be placed on the effectiveness of visitor information and education services. Helpful research would focus on the extent of knowledge of current visitors concerning appropriate behavior and the extent to which alternative types and sources of information are effective in influencing visitor behavior. Some of this research might be designed into Phase II research as described above.

5. The sensitivity of certain types of visitors to the amount and type of use on the carriage roads should be given consideration in carriage road planning and management. It is clear that local visitors, pedestrians, and prior visitors are more sensitive to a variety of carriage road issues arising from the increasing amounts and diversity of carriage road use. Without some management action, the quality of the carriage road experience is likely to diminish for these types of visitors, and some of them may ultimately be displaced. Special carriage road regulations, education programs, zoning, or some other planning/management actions should be considered to deal with this issue.

6. A monitoring program should be designed for the carriage road system. This monitoring program should focus on key indicators of quality. It will be remembered from the earlier description of the VERP process that carrying capacity is managed through monitoring indicators of quality. When standards of quality for key indicator variables have been exceeded, management action is required. A monitoring program for the carriage roads should focus on the number of visitors on the carriage roads, including different types of visitors and the behavior of carriage road visitors, including speed of bicyclists, keeping to the right, and travelling off the carriage roads.

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TOURISM

LEGISLATIVE MANDATES FOR TOURISM IN

THE 50 STATES

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This study examines the legislatively mandated activities of state agencies responsible for tourism promotion and development. Fifteen reasons for tourism development are identified, in five general categories. The departmental affiliation of tourism agencies and the reasons for government involvement in tourism are examined, and ways in which states can build upon the existing situation are discussed.

Introduction

Every state has an agency within the state government that is responsible for tourism promotion and development. When each of these agencies was established, the legislature (or governor if the agency was established by executive order) delineated the responsibilities of the agency, as well as the reasons that the agency was established. Each state legislature assigned responsibilities for various facets of tourism to specific state agencies. This study examines the enabling legislation that the agencies operate under. It will document the reasons that tourism agencies were established, and provides insight into what legislatures see as important reasons for tourism promotion and development. By examining the legislation that the tourism agencies operate under, it is possible to examine the motivations and visions of those responsible for the law (Simpson and McAvoy, 1994). It is important to consider the intent of the legislature in establishing an agency (Davies, 1986; Sigler and Beedee, 1977) because this clearly identifies the reasons that states engage in certain activities, in this case the promotion and development of tourism. This study allows individuals involved in tourism promotion, as well as researchers, to take a step back and examine the reasons that tourism is an important and valid activity of the state. Some state tourism agencies have been criticized for operating without a clear vision -- perhaps revisiting their legislative mandate could serve to provide a clear set of goals and objectives for the tourism agencies.

Methodology

The agency responsible for tourism was contacted in every state, both by phone and by letter, and was asked to provide a copy of the legislation that established them. All fifty states were contacted; 46 responded to the request for information. However, many of the states responding sent something other than the requested legislation -- items received included annual reports, strategic marketing plans, economic impact studies, and promotional material. This suggests that at least some of the individuals working for state tourism agencies are unaware of the agency's enabling legislation. Twenty-five states responded with legislation, and these states provided the sample for this study.

The states that provided legislation for this study are Alaska, Alabama, Arizona, Arkansas, California, Connecticut, Florida, Illinois, Iowa, Kansas, Louisiana, Maryland, Massachusetts, Minnesota, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Tennessee, Vermont, Washington and Wyoming.

The purpose clause of legislation is a short section, near the beginning of the act, that explains what the legislature intend to accomplish with the bill. In order to determine the reasons that tourism agencies were established within state government, the purpose clause was examined, and each reason noted. Reasons were then grouped into categories according to logical connections. Results presented below show the percentage of states in the sample that noted each reason (or category of reasons) in the purpose clause. The legislation was also examined to determine the departmental affiliation of the agencies.

Results

Departmental Affiliation of Agencies

The departmental affiliation of the agency responsible for tourism is important because it shows the overall goals and orientation of the agency. Agencies may be part of a larger department, or may be independent agencies. The departmental affiliation of the agency responsible for tourism is presented in Figure 1. The largest portion of the agencies are in the department of economic development or commerce, with two-thirds of the agencies housed in this department. This clearly indicates that states view tourism as a means of bringing revenue into the state, to be treated as any other type of commerce. Certainly tourism represents a large sector of the economy in many states, and the legislatures recognize the importance of tourism in economic development. In the responding states, one quarter of the agencies responsible for tourism are not housed in any department. The heads of these agencies report directly to the governor, and these organizations generally operate as semi-autonomous. Four percent of the agencies responsible for tourism were housed in the department of natural resources, and four percent were within the department of parks and recreation.

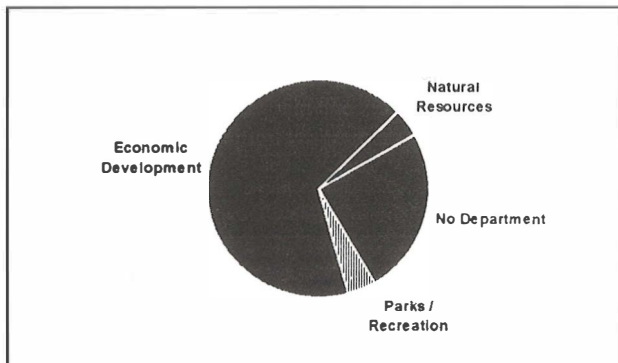


Figure 1. Departmental affiliation of state agency responsible for tourism.

Reasons for Tourism Legislation

The reasons that states establish tourism legislation are many and varied. After reviewing all of the reasons noted in the purpose clauses of the sampled legislation, five categories were established. These categories are development, economic, amenity, coordination, and general tourism. Figure 2 shows the percentage of states that have noted each of the categories as a reason for establishing tourism agencies. Tourism development was noted by 40% of the states, 44% of the states noted economic reasons as a reason, and 60% of the states noted amenities as a reason for establishing tourism agencies. Coordinating the tourism efforts of various groups was noted as a reason for establishing tourism agencies by 68% of the states sampled, and 88% of the states list general tourism as a reason for establishing a tourism agency. Each of these categories is made up of a number of reasons, specified below. States may have listed more than one specific reason in a category.

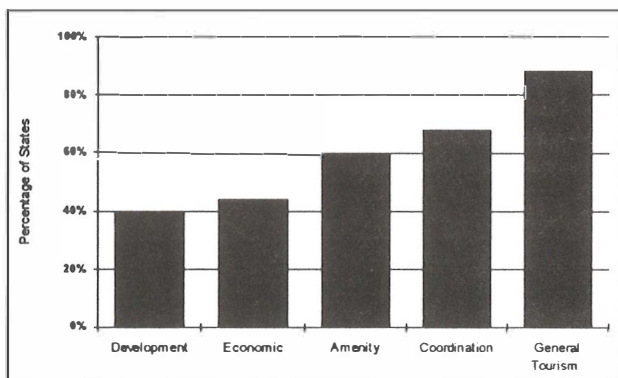


Figure 2. Reasons for tourism legislation.

Development Group

Some of the reasons for establishing an agency to oversee tourism at the state level involve development. Figure 3 shows the percentage of states that note each of the development goals in their legislation. Infrastructure improvement and development is listed by 36% of the states as a reason establishing a tourism agency. Maine, for example, encourages "the development of travel product facilities and activities by locating potential developers, providing market and feasibility analysis, assisting developers in complying with public rules

and laws, and providing technical assistance to location decision making, including site selection, financing, and utilities" (Maine Statutes, 1983). The promotion of professional and amateur sports is noted by 4% of the states, and rural development is a specified goal of tourism legislation in 8% of the states sampled.

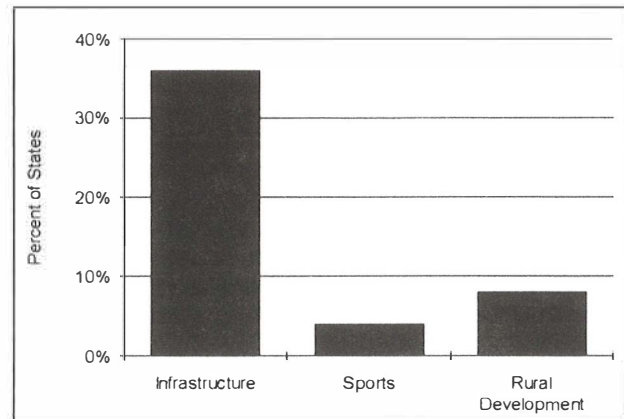


Figure 3. Reasons for tourism development: development group.

Economic Group

Forty-four states have identified economic development as an important reason for government activity in tourism development and promotion. As California notes, "tourism is a major source of jobs, income, and tax revenue ... and the expansion of this industry is vital to the overall growth of (the state) economy" (California Government Code, 1984). Three specific economic reasons for promotion of tourism were identified by the states in the sample, shown below in Figure 4. Twenty percent of the states cite retaining economic benefits of tourism for the states as a reason to encourage tourism; the economic benefits of tourism to the states come primarily in the form of lodging taxes, meal taxes, and sales tax. Benefiting citizens of the state was noted by twenty-eight percent of the states, and increasing employment was noted by 40% of the states.

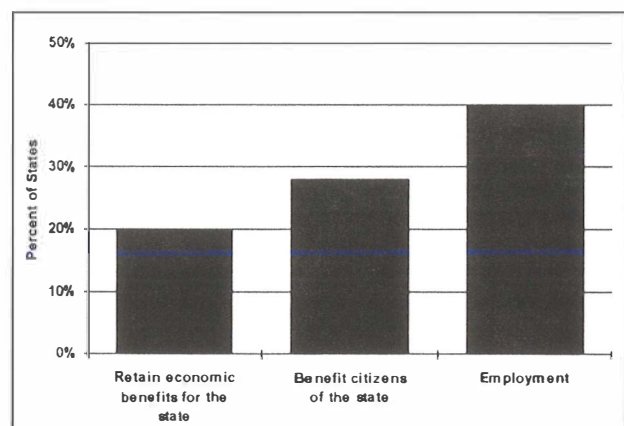


Figure 4. Reasons for tourism development: economic group.

Amenity Group

Sixty percent of the of the states in the sample identified one or more amenity reasons in the purpose clause of the tourism agency's enabling legislation. Figure 5 shows the amenity reasons that legislatures noted for encouraging tourism. Four percent of the states view ensuring a good visitor experience an important reason for funding a tourism agency. Alaska (Alaska Statutes, 1986), for example, states that the agency should "ensure that the visitor experience is and continues to be satisfactory and leads to word-of-mouth advertising and return visits to the state". Sixteen percent of the states see portraying a positive image of the state to outsiders as a function of the government agency responsible for tourism. Twenty percent of the states view developing international tourism as a job of the government tourism agency, and 36% are responsible for promoting the unique historic, environmental, and/or cultural aspects of the state. The amenity noted by the most states in legislation was improving recreational opportunities for residents of the state, specified in 40% of the legislation reviewed. Oregon, among others, noted this, stating that "tourist facilities and attractions serve the recreational and cultural needs of both visitors and residents" (Oregon Statutes, 1993).

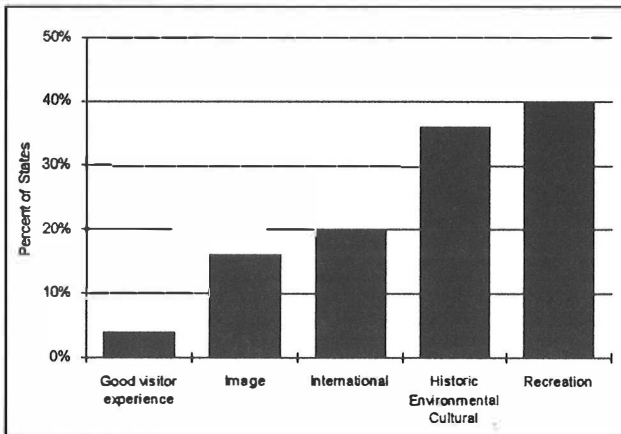


Figure 5. Reasons for tourism development: amenity group.

Coordination Group

Among the states sampled, 68% of the tourism agencies noted coordination of tourism efforts as a reason for government involvement. The coordination of public and private efforts at tourism promotion was noted in 52 % of the legislation (Figure 6). Forty percent of the states mandated that the tourism agency coordinate local, regional, and state efforts directed toward tourism promotion. Arizona, for example, mandates coordination on a number of levels, stating that the Office of Tourism shall "stimulate and encourage all local, state, regional, and federal governmental agencies and all private persons and enterprises to participate and cooperate in the promotion of tourism and tourism development" (Arizona Statutes, 1982). Interestingly, no states listed coordination with other states as a responsibility of the tourism agency. This may be because states view each other as competition for tourism dollars, and are therefore reluctant to work together.

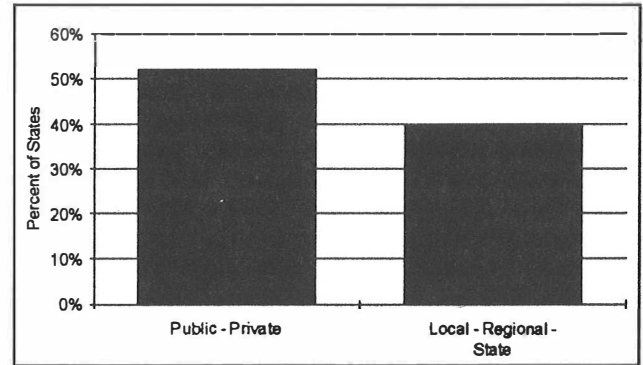


Figure 6. Reasons for tourism development: coordination group.

General Tourism Group

General tourism promotion was a legislatively mandated responsibility of the tourism agencies in 80% of the states, noted more often than any other reason (Figure 7). While this is certainly a broad statement that encompasses many of the above reasons, states may have made an effort to use this vague term to allow activities not specified in the legislation. The Nevada law is a good example of the legislature granting a vague mandate to the agency, as it requires the Commission on Tourism to encourage "the promotion of tourism and travel in the state" (Nevada Revised Statutes, 1991). Twenty percent of the sample noted tourism research as a responsibility of the agency.

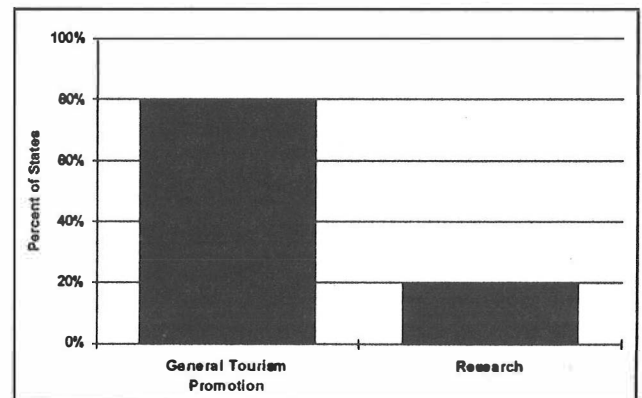


Figure 7. Reasons for tourism development: tourism group.

Conclusions and Implications

The legislatures of the sampled states identify fifteen distinct reasons for government involvement in tourism. More than any other reason, states are involved in tourism in order to broadly promote tourism in the state. While most states are involved in promotion, there is less involvement in development of the tourism infrastructure. Perhaps states feel that promotion benefits different regions and interest groups in the states equally, while development may benefit one area at the expense of another. Legislatures are viewing tourism with an eye toward the economic benefits that it brings to the state, and

therefore at some point will need to address the issues of infrastructure development -- more and more people cannot be drawn into some states without improvement of the facilities there to serve them.

Few states address the quality of the tourist experience, and this raises a red flag. Certainly every state wants tourist to make return visits -- a loyal customer base is an important part of any business. However, few states mandate that the tourism agency address this issue. By implementing programs that deal with visitor experience, states may be able to address other mandated responsibilities and serve the long-term interests of the state.

Within every state there exist a number of groups, both private and public, that are involved in tourism promotion. Most states address this in some manner, but certainly this is an area where states may be most effective in their involvement in tourism. Resorts, industry groups, regions, towns, cities, museums and others all attempt to lure tourists, and their dollars, through a variety of efforts. This is an area where a state agency could serve as a clearinghouse for information and a way that different groups could cooperate in order to avoid duplication of efforts. No states in the sample are legislatively mandated to coordinate efforts with other states, and given the competitive nature of the tourism industry this is only natural. However, given the realities of modern travel, many tourists visit more than one state on a single trip. For this reason, it may benefit some states to coordinate efforts with their neighbors (bordering states, and perhaps even bordering areas in Canada and Mexico) when the opportunities provided are not in direct competition. Certainly no one would expect Colorado to assist in promoting Utah ski areas, but the two states may be able to join forces in promoting a combined trip to the Colorado Rockies and the Utah desert.

This study serves to add to the discussion on what activities state governments undertake to promote and develop tourism within their states. This work is preliminary and incomplete; the legislation of every state would need to be reviewed in order to obtain an accurate picture of the mandated activities of tourism agencies. Additionally, much could be gained by studying the relationship between the legislative mandates of the agencies and the programs that they actually undertake. The level of funding provided to agencies may also be influenced by the legislative mandates of the agencies. Looking at these three components -- mandates, programs, and funding -- would provide a complete view of the role states play in tourism development.

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MARKETING RESEARCH FRAMEWORK FOR THE HERITAGE TOURISM INITIATIVE

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The Department of Canadian Heritage is both a supplier of tourism attractions (parks) and a tourism association supporting museums, festivals, etc. These two roles imply two quite different but interconnected research strategies. This paper develops the two strategies to show how a multi-responsibility agency should determine its research needs.

Introduction

When the new Department of Canadian Heritage (DCH) was put together out of Parks Canada and the Canadian Federal Government's support and policy programs for Museums, Festivals, the Arts, Sports, and Multi-Culturalism, management realized that much of what attracted tourists to and in Canada was in some way within Departmental responsibility. They realized that the new department could make a useful contribution to Canada's growing tourism industry by developing a coherent tourism strategy and consciously managing its tourism role. The development of a tourism strategy also required tourism research, of course. The purpose of this research framework therefore is to provide users with a tool for developing tourism research plans.

A Concept Of The Tourism Market Place

To develop a tourism research plan, it is useful to have a concept of the tourism market place in mind. We started with a concept in which there were three components: demand (visitors), supply (tourism products), and the actors who manage the transaction between supply and demand (see Figure 1).

Demand

Demand is created by visitors. The tourism research literature generally suggests classifying visitors into discrete groups called segments that have a more or less homogeneous behavior (see, for example, Smith 1991, Andereck and Caldwell 1994). The reason for this is that in most cases, visitors are too diverse in their characteristics, behavior, and demands to consider as an undifferentiated whole. On the other hand, they are too numerous to be studied as separate individuals. Grouping them into a few segments according to common characteristics is usually an effective compromise. If the classification is properly done, all members of a particular segment will have similar behavior or similar wants, and will be clearly differentiated from members of other segments.

Supply

Supply can be thought of as whatever products are offered to the visitor as part of a trip. A visitor, to take a trip, must choose a diversity of products and how this choice is made determines how the supply is structured, at least in the visitor's mind. Most of the literature on visitor choice appears to treat the decision of where to go and what to do as a single event (Woodside and Lysons 1989). On re-examination, however, it appears more complex than that. Um and Crompton (1990) and Crompton and Ankomah (1993) suggest that visitors go through decision stages from general choice to specific choice, each stage narrowing down the number of choices retained for consideration and requiring more specific information. Both Gunn (1994) and Smith (1991) have suggested that there are distinct differences when planning or developing products at a regional, local or site-specific level, which implies that visitors have different decisions to make at each level. Hodgson (1993) points out that visitors need a certain kind of information when making decisions about general destinations and different information when making specific product choices. Both Prentice (1993) and Tourism Canada (1991) find evidence of the different kinds of information and the different stages at which visitors make decisions.

These results imply that the visitor makes a series of progressively more specific choices as he moves from his initial decision on general destination to his specific decisions about what activity to spend his afternoon at. For example, a potential vacationing family might decide to "go West" this summer to show the children the mountains. This general destination may have been chosen after considering a trip to Europe, a vacation at a rental cottage, or a trip to the Eastern Seaboard of the United States. Once the general destination has been chosen, a particular place within that destination must be identified to go to, since travelers must have a specific point to travel to, and must stay somewhere specific once they get there. "The West" is not a precise enough place to make hotel reservations in. To see "the West", therefore, the family might choose to go to Calgary (one kind of "West"), or Vancouver (another sort of "West"). Having chosen the place, it then becomes necessary to make very specific choices about what services (e.g., restaurants, gas stations, motels) to use and what attractions to spend time at. Some choices might be made before departure (e.g., "If we are going to Calgary, we must make sure to visit the Tyrell Museum"). Others will be made only once there (e.g., "It's a clear day; let's go to the top of the Calgary Tower"). In summary, when you are deciding between a vacation in Europe or the Canadian West, you are not, at the same time thinking of what restaurant to eat in.

There are several levels of supply or product. Following the planning models suggested by Gunn (1994) and Smith (1991, 1995), (although using my own terminology) we will consider three levels: general destination, place, and specific service or attraction.

Table 1 identifies the three product levels and describes the kind of information that the visitor would use to make his choices at that level. The information listed is my interpretation

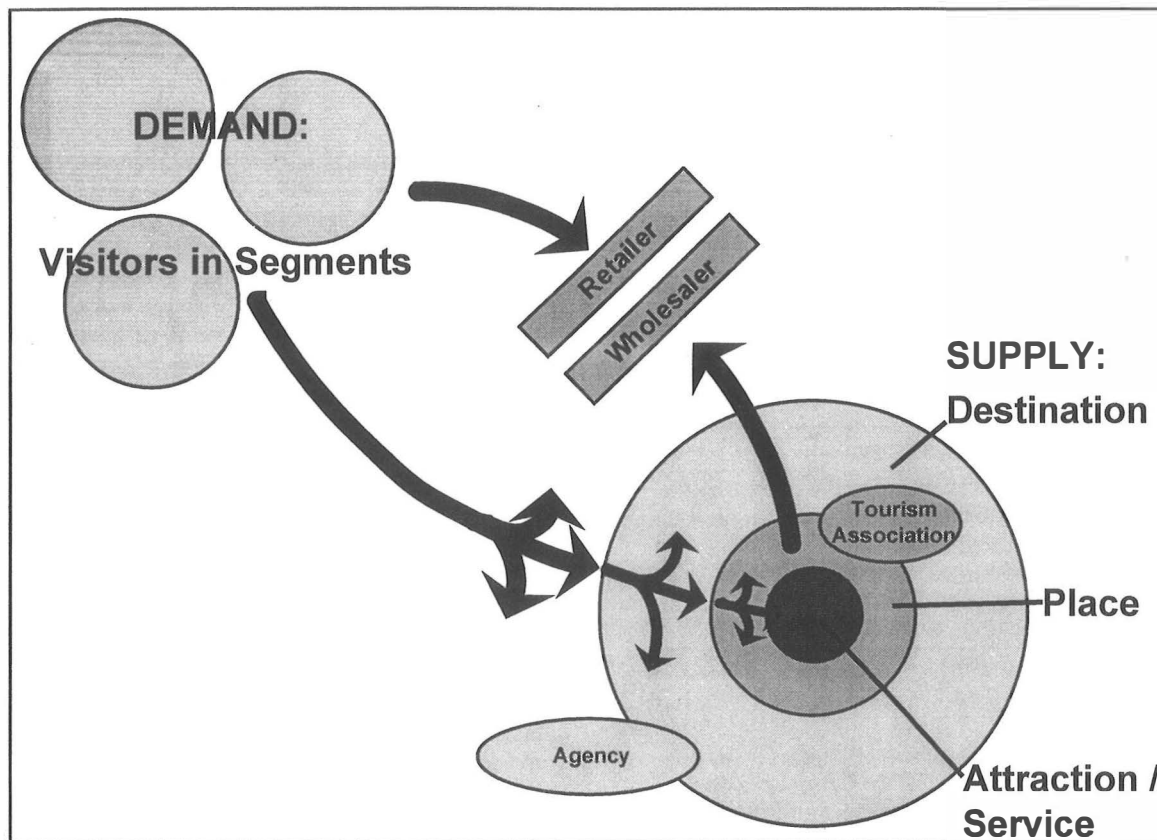


Figure 1. The tourism market place is made up of visitors in segments who consume attractions and services. These are concentrated in specific places which in turn are located in general destinations.

the findings of Fakeye and Crompton (1991), Hodgson (1993), Tourism Canada (1991), Tierney (1993) and Perdue (1986). Table 1 suggests that the information which persuades the visitor to choose a particular product varies from level to level. It is therefore important for the tourism marketer to be aware of the level of product he or she is marketing.

Both destination and place imply a concentration or critical mass of attractions and services (Gunn 1994). It is quite rare that a visitor coming from any significant distance and undergoing any significant expense is motivated completely by only a single attraction or service. The visitor needs a critical mass of attractions and services to attract him to a place or destination. This notion of critical mass is important because it generally means that a supplier of attractions and services cannot act in isolation to attract visitors to a destination or a place. Any research must take this into account.

Actors in the Market Place

Visitors create the demand for products. Suppliers of services and attractions create the tourism product to satisfy that demand. The visitor and supplier are therefore the first two actors in the market place.

Table 1. Levels of product.

Level	Description	Information Needed for Visit Decision
Destination	• more idea than specific location • contains several specific places, many attractions	• images, impressions • awareness of kinds of experience available
Place	• specific location visitor stops at • concentration of services, attractions	• knowledge of services, attractions available • knowledge of critical mass of attractions
Attraction /Service	• specific product visitor consumes • ultimate objective of trip, where experience actually takes place	• specific nature of attraction • precise details (e.g., location, price)

Not all visitors set off independently to choose the products they want to consume. Visitors who are unfamiliar with the customs of the destination or place, or who are less adventurous than others, prefer to have many of their products packaged and delivered to them. The market has adapted to this through the

creation of wholesalers and retailers (Tourism Canada 1994). Wholesalers are private companies who purchase bulk quantities of tourism product (thousands of hotel room nights, bus seats, and entry tickets to attractions) and package this product into individual trip opportunities called tour packages. Wholesalers sell their tours through retailers such as travel agencies.

The reason that the existence of wholesalers and retailers is important to the tourism marketer and researcher is that the wholesaler and retailer provide a different way for the visitor to make choices about which tourism product to consume. The fully independent traveler, makes all his own choices, based on the kind of information outlined in Table 1. The tour user makes his choices at all levels all at once, and then is no longer open to influence. Research must take this into account as well.

A Paradox

The only point at which money transactions take place is the point at which the visitor purchases a service or attraction. Visitors pay for services, and pay for entry or access to most attractions, but do not pay for entry to a place or destination. Therefore, the only actors in the market place to profit from visitors are the suppliers of attractions and services (and, of course, the wholesalers and retailers who are selling attractions and services on behalf of the original suppliers).

If the suppliers of services and attractions are the only ones to profit, then it follows that they are the only ones for whom it is worthwhile to undertake the expense of promotional activities. Unless, however, the visitor is first attracted to the destination, and then to the place, there will be no visitors to use the services or the attractions, or to profit from. It is rare that a single attraction will be large enough in a place to draw visitors all on its own without the interactions of the other services and attractions. So the paradox is that it is in everyone's general interest to promote the place and the destination, but in no one's particular interest, because the promotion costs for a place or destination accrue to an individual (the promoter), but the benefits accrue to the whole group. So who is willing to promote place and destination?

The wholesalers and retailers do some of this, but they really only promote the packages they are selling, not the whole place or destination. There are therefore two other actors who have come to inhabit the market place who, for the purposes of the framework, will be called tourism associations and agencies.

Two New Actors

Tourism associations are alliances of suppliers of attractions and services who undertake joint initiatives which will benefit all of their members (see, for example, Smith 1991, p12). If the association is an alliance of attractions and services which is based in a specific place (e.g., County X Tourism Association), it will undertake promotional campaigns for that place. Associations which are not based in a place, such as the restaurant or hotel associations of Canada do not promote place, but may provide advocacy, support and research. Why is it in their interest to do this? Associations are financed in some way by members (i.e., suppliers). Since all members benefit

from any promotion or research of the place the association represents, it is worth the members' while to finance the joint efforts that the association undertakes.

Promoting destination is a different proposition than promoting place. The notion of a destination is very diffuse, so the effects of the promotional campaign are very diffuse, as is the benefit of such promotion. Since destinations coincide approximately with governmental jurisdictions (e.g., Canada is a destination, British Columbia is a destination), the responsibility for tourism promotion of a destination is often assumed by an agency of the political jurisdiction, such as the Federal Government's new Canadian Tourism Commission or a provincial Ministry of Tourism. These agencies have the role of promoting the interests of the tourism industry in their jurisdiction, and particularly in promoting the jurisdiction as a tourism destination. This promotion is financed out of general tax revenues, which are themselves very diffuse in their incidence.

The Role of Department of Canadian Heritage

As we have seen, the actors in the market place are connected by a number of roles. These can be summarized in three categories: sales, promotion and advocacy (including support).

The supplier of services and attractions in a place obviously has the role of selling and promotion to visitors in the place where the services and attractions are to be found, as well as to wholesalers. As suggested above, the attraction or service does not, by itself have the job of selling or promotion to potential visitors who have not yet chosen their destination or place. In both these cases, the promotion or attempted sale would be premature, and the visitor is not yet looking for service or attraction information.

The association mainly has a role of promotion and advocacy. It rarely sells tourism product. If the association is an alliance of suppliers of diverse attractions and services linked in a place, one of its most important roles is to promote the place on behalf of its members to visitors who have chosen a destination, but are still deciding place. It can also have the roles of spokesperson, knowledge sharing, coordination, and research.

There are tourism associations which are not linked to a specific place. Instead they represent suppliers of a similar nature (e.g., a restaurant association, or an association of festival organizers). They obviously have no interest in promotion of a place. What the non-place association does is to advocate to the agencies which are promoting destinations to ensure that the agencies recognize the value and contribution of the association's members in drawing visitors to the destination. It can also support the members by information sharing and joint research, and even providing coordination through overall strategic plans for concerted action.

The agency has the role of promoting the destination to the potential visitor choosing a destination. It also has the important role of coordination of the efforts of the tourism industry (both suppliers and associations) in the destination through strategic plans.

What kind of actor is the Department of Canadian Heritage? Obviously, DCH operates National Parks and Historic Sites, so it is a supplier of attractions. Its job as a supplier of attractions is therefore provision of those attractions to visitors in the place (sales) and promotion to those visitors. It may also sell and promote to wholesalers.

DCH, however, is more than individual parks and sites. At a regional and headquarters level, it represents those parks and sites as whole. In addition, it provides operating and development grants to a variety of cultural institutions across Canada, and provides them as well with various forms of policy and technical support, advocates for them and promotes their well being. It is therefore a sort of association. It is not an association attached to a place, so it does not have the role of promotion of place, but it has the other roles of coordination, information sharing and research on behalf of its members.

The Information Structure

The kind of tourism information which DCH needs to carry out its role (and therefore the kind of information that research must try to provide) is influenced both by the way in which visitor segments view the product they are being invited to consume, and by the roles that DCH plays in the market place. The information structure reflects these two influences.

Basic Information Needs For Any Enterprise

Any enterprise, undertaking a complex activity like tourism marketing, follows a rational planning and implementation cycle (see, for example, Gunn 1994). Such a cycle contains an analysis of the current situation, identification of strengths weaknesses and opportunities, development of an action plan, its execution, and a monitoring and evaluation step. These steps have been described using many different terminologies, and the steps can be sub-divided or combined almost infinitely, but they all reflect the same underlying concept. The particular formulation used here has been chosen to highlight the information and research needs of the cycle. Table 2 demonstrates the information needed at each step.

Information Needs for Different Product Levels

These information needs will differ in detail depending on whether you are marketing a destination, a place, or an attraction or service (or, for that matter, any other product levels you might define). For example, at all product levels, we want to identify visitor segments and determine their propensity to consume our product. However, for a place, we might do an auto exit survey of the region surrounding the place, or a household survey of the people resident in the catchment area of the place and ask the sample how likely they are to visit, and try to gauge their sensitivity to the distance from the place. For an attraction, on the other hand, we might only look at the visitor segments that were already present in the place, but not coming to our attraction at present, and try to determine how sensitive they are to the price of admission. The reason for this is that the attraction is unlikely to have sufficient power on its own to draw visitors from outside the place.

Table 2. Information needs in planning and execution cycle.

Planning Step	Information Needs
Analysis of Current Situation	• what segments are now consuming product, how much consumed • changes in segments, trends in surrounding area • nature, activity of competition, complements in region • interest of non-users in heritage activities
Identifications of Strengths, Weaknesses, Opportunities	• number, activities, needs of non users • attractiveness of tourism product, extent of critical mass
Determining Action Plan	• what means do visitors use to choose product • effectiveness of communications tools available • what kind of products influence target segments
Execution of Action Plan	• no information needs at this stage
Monitoring and Evaluation	• how many of target segment now coming • satisfaction

Table 2 therefore needs to be elaborated to show different information needs for each level of product. Table 3 illustrates what the information needs would look like for each product level. Furthermore, DCH is both an operator of attractions and a tourist association representing Canada's heritage attractions. Therefore, the manager of a DCH attraction will use Table 3 in a different way from a marketing planner at DCH headquarters.

Information Needs of DCH as an Operator of an Attraction

Table 3 lists a comprehensive set of information which it would be ideal to have to develop a tourism action plan. It is clear, however, that no part of the organization is starting from scratch. Indeed, many parts of DCH have many years of tourism research behind them. In addition, there is a great deal that can be filled in by experience, at least until more important pieces of research can be finished. Therefore, the Table should be used as a sort of checklist against which to compare existing information with what we would ideally want and so determine the gaps, and prioritize the information that is lacking.

At the destination level (e.g., marketing Canada as a whole), there is very little role for the managers of an individual DCH attraction. Very few, if any, of the attractions which are part of the responsibility of DCH (directly or as advocate) can be thought of as destinations. Therefore DCH attractions managers will make very little if any use of column 1 of Table 3

At the level of place, however, the research role for a DCH attraction (column 2) is quite important. In some places in

Canada, the DCH attraction dominates the tourism market in the place, and so can act almost as if it were a place, casting its research net very wide. In other places, the attraction is only one component of the critical mass of tourism attractions which draws visitors to a place. In such situations, the association which represents the place is the appropriate level to conduct research, and the attraction becomes one of several partners who together have needs as outlined in column 2.

The main job of the DCH attraction is, of course, to market itself. The DCH attractions manager will therefore use mainly column 3 to develop his research needs.

Information Needs for DCH as a Tourism Association

There are three types of research which are appropriate for an association to undertake on behalf of its members. First, it is occasionally appropriate for an association to undertake attraction-specific research as outlined in column 3 of Table 3. Normally, an association (particularly located in a headquarters far away from a site) is too remote from the particularities of a specific attraction to effectively undertake an attraction specific study. It may, however, usefully undertake prototype or pilot studies which would lead to the development of new methods or best practices. These methods or practices can then later be used by many other attractions.

The second type of research which is appropriate for an association to undertake is one that will provide information that is applicable to many attractions at the same time. An example might be information on the effectiveness of a particular promotional tool which has been tested in conditions that are typical of those found at many of our attractions. It is wasteful to rediscover this information at every single site. General studies can provide default values or base information, saving resources for individual sites. This kind of research is reflected in columns 2 and 3 of Table 3.

The third type is information needed by the association to adequately advocate for the members with wholesalers and agencies. This information is somewhat similar to what an agency itself needs. The association must know at least enough about its members relationship to destinations to be able to speak to the agency knowledgeably and credibly. Column 1 lists this kind of research.

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Table 3. Information needs of DCH at all product levels

...and Are at Planning Step...	If You Are Researching a...		
	(1) Destination	(2) Place	(3) Attraction
Analysis of Current Situation	- size, characteristics of now coming to dest. - degree of influence heritage products have - trends in use - competition	- what segments found in region - degree to which they are now coming - ability to travel to place - trends/competition in region	- what segments now come to place - how much do segments use attraction - changes in segments - competition, partnership
Identification of Strengths, Weaknesses, Opportunities	- propensity of segment to be motivated by heritage products - use made of heritage	- propensity of segment in region to consume heritage products - activities, needs of segment - attractiveness of place	- interest of non-users in attraction - activities, needs of non-users - attractiveness of product for non-users
Determining Action Plan	- what destination images influence segment - what information does segment use in choosing destination - what promotion methods influence segment	- what information used to choose place - effectiveness of promotional tools	- what information/means used to chose attraction - how effective are means
Execution of Action Plan	no information needs at this stage	no information needs at this stage	no information needs at this stage
Monitoring and Evaluation	- did more people from target segment come to Canada - changes in balance of travel account	- increase in volume of target segment visiting - satisfaction with visit	- how many targeted non-users came - satisfaction - unsatisfied needs

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THE INTERPLAY BETWEEN ETHICS AND SUSTAINABLE RURAL TOURISM

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As parks and recreation professionals, we have previously been challenged to develop an environmental ethic of stewardship for our profession (McAvoy, 1990). Within the context of this paper, a natural extension of that challenge might be to assist others with the development of ethics upon which travel decisions can be made which will sustain the ecological, economic, social, and cultural integrity of travel destinations.

Introduction

Although the complexities of sustainable rural tourism have received increased attention in recent years, an area which appears to have garnered only marginal investigation is the interplay between ethics and rural tourism development. Proponents of rural tourism development cite not only its economic potential, but also its potential to preserve culture, to fund and preserve both historical sites and natural areas, to stimulate and support other businesses (e.g. retail shops, restaurants, and other service-oriented businesses), to encourage community pride, to increase cross-cultural understanding (Schroeder, 1993), and to generally improve the quality of life experienced by residents of such tourism destinations (Botkin, McGowan, & DiGrino, 1991), as benefits for promoting rural tourism development. On the other hand, the negative impacts (e.g. increased noise and traffic, degradation of environmental quality, rising real estate, increased demand for services, disruption of neighborhoods, increased crime) often associated with such development have also been well documented (cf. Frederick, 1993; Long & Nuckolls, 1992; Stokowski, 1992; Stubbles, 1990). Thus, concern for the sustainability of rural tourism arose as individuals, interested in capturing the benefits associated with tourism were confronted with the negative impacts often associated with such development. These types of situations often result in a complex decision making process which many times is essentially comprised of ethical dilemmas. This paper supports the belief that, given the potential exploitive tendencies of rural tourism development (e.g. Fridgen, 1991; Hunt, 1987; Stubbles, 1990), ethical decision making, at not

only the collective level (i.e. communal or governmental level) with regard to policy-making (Dovers, 1990) but also at the level of the individual (Lea, 1993), is an important component for establishing sustainable rural tourism development.

Sustainable Rural Tourism

Sustainable tourism can be conceived as consisting of four separate spheres of sustainability, namely, the ecological, economic, social, and cultural integrity of travel destinations (Macbeth, 1994). According to Hill (1992), it is important to understand that rural tourism often interacts with, impacts, and changes the natural, artificial and cultural environments of a travel destination. Therefore, he contended this might necessitate that a "notion of limits of acceptable change" be implemented by tourism planning groups to maintain a continuous integrity of tourism's attractiveness, essentially that translates to "maximize[ing] the benefits and minimize[ing] the costs" of rural tourism development (p. 130).

Although sustainable development has been identified as a buzzword of the 1980s (Burr, 1994; Macbeth, 1994), individuals have cautioned that it might simply be empty rhetoric unless "sustainability" can be delimited into meaningful dimensions (cf. Burr & Walsh, 1994; Dovers, 1990; Gale & Cordray, 1994; Haider & Johnston, 1992). Shearman (1990) has claimed that an inherent problem with the concept of sustainability is that, "sustainability [can] vary in meaning depending upon the perspective taken within each given context (e.g., economic, social, ecological)" (p. 1). Gale and Cordray (1994), examining the sustainability of natural resources, identified four questions which they proposed are helpful in addressing the meanings of sustainability. They believed that answering the question "what is to be sustained" allows one to determine the focus and the practices or policies of sustainability, that determining "why something should be sustained" would reveal "some value attributes associated with what is being sustained" (p. 313), that designing "how sustainability is to be measured" would facilitate the evaluation of whether sustainability is being approached, and that realizing "what the politics of sustainability might be" would help to identify the conflicts and key issues of sustainability. These same questions can also be applied to the sustainability issues of rural tourism and are of the sort identified by other individuals who have questioned the practicality of ultimately reaching a sustainability of tourism (cf. Linden, 1993; Pigram, 1990; Shearman, 1990).

The Role of Ethics in Sustainability

Both Hill's (1992) discussion of rural tourism and Gale's and Cordray's (1994) four questions, delimiting the concept of sustainability, imply a need for making evaluative decisions on route to the lofty goal of sustainable tourism development. As one attempts to determine why something is to be sustained or to determine acceptable "limits of change" for an environment or community, one is in effect placing a higher value on one component than on another. In an examination and review of various approaches to sustainable development and the

implications of such approaches for sustainable rural tourism, Burr (1994) implicitly and explicitly addressed the role of **value** judgments and the need for ethical decision making in **reaching** sustainable rural tourism. He stated that it is crucial "to emphasize the concept of equity..." and, that is it only **through** following "ethical principles that respect the culture and environment of the host area, the economy and traditional way of life, the indigenous behavior, and the leadership and political patterns" (p. 5) that sustainable rural tourism can be **realized**. Burr rationally built the argument that the basis of sustainable rural tourism is founded in long term, integrative planning which seeks equity and balance both within and **between** generations and societies.

Shearman (1990) was perhaps more explicit in his claim "that sustainability is a value-laden concept" (p. 4) in his discussion of the two major positions of the ethical foundations of sustainability. Within that discussion, Shearman pointed out, that anthropocentrists are concerned with meeting the needs of human beings and "fulfill[ing] our moral obligations and duties to each other" and, the nonanthropocentrists "argue that sustainability is desirable because we have an ethical relationship with the environment..." (p. 6). The importance of this argument within the context of this paper is that both of these philosophical positions are essentially based in ethics.

Dovers (1990) also described sustainability as essentially "a value-based concern, it is the moral choice of accepting intergenerational equity as an overriding ethic" (p. 299). From Dovers viewpoint, sustainability is an ethical issue due to the inequities of most production and consumption systems and, as an ethical issue, is comparable to other social goals at the top level of a hierarchy within a policy-making framework. In Dovers's mind, "this policy-making process is initiated when the ethical basis of the social goal is evident across a fair proportion of the population and thus has entered the political decision-making arena" (p. 300). Dovers (1990) claimed that reaching this political arena is crucial in establishing direction and actions aimed at reaching sustainable development because, it is at this point that "existing and new policies can be checked for consistency against the goal of sustainability" (p. 300). An example of this type of framework has been developed by the Dutch and it "relates the economic production system to the resource-environment system" (Ashworth, 1992, p. 328). According to Ashworth, this framework is proactive in terms of setting governmental initiatives, defining specific objectives or targets, and facilitating future evaluation of the success or failure of reaching the goal of sustainability. Given the efforts of various governmental initiatives in the United States (c.f. The Economic Policy Council Working Group on Rural Development 1990; The Federal Task Force on Rural Tourism 1989; Subcommittee on Procurement, Tourism, and Rural Development of the Committee on Small Business 1989; 1990) it would appear that sustainable rural tourism has reached the political decision-making arena. It seems logical to suggest that the sustainability of rural tourism development **may have** reached the point, in this country, where it might be viewed as an "ethical concern".

While Dover's (1990) may have presented a reasonable framework in which the ethical issues of sustainable rural tourism can be addressed from a collective perspective (i.e. governments, the tourism industry, associations, organizations), what of the individual's perspective? Collectives, in their simplest form, are groups of individuals (Bennan, 1993). As individuals, it is evident that tourists need to be concerned with their role in establishing sustainable tourism development through their own travel behavior (Stewart & Sekartjajrarini, 1994). And what of those individuals employed in the travel and tourism industry? Might they also be partially responsible for encouraging sustainable tourism development? What obligations do those of us preparing future tourism professionals, outdoor recreationists (e.g. hikers or campers), or individual travelers have towards encouraging those individuals to participate in sustainable tourism behaviors? The general tenor of sustainable tourism literature would seem to suggest that we each have at least some obligation to encouraging ethical decision making which will eventually lead to the development of sustainable tourism, if only in monitoring our individual travel behaviors. Therefore, how can we encourage such individuals make ethical decisions which will lead to sustainability in the ecological, economic, social, and cultural spheres of tourism?

In "an overview of the growing amount of 'responsible tourism' and travel ethics literature ..." (p. 701), in which the literature was categorized into three components: Third World development ethics, ethical issues related to the social and physical impacts of the tourism industry, and ethical concerns related to individuals' travel behavior, Lea (1993) offered some direction in answering this question. He also concluded that efforts in the past 20 years focusing on travel ethics have resulted in more recent literature directed towards raising awareness, stimulating thinking, and encouraging individuals to develop more responsible interactions with the cultural and physical environments at travel destinations. This literature attempts to promote three central concerns: encouraging a better understanding of the host culture, encouraging sensitivity and respect for the host population, and encouraging travelers to limit their impacts of the host's physical environment (Lea, 1993). In effect, this promotional literature appears to be informally educating individuals regarding their individual responsibilities and obligations towards the travel destination.

Bulter (1991) has suggested that any movement towards a sustainable development of tourism should include the coordination of policies, proactive planning, acceptance of limitations, education of all groups, and a commitment to long range planning. He identified four possible solutions to reducing the pressure and associated impacts of tourism on destinations, especially with regard to the environment. These solutions included: reducing the number of tourists at overused sites and limiting the visitation to sites before they reach critical levels, changing the type of tourists from "mass tourists" to "alternative tourists", changing the resource to be a more resilient resource, and educating tourists, developers, governments, and local or host populations. In Bulter's opinion the tourism industry is unlikely to regulate itself and the local community cannot alone regulate the industry; therefore, such

regulations must be a collective goal agreed upon by all those involved. For these reasons, Butler believed that the education of tourists, developers, governments, and local or host populations seemed the most promising avenue to reaching sustainable forms of tourism.

Simcox's (1991) claim that "human values towards nature and the environment are enculturated through education systems, parental influence, the media, and other sources" (p. 15) appears to support Bulter's (1991) recommendation that education might be one avenue to sustainability. There is also some evidence that individuals are presently being educated about their ethical responsibilities pertaining to their travel behaviors (Lea, 1993). Therefore, the question remains "how might these ethics best be taught and learned?" Advocating the need for further examination of the relationship between sustainable rural tourism development and ethics development, the remainder of this paper focuses on a review of relevant literature paying particular attention to the teaching of ethics.

Educational Methodologies and Strategies of Teaching Ethics

There is a continuous debate about the teaching of professional ethics (Waithe & Ozar, 1990). Knapp (1983) has contended that there is substantial evidence supporting the position that ethics **should** be taught in the educational process. For those accepting this position, a sense of immediacy is implied by Enghagen's (1991a) argument that regardless of whether or not ethics **can** be taught, they are indeed **being included** in educational curricula and therefore, the question essentially becomes "how can these ethics be best taught or learned". Enghagen (1991b) offered two different approaches of defining the "teaching of ethics". The first relates to helping individuals to develop an understanding of concepts such as good and bad, right and wrong, and responsibility, duty, and obligation. The second approach was described as teaching individuals to "do ethics" or act ethically. It is the latter approach that is of interest in this paper, for although the imparting of information regarding ethical travel behavior is important, to hold such knowledge and not act upon it would have little effect on the establishment of sustainable forms of travel behavior as well as little bearing on the development of sustainable rural tourism.

Travel and Tourism Literature

As Lea (1993) has previously stated, it is disconcerting that more space in the tourism literature is not directed towards the importance of ethics to tourism development, given the evidence that tourism can at times lead to "an unacceptable destruction of social structure and cultural values" (p. 704). In fact, the majority of articles and studies dealing with the ethical aspects of tourism and those directed towards ethics education within tourism literature tend to focus on the business perspective of the tourism industry, promoting the need for preparing ethical employees, managers, or administrators (e.g. Enghagen, 1991b). Given the logical tie between rural tourism and rural environments and Lea's (1993) implication of a fairly strong connection between environmental ethics, development ethics, and a need for tourism development ethics, this review

was extended to include relevant environmental ethics and outdoor ethics education.

Outdoor and Environmental Ethics Education

Caduto (1983) identified and critiqued eight major strategies (i.e. approaches) found in a review of values education literature which might be applicable to environmental ethics education: laissez faire, moral development, inculcation, values analysis, action learning, confluent education, and behavior modification. Knapp (1983) focused on several of these approaches, namely, the inculcation, values clarification, cognitive moral development, value analysis, and action learning strategies, in his attempt to develop a curriculum model for environmental values education. Both Caduto and Knapp advocated the integration or synthesis of several of these strategies for the purpose of complimenting each other and limiting the negative implications of utilizing a single strategy to "teach ethics". Some research suggests that the traditional approaches to ethics education (e.g. lecture, textbook assignments, excessive moralizing, authoritative direction, and externally derived codes of ethics or behavior), as well as values clarification and moral development approaches, are often ineffective in the "teaching of ethics" when the desired outcome is behavioral change (Matthews & Riley, 1995; Schwaab, 1982).

In a recent report evaluating the effectiveness of outdoor ethics education programs, Matthews and Riley (1995), while quick to point out that values clarification and moral development approaches do indeed have a place and usefulness within an outdoor ethics education framework, also suggested that a character education model may offer greater potential than either approach if it emphasizes consistently responsible action by individuals who have been integrated into a communal context through an interactive process. According to the authors, any such model should be implemented in a setting characterized by:

- an importance of community as the context for developing and nurturing ethical behavior
- teachers as guides rather than as authoritative figures
- a climate of mutual respect
- group consensus-building and ownership of group norms
- the importance of peer teaching, counseling, and support
- the importance of responsible behaviors (p. 18).

In the same report, Matthews and Riley (1995) examined the past and present approaches to outdoor ethics education including: public awareness campaigns and codes of ethics, user education courses, national level programs, role models, mentoring, community clubs, and peer teaching. They concluded that no one single approach appears to be the best for "teaching ethics", but rather "a variety of methods that compliment each other, which together help develop and change ethical behavior" should be implemented (p. 41). Their recommendation was the use of interactive approaches over extended periods of time which "involve building group

consensus, using peer interactions, encouraging action involvement with relevant issues, and taking place in a community setting" (e.g. mentoring programs and community clubs with well-trained instructors or leaders) (p. 41).

Implications for Sustainable Rural Tourism Development

As one reviews the travel and tourism literature, one quickly realizes that the dominant approach utilized in promoting the development of travels ethics today is the use of a diverse array of codes of ethics. Examples of these formal codes of ethics include: codes for ethical travel behavior in a variety of settings, for example, backwoods or backcountry (Waterman & Waterman, 1993, p. 243), ocean settings (Lea, 1993), and Third World environments (Lea, 1993; Stewart & Sekartjakrarini, 1994); codes of ethics for the tourism industry (D'Amore, 1992); codes for employees of the industry (Enghagen, 1991); codes for hospitality and tourism educators (Kwansa & Farrar, 1992); and codes of ethics for activities related to tourism such as angling, hunting, birding, off-highway activities and caving (Matthews & Riley, 1995). The use of such codes, according to Matthews and Riley (1995), is often the "centerpiece" of public awareness and promotional campaigns because disseminating codes of ethics through media sources reaches large numbers of individuals and can potentially increase awareness, perhaps enhancing the possibility for future ethics development. Matthews and Riley (1995) cautioned that such codes should, to the greatest degree possible, be developed through an interactive process where individuals are included in the process and can therefore take "ownership" in the codes, otherwise, research suggests such externally imposed codes often do little to change behavior as stand-alone strategies. Assuming for the moment that these codes of ethics have successfully initiated or increased the public's awareness of the need for ethical decision-making with regard to rural tourism, what is the next step in encouraging or created opportunities for further ethical development?

Hunt and Bullis (1991) believe that many individuals often do not recognize ethical dilemmas they face in everyday life and, often "have not developed a framework for clarifying the [various types of] ethical issues posed to them" (p. 341). If what Hunt and Bullis have contended is true, the implications for sustainable rural tourism development are tremendous. How can one expect a tourist to participate in ethical travel behavior, tourism developers or promoters to make ethical decisions leading to sustainable development, or host communities to make sound decisions leading to the sustainability of their community; especially if, sustainable rural tourism development is essentially a series of ethical dilemmas which many of us can not recognize? Such a situation may account for some of the inconsistencies often identified between attitudes and/or knowledge and actual behavior (Fishbein and Ajzen, 1975).

According to Hunt and Bullis (1991), Gestalt theory provides "a well-recognized, yet non-sectarian model to facilitate the clarification of ethical questions" (p. 341), and therefore

provides a framework for increasing individuals' awareness of ethical issues and decisions. The central premise of Gestalt theory is the belief that an individual's "whole self" (i.e. values, beliefs, motivations, fears, desires, hopes, past experiences, etc.) is involved in the decision making and problem solving processes. Hunt and Bullis (1991) contended that practical experiences with the four principles of perception, co-existence, realization, and the present, would increase or enhance an individual's awareness of ethical decision making. The perception principle relates to values, the emphasis one places on one aspect of an ethical dilemma as opposed to another. For example within the travel and tourism industry, developers have often placed greater emphasis on capturing short-term economic profits than long-range sustainable profit. When individuals base their travel decisions on both cognitive knowledge and affective (feelings/emotions) information, they are evoking the principle of co-existence. If a backpacker knows that the shortest or easiest route to a particular campsite is to travel through fragile areas and acts upon that information, totally disregarding how he/she "feels" about this action, he or she may not be participating in the most ethical manner. Again, Gestalt theory is founded upon all the information the person possesses, not part of the information. Utilizing the realization principle, tourism developers traveling to a tourism destination to experience the indigenous lifestyle will become more intimate with that place and people and therefore be more likely to make ethical choices in their development of the site. Tourists, who justify their unethical behaviors on "the way it has been done in the past" or suggest they will do something more ethical in the future are violating the final principle which enhances their awareness of ethical considerations, acting in the present.

The four remaining principles of Gestalt theory, blind-faith (introjection), shifting-responsibility (attribution), people-pleasing (confluence), and diversion (deflection), were purported by Hunt and Bullis (1991) to inhibit or act as constraints to an increased awareness of ethical dilemmas. To simply accept another's value system without evaluating it (blind-faith), to attribute responsibilities or actions to anything or anyone other than oneself, to base decisions upon another person's approval (people-pleasing), and to somehow avoid confronting the central issue (deflection) each impede one's ability and capability to recognize or deal with decisions which are of an ethical nature. Applying Hunt's and Bullis's argument to a tourism context, when tourism developers and promoters begin to consider other value perspectives in conjunction with their own, begin to take responsibility for their decisions and acts, and directly confront issues they face today from an intellectual and affective perspective, they will begin to act in more ethically.

Hunt's and Bullis's framework of Gestalt theory appears to dovetail nicely with the recommendations of Matthews's and Riley's (1995) to use interactive processes. Interactive approaches involve building group consensus through increased awareness of others perceptions, values, and feelings; encourage immediate, direct action with today's relevant issues; and promote ownership of each individual's responsibilities and moral obligations through peer interaction

(Matthews and Riley, 1995). Such approaches would tend to create a settings of mutual respect within a "community" context and be likely to advocate equity and a sense of equality. These interactive approaches could be implemented at both the communal and individual levels. In a more practical sense, tourism developers and promoters need to interact with one another, host communities and populations, as well as individual tourists in order begin to consider others' value perspectives in conjunction with their own; to begin to take responsibility for their own decisions and acts; and to directly confront, from an intellectual and affective perspective, the issues they currently face. Tourism employees, such as travel agents, should attempt to create opportunities to both formally and informally educate tourists regarding their impacts on travel destinations and, tourists need to interact in more authentic manners with the indigenous people in an attempt to better understand their values and needs.

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NEW YORK'S CHANGING BED AND BREAKFAST AND INN INDUSTRY: 1987 TO 1993

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Bed and Breakfasts (B&Bs) and inns in New York make up a small but important portion of the state's lodging industry. These businesses differ from other lodging businesses (e.g., hotels) in that they serve breakfast to their guests and are frequently located in a private residence. In 1994, the New York Sea Grant Program carried out a survey of the 1,069 B&B and inn businesses identified in New York, updating a similar survey done in 1987. Survey respondents were asked to respond to the questionnaire for the 1993 calendar year. Data on promotional and marketing strategies, guest demographics, and business management decisions were collected. Results indicate that the number of B&Bs and inns in New York had grown only slightly (6%) between 1987 and 1993. However, the number of room-nights that guests stay at B&Bs and inns has increased 126% from 188,000 in 1987 to 424,660 in 1993. This indicates that as the industry matures, the number of visitors that stay at B&Bs and inns during their travels may continue to increase. Other implications of the research results for business owners and their management, marketing, and promotion decisions are discussed.

Introduction

New York State's Bed and Breakfast (B&B) and inn industry developed fairly recently, beginning in the mid 1970s. Since that time, the industry has grown to become an important part of New York's tourism industry. B&Bs and inns in New York typically fall into one of three main categories: private home B&Bs, B&B inns, and country inns. Private home B&Bs are located within private homes, have 1 to 4 guest rooms which can hold up to 9 guests, and serve breakfast to guests only. Bed and breakfasts inns differ from private home B&Bs in that they typically have 5 to 24 rooms, and can be located in either a private home or lodging facility. Country inns, the largest of the B&B-type businesses, are located in commercial lodging facilities, have 5 to 24 rooms, and a full-service dining facility that serves breakfast and dinner to both guests and the public.

The first survey of B&B and inn businesses was conducted by New York Sea Grant in 1987 to identify the characteristics of

this industry, which at that time was beginning to establish itself (Dawson and Brown 1987). The 1994 study, which surveyed B&B and inn owners with regard to the 1993 calendar year, was conducted to update the 1987 findings and to establish a data base of marketing information (Kuehn 1995). The objectives of this research paper are: to compare the two surveys to identify changes in the industry since 1987; to identify the current status of New York's B&B and inn industry; and identify the importance of B&B and inn businesses to New York's tourism industry.

Methods

The 1987 and 1994 surveys were conducted using similar methods. The B&B and inn mailing lists for both years were compiled by obtaining the mailing lists from tourism promotion agencies, chambers of commerce, B&B and inn owner associations, published B&B guidebooks, and reservation services. The survey process consisted of three mailings to all B&Bs and inns: one initial mailing containing the questionnaire and a cover letter; a second reminder postcard mailing; and a third reminder letter mailed with an additional copy of the questionnaire. Unlike the 1987 survey, the 1994 questionnaires were not distributed to B&B reservation services for distribution to their member B&Bs and inns. This approach was found to be an ineffective procedure in the 1987 survey (i.e., lack of cooperation from reservation services). Because of this, B&Bs and inns that are only promoted through reservation services were not included in the 1994 survey. The questionnaire used in the 1994 survey was based on the one used in 1987. While most questions in both surveys were identical, some new questions were added in 1994.

On the 1994 questionnaire, B&B and inn owners were asked to categorize their businesses according to the following categories: private home B&Bs, B&B inns, country inns, and "other B&Bs and inns." Lodgings which did not fit any of the first three categories but which provided guests with both lodging and breakfast were put in the "other B&Bs and inns" category. The 1987 questionnaire did not ask for owners to categorize their businesses according to these categories, mainly because categorizations of B&Bs and inns were unclear at that point in the development of the industry.

Statistically comparisons were made between the category of private home B&B and the combined category of B&B inns and country inns to determine if any differences in business practices or customer characteristics could be identified. The obvious definitional differences in lodging capacity, total room nights of lodging, services available, and similar factors were not compared. Only those variables with management implications and statistically significant results will be presented in the following section.

Results and Discussion

In 1993, 1,069 B&Bs and inns were identified in New York state (Table 1). Of these, 419 returned questionnaires for a response rate of 39%. By comparison, 339 of the 1,012 B&B

and inns identified in 1987 returned surveys (33% response rate). B&Bs and inns were categorized according to which New York State Department of Economic Development Region they are located in New York. Eleven of these regions exist in New York and they typically consist of three or more adjacent counties having similar geographic characteristics (Table 2).

Table 1. New York State B&B survey comparisons from 1987 and 1993 studies.

Characteristics	1987	1993
Number of B&B and Inn businesses	1,012	1,069
Estimated # rooms available	4,760	5,452
Average double occupancy room fee	\$47	\$67
Estimated number of employees	1,220	2,356
Estimated annual advertising costs	\$1,104	\$2,297
Estimated # room-nights sold	188,000	424,660
Estimated B&B/Inn lodging revenues	\$8.8	\$28.5
	million	million

Table 2. Number of B&B and Inn businesses and the number of respondents to the 1993 survey categorized by New York State Department of Economic Development regions.

NYSDER Region (Number of counties)	Number of businesses	Number of responding businesses
Chautauqua-Allegheny (3)	52	17
Niagara Frontier (5)	54	21
Finger Lakes (14)	237	111
Thousand Islands (3)	69	27
Adirondacks (6.5)	175	69
Central Leatherstocking (7.5)	147	66
Capital (6)	55	23
Catskills (4)	165	46
Hudson Valley (6)	84	31
New York City (5)	2	0
Long Island (2)	29	8
TOTAL	1,069	419

In 1993, B&Bs and inns could be classified into the following lodging categories: 65% were private home B&Bs, 18% B&B inns, 12% country inns, and 5% other B&Bs and inns. Eighty-five percent of the B&Bs and inns stated that they operated full time year-round, while 15% stated that they operate part time (weekends only) or were closed during at least one season every year. The season they were closed was often related to the region that the B&B or inn was located in. For example, B&Bs and inns located in the Adirondack Region were often closed during the spring season, while those in the Finger Lakes Region closed during the winter season.

Average occupancy was highest during summer weekends and fall weekends for both B&B inns and country inns combined (75% and 69%, respectively) as well as private home B&Bs (62% and 49%, respectively). The second best period for occupancy was during summer weekdays. The lowest period for occupancy was during spring and winter weekdays. The average occupancy for B&B inns and country inns was

statistically higher compared to private home B&Bs in all seasons and for weekdays and weekends (T-test, $p < 0.05$).

The average opening year for private home B&Bs operating in 1993 was 1987, and most were operated by the current owner an average of 5.4 years. The average opening year for B&B inns and country inns operating in 1993 was 1964, and most were operated by the current owner an average of 8.9 years.

The average charge for a double occupancy room in a B&B and inn increased by \$20 per room between 1987 and 1993. In 1993, private home B&Bs charged an average of \$60 and B&B inns and country inns charged an average of \$82 for a double occupancy room.

Comparisons between the 1993 and 1987 surveys are shown in Table 1. The number of B&Bs and inns in New York has increased slightly (6%) between 1987 and 1993. Likewise, the estimated number of rooms in B&B and inns in New York has also increased (15%). However, large increases in other comparison figures have occurred. For instance, the estimated number of employees hired by B&B and inn owners has increased 93% from 1,220 employees in 1987 to 2,356 in 1993. Likewise, the estimated number of room-nights has increased 126% while the estimated visitor lodging expenditures have increased 224%.

The data comparisons between surveys suggest that the B&B and inn industry is doing well and individual businesses are also becoming more successful. Increases in the amount spent on advertising costs as well as the number of employees hired by B&Bs and inns indicate that individual businesses were more able to spend money on advertising and staff in 1993 than in 1987 (Table 1).

Forms of advertising and promotion and their effectiveness in 1993 are listed in Table 3. Referrals or word-of-mouth advertising is ranked as the most often used category of promotion with a mean effectiveness rating of 2.82. Business brochures, chamber of commerce listings, B&B and inn guidebooks, and tourism promotion agency guidebooks are also ranked high. Newspaper advertisements, which were ranked moderately high in the 1987 survey (1.96 effectiveness rating), were ranked low in 1993 (1.76). While the effectiveness rating of reservation services in 1993 and 1987 was moderate, the percent bookings received from this type of promotion was high in 1993 (12%).

Overall B&B inns and country inns used nine of the 16 types of advertising and promotion more often than did private home B&Bs (Table 3). B&B inns and country inns reported mean effectiveness ratings that were higher for five of the 16 types of advertising and promotion than did private home B&Bs. Private home B&Bs reported mean effectiveness ratings that were higher for B&B reservation services than did B&B inns and country inns (Table 3).

The success of word-of-mouth advertising is an indicator of a growing industry. This form of promotion generally becomes effective after several years of successful business operations. This form of promotion accounted for 35% of the bookings at B&Bs and inns in 1993 (Table 3). Reasons why B&B and inn owners perceive the effectiveness of reservation services to be lower than what is indicated by the percentage of bookings made through them is unclear.

Most of the results from this study indicate that New York's B&B and inn industry is both maturing and stabilizing. Comparison data between the two survey years shows that although the number of B&Bs has only grown slightly (from 1,012 B&Bs and inns in 1987 to 1,069 in 1993), the financial success of the industry as a whole has dramatically increased (Table 1) since 1987 (Dawson and Brown 1988). In 1987, estimated visitor lodging expenditures were \$8.8 million; these increased to \$28.5 million in 1993. The double occupancy room charge increased \$20 per room on average at B&B and inns and that combined with a 126% increase in number of room-nights explains the 224% increase in visitor lodging expenditures.

Part of the reason for the success of B&Bs and inns appears to be their uniqueness. Each B&B and inn provides facilities and amenities suited to specific market groups (e.g., anglers and snowmobilers). The seasons that these businesses are in operation are suited to these market groups. B&Bs and inns in the Adirondack Region remain open during the winter, serving clientele interested in snowmobiling and skiing. Because few tourists visit the Finger Lakes Region during the winter, many B&Bs and inns there are closed then. However, because the

success of B&Bs and inns seems to be dependent on their uniqueness and varied target markets, similar characteristics between successful B&Bs are difficult to identify.

Conclusions

Many factors indicate that the industry is both stabilizing and maturing. During the economic difficulties in New York in the early 1990s, many tourism businesses showed large declines in occupancy. However, this is not the case for B&B and inn businesses. Travel trends indicate that most travelers were taking shorter trips and traveling less distance during this period of time. Unlike most tourism businesses, these trends were beneficial to B&Bs and inns because they are suited for weekend getaways. Travelers to B&Bs and inns in New York in 1993 were mainly couples (64%), resided within New York state (50%), and remained at B&Bs and inns for 1 or 2 nights (86%). These data indicate that most B&B travelers are seeking weekend getaways within easy traveling distance.

With estimated visitor lodging expenditures of \$28.5 million in 1993, New York's B&B and inn industry has become a viable and important component of New York's tourism industry. New York's B&B industry is not expected to increase greatly in number of businesses over the next several years but the success of the industry as a whole is expected to continue to improve. As word-of-mouth advertising continues to expand in its effectiveness, individual businesses will most likely become more successful. B&Bs and inns will continue to fill unique niches in New York's lodging industry, attracting diverse market groups.

Table 3. Type of advertising and promotion, the mean effectiveness rating, and estimated lodging bookings received by B&B and Inn owners in 1993.

Type of Advertising and Promotion	Mean effectiveness rating*	Percent businesses using	Percent customer bookings
Referrals/word-of-mouth	2.82**	94	35
Brochures of business	2.49	84	14
Chamber of commerce	2.48	73	17
B&B and inn guidebook	2.31	52**	10
Tourism promotion agency guidebooks	2.25**	60	11
Offering package deals	2.17**	26**	6
Direct mail	2.16	31**	8
B&B/Inn sign at business	2.08	70**	9
B&B and inn association	2.04	47	9
Magazines	2.01	28**	7
Television	1.92	04**	2
B&B reservation service	1.91***	28	12
Newspapers	1.76**	43**	8
Travel agents	1.67	27**	2
Radio	1.59**	08**	1
Other types of advertising	2.56	14	22

* Rating scale: 1, not effective; 2, fairly effective; 3, highly effective.
 ** Greater percentage of inns use this type of advertising than private home B&Bs and/or inns report higher effectiveness (Chi-square statistic $p < 0.05$).
 *** Greater percentage of private home B&Bs report higher effectiveness for this type of advertising than inns (Chi-square statistic $p < 0.05$).

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ECONOMIC IMPACTS AND VALUES

THE ECONOMIC IMPACT OF STATE FOREST RECREATION IN SOUTHWESTERN PENNSYLVANIA

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Periodic vehicle counts were used to estimate the dispersed recreational activity taking place on four State Forest Districts. These were correlated with daily attendance records of nearby State Parks to obtain an estimate of annual recreational activity. A parallel survey of expenditure patterns provided the needed financial information to estimate economic impacts. Regional expenditures by non-residents formed the basis for the subsequent impact analysis. Approximately 566 thousand visitor days were recorded in the region's State Forests. The 271 thousand non-resident visitors spent an average of \$17 per day, resulting in almost \$5 million of direct impacts. The total impacts of this activity resulted in a contribution of over 200 jobs in the region, located primarily in the service and the wholesale and retail trade industries.

Introduction

The mountainous region of southwestern Pennsylvania largely divides the eastern and western urban portions of the state. This area has been a traditional refuge for Pennsylvanians seeking release from their city environments. The preservation of outdoor recreational opportunities was one of the central reasons for the establishment of State Forest reserves over one hundred years ago. The Bureau of Forestry manages over two million acres of forest lands in the state, with recreation as one of the primary uses for these lands. This study identifies the economic impacts of recreation occurring in the State Forests within a nine-county region of Southwestern Pennsylvania.

The study was sponsored by a partnership of regional tourist promotion agencies, the Pennsylvania Department of Commerce, and the Southwestern Pennsylvania Heritage Preservation Commission. Their common interest was to

establish a base line study of travel and tourism impacts and to further evaluate their ongoing programs (Strauss, et al., 1994). This component of the project could not have been accomplished without the cooperation of the Pennsylvania Bureau of Forestry and the Bureau of State Parks.

Objectives

In order to determine the impact of recreation on State Forests, two secondary objectives had to be accomplished. The first was to determine the volume of recreational activity occurring on the State Forests. Since the Bureau of Forestry does not have a systematic attendance collecting procedure for its lands, an estimation procedure was established. The second piece of information necessary to measure economic impact was the value of regional purchases made in association with the recreational activity. This was obtained by on-site surveys of visitors.

Procedures

Attendance

Although the Bureau of Forestry did not have reliable attendance data, its sister agency, the Bureau of State Parks, maintains a comprehensive data base describing the daily visitation and participation in 17 activities in each of its park units (Bureau of State Parks, 1994). Seventeen of these units were located within the study region. Several of the activities monitored in the State Parks, also occur on State Forests. These include: hunting, fishing, hiking, picnicking, and winter sports such as cross country skiing and snowmobiling.

The primary data collection tool for estimating State Forest visitation was a series of vehicle surveys conducted by Bureau of Forestry personnel on 25 key recreation days during the 1993 season. These surveys were based upon a count of vehicles encountered while driving along a prescribed set of public access roads in the forest. The 78 miles of roads used for this survey represented 17% of the roads available to the public. The daily surveys were expressed on a per mile basis and expanded for the total mileage of public access roads within the State Forests.

An allied survey was conducted on the State Forests by placing stamped postcards on the windshields of cars encountered along State Forest roads. These were used to determine the number of people per vehicle, and the recreational pursuits of the visitors.

The State Park annual database indicated the portion of an activity's annual audience likely to be encountered on any given day. This was used to expand the daily observations of attendance on the State Forests into an estimate of annual visitation.

Visitor Expenditures

On-site surveys were made among recreationist in the State Forests. They were asked to participate in a survey describing the economic contribution of State Forest recreation to the local

economy. The visitors were queried as to their residence, the length of their trip, the number of people in their group, and the number of activities in which they were participating. Then they were asked to list the expenditures they had made for food, transportation and lodging as well as any miscellaneous or equipment purchases they made in the region during the trip.

Economic Impacts

The economic impacts of recreational activities on State Forest Lands stemmed from the purchases of regional goods and services by non-residents. However, some of the regional expenditures were for goods that, while sold locally, were not produced in the region. For example, in the case of gasoline purchases, only the portion of the sale that supported labor, property or managerial returns was retained by the region, with the cost of the gasoline transferred elsewhere.

The input-output model then tracked the secondary economic activity needed to support the purchases by non-resident visitors. This included the production of the additional goods and services used in the direct products, as well as the production needed to meet the induced demands of workers employed in this overall productive process.

Results

Visitation

One hundred twenty-two vehicle surveys were conducted by Bureau of Forestry personnel during 1993. Postcards were returned by 142 people during the same year. This information, when coupled with the attendance patterns observed at nearby State Parks, provided an estimate of the recreational attendance on State Forests during 1993.

Total recreation on the State Forests in the region was estimated at 566 thousand visitor days of activity (Table 1). The Rothrock Forest District, which has the largest acreage (91 thousand acres) was the site of over 219 thousand visitor days. The Buchanan District (70 thousand acres), located in the southeast portion of the region, and easily accessible by Interstate Highway from the east and south, was estimated to have over 162 thousand visitor days of activity. The Forbes District (53 thousand acres) is just east of Pittsburgh, and has long been a traditional location of outdoor activities for the residents of that city. Over 107 thousand visitor days of activity were observed in that district. The lowest attendance (77 thousand visitor days) was recorded for the Gallitzin District (18 thousand acres).

Table 1. Distribution of visitation among forest districts, in visitor days, 1993.

Forest District	Hunting	Winter Activities	Other Activity	Total
Buchanan	79,297	65,645	17,233	162,175
Forbes	58,226	31,009	18,015	107,250
Gallitzin	28,308	36,064	12,645	77,017
Rothrock	<u>130,132</u>	<u>37,409</u>	<u>52,018</u>	<u>219,558</u>
Total	295,964	170,126	99,911	566,000

Over half of the visitors were involved in hunting (Table 2). Rothrock led the way, with 130 thousand visitor days of hunting. The fewest hunters were observed in Gallitzin State Forest, where winter activities were more popular (36 thousand visitor days). Overall, winter activities were responsible for 30% of the recreational visitors. The miscellaneous category, Other Activities, was generally smaller (17% overall). However, in Rothrock State Forest, over 50 thousand activity days were observed. Significant among this group was the large number of mountain bikers observed using the district's roads and trails.

Table 2. State Forest visitation by residence.

Activity	Resident	Non-Resident	Total
Hunting	174,93	121,770	295,964
Winter Activities	81,322	88,805	170,126
Other Activities	<u>39,376</u>	<u>60,534</u>	<u>99,911</u>
Total	294,892	271,109	566,000
Cabins	82	352	434

While all visitors to the State forests received personnel benefits from participating in their activities, only the local expenditures made by the non-residents were included in the economic impact analysis. People from outside the region represented almost half of the total number of visitors (Table 2). The largest numbers of non-resident visitors were hunting. The 122 thousand hunters from outside the region represented over 40% of the total hunting attendance in the region's State Forests. For the other two categories, Winter Activities and Other Activities, non-residents were more prevalent than local visitors. Another visitation category estimated by the study was for leased site holders. These people lease cabin sites from the Bureau, and center their recreational activities around these sites. Of the 434 cabins identified in the regions State Forests, 352 (81%) were owned by non-residents.

Expenditures

Expenditure surveys were collected from 89 visitors participating in State Forest activities. These were supplemented by 1,019 surveys conducted of similar visitors to other state lands in the region. The largest non-resident participant group, hunters, spent \$16.21 per visitor day (Table 3). Resident hunters spent somewhat less (\$12.32). The non-resident participants in winter activities spent almost \$18 per visitor day in the region. The \$0.72 spent by resident visitors, was the smallest level observed. This estimate was based upon a limited sample of visitors. The resident participants in other activities spent more per visitor day (\$12.32), than did non-residents (\$8.71). Lease holders were tracked on the basis of total property expenditures per lease. Resident lease holders spent \$1,673.98 annually in the region, on the maintenance and operation of their property. Non-residents spent \$1,426.89 per year.

Table 3. Average expenditure per visitor day, for visitors to State Forests, 1993.

Activity	Resident	Non-Resident
Hunting	\$12.35	\$16.21
Winter Activities	\$0.72	\$17.91
Other Activities	\$12.32	\$8.71
Cabins(\$/year)	\$1,673.98	\$1,426.89

The non-resident expenditures have been classified by type of expenditure in Table 4. The non-resident hunters spent over a third (\$5.61) of their money on food. The amounts spent of lodging and transportation were smaller (\$2.68 and \$2.77 per visitor day, respectively). A substantial amount, (\$5.15 per visitor day) was spent on miscellaneous expenditures in the region. Non-residents involved in winter activities spent an average of \$8 for lodging. They also registered \$3 in site related expenses. Most of this related to the rental of cross-country ski equipment from nearby resorts. Those participating in other activities only averaged \$8.70 per visitor day. This category represented a conglomeration of many activities, some of which required minimal expense on the part of the participant, while others had expenditure levels similar to hunting and winter activities (e.g., hiking).

Table 4. Distribution of average expenditures for non-regional visitors to State Forests, 1993.

Activity	Hunting	Winter Activities	Other Activities
On-Site	\$0.00	\$3.00	\$3.81
Transportation	\$2.77	\$1.32	\$1.08
Lodging	\$2.68	\$8.12	\$0.45
Food	\$5.61	\$2.24	\$2.81
Other	<u>\$5.15</u>	<u>\$3.22</u>	<u>\$0.55</u>
Total	\$16.21	\$17.90	\$8.70

Economic Impacts

Total expenditures: Over \$7.4 million was spent within the region by all State Forest visitors (Table 5). Hunters accounted for over \$4 million of this activity. The next largest category was the \$1.6 million spent by participants in winter activities.

Table 5. Total annual expenditures by visitors to State Forests, 1993.

Activity	Resident	Non-Resident	Total
Hunting	\$2,151,290	\$1,973,893	\$4,125,182
Winter	\$58,552	\$1,590,489	\$1,649,041
Activities			
Other	\$485,118	\$527,252	\$1,012,370
Cabins	\$137,266	\$502,265	\$639,532
Total	\$2,832,226	\$4,593,900	\$7,426,125

The non-resident expenditures represent additional moneys flowing into the regional economy. They spent \$4.6 million in 1993. Hunters dominated this category (\$2 million). Winter activity participants spent almost as much (\$1.6 million). Cabins and other activities each contributed another half million dollars to the non-resident total

Total Impacts: Overall, the \$4.6 million in non-resident expenditures resulted in an additional output of \$2.8 million by local businesses (Table 6). Secondary activity of \$5.3 million was generated by this activity. Total industrial output was therefore \$8.1 million. The value added portion of this represented a \$4.9 million contribution to the regional economy. Of this amount, \$2.8 million was for employee compensation. This supported 205 annual jobs in the local economy.

Analysis

Sector analysis

One of the main advantages offered by the input-output approach to impact modeling is its description of the distribution of economic benefits. The direct sales impacts were centered in the Services sector (46%) and in the Wholesale and Retail Trade sector (41%). Minor direct impacts were distributed among all of the remaining sectors.

Secondary output was more widely distributed. The largest recipient sector was Finance, Insurance and Real Estate (24%). This sector largely represented the gains in home equity to the employees supported by outdoor recreation. Services (24%) and Wholesale and Retail Trade (19%) continued to receive additional impacts. Modest gains were also registered by the

Table 6. The regional economic impact of non-resident visitors to State Forests in southwestern Pennsylvania, 1993.

	Direct Sales	Secondary Sales	Total Sales	Value Added	Employee Income	Number of Jobs
Agriculture, Forestry and Fisheries	\$17,900	\$116,600	\$134,500	\$41,300	\$14,600	2.34
Mining	\$10,700	\$25,200	\$35,900	\$27,200	\$7,000	0.20
Construction	\$66,800	\$186,700	\$253,500	\$134,900	\$103,000	5.11
Manufacturing	\$85,600	\$629,000	\$714,600	\$251,000	\$152,900	7.03
Transportation, Communications and Utilities	\$69,400	\$612,100	\$681,500	\$373,300	\$150,100	5.17
Wholesale and Retail Trade	\$1,166,500	\$1,017,500	\$2,184,000	\$1,458,800	\$981,400	84.18
Finance, Insurance and Real Estate	\$18,700	\$1,286,600	\$1,305,300	\$919,400	\$150,900	8.39
Services	\$1,300,600	\$1,250,000	\$2,550,600	\$1,511,700	\$1,078,200	88.81
Government Enterprises	\$109,300	\$139,900	\$249,200	\$173,800	\$149,000	3.72
Total	\$2,845,500	\$5,263,600	\$8,109,100	\$4,891,400	\$2,787,100	204.95

Transportation, Communications and Utilities sector and the Manufacturing sector, each with 12% of the secondary output.

The distribution of total sales followed from the sum of the direct and secondary sales. Services and Wholesale and Retail Trade dominated the total (31% and 27% respectively). Finance, Insurance and Real Estate ranked third with 16% of total output. An examination of the value added component of total sales, showed a similar distribution. However, when the employee income portion of value added was examined, the distribution changed. In particular, the Finance, Insurance and Real Estate sector dropped to only 5% of the wage and salary benefits. This was caused by the near zero employment associated with home equity gains. The number of jobs in each sector exhibited a similar pattern, with 89 positions supported in service industries and 84 positions in the wholesale and retail trade industry. An additional 32 positions were spread over the rest of the economy.

Conclusions

A criticism often made of travel and tourism related economic development is that its employment is typically low waged and seasonal. However, over half of the employment associated with the travel and tourism impact was from the secondary impacts (Table 7). This activity occurred throughout the year and included many higher paying jobs. Furthermore, this employment was distributed among almost every sector of the region's economy. Even in the Service and the Wholesale and Retail Trade sectors, almost half of the job impacts were from secondary activity.

Table 7. Distribution of employment benefits generated by visitors to State Forests in southwestern Pennsylvania, 1993.

Sector	Direct Jobs	Secondary Jobs
Agriculture, Forestry and Fisheries	0.31	2.03
Mining	0.06	0.14
Construction	1.35	3.76
Manufacturing	0.84	6.19
Transportation, Communications and Utilities	0.53	4.64
Wholesale and Retail Trade	44.96	39.22
Finance, Insurance and Real Estate	0.12	8.27
Services	45.29	43.52
Government Enterprises	1.63	2.09
Special Industries	0.00	0.00
Total	95.09	109.86

Total recreational use of the State Forests was estimated to be 566 thousand visitor days. Almost half of these visitors originated from outside the region. Hunting was by far the most prevalent activity. Non-resident visitors spent an average of \$16.21 per visitor day while hunting, and \$17.90 per visitor day when participating in winter activities. The other activity category, a heterogeneous group of activities, spent an average of \$8.71 per non-resident visitor day. Food and lodging were two of the largest categories. Transportation was a small

portion of the total. Nearly as a third of the expenditures were directed towards miscellaneous purchases.

Non-resident visitors spent \$4.6 million within the region during 1993. This resulted in \$2.8 million of direct output by regional businesses. Secondary activities brought the total output to \$8.1 million. The value added benefit to the regional economy, was \$4.9 million. Wage and salary income accounted for \$2.8 million of the benefits, supporting 205 jobs in the region.

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ECONOMIC AND SOCIAL VALUES OF PARKS: AN EMPIRICAL APPROACH

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Visitors to Vermont state parks spent an estimated \$58,915,874 in Vermont on durable and nondurable goods and services directly related to state parks in 1993. Moreover, they were willing to pay an additional \$2,184,158 annually to ensure the existence and maintenance of the state parks. The economic value of the state parks was found to be comprised of an array of social values, including recreation, aesthetics, education, ecological protection, moral and ethical obligations to nature, and others.

Introduction

Informed social policy demands that we know as much as possible about the costs and benefits of different environmental management strategies. Generally, society relies on the free market economy to price such costs and benefits. However, there are certain situations in which the free market fails to assign such prices. Parks are a good example. The benefits of parks are not well documented because use fees have, as a matter of public policy, often been priced administratively at a nominal level. An objective of this study was to explore and document the economic benefits of parks using the Vermont state park system as a case study.

The economic value of parks suggests that parks provide an array of social values to individuals and society at large. However, little is known about the nature of these social values or their relative importance. A second objective of this study, therefore, was to identify and measure the social values of

parks which comprise economic benefits. Both of the objectives of this study are aimed at informing and guiding park management and policy by exploring and documenting park values.

Background

Estimating the Economic Value of Parks

Theory of economic value of parks. In a period of reduced public funding for park and recreation services, it is imperative that funding agencies, legislators, and the general public understand the contributions that park and recreation services make to local, state, and regional economies. In addition, it is important that these audiences realize that the value of park and recreation services is not limited to the benefits derived from park- and recreation-related expenditures. These benefits consist of: (1) actual park- and recreation-based expenditures that have a direct impact on the economy, (2) values that exceed actual expenditures (consumer surplus), and (3) values that nonusers receive (such as option, existence, and bequest values).

Increasing operation costs and declining funding have led park and recreation managers to explore alternatives to traditional financing methods, strategies for optimal resource allocation, and ways to justify their expenditures to public constituencies. Determining parks' economic value helps managers justify public expenditures and facilitates efficient resource management (McDonald, Hammitt and Dottavio 1984).

Parks' economic value can be estimated using two approaches: (1) measuring the economic impact of park visitor expenditures (financial value) and (2) measuring the net economic value of parks (consumer surplus). Estimates of a park's total financial value and park visitors' total consumer surplus can be added to derive an estimate of the park's total economic value.

Park visitor expenditures. Parks function as catalysts in the economic development of surrounding areas, and management decisions have a definite impact on the outlying economy (Strauss and Lord 1990). Participation in park-related recreation generates particular types of expenditures such as food, transportation, equipment and lodging. These consumer decisions contribute to local and regional economic processes and enable development of service industries and retail businesses in the vicinity of a park.

Estimated total visitor expenditure represents a park's financial impact value. It does not include economic values that cannot be measured as revenue. Expenditure information is useful for determining community dependency on park-related economic activity and the distribution of park-related costs and benefits. However, resource allocation based solely on expenditure information is inefficient since it is founded on incomplete information (Loomis, Peterson and Sorg 1984).

Consumer surplus. In order to assign economic value to a resource, it must provide satisfaction or enjoyment to at least some consumers, and must be sufficiently scarce such that

consumer demand exceeds supply even if the resource is free (Loomis, Peterson and Sorg 1984). To create a complete and accurate estimate of a park's overall value, it is essential to identify and measure all park-related benefits which meet these criteria. Park and recreation services are nonmarket resources and their economic impact often cannot be measured directly in terms of goods and services, necessitating an alternative measurement strategy.

Consumer surplus is the net economic value remaining after all use costs have been subtracted from an individual's maximum willingness to pay for a resource. Maximum willingness to pay can be considered equivalent to an individual's total value for a particular recreation resource. It is composed of the amount the individual is required, or elects, to pay to use a resource plus any other values derived from the use or existence of the resource. Willingness to pay is not completely measured by a consumer's expenditures to use the resource (Loomis, Peterson and Sorg 1984). The sum of the total consumer surplus of all park visitors and the park's total financial value provides an estimate of the park's total economic value.

Measuring Economic Value of Parks

Techniques are available for measuring both financial and consumer surplus values. Economic impact studies that measure visitor expenditures provide estimates of parks' financial values. Consumer surplus can be estimated using contingent valuation.

Economic impact studies. Economic impact studies of state park systems have shown that state parks are important components of local and regional economies. Based on their study of the financial impact of Pennsylvania's state park system on the state's economy, Strauss and Lord (1990) assert that "[r]ecreation dollars spent within the immediate region of the park represent a contributing force to the local economy". They suggest that service industries, and travel and tourism in particular, represent an increasing share of state, regional and national economic growth.

Park and recreation resources have been shown to provide economic benefits that exceed the costs of providing them. This pattern was revealed in a study of the economic activity associated with Illinois park districts, forest preserves, and conservation districts. The study determined that "parks and leisure agencies are important economic players. They produce goods, they purchase commodities, and they create jobs both directly and indirectly" (Kanters and Botkin 1992). Findings of this type suggest that local and regional economies may be more dependent on park and recreation services than previously realized and that public money directed toward these services generates considerable economic activity.

Contingent valuation. Economic value studies can be useful to park and recreation planners beyond simply identifying parks' role in stimulating economic activity (Kanters and Botkin 1992). The cost to an individual of using a recreational resource may not be equivalent to the amount that individual would be willing to pay for the full range of benefits that resource provides to him or her. Many studies have revealed

support for recreation resources beyond their purely recreational value, and, in some instances, non-recreational value outweigh recreational value for resource users (Clonts and Malone 1988). In their Colorado rivers evaluation study, Walsh, Sanders, and Loomis (1984) found that, in addition to use values, respondents were willing to pay for the option, existence and bequest values that they derived from simply knowing that rivers will be preserved.

Consumer surplus cannot be measured through traditional economic indicators, as can the total cost to use a resource. Economic value has traditionally been based on individuals' tastes and preferences. Behavior (i.e. consumer decision-making) is commonly assumed to be the way that tastes and preferences are revealed. However, if the concept of total economic value (financial value plus consumer surplus) is accepted, expenditure behavior can no longer be assumed to accurately reflect tastes and preferences because non-use (i.e. nonmarket) values are not included in visitor expenditures. Therefore, measurement of total economic value must rely, at least in part, on what consumers feel a particular resource is worth. "The value of any commodity, whether traded in the marketplace or not, cannot be directly observed. It is a latent, hypothetical attribute that only can be inferred from observable cues" (Ajzen and Peterson 1988).

Contingent valuation is a widely accepted method for determining the net economic value--or consumer surplus--of parks and other nonmarket resources. It is a technique that is intended to measure both use values and non-use values such as option, existence, and bequest. Contingent valuation can improve resource allocation decision-making by deriving more accurate resource value estimates that include consumer surplus and non-use benefits. This enables resource managers to more appropriately allocate resources based on actual consumer values (Loomis, Peterson and Sorg 1984).

Exploring the Social Values of Parks

Historical trends in values of nature. There are many different ways of valuing nature, ranging from value based purely on material human benefit to value based on inherent or intrinsic qualities of nature (Godfrey-Smith 1979; Kellert 1989; Manning 1989; Petulla 1980; Rolston 1986). Nature's anthropocentric values have traditionally predominated in natural resource policy-making. However, an historical perspective suggests that more biocentric values may become increasingly relevant as natural areas continue to diminish.

Throughout American history, societal values for nature have changed dramatically. Attitudes toward nature have evolved from purely utilitarian to more biocentric stances, resulting in a contemporary diversity of perspectives. Changing social, cultural and economic conditions have been paralleled by changes in the way Americans think about and behave toward nature.

A typology of social values of parks. By integrating previous historical and theoretical work, a typology of social values of parks was created (Manning 1989). This typology is comprised of ten major categories of social value. The distribution of

these social values among state park visitors may suggest appropriate park management goals.

Parks can be valued as settings for recreation which cannot be achieved in more domesticated environments, as locations for spiritual revelation or inspiration through contact with nature, and as places to establish connections with cultural traditions. For many people, parks offer physical or mental therapy through opportunities for adventure and overcoming challenges, as well as aesthetic gratification through contact with nature. Parks are locations of relatively undegraded ecological functioning from which humans derive important contemporary and future benefits such as maintenance of biological and genetic diversity.

Parks may have scientific value because they provide unique opportunities for research in relatively undisturbed natural systems. Parks' economic value is derived from the tourism opportunities, ecological services, and option, existence and bequest values. Creativity and intellectual inspiration have often been enhanced through contact with natural areas, creating an additional category of value for parks. Additionally, many people's perceptions of ethical obligations call for maintenance of nature in a pristine state and parks often meet this need.

Temporal park values. Another way of approaching park values is to take a more temporal approach. Four potential values have been identified in the literature: 1) use value is concerned with the benefits gained from the opportunity to use parks in the present for recreation or other purposes; 2) option value is concerned with the benefit an individual receives from knowing that he/she will have the opportunity to use parks in the future; 3) existence value is concerned with the benefit derived from simply knowing that state parks exist; and 4) bequest value is concerned with the benefit enjoyed by having the opportunity to pass state parks on to future generations (Walsh, Loomis, and Gillman 1984). These values differ in terms of when and who enjoys the use of the park resource.

Study Methods

In the summer of 1993, a questionnaire designed to measure economic and social values of parks was distributed to visitors in forty-five Vermont state parks. Two versions of the visitor questionnaire were designed, one for day visitors and one for campers. Both contained the same basic components. Visitor expenditure and willingness-to-pay or contingent valuation questions were tailored to these two different visitor populations and the two versions differed slightly in the section dealing with visitation patterns. Each version of the questionnaire was pre-tested at a state park in June of 1993.

Questionnaire distribution was based on random sampling, stratified according to 1992 visitation rates. Park staff distributed a total of 3547 questionnaires. Visitors received questionnaires at the beginning of their visit and were asked to complete the pre-addressed, postage-paid booklet and return it through the U.S. mail. Visitors who did not return a

questionnaire within two weeks were sent reminder postcards. Follow-up packets which included a reminder letter and a second copy of the questionnaire were sent to visitors who did not return their questionnaire within one month. A response rate of sixty-one percent was attained, yielding 2164 completed questionnaires.

Study Findings

Economic Value

Visitor expenditures. Park visitors were asked to report their expenditures in Vermont for nondurable and durable goods and services related to the park visit for which they were sampled. "Nondurable" refers to goods and services that are generally consumed during the course of the park visit (e.g. food, lodging, transportation, rental fees). "Durable" refers to goods that are not fully consumed or used during the course of the park visit (e.g. camping equipment, boats, special clothing). Respondents were provided with a number of categories of goods and services to prompt as full and accurate a report as possible. For durable goods, respondents were asked to report only their expenditures over the past year and to estimate the percentage of the cost of each item attributable to use in Vermont state parks. Only the percentage of cost attributable to use in Vermont state parks is reported in this paper. Average group trip expenditures are shown in Table 1.

Table 1. Average group trip expenditure.

Type of expenditure	Type of group	Average expenditure
Nondurable goods	Resident campers	\$189.44
	Nonresident campers	\$206.33
	Resident day visitors	\$56.67
	Nonresident day visitors	\$81.10
Durable goods	Resident campers	\$817.73
	Nonresident campers	\$157.65
	Resident day visitor	\$100.71
	Nonresident day visitors	\$10.13

Total state park-related expenditures were estimated by multiplying the above figures by the total number of group trips to the state park system in 1993. State park-related expenditures totaled \$58,915,874.

Willingness to pay. As discussed above, visitor expenditures are only a partial measure of the value of parks. Consumer surplus is the value which visitors derive from parks over and above the direct costs associated with visiting the parks. Willingness to pay is a mechanism for measuring the dollar value of consumer surplus and obtaining a more complete estimate of the total value of parks. Willingness to pay was estimated in this study using two measurement techniques--dichotomous choice and maximum willingness to pay--and two payment vehicles--annual contributions and user fees.

Dichotomous choice was used to measure: 1) willingness to contribute annually to ensure the existence and maintenance of

Table 2. Average group willingness-to-pay estimates (in dollars).

	Campers				Day Visitors			
	Annual Contribution		Camping Fee		Annual contribution		Entrance Fee	
	Dichotomous		Dichotomous		Dichotomous		Dichotomous	
	Choice	Maximum	Choice	Maximum	Choice	Maximum	Choice	Maximum
Residents	85.35	50.00	19.79	16.00	41.75	25.00	2.90	2.50
Nonresidents	33.30	50.00	19.97	16.00	17.61	20.00	4.58	3.00

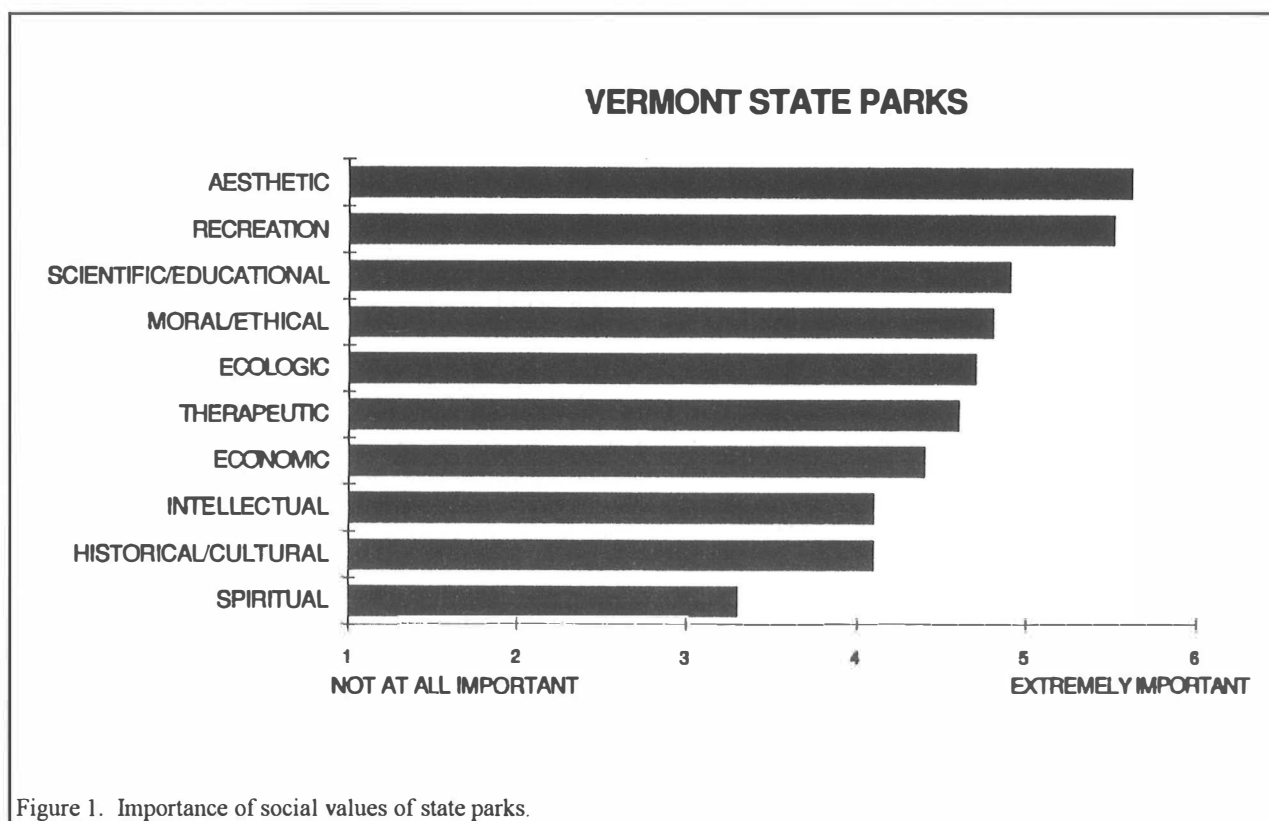
the Vermont state park system (in the absence of park use fees) and 2) willingness to pay park use fees. Maximum willingness to pay was elicited for the same two variables. Findings from all four willingness to pay measures (sample averages) are shown in Table 2.

Total annual willingness to pay was estimated by multiplying the average values shown in Table 2 by the number of different groups that visited Vermont state parks in 1993. Total willingness to pay park use fees was estimated by multiplying the average values shown in Table 2 by the number of group trips to the state park system in 1993. Total net willingness to pay estimates for the four measurement approaches ranged from a low of \$1,972,250 for maximum annual willingness to pay to a high of \$3,438,939 for dichotomous choice applied to park use fees. Based on the research literature on willingness to pay, the value of \$2,187,158 derived from dichotomous choice applied to annual contributions may be considered the most valid estimate of net willingness to pay and, therefore, consumer surplus.

Total economic value of Vermont state parks. The total annual economic value of the Vermont state park system to park visitors can be estimated by adding the total annual visitor expenditures (\$58,915,874) to consumer surplus (\$2,184,158). The resulting total of \$61,100,032 represents a conservative estimate of this value.

Social Values

Importance of park values. The above estimate of the economic value of Vermont state parks documents that parks can have substantial value to society. But what social values do parks provide? A second component of this study explored this question in several ways. First, respondents were asked to evaluate the importance of the ten potential social values of parks described earlier. Respondents were asked to consider each of these potential values and rate its importance as a reason for having state parks. A response scale ranging from 1 (extremely important) to 6 (not at all important) was used. These findings are shown in Figure 1.



Two interesting response patterns emerged. First, it is clear that nearly all ten of the potential park values are considered at least moderately important. All of the park values except spiritual values received an average importance rating of "moderately important" or greater.

Second, there is a distinct hierarchy of values that parks offer. Not surprisingly, aesthetic and recreational values were considered the most important reasons for having state parks. These values have long been associated with the benefits derived from experiences in nature, and parks are uniquely suited to provide these benefits. Similarly, educational value was generally regarded as a very important reason for having state parks. Natural history interpretation is a traditional role of parks, and parks often serve as nature preserves in otherwise human-dominated landscapes. Consequently, learning about nature is a common and valued component of a park visit. More noteworthy is the strong value placed on moral/ethical and ecological values. This suggests that park visitors believe strongly in the need to respect and protect the integrity of the natural world and that parks serve a vital role in expressing these values.

Many park visitors ascribe considerable importance to the physical, emotional, and mental values they derive from parks. On average, therapeutic and intellectual values were rated as "moderately" to "very" important as reasons for having state parks. These values suggest that parks provide a setting for personal stimulation and rejuvenation. Park visitors rated economic and historical values as "moderately" important. It is apparent that visitors appreciate the fact that parks can be an important component of a tourism-based economy and that parks can also serve as historical and cultural museums. On average, spiritual values were rated as only "somewhat" important for parks. Apparently, most park visitors do not anticipate religious or spiritual experiences in parks.

A second approach to exploring the social values of parks involved allocation of willingness to pay. After respondents had reported their willingness to pay for the existence and maintenance of the state park system, they were asked to allocate this dollar figure among the ten potential social values that parks might provide. Responses were recorded in terms of the percentage of willingness to pay allocated to each of the ten park values. Findings are shown in Table 3. It is interesting to note that the relative ranking of park values is generally consistent with the importance ratings described above. However, this measurement technique revealed greater variation among values. Recreation value, for example, received an average of 28.2 percent of total willingness to pay, more than twice as much as any other value.

Table 3. Allocation of willingness to pay among social values of parks.

Value	Average percentage of willingness to pay*
Recreation	28.2
Aesthetic	13.3
Ecologic	12.6
Therapeutic	9.2
Moral/ethical	7.5
Educational/scientific	7.1
Economic	7.0
Historical/cultural	5.9
Intellectual	4.9
Spiritual	4.4

* Adjusted to 100

Temporal values of parks. As noted earlier, a second way to conceptualize value is in the temporal dimension. Four basic temporal values--use, option, existence, and bequest--have been described in the literature. Respondents were asked to report the importance of each of these values as they apply to state parks. Both of the measurement techniques described above were used and findings are shown in Figure 2 and Table 4.

Table 4. Allocation of willingness to pay among temporal values of parks.

Value	Average percentage of willingness to pay*
Use	36.4
Option	25.6
Existence	11.6
Bequest	26.5

* Adjusted to 100 percent

Data in Figure 2 suggest that all four types of temporal value are considered important by park visitors. Respondents were asked the extent to which they agreed or disagreed with statements describing the importance of each of the four temporal values. On average, respondents "agreed" or "strongly agreed" with all four statements. However, bequest, use, and option values were clearly rated as more important than existence value. Data in Table 4 generally corroborate these findings, except that, as described above, the measurement technique of allocating willingness to pay reveals greater variation among values. According to this measure, use value is clearly rated as the most important park value, more than three times as important as existence value.

Conclusions

Economic Value

It is clear from the study findings that the Vermont state parks have substantial value to those who use them. It is estimated that park visitors spent \$58,915,874 to use the state parks in 1993. Moreover, they would be willing to pay an additional \$2,184,158 annually to ensure the continued existence and maintenance of the state park system. This is a conservative estimate of the full value of the state park system. First, it includes only expenditures in Vermont. Since a large percentage of Vermont state park use is by nonresidents (72.4 percent for camping and 38.6 percent for day use), substantial park-related expenditures are likely to occur outside Vermont.

Second, this estimate does not include nonusers of the state parks. A large percentage of Vermont residents are not active park users, but it is likely that they derive considerable value from the state parks as well. Study findings indicate that, even for active park users, a considerable portion of the value of state parks is derived from nonuse-related benefits such as option value, existence value, and bequest value. It is likely that these values accrue to non-park users as well. However, these values were not measured in this study.

Clearly the Vermont state parks are worth more in economic terms than the use fees they charge. Even the local expenditures of park visitors on nondurable goods and services—e.g., gasoline, food, equipment rentals, etc.—vastly underrepresent the full economic value of the state parks. It will be remembered from study findings that expenditures on durable goods—e.g., camping and recreation vehicles, boats and

related equipment—were considerably larger than expenditures on nondurable goods and services. It is likely that most expenditures on durable goods occur near the residence of park visitors and not in the local area of the parks.

Estimates of the economic value of parks, such as those generated in this study, can be useful in several ways. For example, the economic value of parks can be compared to the costs of providing parks in an effort to formulate economically rational park policy. The annual operating budget of the Vermont state park system is approximately \$4 million. This suggests that the state parks are an especially efficient public investment, generating 15 dollars of benefit for every dollar invested. This does not include the fact that the operating budget of the state park system is derived entirely from park use fees. While this is not a complete economic analysis (e.g., it does not include benefits to nonusers nor does it include the opportunity costs of the state parks were they to be put to another use), it is at least suggestive of the economic value of Vermont state parks.

Study data allow other insights into the economic aspects of parks. Because sampling was conducted in each state park, the economic impact of each park (visitor expenditures associated with each park) can be estimated. Moreover, expenditure data were collected in two categories, within ten miles of the park and beyond ten miles of the park. This allows for analysis of local versus regional economic impact. Study findings also indicate the relative economic importance of selected elements of the parks and park use. For example, campers have a substantially larger economic impact on the state's economy

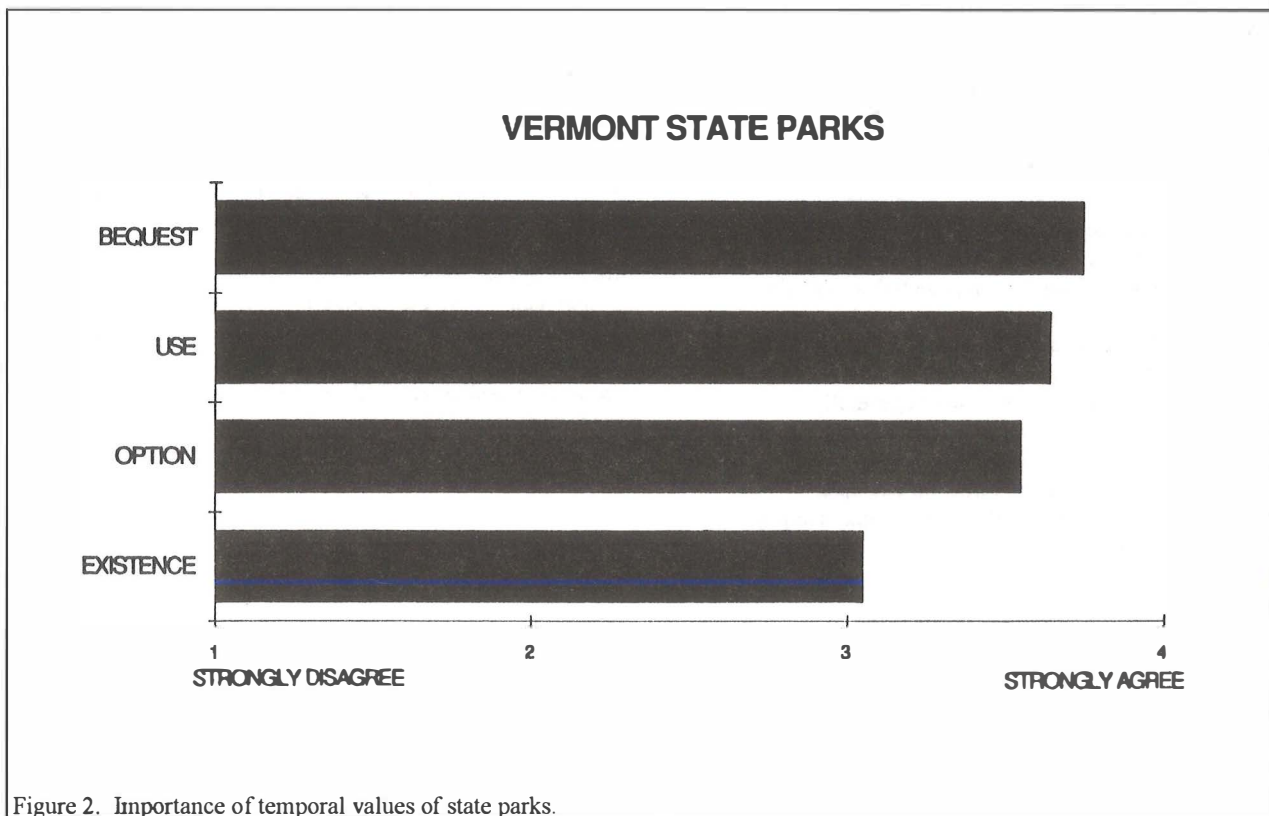


Figure 2. Importance of temporal values of state parks.

than do day visitors. Vermont residents spend more on park visits than do out-of-state residents, and expenditures on durable goods are substantially larger than expenditures on nondurable goods and services.

Finally, study data suggest that the current costs of using Vermont state parks may be near the margin of visitors' willingness to pay. This is evident in two ways. First, 96.4 percent of the estimated annual value of the state parks to current visitors is comprised of expenditures to use the parks and just 3.6 percent is comprised of additional willingness to pay or consumer surplus. If costs to use the parks were to rise significantly, some, perhaps many, park visitors would likely choose not to continue their visits because the costs would exceed benefits received. Secondly, the data on willingness to pay, as it applies to park use fees suggests that current park use fees are near visitors' maximum willingness to pay. This is particularly the case with camping fees. The current basic campsite fee in the Vermont state parks ranges from \$10 to \$16 per night. Yet, the average willingness to pay for a campsite ranged from \$16 to just under \$20 depending on the type of measurement used. The current day use entrance fee is \$1.50 per person, yet the average willingness to pay ranged from \$2.50 to \$3.00 depending on the type of measurement used. These findings have substantial implications for pricing and fee policy.

Social Values

Study findings on the social values of parks also provide input to park policy and management. It is clear, for example, that parks provide an array of values to individuals and to society at large. While it may not be surprising that recreation was rated the most important value by park users, it may be surprising that this value accounted for less than 30 percent of total park value. Aesthetic, educational, ecologic, and moral/ethical values were also rated highly. Likewise, direct use values of parks were rated as most important by park users. This type of value accounted for just over 36 percent of total park value. However, less direct and more future-oriented values (option, existence, and bequest values) accounted for the majority of total park value. Had non-park users been included in this study, it is likely that nonuse and future-oriented values would have been rated as even more important.

These findings suggest that park managers should be especially careful to avoid overdevelopment of state parks for recreation and should be diligent in reducing the potential environmental impacts of recreation activities. Recreation is only one of many park values. Moreover, many of the other important park values, such as aesthetics, education, ecological protection, and expression of moral and ethical responsibilities to other living things, depend largely upon protecting the ecological integrity of the natural environment. The importance of existence and future-oriented values argue for a similarly cautious approach to park management policy.

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WETLAND EXTERNALITIES: IMPLICATIONS FOR POLICY AND DECISION-MAKING

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Externalities, particularly those stemming from the common property nature of wetland benefits, cause market-based decisions to be inefficient and often entirely inappropriate. Valuation of nonmarket benefits, the reasons why competitive markets fail to adequately account for these values, and tools for developing an effective and equitable strategy for wetland protection are explored.

Introduction

Water is the lifeblood of human, animal, and plant communities; yet it is so easily taken for granted. A high-quality water supply enhances the biological, economic, and spiritual health of communities and is therefore a great social concern. 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, businesses, environmentalists, and the general public all claim status in issues concerning wetlands.

Developing a cohesive policy toward wetland management requires balancing many concerns and values. A free market economy looks to Adam Smith's (1776) invisible hand of the market for guidance. In theory, the inherent efficiency of markets guides people to an optimal allocation of resources.

However, the presence of externalities, particularly those stemming from the common property nature of wetland benefits, cause market-based decisions to be inefficient and often entirely inappropriate. Externalities refer to interactions among firms or individuals that are not adequately reflected in market prices (Nicholson 1978). In this paper we explore the valuation of nonmarket wetland benefits, the reasons why competitive markets fail to adequately account for these values, and tools for developing an effective and equitable policy for protection of wetlands.

Market Failures

Wetlands offer opportunities for a broad range of benefits, many of which are mutually exclusive. Individuals and society must balance the expected costs and benefits of various alternatives when selecting an optimal strategy for the management and use of our wetland resources. Economics, the study of the allocation of scarce resources among competing ends (Nicholson 1978), has much to offer to our understanding of the choices we make and how we make them.

Wetlands, like other productive resources, are in a sense scarce, and it is this scarcity that places constraints on our choices. If resources were infinitely abundant relative to our needs, difficult decisions would dissolve in a sea of affluence. Wetlands, at one time, were not considered scarce; this notion stemming at least in part from societies lack of understanding or appreciation for the spectrum of potential benefits. Some wetlands were drained and cultivated or built upon, while others became dumps. Today, there is a greater appreciation for the ecological and aesthetic values linked to wetlands; yet an elaborate system of regulations must be enforced to provide for societies needs. No such regulations are needed to ensure an adequate supply of grocery stores or boating facilities. Why does our market system allocate some resources with reasonable efficiency and fail dismally for others?

To answer this question it is useful to examine our economic system. Capitalism is individualistic; individuals and firms choose paths that they believe are most favorable for themselves. Each individual, acting in his or her best interest, chooses among a variety of economic goods, which may be as diverse as diamonds, spaghetti, or the time spent helping others or watching a beautiful sunset. This assumption does not rule out the notion that one may gain satisfaction through altruism or nonpriced values of any kind. Limitations or scarcity of time and resources force us to choose the desired mix of goods to produce and consume. Capitalism is also a market economy. Decisions made by sellers and buyers of products and resources (supply and demand interactions) are made effective through a system of markets. The marketplace generates information about productive capabilities and preferences in the form of prices. As prices adjust to changes in preferences, resource availability, or technology, they act as signals to guide decisions affecting the allocation of resources in an efficient manner. However, impediments, such as the presence of externalities, may interfere with the price system's ability to allocate resources efficiently.

Economic efficiency exists when no activity can be increased without the necessity of cutting back on some other activity. Resources are allocated efficiently when no individual can be made better off without someone else being worse off. A condition for efficiency from a social perspective is that the social rate of product transformation must equal the social rate of substitution. That is, the rate at which society can transform one good into another must equal the rate at which society is willing to trade the two goods. Efficiency can be improved by producing more of a good whose marginal cost (transformation rate) exceeds its marginal value (established by the willing exchange rate or price ratio). A problem arises when externalities or nonmarket interactions exist because the private rates of transformation and substitution diverge from the social rates. When this situation occurs, the price signals do not lead to a socially optimal allocation.

To illustrate this logic, consider a landowner's decision to drain a wetland for farming, development, or some other use. The private and social marginal costs for the productive use may be similar. Prices for the additional crops or house lots reflect the benefits these goods provide to both individuals and society fairly well. On the other hand, the social cost of losing the wetland may far exceed the private cost. All of the ecological and amenity benefits that were mentioned earlier are social costs incurred if the wetland is drained, however, they are not included in the market price for wetlands. Landowners, with no mechanism to charge for these public benefits, have little incentive to supply them. From a social perspective, the failure of the price system to reflect all the costs of wetland conversion will lead to overproduction of farmland or house lots at the expense of wetlands.

The problem is compounded by the public or nonexclusive nature of wetland benefits. Generally, ecological or amenity benefits accrue to all. Enhanced water quality, wildlife and fish habitat, or flood prevention are available to and benefit all of society. Because individuals cannot effectively be excluded from enjoying these benefits, there is an incentive to "free ride" by refusing to pay in the hopes that others will and they will benefit anyway (Nicholson 1978). From a social perspective, the nonexclusive nature of this situation will lead to an underallocation of resources such as wetlands. Government intervention is frequently required to avoid this underallocation. In the next two sections we examine two ways that government attempts to correct for market failures resulting from the presence of externalities: public ownership of the resource and the use of policy tools for influencing the behavior of private landowners.

Public Ownership

Public ownership effectively moves allocation decisions from the market system into the hands of government officials, who are charged with managing the programs and lands for the public benefit. However, needs, wants, perceptions, and values vary widely across society and cannot all be met at once. Conflict and expensive litigation frequently arise over the

choice of management strategy and resulting mix of benefits. Managers often feel trapped in a lose-lose situation by the competing demands of vocal and unyielding groups of stakeholders. Without the guiding hand of the free market system, they need alternate guidelines for selecting an optimal path.

One alternative is to use contingent valuation (CV) techniques, such as travel cost or willingness-to-pay surveys, to estimate market-like prices or values for externalities. The use of CV results has been critiqued elsewhere demonstrating their limited usefulness for decision-making. Several studies suggest that CV responses may reflect one's general belief about conservation or nature, for instance, and not the particular good being evaluated (Stevens et al. 1994; Kahneman and Knetsch 1992). Respondents may also register protest bids, zero or extremely large, because they feel that externalities, such as wildlife, are priceless and should not be valued in monetary terms (Stevens et al. 1991; Harris et al. 1989). Even if reasonable estimates of individual willingness-to-pay can be obtained, determining the relevant population over which to sum for total social welfare is extremely tenuous. Many externalities are global in nature (e.g. migratory bird habitats). This concern is particularly troublesome when externalities that include existence, option, or bequest values are considered.

The main advantage to this strategy is that once values are assigned, analytical techniques for choosing among alternatives are readily available and familiar to most analysts. These techniques are particularly useful when monetary values must be assigned, such as in court cases involving awards for damages. Although results of financial analyses are precise when market prices are available, they break down when these prices cannot be estimated accurately, severely limiting their usefulness for decision-making.

The management of externalities on public lands is not a financial problem. It is a political problem that requires a political solution. The public must decide and managers must find a way to interpret these decisions. Innovative techniques are needed for obtaining and interpreting public inputs, consensus building, and mediation. Conjoint techniques offer a potential means to present the public with alternatives and to analyze trade-offs (Green 1974; Green et al. 1988; Dennis 1994). In conjoint studies, respondents make choices between alternate products or scenarios with varying levels of selected attributes. For example, respondents could be asked to indicate their preferences for landscapes or communities with varying levels of wetlands, forests, farms, and developed areas. The data obtained, which outline a respondent's preferences or the trade-offs he or she is willing to make, can be used to construct a predicted set of utilities for various land use configurations. Asking respondents to make choices mimics the real choices managers must make and can also provide feedback to respondents of the consequences of their choices.

Private Ownership

Managing for externalities on private lands presents an even greater challenge. Policymakers must not only determine the optimal mix of benefits from a societal perspective but also decide how to achieve the desired results in an efficient and equitable manner. Regulation, taxes, subsidies, and the purchase of easements are among the tools available for adjusting for market failures associated with private ownership.

Regulation and zoning are frequently used to ensure that externalities are considered. Although regulation may at times be the only feasible means to achieve the desired results, several potential problems are worth mentioning. Ill will is created if people feel that the regulations are unfair or that their needs have not been duly considered. The moment regulations are proposed professions work diligently to uncover loopholes or ways for legal circumvention. Monitoring and enforcement may be technically difficult or limited in times of budget constraints. Even the best intentioned regulations may have unforeseen effects. For example, harvesting restrictions designed to enhance prospects for wildlife requiring older forests may reduce the available habitat in the long run. While protecting habitat in the short run, the regulation creates a strong incentive for landowners to harvest stands before they reach the desired age. Some wetlands have been prematurely drained in anticipation of stricter regulations. Even if regulations are effective in accomplishing their goals, numerous economic studies show that they are generally inefficient in doing so.

The use of taxation as a remedy for the externality problem was first put forward by Pigou (1932). Pigouvian taxes may be used to discourage harmful externalities, such as pollution or draining wetlands. To ensure the proper allocation of wetlands, a tax could be levied on wetland conversion; thereby, bringing the private and social costs of wetland loss in line. In the example cited earlier, a tax would effectively increase the cost of wetland conversion, which would be balanced against the gains anticipated from the alternate use. A formidable problem with this proposal is determining the level of the tax (Varian 1978). Irreversible decisions compound the problem. If the tax is too low or conditions and preferences within society change, there is no practical way to adjust. Once a wetland is converted to another use it may be difficult or impossible to restore it to its previous state.

On a similar tack, landowners could be subsidized for maintaining wetlands or providing other externality benefits to society. Under this scenario the private cost of wetland conversion would be increased by the anticipated loss of the subsidy. As you may have surmised, determining the amount of the subsidy and the irreversibility of decisions remain problems.

The purchase of easements is another way to preserve externality values. Development rights or the rights to a particular externality may be purchased by public or nonprofit organizations, with the landowner retaining the remaining property rights. Easements may be permanent or for a limited

time. There are several advantages to this approach. Conflict is minimized because easement transactions only occur between willing sellers and buyers. Determining an absolute value for the externality is generally not necessary because the upper limit for the offer price will usually not exceed the economic loss to the landowner. Because this loss is market based, it is easier to estimate than the total value of the externality to society. Drawbacks to this approach include its expense--both purchase and negotiation fees may be large. Agencies or organizations must also monitor, enforce, and if necessary, manage for the externality.

We have, in brief, examined several tools that are available to policymakers for coping with market failures resulting from the presence of externalities. Public ownership and easements remove allocation decisions from the influence of the free market and effectively internalize externalities. By doing so, society assumes all costs and benefits associated with its decisions. However, public officials are saddled with the arduous task of allocating a broad spectrum of competing uses, and they must do so without the guiding hand of the market. Regulation may achieve results but several problems were noted, including a lack of efficiency in obtaining an optimal solution. Taxation and subsidy approaches use the market to efficiently allocate resources. However, determining the appropriate levels is difficult and decisions may be irreversible. An issue that is crucial to the appropriateness and acceptability of any strategy is the assignment of property rights.

The Role of Property Rights

The right to own property is held very dear in the United States and in many parts of the world. But property ownership is not an absolute conveyance. The public trust doctrine originated in Roman times, spread to England and on to America with the colonists (Fitzgerald 1995). In the United States, the common law public trust doctrine was at first primarily concerned with the public's ownership or rights to navigable waters, but has expanded to include other natural resources. The rights to many externality values reside in the public domain. The public's right to breathe clean air and, simultaneously, the state's authority to regulate pollution was recently extended to include second-hand smoke, even though this infringes on the personal rights of smokers. But where are the dividing lines between landowner and public rights? And why are these important?

Considerable legal and political controversy surrounds the answer to the first question. Fitzgerald (1995) documents a long history of court cases and interpretations of the public trust doctrine. Legal controversy will continue; perhaps that is the nature of the beast. However, the world has changed considerably since colonial times and it may not be relevant to interpret exactly what our founding fathers or those before them meant when the laws were written. Public, including landowner, dissatisfaction with the status quo was strongly articulated in the debates and outcomes of recent (1994) elections. Several current legislative proposals deal with the

government's rights and responsibilities in limiting private property rights. No solution is in sight.

A definition of property rights is important in selecting a strategy to deal with externalities. In a market-oriented approach, the choice between taxation and subsidy rests on the assignment of the property rights to the externalities. Following the work of Coase (1960) and others, Kohn (1994) shows that under certain restrictive assumptions the same efficient allocation of wetland resources will ensue regardless of where the externality rights are vested, but the approach will be different. If externality rights are largely vested with the public, the strategy for influencing behavior should be weighted toward taxation. Conversely, subsidies are appropriate to the extent that landowners are vested with the rights to externalities. Regulation and the purchase of easements may be thought of as extreme cases. Under direct regulation certain actions are forbidden, which effectively "taxes" away the landowner's value for that particular use. When easements are sold by landowners, they are in a sense subsidized for the values of the externalities.

Summary

In a capitalistic society, market forces allocate some goods and resources quite efficiently, but fail for others. The presence of externalities leads to a failure in the market to allocate wetland benefits efficiently. Society must find an alternate means of choosing an optimal allocation of wetland resources. Difficult choices must be made and, although tempting, we must not solely rely on techniques designed for financial analysis, even if they are modified to account for nonpriced externalities. Innovative methods, such as conjoint analysis, are needed for soliciting and analyzing public desires, and incorporating these within a decision-making and policymaking framework.

Methods for dealing with market failures that result from the presence of externalities include direct public ownership of the resource, and regulation, taxation, subsidy, or easement purchase when the resources are privately owned. Formidable difficulties are involved under each course. Selecting the appropriate strategy for achieving an optimal mix of benefits from private lands will require a definition and assignment of property rights with respect to externalities. Regulation and taxation are appropriate to the extent that property rights to externalities are vested with the general public. If landowners retain the rights to an externality, then subsidies and the purchase of easements should be used.

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HISTORIC AND CULTURAL TOURISM

HISTORIC PRESERVATION ATTITUDES OF THE 90S AMERICA'S INDUSTRIAL HERITAGE

PROJECT - 1993

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The purpose of this study was to examine tourists' attitudes
towards the preservation of historic sites and cultural heritage.
Of interest was whether heritage tourists' attitudes, differed
with respect to the frequency of visitation, level of education,
and level of income. Marketing implications and management
recommendations are discussed.

Introduction

Throughout history travelers have been attracted to destinations
of cultural and historical significance. Historical tourism
remains an important element of the overall travel industry
today. According to the National Endowment for the Arts, in
1991, 30% of all households visited a historic site while
traveling (National Trust for Historic Preservation, 1993). By
1994, the statistics looked even better. Mason (1994), in his
study of family vacation behavior, found that 40% of families
visited historic sites during their family vacation. When
families were asked what types of attractions they intended to
visit in 1994, four out of ten indicated historic sites. The
Travel Industry Association reported that 49% of Americans
overall had plans to visit an historic site in the fall of 1994;
this compares to 35% in the fall of 1993 (in Cook, 1994).

Numerous studies have suggested that "the strongest indicator
of interest in cultural activities is education level" (Tigh, 1991,
p.123). Surveys conducted by Louis Harris, Inc. and Decima
Research have identified trends influencing travel and state that

the single most significant factor that influences cultural
participation, environmental concern, and travel is the rising
education levels of our society (in Brown, 1993).

Purpose

The purpose of this study was to examine tourists' attitudes
towards the preservation of historic sites and cultural heritage.
Of interest was whether tourists' attitudes differed with respect
to the frequency of visitation during 1993, level of education,
and level of income. This study was part of a larger study that
has been conducted annually since 1991 to develop a profile of
the America's Industrial Heritage Project visitor.

Methodology

During May through September, 1993, a random sample of
individuals at selected AIHP sites were interviewed on-site
and, if willing, were asked to participate in a follow-up
questionnaire. Surveys were distributed at five AIHP sites:
Horseshoe Curve, Altoona Railroaders Museum, Ft. Necessity
Battlefield, Friendship Hill, and East Broad Top Railroad

The follow-up questionnaire consisted of three sections, two of
which were referenced for this study. Attitudes towards
historic preservation and cultural heritage were measured
through five specific statements which asked visitors to respond
to a five-point scale ranging from "strongly agree" to "strongly
disagree." The statements below were specifically designed to
understand a heritage tourists' attitude towards historic and
cultural preservation.

- | | |
|--------------|---|
| Statement 1. | It is important to preserve our cultural
heritage. |
| Statement 2. | Historical preservation has gotten out of
hand. |
| Statement 3. | Preserving the past hinders progress. |
| Statement 4. | We should have laws to protect historic
sites. |
| Statement 5. | Not enough is being done to save our
heritage. |

Heritage tourism behavior patterns were examined by looking
at frequency of visits to historic sites. The frequency of
visitation was calculated by grouping the number of visits to
historic sites during the previous year. Individuals were
grouped by frequency of visits to historic sites as follows:

- Group 1: No trips made to historic sites.
- Group 2: 1-2 trips made to historic sites.
- Group 3: 3 or more trips made to historic sites.

Level of education, income, age, and gender were measured via
traditional categorical questions. Descriptive statistics were
used to determine frequency of responses to each item being
studied. The Multiple Analysis of Variance procedure was
used to identify the significant relationships between frequency
of visits to historic sites, income, education, age and gender,
and the five preservation attitude statements. Age and gender
were not significant and thus eliminated using MANOVA.

Level of education was categorized as follows:

Did not complete High School
High School Diploma
Business or Technical School
Some College
Completed a College Degree
Completed a Graduate Program

Level of income was categorized as follows:

Under \$20,000
\$20,000 to \$39,999
\$40,000 to \$59,999
\$60,000 or above

Findings and Results

A One-way Analysis of Variance was calculated to determine the relationship between visitors' attitudes towards preservation of historic sites, and frequency of visits, income, and education characteristics. Significant differences were found between each group with regards to the number of visits made to historic sites and all five attitude statements.

Table 1. Frequency of visits versus "It is important to preserve our cultural heritage" (F=15.13, df=2, sig.=0.000).

Category	Mean score	Number cases
0 visits	1.59	179
1-2 visits	1.47	367
3 or more visits	1.32	341

Table 2. Frequency of visits versus "We should have laws to protect historic sites" (F=14.33, df=2, sig.=0.000).

Category	Mean score	Number cases
0 visits	1.65	181
1-2 visits	1.55	364
3 or more visits	1.35	342

Table 3. Frequency of visits versus "Historical preservation has gotten out of hand" (F=12.05, df=2, sig.=0.000).

Category	Mean score	Number cases
0 visits	3.75	178
1-2 visits	3.94	364
3 or more visits	4.15	338

Table 4. Frequency of visits versus "Preserving the past hinders progress" (F=11.76, df=2, sig.=0.000).

Category	Mean score	Number cases
0 visits	3.99	179
1-2 visits	4.14	363
3 or more visits	4.36	338

Table 5. Frequency of visits versus "Not enough is being done to save our heritage" (F=11.76, df=2, sig.=0.000).

Category	Mean score	Number cases
0 visits	2.62	178
1-2 visits	2.44	365
3 or more visits	2.23	337

As level of income increased, those making more than \$20,000 a year were more likely to disagree with the following statements:

Table 6. Income versus "Historical preservation has gotten out of hand" (F=10.20, df=3, sig.=0.000).

Category	Mean score	Number cases
Under \$20,000	3.59	135
\$20,000 - 39,999	3.92	405
\$40,000 - 59,000	4.03	300
\$60,000 or above	4.12	234

Table 7. Income versus "Preserving the past hinders progress" (F=7.28, df=3, sig.=0.000).

Category	Mean score	Number cases
Under \$20,000	3.94	133
\$20,000 - 39,999	4.11	408
\$40,000 - 59,000	4.23	296
\$60,000 or above	4.36	234

As the level of education increased, individuals were more likely to disagree with the following statements:

Table 8. Education versus "Historical preservation has gotten out of hand" (F=7.28, df=6, sig.=0.000).

Category	Mean score	Number cases
Did not complete high school	3.81	32
High school diploma	3.84	304
Business - technical school	3.83	113
Some college	3.91	207
Completed college degree	3.93	212
Some graduate work	3.93	191
Completed graduate program	4.22	234

Table 9. Education versus "Preserving the past hinders progress" (F=6.96, df=6, sig.=0.000).

Category	Mean score	Number cases
Did not complete high school	3.59	32
High school diploma	4.11	304
Business - technical school	4.06	113
Some college	4.14	207
Completed college degree	4.13	212
Some graduate work	4.15	191
Completed graduate program	4.49	234

Conclusions

The results of this study support current travel trends. According to Comp (1993), "[heritage] visitors of the 90s and beyond are likely to be better educated; more mature; more affluent; more often, women; more inclined to stay near home; and more demanding in regard to the quality of their experiences" (p. 9). Brown (1993), citing surveys by Louis Harris, Inc. and Decima Research, supported Comp by stating, "The single most significant factor that influences cultural participation, environmental concern, affluence and travel is education."

If current trends hold true, we should consider whether educated, seasoned travelers are more critical and demanding of our heritage areas? And, if so, does this imply that greater attention should be paid to the marketing mix? For example, in terms of the product component of the marketing mix, might we expect that knowledgeable (educated and experienced) consumers will demand that heritage areas be authentic and have integrity? Brent Glass, Executive Director and State Historic Preservation Officer for the Pennsylvania Historical and Museum Commission has indicated that it is no longer sufficient for managers to assess significance and plan for protection of historic resources; visitors expect an "experience," they expect the resource to be "interpreted" (Glass, 1995). Carmichael (1995) agrees that experiences need to be interpreted, but she says to be careful... "Each historic resource is going to have to reinforce its individuality and adopt a theme to keep knowledgeable consumers coming back" (p. 7). Market studies also indicate that "[tourists] are more interested in the human interaction with artifacts, that is, in how people used objects rather than in factual information about the objects themselves" (Alderson, 1993, p. 16).

Pricing should also be referenced. Knowledgeable consumers have a "reference price" -- they know what they can expect for their money. If consumers are shown how their fee is being used to "preserve and protect" you might be able to charge more. And, in tourism promotion, the fact that we now have a magazine, "*Historic Traveler*," targeted specifically to individuals interested in historic resources documents that there is a distinct, knowledgeable market in the U.S. that must be recognized and promoted to very differently than we have in the past. Knowledgeable consumers are going to expect more detailed copy about historic resources. And, the copy should reinforce the themes of "preservation and protection."

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ANTIQUING AS A RECREATIONAL ACTIVITY IN SOUTHWESTERN PENNSYLVANIA

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A 1993 study of the economic impact of travel and tourism within a nine-county region of southwestern Pennsylvania identified a set of 25 travel-related activities. Each activity was described in terms of the average expenditure profiles for visitors, including lodging, transportation, food, and allied trip purchases. However, the purchase of antiques and collectibles appeared to be understated. Therefore, antiquing was included as a separate recreational activity in the following year's study. Interviews of antique dealers and the antiquing public permitted a detailed analysis of this sector and its patrons. The majority of antique shops belonged to four cooperatives or "Antique Centers." An annual attendance of 278,352 visitor days was established for the retail antique trade during 1994. Visitors spent nearly \$30 per visitor day, with over 55% directed to antique purchases. All regional expenditures made by non-resident visitors were entered into an input-output model of the region to determine the economic impact of antiquing and its relative importance to travel and tourism. The total sales impact was \$4.3 million. The value added component totaled \$2.6 million, which in turn supported 125 annual jobs within the region.

Introduction

A 1993 economic impact study of travel and tourism within a nine-county region of southwestern Pennsylvania utilized 25 travel-related activities in defining these aggregate pursuits (Strauss et al. 1994). The region consisted of Bedford, Blair, Cambria, Fayette, Fulton, Huntingdon, Indiana, Somerset, and Westmoreland counties.

The travel-related activities included visitors to recreational sites and events throughout the region, as well as business and transient travelers. Each activity was identified in terms of

visitor expenditure profiles, total expenditures, and the economic impact resulting from non-resident expenditures. The expenditure profiles included lodging, transportation, food, and allied trip purchases. However, this first year's study suggested expenditures for antiques and collectibles were understated. Accordingly, during the second year, antiquing was established as a separate activity, with the primary attention directed to several marketing cooperatives or "Antique Centers." Since the focus of this activity was on the tourist, those components of business relating to wholesale, mail order, and auction trade were excluded.

The economic contributions of the Antiquing Centers were analyzed through the use of the Impact Analysis for Planning (IMPLAN) System, developed by the USDA Forest Service in cooperation with the Federal Emergency Management Agency and the University of Minnesota. The IMPLAN model was originally designed for the Forest Service to estimate the regional impacts of National Forest management plans (Alward et al. 1985). IMPLAN is a computerized data base and modeling system for constructing regional economic accounts and regional input-output tables. It is especially adept in depicting the current and potential marketing role of travel and tourism activities in an overall economy (Strauss et al. 1994).

The model relies on two sets of data. The first is a 528 sector input-output transactions table based upon the Bureau of Economic Analysis' National I-O table (USDC 1984). This describes the utilization and production of commodities by United States manufacturers. The second is the county-level data to be used for developing a regional input-output structure that describes total output, employment, and the components of final demand and value added for the sectors within the region.

Objectives

The first objective was to establish the general dimensions of the retail antique trade within the region. Allied with this endeavor was the need to determine the annual attendance within this activity. A second objective was to define the expenditure profiles for these visitors. Satisfying these two objectives would then permit, as a third objective, an evaluation of the economic impact of retail antiquing and a comparison to other recreational activities in the region.

Procedures

A series of on-site interviews were developed with antique dealers and their retail customers to meet the first two objectives. In particular, the cooperation of the antique dealers was paramount to building a description of their businesses. Many of the regional antique dealers, tended to cluster within advertising cooperatives, based on their combined drawing power within certain geographic locales. Four cooperatives were identified within the nine-county region, which in turn, included most of the major antique outlets. The centers were located in Bedford, Blair, Fayette, Somerset, and Westmoreland counties.

Antique Center Interviews

The key dealers within each cooperative were identified for interview purposes and elicited the following information:

1. Number of shops in the cooperative or "Antique Center", classified by the relative size of their operations.
2. Estimated annual gross revenue for each level of operation and the percentage of revenue attributed to retail trade.
3. The relative levels of retail trade during the annual operating period, including the day-to-day visitation levels.

The attendance estimates, gathered from antique dealers at the various centers, were verified by taking the gross revenues attributed to retail business and dividing it by the average antique expenditure per visitor day.

Visitor Interviews

Visitor interviews were conducted at two Antiquing Centers to determine the origin of this audience, their travel itinerary, and their expenditure profile. This retail trade audience was classified by regional and non-regional visitors, with their expenditures classified by type of purchase. Additional trip-related information was obtained on their trip itinerary, frequency of visits, and how they found out about the antiquing district. A total of 239 visitor surveys were completed during peak and off-season periods and for weekday and weekend trade.

Economic Impact

The Impact Analysis for Planning (IMPLAN) model of the region identified the direct and secondary impacts resulting from the initial expenditures. Since the expenditures by residents did not represent an influx of new money to the region, this activity was excluded from impact analysis. Non-residents expenditures, classified by type of purchase during the interview process, were further identified in terms of the actual industrial sector producing the good or service. This distinction of the absolute levels of expenditures by sector facilitated data entry into the IMPLAN model.

Direct impacts represented the portion of regional expenditures by non-residents retained by regional businesses and allocated as final demands to the appropriate industrial sectors. These final demands, or direct sales, did not include the value of retail goods produced outside the region. Final demands, or direct sales, were further analyzed by IMPLAN in terms of their secondary impacts. This included the indirect sales from inter-industry trade and commerce within the region generated by direct sales and the induced sales from household consumption generated by the employment tied to direct and indirect sales. The combination of direct, indirect, and induced effects, was measured in terms of the total value of goods and services produced regionally, value added to the regional economy, and the annual employment attributed to direct and secondary activities. Value added represented the portion of total sales directed to employee compensation, proprietary income, property income, and indirect business taxes (Alward et al. 1993). Since the addition of total sales among various

sectors could include a "double count" (one sector's output revenue can represent another sector's input cost, and thereby would be included in its output revenue), the aggregation of value added omits this potential duplication and is a better net measurement of economic gain within a region. An important component of value added is the employee income garnered by the region's labor force. This benefit is measured by the number of jobs supported annually on a full-time and part-time basis.

Regional expenditures were entered into the model as final demands to particular regional industrial sectors. In the case of retail goods, these direct sales were less than the regional expenditure. This resulted from the model treating retail sales as margined sectors. In this situation, only the value added earned by the retail outlet was included, with the cost of the commodity directed back to the producing industry. That portion of commodity purchases coming from local industries was identified in the model as a Regional Purchase Coefficient (RPC).

In the case of antiques, since these commodities had not been recently produced, they were identified as a value transfer between or within sectors. Used and second hand goods have no direct economic impact originating from production. For example the sale of antique furniture, a second hand good, resulted in an exchange of capital but none of it was identified with an original producing industry. This was a unique characteristic of antiquing, with the actual commodity treated as a nonproductive industry. However, similar to other purchased goods, the value added by the retailer does represent a productive benefit to the economy. Additionally, transportation, lodging, food costs, and allied trip purchases, associated with the pursuit of antiques, are key contributors to total trip expenditures and also contribute to the economic impact of the activity.

Results

Total attendance at the four Antiquing Centers during 1994 was identified as 278,352 visitor days of use. Resident use was 55.1% of the total and non-resident was 44.9%. Of the non-residents, 24.4% came from other regions of Pennsylvania, and 20.5% were from out-of-state.

Retail visitors to Antiquing Centers averaged 1.4 recreational sites, including the Antiquing Center, on the day of their interview. Almost 67% of these visitors were solely tied to the activity of antiquing. As expected, non-residents made a greater use of overnight facilities, averaging two overnight stays during their regional visit, whereas resident overnight usage was negligible. The average group size for non-residents was 2.8 persons and for residents in the region it was 2.3 persons. In the region during 1993, residents averaged 25 days of antiquing and devoted about 14 days to other recreational activities. Non-residents averaged 5 days of antiquing in the region, with an additional 9 days devoted to other recreational pursuits.

Table 1. Total trip expenditures by residence and type of purchase.

Expenditure Type	Resident \$	Resident %	Non-Resident \$	Non-Resident %
Antiques	2,339,035	54.72	2,246,549	55.48
Transportation	247,069	5.78	242,014	5.98
Lodging	0	0.00	483,914	11.95
Food	499,268	11.68	613,360	15.15
Goods and Services	<u>1,189,180</u>	<u>27.82</u>	<u>463,226</u>	<u>11.44</u>
Totals	4,274,551	100.00	4,049,064	100.00

Trip expenditures for the entire retail audience averaged \$29.91 per activity day. Non-regional visitors spent 17% more on their trip than regional visitors. On the basis of types of expenditures made by non-regional visitors, the lead items were antiques (55.5%) and food-related costs (15.2%). Lodging, goods and services, and transportation represented 11.9%, 11.4% and 6.0%, respectively, of the total trip expenditure (Table 1).

Total annual regional expenditures for resident and non-resident visitors to the four Antiquing Centers was over \$8.3 million. The non-regional expenditures of \$4.1 million were introduced to the nine-county IMPLAN model, specific to the particular economic sectors receiving the payments.

Regional expenditures made by non-resident visitors to Antiquing Centers resulted in total sales impacts of \$4.3 million among regional businesses (Table 2). The direct sales accounted for 41.2% of this activity, with secondary impacts representing the remaining 58.8%. The value added component of total sales provided \$2.6 million to the local economy. Employee income constituted \$1.5 million of this regional benefit, and was distributed over 125 jobs. The wholesale and retail trade sector was the main beneficiary of this activity, receiving a value added benefit of \$1.1 million (Table 2). The services sector and the finance, insurance and real estate sector were the next two largest recipients, with value added of \$0.64 million and \$0.55 million, respectively. The impact realized by the finance, insurance, and real estate sector was from secondary sources, representing business and household demands for financial services and the household

sector's investment in personal real estate.

Conclusions

Antique markets have long been a part of the American scene. Antiquing is similar to "discretionary shopping" from the standpoint of representing a certain form of recreation. It was also felt that antiquing was a distinct recreational activity. The survey results substantiated this as 67% of the tourists were solely dedicated to antiquing on the interview day.

Antiques themselves differ from the majority of "discretionary shopping" items because they are not the result of standardized production and hence not available in the more dispersed retail outlets. Antiques also differ from most retail items because it is generally felt that people travel longer distances to find them since they are not essential to everyday living and are, in large measure, a unique fashion market (Edwards 1987). These notions were supported as 24.4% of the antiquing public came from other regions of Pennsylvania and 20.5% from out-of-state. This non-resident audience was consistent with other recreational activities in the region viewed as consistently drawing higher percentages of non-regional visitors (Strauss et al. 1994).

For the purposes of economic impact, antiquing also differs from other retail purchases in that the commodities are not a result of current production. These goods, produced in the distant past, represent a transfer from the previous owner to the purchaser, with the antique dealer acting as a go-between. As with other purchased goods, the value added by the retailer represents a productive benefit to the economy. However, the

Table 2. Total regional economic impacts of visitors to antiquing centers.

Industry	Direct Sales	Secondary Sales	Total Sales	Value Added	Employee Income	Employment # of jobs
Agriculture, Forestry, Fisheries	\$1,400	\$59,400	\$60,800	\$19,000	\$6,700	1.09
Mining	\$3,700	\$4,300	\$8,000	\$6,200	\$500	0.03
Construction	\$0	\$86,300	\$86,300	\$48,200	\$36,600	1.79
Manufacturing	\$11,100	\$285,900	\$297,000	\$102,900	\$65,500	3.13
Transportation, Commun., Utilities	\$13,400	\$131,900	\$145,300	\$66,600	\$39,100	1.65
Trade	\$1,308,800	\$393,900	\$1,702,700	\$1,117,600	\$719,400	76.68
Finance, Insurance, Real Estate	\$0	\$777,900	\$777,900	\$548,800	\$87,400	4.86
Services	\$429,800	\$718,700	\$1,148,500	\$642,700	\$474,200	34.90
Government	<u>\$6,000</u>	<u>\$77,900</u>	<u>\$83,900</u>	<u>\$46,700</u>	<u>\$34,200</u>	<u>1.00</u>
	\$1,774,200	\$2,536,200	\$4,310,400	\$2,598,700	\$1,463,600	125.13

value of the original item is merely a transfer without productive content. Usually, current prices represent the equilibrium established between the demand and supply schedules within the market. However, for antiques, the supply schedule is not directly dependent on the original costs of production but more on the willingness of current owners to part with their possessions. Thus, the original owner has given up a valuable asset, the antique, for an equally valuable asset, cash, with the only gain being capital liquidity.

The primary impact from antiques comes from the allied expenditures tied to the activity. For example, after antique purchases, food and lodging were the next highest trip expenditure category for non-residents at 15.2% and 12%, respectively. These create a direct value added gain to their respective sectors. Although antique purchases were the major portion of the trip expenditures, over 55%, the revenues received by Antique Centers for the commodities sold were not directed to any productive enterprise in the IMPLAN model. Additionally, as the antique was purchased or replaced by the dealer from the household sector or another dealer, there is a transfer of assets but the secondary effects from the commodity purchase are not considered by the model.

In assessing the relative importance of antiques to travel and tourism, a comparison was made between the 1994 retail antiquing activity and the 1993 impact study of all other recreation related activities. The total expenditures tied to antiquing were equal to or higher than fourteen other recreational activities. These included the following categories from the 1993 study: Agricultural and County Fairs, Amateur Sports, Animal Shows, Collector Shows, College Cultural Activities, College Sports, Entertainment, Historical Fairs and Festivals, Hunting, Indoor Sports, Machine and Equipment Shows, Music and Dance Festivals, Special Interest Events, and Winter Sports (excluding downhill skiing). However, five of these activities, Hunting, College Cultural Activities, Indoor Sports, Music and Dance Festivals, and Entertainment had higher total sales impact than antiquing largely due to the negligible impact of antiques upon various production sectors.

In summary, retail antiquing is an important contributor to the economic impact of tourism as visitors spend substantial sums in pursuit of these "nonproductive" items. Perhaps as important, the existence of the "Antique Centers" helps to create an environment that makes a region attractive to tourists. In light of the contribution of retail antiquing to the regional tourism economy, the centers must also be considered important members of the overall business community, particularly when the wholesale, mail order, and auction trade portions of their businesses are considered.

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RESIDENTS' ATTITUDES TOWARDS TOURISM: AN APPLIED STUDY IN A HISTORIC COMMUNITY

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The attitudes of residents of a small historic town towards tourism were investigated. Data were collected via a mail questionnaire from a convenience sample of 500 individuals. The results of this exploratory study showed that respondents felt that tourism has impacted the community in a positive way, overall. However, while the general overall perception was positive, there were discrete groups that differed in terms of their perceptions of tourism and its impact on the community.

Introduction

Sutton (1967) recognized the tourism encounter as a social exchange that "may provide either an opportunity for rewarding and satisfying exchanges, or it may stimulate and reinforce impulses to exploitation on the part of the host and, to suspicion and resentment on the part of the visitor" (in Ap, 1992, p. 667). Jordan (1980), in his study of Vacation Village, Vermont, found residents believed they were engaged in the "sale of their culture." In order to keep up with the expected public image, they created "pseudo-events," often much different from real life, for the benefit of the summer vacationers. Sutton (1967) and Jordan (1980), amongst others, have found the interactions and relationships that result from tourism bring about changes both to the experiences of the tourist and the lifestyles of the host community.

The impacts associated with being a host community within the tourism industry involve positive, negative and mixed results. Positive impacts are thought to be such things as an increase in opportunities for various forms of cultural exchange, increases in income and the quality of life, improvement in recreational facilities and infrastructure, and an improved image for the community. Boynton (1986), studying the Amish and tourism, found numerous benefits resulting from tourism, including

revitalizing ethnic arts and traditions. Esman (1984) also found that tourism can help to preserve a culture. In her study of Cajuns in Louisiana she found that as a result of tourism, Cajuns joined outside visitors as consumers of their own culture. "They acknowledge[d] the exotic nature of their culture and a desire to have it continue" (p. 464).

On the flip side of the coin, tourism is thought to bring about negative effects on a host community. Overcrowding, an increase in traffic, noise and crime levels are just a few examples of these negative effects (Perdue, Long and Allen, 1990; Ross, 1992). An increase in property taxes and the price of basic necessities have also been cited as negative consequences of tourism (Kariel, 1989).

Often times the effects of these changes, negative or positive, go unnoticed unless tourism planners take the time and effort to look around a community and ask questions regarding locals' perceptions toward tourism's impact. Discovering the opinions and attitudes that residents have toward the tourism industry can help in planning for future tourism development. Often times the success of an industry within the community greatly depends on the amount of support received from the residents. If the impacts are known and attitudes and perceptions of the host community are assessed then perhaps these impacts can be dealt with in a positive way. In addition, perhaps negative consequences can be diminished in order to achieve an understanding between the tourism industry and the host community.

Gettysburg: A Tourist Destination

The small town of Gettysburg, Pennsylvania, has dealt with the tourism industry for decades. Historic events that took place during the Civil War have put the little town on the map and brought thousands of tourists into the community each year. As a result, the Gettysburg community, although small, has grown substantially over the past several decades. This growth has included an increase in the amount of tourists visiting the area as well as an increase in the development of tourist-related attractions and facilities. These changes have no doubt affected residents in many ways.

In order to establish existing perceptions and attitudes toward tourism in the community it is necessary to study a sample of local residents. Thus, the purpose of this study was to investigate the attitudes of residents of Gettysburg, Pennsylvania, towards tourism and to examine whether their attitudes differed with respect to socio-demographic and behavioral variables.

Methodology

Data for the study were collected from a convenience sample of 500 individuals living within the Gettysburg, Pennsylvania area. A pilot study of the instrument was conducted two different times with a total of 12 individuals. The resultant study instrument consisted of a questionnaire that included questions designed to: a) ascertain residents' feelings towards tourism and its impact, b) deal with residents' contact with

tourists, c) assess residents' level of awareness about tourism, and d) document the socio-demographic characteristics of residents. The total sample (500 individuals) received one self-administered questionnaire and a follow-up postcard. The overall response rate was 48% (n=244).

Descriptive statistics were employed to demonstrate the frequency distribution of responses and the mean of each item. To determine whether there was a relationship between attitudes and socio-demographic and behavioral variables, one-way analysis of variance was used.

Results

Respondents felt that tourism has impacted Gettysburg in a positive way, overall. They were inclined to agree that tourism plays an important role in the growth and survival of their community's economy and that the benefit of tourism outweighs the costs. However, when asked to respond to a series of more specific statements designed to assess the social and cultural impacts of tourism on Gettysburg, results indicated that respondents perceive tourism has negatively impacted the amount of traffic congestion, the level of air pollution, and the incidence of crime. On the flip side, respondents felt that tourism has positively impacted the area by increasing natural and historic conservation activity, improving the character or image of Gettysburg, and by increasing the number of consumers in local stores and restaurants (see Table 1).

Relationships Between Socio-demographic Characteristics And Perceptions About Tourism

Age. There were significantly different relationships between the socio-demographic characteristic "age" and residents' perceptions towards tourism in Gettysburg (see Table 2). Individuals ages 25 to 34 differed significantly from individuals 55 and older. Overall, 25 to 34 year olds tended to perceive the amount of traffic congestion due to tourism as more negative than individuals 55 and older. In addition, individuals 35 to 44 and 45 to 54 perceived traffic more negatively than those within the 65 and older age group. With respect to respondents' perceptions of the commercialization of Gettysburg, individuals 35 to 44 and 45 to 54 were significantly more likely to view the commercialization of Gettysburg negatively than were individuals 65 years of age and older.

Education. There were significant differences found in the relationship between level of education and residents' perceptions toward tourism in Gettysburg (see Table 3). For example, there was a significant difference between individuals with less than a high school education and individuals with a college degree or higher with regard to their perception of the amount of traffic congestion due to tourism. Individuals with less than a high school education did not perceive that traffic congestion was as much of a problem in Gettysburg as did individuals with a college degree or higher.

Residents with a business or technical education were less likely to perceive the ability of residents to enjoy their own town due to tourism positively than those who had less than a

high school education. Individuals with less than a high school education were also less likely to perceive pollution of the local air due to tourism as a problem than many of their counterparts. The number of drunk driving accidents due to the tourism industry was perceived as more of a problem by those who fell into the high school, college and business education category than individuals with less than a high school education.

Individuals with a graduate degree were more likely to view the commercialization of Gettysburg due to tourism negatively than those with a high school, business or college education. Finally, participants with a college degree tended to perceive the range of products and services offered by local businesses due to the tourism industry as more positive than those who had an education level other than those given.

Table 1. Overall perceptions of residents towards tourism.

More specifically, has tourism impacted:	M*	SD	N
the amount of traffic congestion	2.44	1.37	237
the pollution of local air	2.78	.91	236
the occurrence of violent crimes	2.79	.74	234
the number of drunk driving accidents	2.83	.74	234
the incidence of theft, malicious damage, trespass, etc.	2.85	.79	238
the amount of litter along streets, roads and highways	2.86	.96	237
the local availability of illegal drugs	2.88	.84	233
your ability to live in privacy	2.95	.90	236
residents ability to enjoy their own town	3.13	1.04	238
the commercialization of Gettysburg	3.13	1.42	237
the development of local roads	3.25	.96	237
the provision of recreation facilities for local people	3.41	1.06	235
the friendliness of locals toward strangers	3.62	.97	237
the quality of life in this area	3.73	.94	235
the range of products and services offered by local businesses	3.79	.88	237
the amount of cultural exchange between people	3.80	.85	236
the interest in the work of local artists and traditional crafts people	3.97	.91	236
the amount of natural and historic conservation	4.12	1.00	235
the improvement of the character or image of Gettysburg	4.16	.85	237
the number of customers in local stores and restaurants	4.23	.92	236

* Mean rating for individuals who responded to a likert scale where "1" indicated very negatively and "5" indicated very positively.

Table 2. Relationship between perceptions and age.

Perception	Mean perception for each age category (in years)					
	18-24	25-34	35-44	45-54	55-64	65 & older
The amount of traffic congestion	2.50 ²	1.46 ^{abl}	2.02 ^c	2.21 ^d	2.76 ^a	3.24 ^{bcd}
	(n=2)	(n=26)	(n=53)	(n=56)	(n=41)	(n=59)
The commercialization of Gettysburg	2.50	3.12	2.76 ^a	2.75 ^b	3.35	3.70 ^{ab}
	(n=2)	(n=26)	(n=53)	(n=56)	(n=40)	(n=60)

¹ Means significantly different on the Scheffe test ($p < .05$) are noted by the same superscripts ($p=0.00$). For example, individuals 25 to 34 years of age significantly differed from individuals age 55 to 64 and 65 and older in their perception of the amount of traffic congestion attributed to tourism.

² Individuals responded to a likert scale which ranged from 1 to 5 with 1 signifying "very negatively" impacting and 5 representing "very positively" impacting.

Table 3. Relationship between perceptions and education level.

Perception	Mean perception by education level					
	< High School	High School	Business or Tech.	College Degree	Grad. Degree	Other
The amount of traffic congestion	5.00 ^{ab}	2.77	2.52	2.78 ^a	2.02 ^b	2.20
	(n=3)	(n=85)	(n=23)	(n=61)	(n=58)	(n=5)
Residents ability to enjoy their own town	5.00 ^{a1}	3.12	2.78 ^a	3.20	3.14	3.40
	(n=3)	(n=85)	(n=23)	(n=61)	(n=59)	(n=5)
The pollution of local air	4.67 ^{abc}	2.94	2.91	2.66 ^a	2.58 ^b	2.20 ^c
	(n=3)	(n=85)	(n=23)	(n=59)	(n=59)	(n=5)
The number of drunk driving accidents	4.33 ^{abc}	2.78 ^a	2.61 ^b	2.85 ^c	2.91	2.80
	(n=3)	(n=83)	(n=23)	(n=61)	(n=57)	(n=5)
The commercialization of Gettysburg	4.67 ²	3.42 ^a	3.57 ^b	3.34 ^c	2.36 ^{abc}	2.60
	(n=3)	(n=84)	(n=23)	(n=61)	(n=59)	(n=5)
The range of products and services offered by local businesses	4.67	3.60	3.87	4.00 ^a	3.85	2.60 ^a
	(n=3)	(n=84)	(n=23)	(n=61)	(n=59)	(n=5)

¹ Means significantly different on the Scheffe test are noted by the same superscripts ($p < .05$). For example, individuals with less than a high school degree significantly differed from those with a business or technical education on their perception of residents ability to enjoy their own town.

² Individuals responded to a likert scale which ranged from 1 to 5 with 1 representing a "very negative" impact and 5 representing a "very positive" impact.

Work or ownership of business in Gettysburg. Individuals who worked for or owned a business in Gettysburg differed significantly from those who did not with respect to their perception of the local availability of drugs and the amount of traffic congestion due to the tourism industry (see Table 4). Those who work or own a business tended to perceive the local availability of drugs more negatively than those who do not. Similarly, the amount of traffic congestion in Gettysburg due to tourism was perceived slightly more negatively by business owners and people who worked in Gettysburg than those who did not.

Level of economic dependence. The perception of the quality of life in the area and the development of local roads differed significantly with respect to the level of dependence on tourism (see Table 5). Individuals who were economically "very dependent" or "moderately dependent" viewed the quality of life in Gettysburg due to tourism more positively than those who were "not at all dependent" on tourism. Those "slightly dependent" on tourism perceived the development of local roads as more positive than those "not at all dependent" on tourism.

Table 4. Relationship between perceptions and work or ownership of business in Gettysburg.

Perception	Own or work for a business in the Gettysburg area	
	Yes	No
The local availability of illegal drugs	2.77 ^{a1}	3.02 ^{a2}
	(n=125)	(n=108)
The amount of traffic congestion ²	2.25 ^a	2.66 ^a
	(n=127)	(n=110)

¹ Individuals responded to a likert scale which ranged from 1 to 5 with 1 representing "very negatively" impacted and 5 representing "very positively" impacted.

² Means significantly different on the Scheffe test are noted by the same superscripts ($p=0.02$). For example, individuals who own or work for a business in the Gettysburg area differed significantly from those who don't work for or own a business in the Gettysburg area in their perception of the local availability of illegal drugs due to tourism.

Table 5. Relationship between perceptions and level of economic dependence on tourism.

Perception	Level of Dependence on Tourism			
	Very	Moderately	Slightly	Not at all
The quality of life in this area	4.33 ^{a1} (n=12)	4.17 ^b (n=23)	3.98 (n=42)	3.56 ^{ab} (n=158)
The development of local roads	3.50 ² (n=12)	3.39 (n=23)	3.64 ^a (n=42)	3.11 ^a (n=160)

¹ Individuals responded to a likert scale ranging from 1 to 5 with 1 representing "very negatively" impacted and 5 representing "very positively" impacted.

² Means significantly different on the Scheffe test are noted by the same superscript ($p < 0.05$). For example, individuals who were very economically dependent on tourism differed significantly from those who were not in their perception of the quality of life in the area.

Relationship Between Perceptions About Tourism And Behavioral Characteristics

Those involved in some respect within the community were more likely to perceive that tourism has positively impacted the community in terms of the quality of life, the amount of cultural exchange, the interest in the work of local artists and traditional crafts people, the ability to live in privacy, the residents' ability to enjoy their own town and the provision of recreation facilities than those not involved in the community (Table 6). The opposite was true with respect to the commercialization of Gettysburg. Individuals involved with the community perceived the commercialization of Gettysburg more negatively than those not involved in the community.

Table 6. Relationship between perceptions and community involvement.

Perception	Mean perception by involvement in community organization, committee or board	
	Yes	No
The quality of life in this area	3.89 ^{a1} (n=113)	3.59 ^{a2} (n=120)
The amount of cultural exchange between people	3.94 ^a (n=113)	3.67 ^a (n=121)
The interest in the work of local artists and traditional crafts people	4.09 ^a (n=114)	3.84 ^a (n=120)
Your ability to live in privacy	3.09 ^a (n=113)	2.86 ^a (n=121)
Residents ability to enjoy their own town	3.31 ^a (n=114)	2.98 ^a (n=122)
The provision of recreation facilities for local people	3.65 ^a (n=114)	3.19 ^a (n=120)
The commercialization of Gettysburg	2.91 ^a (n=114)	3.33 ^a (n=121)

¹ Individuals responded to a likert scale ranging from 1 to 5 with 1 representing "very negatively" impacting and 5 representing "very positively" impacting.

² Means significantly different on the Scheffe test are noted by the same superscripts ($p < 0.05$). For example, individuals

who are involved in a community organization, committee or board differed significantly from those who were not involved in a community organization in their perception of the quality of life in the area due to tourism.

Discussion And Implications

The fact that residents were not negatively inclined overall towards tourism was surprising. Perhaps this finding is due to the fact that host communities go through life cycle stages; as a community or the attractions within it evolve, so too do the feelings of local residents (Martin and Uysal, 1990; Nemathy, 1990). Perhaps as Johnson, Snepenger and Akis (1994) argue, "as long as tourism development remains in balance with other economic sectors of the economy, residents perceive that tourism benefits them" (p. 639). But, this theory assumes that residents of host communities are homogeneous. The results of this study don't support that contention. While residents are generally positive overall, there are discrete groups that differ in terms of their perceptions of tourism and its impact on the community.

Research conducted by Perdue, Long and Allen (1990) found that there were no significant relationships between socio-demographic characteristics and perceptions of the impact of tourism. This study found the opposite. Differences were observed with regard to age, level of education, and type of business involvement.

The results of this study supported the work of Canedy and Zeiger (1991) who found that people employed in the tourism industry identify impacts of tourism significantly more strongly than those who are not employed in the industry. In addition, this study found that individuals involved in their community as a board member or a member of an organization, for example, were more inclined to cite the positive benefits of tourism.

As indicated previously, the results of this study suggest that communities such as Gettysburg may have a "life cycle effect" impacting the perceptions of residents towards tourism. Recognizing this fact, planners should keep residents apprised of their efforts to minimize impacts not only in the beginning stages of tourism development within a community but throughout the community's life cycle. This type of effort should minimize negative perceptions towards tourism within a community.

In addition, it appears that there are discrete groups within a community that differ in terms of their perceptions of tourism and its impact on the community. Again, planners would be well advised to include groups that may respond more negatively towards tourism in their planning meetings or through, for example, direct mail efforts. Residents are the ambassadors for a travel destination; if they feel positively about tourism their "word of mouth" advertising will do more to benefit the tourism effort than any advertising campaign.

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THE RURAL ACTION CLASS'S PERCEPTIONS OF RURAL TOURISM IN RELATION TO THEIR SENSE OF PLACE—AN EXPLORATORY STUDY

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Tourism developers too often neglect to include a 'sense of place' component in their development efforts. This study examines the rural action class's perceptions of rural tourism in relation to their sense of place. Variations in multiple senses of place were found to exist. Implications for rural tourism development are discussed.

Introduction

Tourism development is being promoted as a viable economic development strategy to help stabilize, diversify, and improve the local economies of struggling rural communities (Brown 1992; Stokowski 1992). It has the potential to help improve the quality of life for rural residents by contributing to the viability and sustainability of rural communities and to the overall process of community development (Burr and Walsh 1994). However, community tourism planners and developers have been criticized for too often neglecting to include a 'sense of place' component of communities in their development efforts (Potts, Backman, Uysal and Backman 1992). Inappropriate tourism development can destroy the very resource amenities and sense of place that made or may make a rural community an attractive tourist destination. Conversely, when practically planned and managed with the support, involvement, and cooperation of indigenous leaders, designated here as members of the rural action class, rural tourism development can provide the basis for the improvement of quality of life related attributes that are desired by every community and perhaps maintain or even enhance residents' sense of place.

The concepts of place and sense of place are very broad, dealt with loosely and in many ways in different sorts of literature, and are often vague, confusing and nebulous. However, people often develop their own sense of place and certainly express their personal attachments to specific kinds of places, landscapes, and environments in very real ways. Sense of place can be viewed as the complex bundle of meanings, symbols, and qualities that an individual or group associates, consciously or unconsciously, with a particular locality or region (Shamai 1991). Although sense of place "consists of knowledge, belonging, attachment, and commitment to a place" (p. 354), it is a much more complicated phenomenon since the essence of

sense of place lies in the beholder's senses and mind. It depends on many variables which are often difficult or even impossible to explain and to research. The term 'sense of place' is problematic since it is currently an abstraction (Stokowski 1991). An individual's or group's sense of place may be inferred, but it is certainly difficult to observe and perhaps even more difficult to measure. Phenomenological theorizing is one sociological approach that has often been used in the 'sense of place' literature. The focus of phenomenology is on understanding the internal subjective experience associated with observable reality (Henderson 1991) by directly investigating and describing phenomena as consciously experienced, without theories about causal explanations and as free as possible from unexamined preconceptions and presuppositions (Speigelberg 1975).

Through direct investigation, sense of place has been found to be comprised of multiple senses of place (Eyles 1985; Perkins 1988). Sense of place becomes evident at the individual level, and individual senses of place vary and are "a product of a unique mixture of location, personal characteristics, circumstances, place-in-the-world and place in the social and economic order" (Eyles 1985, p. 137). In other words, differing senses of place occur for the same place for different individuals.

Eyles (1985) identified ten dominant and interrelated senses of place in his empirical study of the residents of Towcester, England. According to Eyles, a 'social' sense of place is one dominated by the importance attached to social ties and interaction. Place has little meaning without reference to these social ties and interactions. An 'apathetic-acquiescent' sense of place may be regarded as no sense of place at all. An individual may have little interest in or commitment to a place or experience feelings of powerlessness in shaping the course of life events. An 'instrumental' sense of place is defined as seeing place as a means to an end. The place becomes significant in the way it provides or does not provide goods, services and opportunities. A 'nostalgic' sense of place is one dominated by feelings towards the place at some time other than the present. Positive or negative feelings about the place are based on the past, and shaped by particular events that occurred in the past that color and define an individual's current appreciation of the place.

The six remaining senses of place may represent sub-categories of the four major ones, but Eyles felt that they were sufficiently distinctive to describe separately. A 'commodity' sense of place is dominated by a search for some 'ideal' place to live. The actual place of residence may be relatively unimportant, but importance of place remains high for what it should be in terms of providing quiet, peace, safety, certain facilities, or types of people. Place becomes a commodity not only in the sense of being buyable and sellable but also usable. Similar to the 'commodity' sense of place is the 'platform' or 'stage' category. This refers to those who see where they live as a platform or stage on which to act out their lives. According to Eyles, it may refer to some type of 'ideal' picture of place, but this sense of place is not as commodified as that of the previous category. Here, residents are more likely to search for and find lasting

attachment to place and people, and it is the interaction in a particular place rather than the place itself that remains dominant. 'Family' sense of place is defined in terms of immediate family connections, often nuclear but sometimes extended. Feelings about a place are shaped by the nature of family relationships and therefore, family life and how a particular place affects family life are seen as central life concern. In 'way of life' sense of place the social dimension is important, but sense of place is derived from more than social activities. An individual's whole way of life is bound up in the place in terms of jobs, friends, and associational life, and therefore there is a strong sense of belonging. Closely related to this sense of place is one based on 'roots'. According to Eyles, this rootedness usually takes the form of family-ties in the place, so a sense of belonging seen in terms of continuity and tradition is added to familiarity which comes from basing much of one's life in a specific place. 'Roots' represents an authentic attitude to place. Individuals belong to a place without really thinking about it or articulating their belonging. They simply feel and are 'at home'. Lastly, with an 'environmental' or 'landscape' sense of place, the importance of place in its own right may be seen. The place is not important for its social, familial or traditional meanings, but as an aesthetic experience. The place is not a stage for acting out roles or life-style or way of life, nor is it a commodity to be used. Rather the place is to be lived in itself. Although living is done with others, the place is more than a backdrop to social or economic activities.

These ten interrelated elements of sense of place, or multiple senses of place, suggest ways in which individuals conceive of and pattern places, and suggest that there is great variety in which such conception and patterning occur. Although place, location, or where a person lives has an impact on life itself, personal circumstances and characteristics shape the significance of place to the individual.

Purpose of the Study

What elements of sense of place are evident among members of the rural action class? How do variations in sense of place affect these individuals' perception of rural tourism and tourism-related development? Do members of the rural action class perceive such development as a threat to their sense of place and quality of rural life or as something which can maintain or even enhance these? The purpose of this exploratory study is to investigate these questions by examining the rural action class's perceptions of rural tourism and tourism-related development in relation to their sense of place.

Methodology

Four Pennsylvania counties, each having a 1990 population over fifty percent rural, were selected from different geographic regions of the state for in-depth case studies of tourism's role as an economic development tool. Although geographic distribution across the state was an important factor in the selection of the counties, other variables were also of importance. These included some variation among the four

counties in total land area, population, population density, population change, percent of the population considered to be rural, age composition of residents, per capita and median income, education, and current unemployment rate. Also of interest were county variations in past and present dependence on tourism, current tourism development efforts, different types of tourism present (e.g., natural resource, outdoor recreation, historical heritage, cultural heritage, special event), and both tourism-related and non-tourism-related economic development activity.

Within each county, key informant interviews were conducted with a wide variety of individuals who could be characterized as members of the rural action class. These individuals were leaders in county, city, borough and township government, governmental agencies, and other public and private agencies, companies, and organizations. Other key informants were involved in certain media-oriented businesses, such as newspapers and radio. Although some of these individuals were professionally associated with tourism-related efforts and initiatives, such as an Executive Director of a Tourism Promotion Agency, most were not. Additionally, a modified "snowball" technique was employed through these key informant interviews to identify other individuals for further contact about local tourism-related efforts. In addition to identifying other key informants, this technique was especially useful in locating individuals involved in a tourism-related business or voluntarily involved in a special initiative or project related in some way to tourism development. Because these individuals were involved with a specific tourism action, they were distinguished as action informants.

An instrument was developed for the purpose of interviewing both key and action informants in the four counties. The interview instrument design was semi-structured and consisted of open-ended questions related to topics of interest which enabled the researcher as an interviewer to probe for elaboration and clarification of informant responses. The instrument was pilot tested in one rural county, and after some minor modification of format was subsequently used in the three other counties. Overall, 43 individual key and action informant interviews were conducted in the four counties over a sampling time frame of approximately five months during the first half of 1993.

The raw data for this study are the field notes and tape records compiled from the key and action informant interviews conducted in the four rural counties. All field notes and tape records were transcribed into a standardized format in order to facilitate data analysis. These were then qualitatively analyzed through a comparative content analysis by noting certain recurring themes, similarities, and differences which were evident among the responses of different informants.

Findings

The Rural Action Class's Perceptions of Tourism

Based on informant responses to the question, "In your opinion, what is the future role of tourism in this county's economy?",

tourism perception types of informants were identified. As presented in Table 1, well over half of the key and action informants in the four counties were characterized as being strongly optimistic or optimistic about the future role of tourism in their county's economy. Slightly over one-quarter of the informants were somewhat optimistic or hopeful. Only six of the forty-three informants were uncertain or unsure, or pessimistic or negative about tourism's future role. It is noticeable in the overall sample that the different tourism perception types of informants occurred for both key and action informants, except for the uncertain/unsure of the future type where there were no action informants.

Table 1. Key and action informant responses to the question: "In your opinion, what is the future role of tourism in this county's economy?"

Tourism Perception Types of Informants	Frequency of Responses		
	KI/AI ^a	TOTAL	%
Strongly Optimistic	12 KI 7 AI	19	44.2
Optimistic	6 KI 1 AI	7	16.3
Somewhat Optimistic/Hopeful	9 KI 2 AI	11	25.6
Uncertain/Unsure of the future	2 KI 0 AI	2	4.6
Pessimistic/Negative	3 KI 1 AI	4	9.3
TOTAL	32 KI 11 AI	43	100

^aKI: Key Informant; AI: Action Informant.

Multiple Senses of Place

A summary of the elements evident in the key and action informants' sense of place is presented in Table 2. Multiple senses of place are evident among these members of the rural action class. Clearly evident are strong commodity and social senses of place in informants in all four counties. There is much more variation in family and roots senses of place, although with over forty-six percent of the informants having lived all of their lives in their county it is surprising that these senses of place are not stronger or more in evidence in the overall sample. Roots sense of place is even less in evidence in informants in the counties. An environmental or landscape sense of place is clearly evident among informants in all four counties, expressed by twenty-three of forty-three informants. What can be termed a heritage/legacy sense of place, rather than nostalgia, is only somewhat in evidence, represented weakly in only eight of the informants.

Table 2. Elements evident in key and action informants' sense of place.

Senses of Place Evident In Informant Responses	Frequency of Responses ^a	
	N=43	(%)
Commodity	43	(100)
Social	36	(84)
Family	16	(37)
Roots	10	(23)
Environmental/Landscape	23	(54)
Heritage/Legacy	8	(19)

^aResponses do not total 100% because of multiple responses by informants.

Variations in Informants' Sense of Place and Their Perceptions of Tourism

It is evident that there are multiple senses of place embraced by members of the rural action class in the four counties. Although some of these multiple senses of place are more in evidence than others for certain individuals, admittedly it is difficult to get a feeling for the strength, intensity, or dominance of one particular element in an individual's overall sense of place. However, of interest are possible variations in the evidence of the sense of place elements among different members of the rural action class in relation to their different perceptions of tourism and tourism-related development. Also length of residence is one particular variable to examine for associated variation since it is an important variable associated with one's sense of place.

Tables 3 and 4 present data on the elements evident in key and action informants' sense of place in relation to the characterization of their perceptions of tourism and to their length of residence. Informants' perceptions of tourism are based on the previously developed typology which characterizes informants as strongly optimistic, optimistic, somewhat optimistic or hopeful, uncertain or unsure, or pessimistic or negative about the future of tourism in their county. In both Tables 3 and 4, the different types of strongly optimistic and optimistic have been collapsed into one optimistic category for sake of clarity.

In looking at the data displayed in Table 3 for the overall sample in the four rural counties, commodity sense of place is again universally present among all tourism perception types of informants. Although there is bit more variation in social sense of place, it too is strongly evident for all types. Both family and roots senses of place are much less in evidence for both the optimistic and somewhat optimistic/hopeful tourism perception types of informants. However, family sense of place is found to be evident in two out of three of the uncertain/unsure and two out of four of the pessimistic/negative tourism perception types of informants. A roots sense of place is evident for two out of four of the pessimistic/negative tourism perception types of informants, but not noticeable at all

Table 3. Elements evident in key and action informants' sense of place in relation to informants' (n=43) perceptions of tourism.

Senses of Place	Optimistic (n=26) 26%	Somewhat Optimistic/ Hopeful (n=10) 10%	Uncertain/ Unsure of Future (n=3) 3%	Pessimistic/ Negative (n=4) 4%
Commodity	22	7	3	3
Social	8	4	2	2
Family	6	2	0	2
Roots	17	3	2	1
Environmental/ Landscape	4	4	0	0
Heritage/Legacy				

in the uncertain/unsure type. An environmental/ landscape sense of place is clearly evident in almost two-thirds of the optimistic tourism perception types and in two of the three uncertain/unsure of the future types, but not that noticeable in the two other types. Finally, a heritage/legacy sense of place is found to be evident in four out of ten of the somewhat optimistic/hopeful tourism perception types of informants, but only found in four of the twenty-six optimistic and in neither of the other two types.

In Table 4, the different tourism perception types of informants are divided into two further categories based on length of residence. Length of residence is divided into those individuals living less than twenty-one years in their county and those living there twenty-one years or longer, which includes all those living their entire life in their county. The different elements of sense of place were then examined in relation to the tourism perception type and length of residence for each informant. Family and roots senses of place are much less in evidence for those individuals living less than twenty-one years in their county across all tourism perception types of informants, except for one informant with a strong family sense of place in the uncertain or unsure type. This finding is not too surprising since one would surmise that individuals living twenty-one years or longer or spending their whole lives in

their county would have extensive family and kinship ties and roots in their place. An environmental or landscape sense of place is much more in evidence across all tourism perception types of informants for those individuals living less than twenty-one years in their county than those living there twenty-one years or longer. However, this sense of place is also evident for seven of the fourteen individuals living in their county twenty-one years or longer and characterized as optimistic. A heritage or legacy sense of place is hardly evident for the optimistic tourism perception types of informants, but is more in evidence for the somewhat optimistic/hopeful types, especially in two of the three informants living less than twenty-one years in their county. It is not evident at all in the uncertain/unsure nor pessimistic/negative tourism perception types of informants.

Discussion

Overall, the main variations in the different elements evident in informants' sense of place, in relation to informants' length of residence and the developed typology of different tourism perception types of informants, appear to be associated with family, roots, and environmental/landscape senses of place. Those informants living less than twenty-one years in their county do not have nearly as evident a family or roots sense of place than those living twenty-one years or longer or their

Table 4. Elements evident in key and action informants' sense of place in relation to informants' (n=43) length of residence and perceptions of tourism.

Senses of Place	Optimistic		Somewhat Optimistic/Hopeful		Uncertain/Unsure of future		Pessimistic/Negative	
	<21years (n=12) 12%	21+ years (n=14) 14%	<21years (n=3) 3%	21+ years (n=7) 7%	<21years (n=1) 1%	21+ years (n=2) 2%	<21years (n=0) 0%	21+ years (n=4) 4%
Commodity	9	13	2	5	1	2	0	3
Social	2	6	0	4	1	1	0	2
Family	1	5	0	2	0	0	0	2
Roots	10	7	2	1	1	1	0	1
Environmental/Landscape	1	3	2	2	0	0	0	0
Heritage/Legacy								

entire life there. Those informants living in their county less than twenty-one years appear to have a stronger environmental/landscape sense of place than those with twenty-one years or longer of residence. Although these variations appear to exist based on length of residence, it is difficult to find them more in evidence for certain tourism perception types of informants than for others, since variations are distributed across all types.

It is evident here that it is difficult to perceive a place being unique or distinctive when one has lived there all of one's life and experiences most everything as ordinary. Long-time residents do have family and roots senses of place evident in their overall sense of place, but do not perceive these to be especially unique or distinctive to place nor necessarily associated with the potential for tourism development. On the other hand, shorter-term residents are very aware of the uniqueness and distinctiveness of the environment and landscape of their place, perhaps because they still experience it as special or out of the ordinary. Consequently, they are perhaps more aware of development potential for tourism on the one hand, but also more aware of the need for the protection and preservation of tourism resources associated with an environmental/landscape sense of place.

It is surprising that a heritage/legacy sense of place is not more in evidence in the rural action class's overall sense of place across the different tourism perception types of informants. It is only evident in eight of thirty-six informants in the optimistic and somewhat optimistic/hopeful tourism perception types of informants. Of these eight informants, five have lived in their rural county for twenty-one years or longer, which might indicate that a longer length of residence may be associated with a stronger heritage/legacy sense of place. However, the majority of informants have lived twenty-one years or longer in all four counties. Heritage tourism, as a type of tourism present, was identified by informants in three of the four counties, and some tourism development of heritage resources is occurring at varying levels in all of these counties. However, evidence of a heritage/legacy sense of place is not strong, and consequently there may be some missed opportunities for the development of heritage resources for tourism because of this.

Perhaps with a larger sample of rural action class members and other residents there would be more distinct variations in senses of place evident across different tourism perception types of informants. Again, the majority of the particular sample examined in this study expressed positive levels of optimism about rural tourism and tourism-related development. There may be many more less optimistic rural action class members and other residents than found in this particular sample. Additionally, there was no large-scale tourism development, such as a major resort or theme park development, occurring in these four rural counties chosen for study. Perceptions may have been different had this been taking place in any of the four counties. Yet, the number of members of the rural action class which perceive rural tourism positively with varying levels of optimism in this sample is still striking.

At issue is whether rural tourism, deliberate efforts to pursue rural tourism development, and people's sense of place are inherently compatible with one another. It is problematic whether or not sense of place is maintained, enhanced, or harmed in the process of rural tourism development. The findings of this particular study are not conclusive in addressing this particular issue, since a definitive yes or no answer is not possible. However, based on informant responses reflecting perceptions of the future role of tourism in their county, and meaning and senses of place, it is evident that there is some connection between rural tourism development and sense of place. From findings of a larger study of which this study is part, rural tourism was perceived by these members of the rural action class to contribute to the high quality of life, to increase enthusiasm, pride, self-awareness and self-esteem, and to allow residents to keep their history and way of life going. Rural tourism has motivated a lot of community groups to form partnerships and interact to develop tourism. It has increased resident awareness of the quality of the environment—the rural landscape, open spaces, and natural resources—and helped to preserve a certain sense of character and history. Tourism has also positively stimulated rural economies, creating jobs, income, and other benefits for rural residents. Could one say that there is the perception that rural tourism contributes to or even enhances a sense of place?

It remains to be seen or discovered just exactly how rural tourism developers and planners can include a sense of place component in their development efforts in order to improve the quality of life of the individuals living in a rural community. Although it may be possible to envision rural tourism development maintaining or enhancing an individual's environmental/landscape or heritage/legacy sense of place, issues and challenges associated with the maintenance and enhancement of social, way of life, family, and roots senses of place appear to be more complex.

It has been said that tourism can, if correctly planned and managed, provide the basis for the improvement of the quality of life related attributes that are desired by every community. However, as this study has shown, this is an extremely complex issue in terms of understanding the unique aspects and experiences that contribute to rural residents' special sense of place, meaning of place, and quality of life. Hopefully, this study has been one step in improving the understanding of the importance and relevance of these sense of place components in rural tourism and tourism-related development with respect to truly benefiting rural communities and their residents.

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RECREATIONAL TRAILS

DIFFERENCES BETWEEN RAIL-TRAIL USERS AND GENERAL TRAIL USERS OF A NATIONAL RECREATION AREA.

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This study examined differences in trip related expenditures between rail-trail users and general trail users. While there was no statistically significant difference in overall trip expenditures, group means were different enough to be relevant for recreation area managers. Rail-trail users spent significantly more on specific expenditure categories such as hotel/motels and restaurants. Managers who wish to increase the economic impact of tourism for local communities may want to emphasize the rail-trail setting in their marketing efforts.

Introduction

The growth and development of rail-trails continues to be an American success story. As of March 1995, there were existing 647 rail-trails and 692 rail-trail development projects nationwide (Burwell, 1995). Research has been quick to respond to this growth by exploring rail-trail benefits, its users, and its tourism development potential. Several of these studies (Moore, Graefe, Gitelson, & Porter., 1992; Roggenbuck & Stubbs, 1990; Lawton, 1986) have looked at the economic impact of rail-trails as part of their research. Much of this research has concluded that rail-trails do provide communities with a variety of primary and secondary tourism dollars.

Rail-trail specific research has been needed due the rapid growth and use of this "new" type of trail setting. Examining the economic benefits of rail-trails helps justify their development and gives managers and community leaders a better understanding of how the local economy might be affected. The prominence of rail-trail research, however, may unintentionally suggest to managers that this setting should receive priority when planning tourism efforts. In their attempts to enhance local economies, recreation managers may

overlook other types of trail opportunities such as nature trails, national trails, back-country trails, and waterways.

Currently, no research exists on the economic impact of rail-trails relative to other types of trail opportunities within a particular area. This type of information would be helpful for managers who have both types of trails within their jurisdiction or region. In order to examine the relative differences in economic impact between rail-trails and other trail opportunities, this study compared overall trip expenses and specific types of expenditures between rail-trail users and other general trail users within a USDA Forest Service National Recreation Area. Findings should help recreation area managers understand how rail-trails and general trails differ with respect to the economic impact on local communities and what marketing strategies should be used.

Methods

The data for this study was obtained from a comprehensive research project conducted at the Mount Rogers National Recreation Area. Funding was provided by the U.S. Forest Service. Research objectives for the larger project included gathering information pertaining to current users, use patterns, economic expenditures, and preferences for management. The project involved data collection from May through October, 1993 and included sampling sites such as campgrounds, day-use areas, parking areas, and several trail access points.

The Study Area

This study compared differences in trip expenditures between users of a rail-trail, the Virginia Creeper Trail, and users of other National Recreation Area trails. Trail users were contacted at trail heads and camping locations within the Mount Rogers 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. Its location in the mountainous regions of Southwest Virginia make it an excellent setting which to enjoy a variety of outdoor experiences ranging from hiking, nature study, auto touring, and developed to primitive camping.

The Virginia Creeper Trail is partially situated within the boundaries of the Mount Rogers National Recreation Area. The entire trail stretches for 34 miles from the town of Abingdon, Virginia eastward to the North Carolina state line. The surface is a combination of dirt and cinder throughout most of the National Recreation Area. Approximately half of this rail-trail lies within the Mount Rogers National Recreation Area and is managed by the U.S. Forest Service. All non-motorized trail use is permitted including horseback riding, bicycling, cross-country skiing, and walking/running.

Data Collection Procedures

This study utilized both a brief on-site interview and a mail survey. Trail users within a randomized time block were stopped and asked to participate in the study. Those who agreed to participate provided answers to a few short 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.

The response rate for Virginia Creeper Trail Users was 66% with a usable sample of size of 101, while the response rate for other Mount Rogers trail users was 62% with a sample size of 134. Data collection started in mid May, 1993 and ended in mid October, 1993. Specific sample times and locations along the Virginia Creeper Trail and at other spots within the Mount Rogers National Recreation Area were chosen in a systematic way to obtain as representative as possible a sample of users. Interviewers contacted as many trail users that they were able to during a time block randomly assigned to a given weekday/weekend in a particular month. Total Virginia Creeper Trail sampling time for each month was 240 hours. Total Mount Rogers sampling was 550 hours.

Instrumentation

Expenditures were measured in a variety of ways. First, overall expenditures were obtained by asking respondents to indicate the dollar amount spent on every trip related expense from the time they left home until the time they returned home. Specific expenses on a variety of trip related variables were also assessed. Here, respondents were asked to indicate the amount that they spent on restaurants, food and beverage in retail stores, other retail purchases, camping fees, hotel accommodations, auto expenses, and other fees. Respondents were asked to indicate the amount spent on each of these items within two different zones. Zone A included the area on the border of and within the Mount Rogers National Recreation Area. Zone B included the areas outside Zone A, but within and along Interstates 77 and 81 within Virginia. Group size and length of stay were controlled for in all expenditure analyses.

Treatment of the Data

The recreation setting class was the dependent variable for statistical analyses. The setting class was divided into Virginia Creeper Trail use and general Mount Rogers trail use. Trip expenditures were the independent variables. Since

expenditures were measured intervally, t-tests were the statistical tool utilized to test for differences between the two trail user groups. All analysis was carried out using the Statistical Package for the Social Sciences (SPSS PC+) software.

Results

Aggregate trip expenditures were assessed by asking respondents to estimate the total amount of money that they spent on their trip to the Mount Rogers region. Expenditures were assessed on a per person, per day basis. Results of total trip expenditures do not reveal statistically significant differences between the two trail groups ($t\text{-value} = 1.65$, $\text{sig.} = .10$). Even though not statistically different, Virginia Creeper Trail users have higher expenditure averages per person per day than do Mount Rogers trail users with a mean of \$49.20 vs. \$31.30 (Table 1).

A more detailed investigation into specific expenditure types asked respondents to indicate the amount that they spent on expenses such as: restaurants, food/beverage in retail stores, retail purchases excluding durable equipment purchases, lodging, gas and automobile expenses, fees at other attractions or for other entertainment, and all other expenses. Respondents were asked to divide their trip expenses according to what they spent in the Mount Rogers National Recreation Area (Zone A) and what they spent inside and along the I-81 and I-77 corridor (Zone B). Analysis was first performed on the combination of zone expenditures in order to gain an assessment of total regional expenses. Further analysis looked at expenses in Zone A and Zone B separately in order to detect any differences patterns by zone.

Analysis of specific expenses throughout the entire region revealed that Virginia Creeper Trail users tend to spend more on restaurants than Mount Rogers trail users with a $t\text{-value}$ of 2.89 ($\text{sig.} = .01$). Virginia Creeper Trail users spent an average of \$9.10 per person per day while other Mount Rogers trail users spend an average of \$2.20 per person per day (Table 2). Virginia Creeper Trail users also spent more on hotel accommodations than did Mount Rogers trail users with means of \$6.90 and \$.50, respectively ($t\text{-value} = 2.99$, $\text{sig.} = .00$). No differences with respect to purchases in retail stores, camping fees, gas/oil, auto repairs, parking fees, and other expenses were found.

The different zones (Zones A & B) were combined in the previous analyses, yet they appeared to provide different service/amenity opportunities. For example, Zone A had a higher number of campgrounds thus it could have offered more opportunities for camping while Zone B had a higher number of hotel/motel accommodations thus possibly providing more opportunities for hotel accommodations. One might then

speculate whether expenditure findings would be different if the two zones were assessed separately. To assess whether specific expenditure differences were a function of spending opportunities in the various areas, this study analyzed Zones A & B were separately.

Differences in expenditures between groups with respect to purchases made in the Mount Rogers National Recreation Area (Zone A) and in the I-81/I-77 (Zone B) corridor were not as strong as the combination of zones. Patterns of differences, however, still followed the same basic trends as both zones

exhibit significant differences on the same types of expenses as the combination of zones. With regard to zone to zone comparisons, stronger differences between the two trail user groups were found within the interstate corridor (Zone B). For example, expenditures on restaurants and hotels are higher in the I-77/I-81 corridor for Virginia Creeper Trail users (See Tables 3 and 4). This finding is not surprising when one considers the possibility that a higher amount opportunities for hotel accommodations, restaurant dining, and automobile services exist in this zone. Conversely, camping expenses were less in Zone B than in Zone A. Differences between the trail

Table 1. Differences in total trip expenditures.

Total Trip Expenditures	Virginia Creeper Trail (n=86)		Other Trails (n=112)		D.F.	t-value	sig.
	mean	S.D.	mean	S.D.			
Expenses per individual per day	49.2	92.7	31.3	59.3	117	1.65	.10

Table 2. Differences in specific types of expenses, Zones A & B combined.

Type of Expenditure	Virginia Creeper Trail (n=101)		Other Trails (n=134)		D.F.	t-value	sig.
	mean	S.D.	mean	S.D.			
Restaurants	9.1	23.3	2.2	6.7	113	2.89	.01
Food in retail store	3.4	7.6	3.1	5.1	164	0.39	.70
Retail purchases	3.6	12.0	1.6	4.5	121	1.64	.10
Hotel/Motel	6.9	21.4	0.5	3.6	104	2.99	.00
Camping	2.1	6.7	2.4	3.4	138	-0.37	.71
Gas and oil	4.8	3.3	3.3	4.6	233	1.82	.07
Repairs/service	0.4	3.9	0.1	1.2	113	0.89	.37
Other fees	0.7	3.0	0.1	0.5	104	1.88	.06
All other expenses	1.6	6.5	1.1	7.1	225	0.54	.59

Table 3. Differences in specific expenditures, Zone A (Inside the Natl. Rec. Area).

Type of Expenditure	Virginia Creeper Trail (n=101)		Other Trails (n=134)		D.F.	t-value	sig.
	mean	S.D.	mean	S.D.			
Restaurants	3.8	12.7	1.0	2.8	108	2.31	.02
Retail Food	1.8	4.4	2.0	4.3	233	-.29	.77
Other Retail	2.1	8.6	1.1	3.8	129	1.10	.27
Hotel/Motel	3.2	14.7	.23	2.3	104	2.07	.04
Camping	2.0	6.6	2.3	3.4	233	-.41	.68
Gas and oil	2.5	5.4	1.7	2.8	233	1.51	.13
Repairs/service	.10	0.8	.08	1.2	233	-.18	.85
Parking/tolls	.16	1.6	.06	0.4	107	.62	.54
Other fees	.23	1.6	.05	0.3	108	1.27	.21
Other expenses	1.0	4.4	1.0	7.1	233	-.03	.98

Table 4. Differences in specific expenditures, Zone B (I-77/I-81 Corridor).

Type of Expenditure	Virginia Creeper Trail (n=101)		Other Trails (n=134)		D.F.	t-value	sig.
	mean	S.D.	mean	S.D.			
Restaurants	5.2	12.5	1.3	6.1	136	2.90	.01
Food in Retail	1.6	4.6	1.1	3.0	161	.97	.33
Other Retail	1.5	6.7	.47	2.6	123	1.48	.14
Hotel/Motel	3.6	14.4	.27	2.4	104	2.33	.02
Camping	.09	.92	.09	.58	233	.02	.98
Gas and oil	2.3	4.7	1.6	3.8	233	1.17	.24
Other fees	.43	2.4	.04	.42	105	1.63	.11
Other expenses	.60	3.2	.10	.72	107	1.53	.13

users with respect to camping expenses in both zones were not statistically different as demonstrated by a t-value of -0.41 , $\text{sig.} = .68$ (Zone A) and $.02$, $\text{sig.} = .98$ (Zone B).

Management Implications

This study offers useful insights for managers of the Mount Rogers National Recreation Area and other managers who must manage rail-trails and other general trails. Results suggest that the economic impact of a rail-trail can be greater than other trail settings. Overall trip expenditures between the two users groups were not statistically different, but mean differences of 49.02 and 31.30 should be enough to suggest to Mount Rogers managers that Virginia Creeper Trail users spent more. This impact was even greater for specific expenses such as hotel accommodations and restaurant expenses. While we are not suggesting that undeveloped recreation areas such as Mount Rogers develop hotels and food establishments, we do believe that partnerships to increase economic tourism development should be offered to outlying communities with existing amenities. If generating more tourism dollars is an important goal for managers of the Mount Rogers region, then efforts to better market the Virginia Creeper Trail should increase. Within the context of legislation and policy, managers of the Mount Rogers National Recreation Area should work in cooperation with community businesses and services in order to provide the correct mix for both types of trail users.

Rail-trails may not always give a bigger bang for the buck. For this study, however, it seemed as though the Virginia Creeper Trail attracted more tourism dollars than other area trail opportunities. Managers of this and similar recreation areas may want to maximize the economic impact of rail-trails by encouraging more destination recreation use and by promoting a longer length of stay. This objective could be accomplished by providing potential and infrequent users with information about rail-trails and other area attractions and amenities. For example, recreation managers and community businesses could form agreements where hotels, motels, and restaurants display and distribute information on the rail-trail and its suitability as a destination travel site. In exchange for this service, recreation managers could promote these businesses at their information centers and any suitable site within the recreation area.

Another measure to attract rail-trail users involves promoting rail-trails at regional outdoor stores, bicycle shops, and tack shops. To this end, the local community should consider offering and/or promoting additional attractions and services consistent with the nature of the recreation area. One such service that is already provided, bike shuttle service, may be further developed and expanded so that additional users may have an opportunity to use the National Recreation Area of the trail while being able to get back to community lodging and

restaurants conveniently. Since Virginia Creeper Trail users already tend to spend more at hotels and restaurants, managers should encourage these establishments to promote the Virginia Creeper Trail as a reason to visit the area and explore other community attractions.

Expenditure findings confirmed the notion that, when controlling for group size and length of stay, rail-trail users provide more economic benefits or inputs to the local hotels and restaurants. This conclusion should, however, be handled with caution because while hotel and restaurants expenditures may be higher for rail-trail users, they may also come from a small minority of use. Since expenditures were measured through the average expenses of trail users, it is reasonable to assume that many Virginia Creeper Trail users spent no money during their visit. In order to increase the economic impact of the Virginia Creeper Trail, managers should consider promotional efforts to increase trail users' length of stay and to promote the Virginia Creeper Trail to more distant markets.

Conclusion

This study has attempted to assess how rail-trails and other general trails compare with respect to economic impact. Recent research has emphasized the rail-trail as an excellent recreation, transportation, and community development setting. This emphasis is not unfounded since this study has tentatively concluded that rail-trail users spend more per person per day on overall and specific items while visiting a USDA Forest Service National Recreation Area. While economic development through tourism is a noble goal, managers should be cautioned to consider other trail benefits in addition to economic impacts. If the economic impact of tourism is the most important goal for recreation trail managers and the community, then attempts to enhance the usage of rail-trails should receive thorough consideration. Whether rail-trails remain a hot topic as they become more established is a matter of speculation. Managers and researchers should, therefore, continue to monitor the usage and impact of all trail types so that they can act according to changing public demand and provide the best possible services and facilities.

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STATE TRAIL PROGRAMS: A SURVEY OF STATE TRAIL ADMINISTRATORS

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This study examined state trail programs across the U.S. and found them to be diverse but active, placing a high priority on providing trails close to where people live. Programs reported increases in public support for trails and increases in use, particularly in suburban areas and among mountain bicyclists. Present and future issues facing trail programs as well as innovations and management implications are presented.

Introduction

Trails are provided by a variety of public, private, and nonprofit organizations. Among public agencies, states play an important role in providing trails. In fact, respondents in this study estimated that states provide about 25 percent of all trail miles in the U. S. However, the states provide trails and trail opportunities in diverse ways. Each state has a designated trail administrator, although they do not all share this title. These state trail administrators are loosely organized into a professional organization called the National Association of State Trail Administrators (NASTA). This study was initiated by NASTA and the National Park Service Rivers, Trails, and Conservation Assistance Program to gather information about the various state trail programs, including what they offer, their priorities, the challenges they face, and the innovations they are developing. Consequently, this paper is purely descriptive in nature. The purpose of the study was to gather information which might assist other states in making their programs more effective and guide future research which might benefit trails and trail managers.

Methods

The study utilized a mail survey to all state trail administrators. The state trail administrators of every state trail program as well as those of the District of Columbia and Puerto Rico were surveyed. Bicycle and pedestrian coordinators were not included, however. Some states operate separate motorized and nonmotorized trail programs. In these cases, the administrators of each program were included in the sample.

The unit of analysis for the study, therefore, was trail programs rather than states.

The survey instrument used for this study was developed in cooperation with NASTA members. Ten trail administrators attending the 1993 Rails-to-Trails Conservancy Conference in California, as well as all those at a State Trail Administrator meeting in Washington, D.C. later that year, provided input on what questions should be asked. The final instrument was 12 pages long and asked a wide range of closed and open-ended questions. The survey asked trail administrators to provide information about the trails and trail programs in their states. For the purposes of this study, a trail was considered any designated off highway, land-based route open to the public. Respondents were asked to include trails on both public and private lands (even if a fee was charged) and trails for any allowable trail use whether motorized or nonmotorized. Backcountry trails and snowmobile trails were included even if only open during parts of the year, as were multipurpose "greenway" trails, rail-trails regardless of surface, and unimproved roads if designated for trail use. Respondents were asked *not* to include bicycle lanes or routes that follow highways.

Respondents were also instructed to distinguish between a "state trail program" and the trails in a particular state. When the survey referred to "all trails in your state" respondents were asked to consider all trails and trail efforts in their state regardless of who managed the lands on which they occurred or who was responsible for them. When asked about "your state trails program," they were to refer to those activities they and their staff (and volunteers) undertook on behalf of their agency. If their state had multiple programs or agencies that worked on trail issues or managed trails, they were asked to answer only for the program(s) they managed.

Data were collected using a mail survey with up to two follow-ups. The first mailing took place on January 5, 1994 with follow-up surveys sent to nonrespondents on January 26 and March 2. Telephone follow-ups were made to those who did not respond to mailings. Responses were received from 53 trail administrators representing 48 states, the District of Columbia and Puerto Rico. Responses were received from both motorized and nonmotorized trail administrators in California, Arizona, and Utah.

Results

State trail administrators were found to be a diverse group in terms of age, experience, and educational background. Thirty-seven (71%) were men and 15 (29%) were women. Their ages ranged from 24 to 61 with an average age of 43. Over half were between 40 and 49 years old. Most had been in their present job as trail administrator for 5 years or less. The average tenure in their present position was 6.5 years, but ranged from 1 to 24 years. However, they tended to have more experience in the area of trails than just that of their current position. When asked how many years they had worked (either part or full time) in trail-related positions, the average response

was 8.9 years and ranged from 1 to 20 years. The trail administrators' areas of formal education were also diverse. The most common educational background was parks and recreation (19.1%) followed closely by natural resources, planning, and landscape architecture (Table 1).

Table 1. Trail administrators' areas of formal education.

Area	Number Responding	Percent
Parks and Recreation	9	19.1
Natural Resources	6	12.8
Planning	6	12.8
Landscape Architecture	5	10.6
Forestry	3	6.4
Geography	3	6.4
Public Administration	3	6.4
Biology	2	4.2
Civil Engineering	2	4.2
Communications	2	4.2
Other	6	12.8
Total	47	99.9

All of the states responding operated some sort of trails-related functions although some did not consider them to be a formal trails program. Forty-one (77.1%) of those surveyed reported that their state had more than one trails program. Some states chose to list their Department of Transportation's Bicycle and Pedestrian program as an additional "trails program" and some did not. Staff size of the state trail programs varied from 0 to 40 full time equivalents (FTE) as shown in Table 2. The average program had a staff of 2.7. Only 18 (34.6%) of the trail administrators responding were assigned full time to trails (including bicycle and/or pedestrian) responsibilities. Those who reported not being assigned to trails full time, spent an average of 43% of their time on trails issues. Thirty-seven trail administrators (69.8%) reported that their states had state trail legislation. The earliest trail legislation was passed in 1967 and the most recent in 1994. Most (51.5%) was passed during the 1970's. Although the earliest trail staff was hired in 1945, nearly half (48%) of the programs hired their first staff during the 1970's as well.

Table 2. Program staff size in full time equivalents (FTE).

# of FTE's	Number Responding	Percent
0	15	29.4
1	22	43.1
2-10	11	21.6
>10	3	5.9
Total	51	100.0

Mean=2.7; s.d.=6.2

The types of activities carried out by state trail programs were varied as were the priorities they attached to each. Trail administrators rated the levels of priority of 22 different activities included in the survey. The number of programs providing each service and the mean priority level of each is presented in Table 3. The five highest priority items on

average were "providing trail opportunities close to where people live," "staff support for state trails advisory committee," "awarding grants," "developing trail plans," and "providing an interconnected system of trails in our state." The three items that were the lowest priorities and the only three that were rated below the midpoint on the 5-point scale were "connecting our trails with those in adjoining states," "giving workshops," and "involvement outside our state." Several administrators wrote in other services and programs that they provided in their states. These included educating, resource protection, training, long-distance trails, being on trail board, getting money, visitor services, organizing volunteers, bringing interest groups together, developing areas, rail-banking, coordinating acquisition with DOT and utilities, establishing local partnerships, economic development, ISTEA, and writing articles.

Table 3. Importance of programs and services provided.

Activity (n=52)	Mean	Programs Providing
Providing Trail Opportunities Close To Where People Live	3.98	49
Staff Support For State Trails Advisory Committee	3.95	44
Awarding Grants	3.88	51
Developing Trail Plans	3.87	47
Providing An Interconnected System Of Trails In Our State	3.87	45
Identifying Needs	3.81	48
Securing Funds	3.78	49
Policy Setting And Review	3.77	47
Exchanging Ideas	3.75	52
Technical Assistance	3.61	51
Trail Maintenance	3.43	44
Trail Acquisition	3.40	42
Trail Construction	3.35	48
Support Facilities (E.G. Trailheads)	3.31	45
Publishing Newsletters	3.30	27
General Administration	3.24	49
Legislative Involvement	3.20	47
Recommending Trail Locations	3.19	42
Managing Award Programs	3.00	28
Connecting Our Trails With Those In Adjoining States	2.90	42
Giving Workshops	2.75	40
Involvement Outside Our State	2.31	49

a/ Means based on a 5-point scale with 1 indicating "very low priority" and 5 "very high priority."

Six questions tried to determine the level of volunteer involvement with trails in each state. The first asked how many volunteers were involved with trails on state lands in 1993 including volunteers at all levels from committee members to trail maintenance workers. Estimates ranged from 0 to 14,000 volunteers for the 36 states responding (mean=1,214). The number of volunteer person-hours devoted to trails on state lands in 1993 ranged from 0 to 140,000 with a mean of 7,428 for the 24 states responding. Nine states were able to provide estimates of the cost savings this volunteer

involvement generated for the agency. Cost savings ranged from \$3,900 for Delaware to \$1.12 million for Florida for an average of \$15,100 annually. The percent of the trail miles on state lands that were maintained (and/or managed) by volunteers or volunteer groups was requested as well. These estimates ranged from 0% in Iowa to 80% in New Hampshire. On average, the 35 states responding reported that 26% of trail miles on state lands were "adopted" by volunteers. States estimated there were an average of 56 volunteer organizations involved with trails in their states. Organizations active in either hands-on trail activities or advocacy on behalf of any trails in the state were to have been included. Estimates ranged from 4 in West Virginia to 400 in California. Finally, administrators were asked to identify techniques they used to encourage volunteer involvement on trails. Providing recognition and/or award programs for volunteers was the most common (65%) followed by "Adopt-A-Trail" programs (55%). Other techniques that respondents reported they used to encourage volunteer involvement were: stipends; workers' compensation; encourage involvement of user groups; National Trails Day; technical assistance; provide tools, etc.; name trails for individuals or groups; "bridge builder" projects; free campsites for volunteers; and paying development costs through grants (Table 4).

Table 4. Techniques used to encourage volunteerism for trails.

Technique (<i>n</i> =51)	Number Providing	Percent Providing
Provide training for volunteers	19	37
Offer an "Adopt-A-Trail" program	28	55
Provide liability coverage for volunteers	22	43
Provide recognition and/or award programs for volunteers	33	65
Others	15	31

Two questions explored the trail-related trends that administrators felt were taking place in their states. When asked to indicate the trends in their states over the past five years in various areas, the average responses indicated that support and use in all areas and among all user groups were increasing. Of all the types of support examined, they felt that public support had increased more than any other kind of support during the past five years (Table 5). Twenty-one (40%) reported "significant increases" in public support. Volunteer involvement was reported to have increased at a similar rate. The weakest area of support was state trail program budgets. Although 24 (47%) reported increases in their trail budgets over the past five years, 19 (37%) reported no change.

A similar question asked about how trail use had changed in each state over the past five years in various types of areas and by particular user groups. Trail use was seen as increasing overall with thirty-four (67%) reported that overall use had seen "significant increases" in their states (Table 6). In terms of location, use was reported to have increased in all locations on average. The largest increases, however, were reported in

suburban areas. Increases there were said to have "significant" by 26 (52%) and "minor" by 21 (42%). The weakest increases were reported in backcountry areas. Thirty-one percent felt there had been no change in backcountry trail use in their states and 6% reported that use had actually decreased on their backcountry trails (Table 6). Trends over the past five years in various types of trail activities in each state were also examined. Trail administrators, on average, reported increases in all ten activities listed in the survey. Mountain bike use, however, was felt to have increased more than that of any other type of trail use. Thirty-eight (79%) said mountain bike use had increased, 12 (25%) said the increases had been significant (Table 7). Motorized types of use were felt to have increased less than nonmotorized uses overall.

Table 5. Trends in trail support.

Area	Mean	Number Responding
Public Support	4.29	52
Volunteer Involvement	4.25	51
Support by State Administrators	3.96	52
Support by State Politicians	3.92	50
State Trail Program Budgets	3.45	51

a/ Means based on a 5-point scale with 1 indicating "significant decreases," 2 "minor decreases," 3 "no change," 4 "minor increases," and 5 "significant increases."

Table 6. Trends in geographic distribution of trail use.

Area	Mean	Number Responding
Trail Use Overall	4.63	51
Use in Suburban Areas	4.46	50
Use in Urban Areas	4.43	51
Use in Rural Areas	4.02	50
Use in Backcountry Areas	3.84	49

a/ Means based on a 5-point scale with 1 indicating "significant decreases," 2 "minor decreases," 3 "no change," 4 "minor increases," and 5 "significant increases."

Table 7. Trends in trail activities.

Area	Mean	Number Responding
Use by Mountain Bicyclists	4.86	49
Use by Walkers/Hikers	4.33	49
Use by Other Bicyclists	4.04	48
Use by Equestrians	3.90	41
Use by Runners	3.78	49
Use by Snowmobiles	3.68	41
Use by Cross-Country Skiers	3.67	43
Use by ATVs	3.62	47
Use by 4-Wheel Drives	3.45	47
Use by Motorcyclists	3.40	47

a/ Means based on a 5-point scale with 1 indicating "significant decreases," 2 "minor decreases," 3 "no change," 4 "minor increases," and 5 "significant increases."

Trail administrators also provided information on what was motivating trail development in their states. They were given a list of nine broad public benefits that trails might have for their state and asked to rate each in terms of how much of a factor they felt it was in motivating the development of new trails in their state. The responses indicated that all of the factors were considered to be of at least some importance. "Public recreation opportunities," however, was by far the most important (Table 8). The second most important motivation, on average, was "tourism and economic development." "Traffic reduction and transportation alternatives" was felt to be the least important motivating factor of the nine examined.

Table 8. Factors motivating trail development in state.

Benefit	Mean	Number Responding
Public recreation opportunities	6.24	49
Tourism and economic development	5.45	51
Health and fitness	5.12	51
Aesthetic beauty	5.08	51
Preserving undeveloped open space	4.96	49
Community pride	4.94	50
Access for disabled persons	4.78	51
Public education about nature and the environment	4.61	51
Traffic reduction and transportation alternatives	4.16	49

a/ Means based on a 7-point scale with 1 indicating "not at all important" and 7 "extremely important."

Table 9. Most pressing issues facing trails.

	Currently In Your State		Currently Nationwide		In 5-10 Years	
	Number Responding	%	Number Responding	%	Number Responding	%
Threats to Trails and Trail Lands	29	15.5	18	15.3	18	15.3
Funding	25	13.4	30	25.4	13	11.0
Conflict/Multiple-Use	22	11.8	11	9.3	21	17.8
Funding Maintenance	14	7.5	7	5.9	6	5.1
Trail Plans	13	7.0	--	--	2	1.7
Motorized Use	10	5.3	3	2.5	5	4.2
Interagency Coordination	9	4.8	6	5.1	2	1.7
Funding Development	8	4.3	--	--	--	--
Providing Trails Close to Where People Live	8	4.3	2	1.7	6	5.1
Trail Program	7	3.7	2	1.7	1	0.8
Maintenance	6	3.2	4	3.4	2	1.7
Technical Assistance	5	2.7	7	5.9	2	1.7
Promoting Trails and Trail Issues	5	2.7	5	4.2	3	2.5
Federal Legislation	5	2.7	--	--	4	3.4
Other Legislation	--	--	--	--	4	3.4
Staffing	4	2.1	--	--	--	--
Leadership	4	2.1	5	4.2	2	1.7
Trail Development	4	2.1	--	--	--	--
Trail Safety	3	1.6	2	1.7	5	4.2
Non-Motorized Use	3	1.6	--	--	--	--
Rail-Trails	2	1.1	1	0.8	3	2.5
Volunteers	1	0.5	2	1.7	--	--
Funding NRTF	--	--	8	6.8	--	--
Long Distance Trails	--	--	3	2.5	3	2.5
Use Trends	--	--	2	1.7	2	1.7
Liability	--	--	--	--	4	3.4
Trails for Transportation	--	--	--	--	4	3.4
Resource Management	--	--	--	--	3	2.5
Technical Assistance	--	--	--	--	2	1.7
User Fees	--	--	--	--	2	1.7
Mountain Bike Use	--	--	--	--	1	0.8
Total	187	100.0	118	99.8	118	99.8

Several open-ended questions were asked to determine what issues trail programs were currently facing and what issues they expected to face in the future. When asked to identify the most pressing issues currently facing trails in their states, the most frequent responses related to specific threats to trails and trail lands. Many of these concerns involved landowner opposition and development obliterating existing trails and potential trail locations. Lack of funding and concerns about trail conflict and other issues related to multiple-use were the next most pressing issues identified. Other issues of concern to state trail programs can be found in the first column of Table 9. The responses to a question which asked respondents to identify the most pressing issues they felt were currently facing trails nationally are summarized in the second column of Table 9. These concerns were similar to the ones expressed for the state level with an even greater concern about funding. Administrators saw funding to be the most pressing issue nationwide, apparently even more pressing than funding in their home states. Specific threats to trails and trail lands was their second greatest area of concern followed by conflict and multiple-use. Funding for the National Recreational Trails Fund (NRTF) was specifically mentioned by eight of the programs making it the fourth most frequently expressed issue.

Trail administrators were then asked to speculate about what they expected to be the most important new issues trails would be facing in the next 5-10 years. Conflict and multiple-use were the biggest concerns trail administrators saw on the horizon followed by threats to trails and trail lands. They still expected funding and funding for maintenance to be major concerns, however. Providing trails close to where people live was the fifth most frequently mentioned issue trail administrators felt they would be facing in the next 5-10 years. These and other issues trail administrators foresee are presented in the third column of Table 9.

Respondents were also asked to anticipate what new or emerging user groups they felt would be important 10 years from now. There were a wide variety of responses to this open-ended question. Various trail user groups were mentioned 66 times (62.9%), broader trail interest groups 6 times (5.7%), and various segments of the population 33 times (31.4%). The broader trail interest groups noted as new or emerging user groups included "groups with political power," "wise land use groups," "trails planning groups," "trail advisory groups," "trail advocacy groups," and groups promoting "interagency cooperation." The segments of the population considered to be new or emerging user groups included the physically challenged, seniors, youth, tours, minorities, "baby boomers," and local citizens. In terms of new or emerging trail user groups, mountain biking was the response of nearly 26% of the trail administrators. It was mentioned more than twice as often as the next most frequent response of walking and hiking. Table 10 presents these and the other trail user groups that were expected to be important 10 years from now.

Table 10. New or emerging user groups that will be important 10 years from now.

Trail Activities	Number Responding	Percent
Mountain Biking	17	25.8
Walking/Hiking	8	12.1
Motorized Use	7	10.6
Bicycling	7	10.6
Roller Blading/In-Line Skating	6	9.1
Commuting	5	7.8
ATV/OHV Use	5	7.8
Equestrian Use	3	4.5
Dog Sledding/Ski Jor	2	3.0
Snow Mobiling	2	3.0
Snow Shoeing	1	1.5
Running	1	1.5
Cross Country Skiing	1	1.5
Pack Animal Use	1	1.5
Total	66	100.3

A final set of open-ended questions gave trail administrators the opportunity to share any innovative programs or efforts that were going on in their states that might have applications elsewhere. They were specifically asked to identify innovations in the following areas: funding, ways of promoting user cooperation, trail development strategies, maintenance strategies, and any other innovations they felt were noteworthy. The most common innovative funding efforts that were offered revolved around various forms of taxes, license fees, bond issues and registration programs. Examples of partnerships and private donation programs were also given. When asked about innovative ways of promoting user cooperation (i.e. resolving conflicts on multiple-use trails), the majority of proposals focused on ways of getting different user groups talking to one another and working together. Specific suggestions included discussion meetings, coalitions, advisory committees, and citizen involvement. Various forms of education and effective trail design and planning were also put forth. In terms of innovative trail development strategies, various types of creative partnerships, citizen involvement, and ways of limiting landowner liability were most frequently suggested. The vast majority of maintenance strategies that were considered to be innovative involved volunteers, user groups and various forms of adopt-a-trail programs. Partnerships with local governments were also mentioned several times. A handful of innovations were suggested in other areas as well.

Discussion and Management Implications

The majority of states have active state trail programs that provide a wide variety of programs and services. These state programs are quite diverse in terms of size, scope, where they are housed, etc. Not surprisingly, state trail programs apparently focus most of their attention in their home states. Only 2 of the 22 services examined by this study involved activities outside the state - "involvement outside our state" and "connecting our trails with those in adjoining states."

These were rated the lowest and second to lowest priorities on average.

The fact that administrators generally reported increasing use of and support for trails should be encouraging for planners and managers, although the issues identified here are indicative of the challenges they will face in providing trail opportunities in the future. The high priority trail administrators placed on "providing trail opportunities close to where people live" was consistent with their perception that trail use in suburban and urban areas has increased more than that in any other area during the past five years and is an indication that they are attempting to respond to user needs and demand. It was interesting that "traffic reduction and transportation alternatives" was felt to be the least important motivating factor of the nine examined. This given the importance of transportation-related funding available for trails and other "enhancements" through the Intermodal Surface Transportation Efficiency Act (ISTEA) in recent years.

From a management and research perspective, this study offers considerable guidance. The sizes and priorities of the various state programs can and has provided valuable information to particular states as they attempt to make their programs more effective and responsive. Trail and natural resource managers would be wise to consider the issues that state trail administrators reported they are facing and expect to face in the next 5 to 10 years. Particular attention should be given to the following areas: landowner opposition to trail development and land protection, recreational conflicts, planning for and accommodating mountain bike use, alternative funding techniques, and developing and nurturing effective partnerships and volunteer programs. Programs to address these issues more effectively as well as both basic and applied research in these and the other areas identified is needed to provide high-quality trail experiences and protect natural resources.

The full report on which this paper is based is available from NASTA for a nominal fee c/o Stuart Macdonald, State Trails Coordinator, Colorado State Trails Program, 1313 Sherman Street, Room 618, Denver, CO 80203. It contains considerably more descriptive information as well as the open-ended comments offered by respondents for all questions.

IMPACT OF COLUMBIA'S MKT NATURE/FITNESS TRAIL ON ATTITUDES OF ADJOINING PROPERTY OWNERS TOWARD THE TRAIL

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In May of 1993, questionnaires were mailed to individuals who were identified as owning property adjoining Columbia's MKT Nature/Fitness Trail. Responses to the questionnaires indicate that property owners' attitudes toward trail development are not likely to change. The responses also revealed that property owners have a positive attitude toward the trail as a whole. Property owners believe that they have experienced some trail related problems, and that a few of these problems have significantly lowered their attitudes toward the trail. The most frequent problems experienced by property owners include noise from the trail, trespassing, loss of privacy, and littering. Respondents also indicated that the trail provides them with benefits such as protecting open space, aesthetic beauty, community pride, recreational use, and health and fitness.

Introduction

While the concept of greenways and trails has been around in this country since the days of Frederick Law Olmstead, one aspect of this phenomenon, the conversion of abandoned railway beds to recreational trails is a relatively recent movement, occurring only within the last 30 years (Little, 1990). Public interest in these rails to trails is escalating at a rapid rate (Presidents Commission on American Outdoors, 1987). Currently, there are over 400 of these trails in 42 different states that combine to form several thousand miles of multi-use recreation corridors. While this is certainly an impressive start, there are still endless miles of abandoned railways that can be converted to trails for public use (Rails to Trails Conservancy, 1990b). Despite the enthusiasm of the movement and the benefits derived from the efforts put forth by the many groups and individuals associated with it, there still exists opposition to the conversion of abandoned railways to trails.

Some of this opposition comes from property owners who live adjacent to these trails. This opposition seems to stem from the perceived notion that public access to adjoining property will bring with it increased crime and vandalism, littering, trespassing, property value changes, and loss of privacy (Moore, Graefe, & Gittleston, 1992).

The purpose of this paper is to describe the impact of Columbia's MKT Nature/Fitness Trail on the attitudes of adjoining landowners, and how these attitudes were influenced by; what kinds of trail related problems they have experienced, and the number of trail related problems they have experienced.

Related Literature

A 1992 study of three diverse rail trail conversions was conducted by researchers at Penn State University. This study examined the impacts of the Heritage Trail in eastern Iowa, the St. Marks Trail in Tallahassee, Florida, and the Lafayette/Moraga Trail in San Francisco, California on neighboring property owners. The study had two objectives which were accomplished by data gathered through a self administered mail questionnaire. The first objective was to determine the different types of problems that property owners living adjacent to the trail might experience. The second objective was to determine overall property owner satisfaction toward the trails to find out what factors were associated with these attitudes.

The results of the study concerning the first objective indicated that while some problems exist (i.e. illegal motor vehicle use, pet droppings, and noise), 38% of the respondents reported that they experienced no trail related problems within the last year. Furthermore, there seemed to be some dissimilarity among the different trails in relationship to the types of problems that occurred, which may suggest that different locations are more susceptible to different types of problems or benefits. For example, property owners along one trail may have problems with littering, while neighbors of a different trail experience vandalism problems.

In exploring the results of the second objective, the researchers discovered that adjacent property owners were satisfied overall with the trail. However it also became apparent that certain variables such as property owners' initial reaction to the trail, and the number of problems experienced in the past 12 months significantly affected their current attitudes (Moore, et al, 1992).

Data collected in a 1991 survey found that 43.3 percent of property owners adjacent to the Katy Trail State Park were initially opposed to the trail being opened because of concerns about decreased privacy, increased trespassing, and liability. However, a year after the trail opened, the majority of property owners had not experienced any increase with these problems (Bhullar, Braschler, Gillespie, Kaylen & Vaught, 1991).

In a 1980 study conducted by the Minnesota Department of Natural Resources, researchers compared adjacent property owners' attitudes between two existing trails and two proposed trails. This resulted in the conclusion that the attitudes of adjacent property owners along existing trails are more positive toward the trails than the attitudes of adjacent property owners along proposed trails. Another conclusion was that adjacent property owners to the existing trails have experienced fewer trail related problems than anticipated by the property owners living adjacent to the proposed trails (MN.DNR,1980).

Another study was accomplished by forming focus groups of property owners living adjacent to four proposed trail conversions in Illinois. The researchers concluded that property owners do indeed fear anticipated problems that can be associated with trail development in their back yards. These property owners revealed concerns about a lack of input in the decision making process, issues surrounding eminent domain, loss of privacy, and an increase in many different types of crime.(Hoffman, Williams, Lafen & Fletcher, Inc.1990).

While conducting a study on San Francisco's Lafayette/Moraga Trail, researchers discovered that adjacent property owners experienced some trail related problems such as trespassing and illegal motor vehicle use. However, 60% of the respondents indicated that they did not experience even the slightest problem with the trail, and 90% revealed that they were either somewhat or very satisfied with the trail (East Bay Park District,1978).

Columbia's Mkt Nature/Fitness Trail

Columbia's MKT Nature/Fitness Trail is the direct descendant of the Missouri, Kansas, Texas (MKT) Railroad established in 1899. In 1901, a spur was added to the railway which ran from the main track at McBaine, Missouri to Columbia, Missouri. This 8.5 mile stretch was built to serve the business district as well as the University of Missouri in Columbia. In 1977, the Interstate Commerce Commission approved the abandonment of this extension, and a grant was approved for the Columbia Parks and Recreation Department to buy and to develop the corridor for recreational purposes. The project proved to be difficult and costly. This led the department to complete only half of the rail bed, a 4.7 mile stretch from Providence and Stewart Streets in downtown Columbia, to Scott Boulevard in the southwest quadrant of town. The trail was officially opened and dedicated on October 13, 1985.

The trail passes through a variety of terrain including residential neighborhoods, rock cuts, farmlands, woods, and parks. It is surfaced with crushed limestone and contains 17 bridges as well as a 20 station exercise/fitness course. It is supported by three emergency phones at different points along the trail, and pay phones at each of its terminals. Further development is currently under consideration that will extend the trail to McBaine and connect it with the Katy Trail State Park (Kight,1992).

Methods

Data Collection

Data were collected by using a self administered survey mailed to property owners adjacent to Columbia's MKT Nature/Fitness Trail. Property owners responded to a variety of questions concerning demographic information, attitudes toward the trail, problems connected with the trail, and perceived benefits of the trail. A reminder post card and two follow up letters were sent to non-respondents in an effort to maximize the response rate.

Thirty-eight out of the fifty surveys that were mailed were returned for a response rate of 76 percent.

Instrument

The questionnaire was specifically developed for this study, and is based on the instruments used by Moore, et al. (1991), and Bhullar, et al. (1990) in similar studies. These instruments were chosen because of their very recent nature and relevancy to this study. (1978). Some questions were added to the survey in an effort to account for extraneous variables that may be pertinent to this study. This survey was tested for constructive validity by assembling a panel of experts on rails-to-trails projects and research in recreation and natural resource management.

Results

In order to assess adjoining landowner satisfaction, a three component overall satisfaction index was created. This index consisted of the respondents cumulative score on the following questions.

1. Overall, how satisfied are you with having the trail as a neighbor?
2. How do you feel the trail has effected the quality of your neighborhood?
3. Compare your initial reaction to the idea of living near the trail to how you feel about living near the trail today. Would you say that living near the trail is better or worse than you expected it to be?

The responses to each of these questions were on a six point likert scale with six being the most positive response toward the trail. The responses to each question were then added together to create an overall satisfaction score for each respondent to be used as the dependent variable in further analysis. Table 1 provides a summary of this index.

Table 1. Overall satisfaction index (Cronbachs Alpha = .931).

Question	Range	Mean	Median	St. Dev.
Satisfaction with Trail	1-6	4.74	5	1.43
Quality of Neighborhood	1-6	4.55	5	1.29
Better or worse than before	<u>1-6</u>	<u>3.82</u>	4	<u>1.18</u>
Total	3-18	13.11	14	3.48

Table 2. Differences in satisfaction between respondents who have and have not experienced trail related problems.

	N	MEAN	ST.DEV	D.F.	t-SCORE
Illegal Motor Vehicle Use	1=30 2=5	1=13.87 2=10	1=2.40 2=5.66	33	2.68*
Litter On My Property	1=28 2=7	1=13.96 2=10.71	1=2.46 2=4.79	33	2.55*
Loitering On My Property	1=30 2=5	1=14 2=9.2	1=2.38 2=4.92	33	3.54*
Trespassing Onto My Property	1=23 2=12	1=13.91 2=12.17	1=2.07 2=4.68	33	1.54
Vandalism Of My Property	1=29 2=7	1=14.14 2=8.57	1=2.03 2=5.06	34	4.70*
Cars Parking On My Property	1=30 2=6	1=13.88 2=9	1=2.39 2=5.66	34	3.52*
Drainage Effected On My Property	1=33 2=2	1=13.18 2=15.5	1=3.3 2=.71	33	.978
Garden Or Crops Picked Or Damaged	1=33 2=2	1=13.55 2=4.5	1=3 2=.71	33	4.2*
Unleashed Pets	1=24 2=11	1=13.83 2=11.36	1=3.16 2=4.12	33	1.95
Noise From Trail	1=25 2=11	1=13.8 2=11.36	1=3.10 2=4.11	34	1.97
Burglary Of My Property	1=30 2=6	1=14.07 2=8	1=2.35 2=4.47	34	4.91*
Discourteous Users	1=31 2=5	1=13.90 2=7.8	1=2.34 2=5.26	34	4.39*
Lack Of Trail Maintenance	1=28 2=5	1=13.04 2=12	1=3.60 2=4	31	.584
Loss Of Privacy	1=27 2=8	1=13.89 2=10.25	1=2.5 2=5.34	33	2.73*

1= Respondents who have not experienced the problem.

2= Respondents who have experienced the problem.

* Significant at the .05 level.

The mean score of 13.11 out of a possible 18 indicates that the overall satisfaction index scores were quite high and provides evidence that the majority of the respondents seem to be satisfied with having the trail as a neighbor.

Respondents were also asked to indicate which types of pre selected trail related problems they had experienced in the past year and the frequency of each problem. Responses on types of problems experienced by landowners were used as the independent variable in t-tests to examine the relationship between whether or not a problem was experienced and overall satisfaction index scores. Table 2 provides a summary of the results.

Results of these tests indicate significant differences in satisfaction between landowners who have and landowners who have not experienced some types of trail related problems. Specifically, landowners who have experienced problems with trail users such as vandalism, loitering, burglary, and loss of privacy are significantly less satisfied with the trail than their neighbors who have not experienced these problems. However, problems experienced that were related to physical attributes of the trail such lack of maintenance and drainage problems did not produce significant declines in landowner satisfaction. This

suggests that negative attitudes toward trails does not stem from the trails themselves, but is actually directed toward trail users.

The relationship between frequency of problems experienced and overall satisfaction was examined through correlation. Table 3 provides the results from this analysis.

As expected, the results shown in Table 3 indicate significant negative relationships between the number of times many problems were experienced and overall satisfaction index scores. It appears as if repeated user behavior problems (loitering, vandalism, burglary, and discourteous users) are to blame for decreases in landowner satisfaction with the trail. This supports the earlier analysis which found that landowners who have experienced these same types of problems are less satisfied with the trail than those who have not experienced them.

In addition to finding out what problems trail neighbors had experienced, the study also attempted to determine what benefits adjoining landowners gained from the trail. Respondents were asked to rate the trail as to how important it was in providing 9 possible trail benefits. Table 4 describes the responses to this question.

Table 3. Relationship between respondents' satisfaction toward the trail and the number of trail related problems they have experienced.

Problem	N	MEAN	ST.DEV	r
Illegal Motor Vehicle Use	34	0.67	2.00	-.584*
Litter On My Property	35	2.06	5.77	-.618*
Loitering On My Property	35	2.63	10.35	-.661*
Trespassing Onto My Property	35	28.14	151.84	-.532*
Users Harass My Animals	35	0.14	.845	-.515*
Vandalism Of My Property	35	1.46	4.73	-.631*
Cars Parking On My Property	36	2.14	8.55	-.456*
Drainage Effected On My Property	36	0.36	2.00	.150
Pet Droppings On My Property	35	1.63	2.03	-.459*
Garden Or Crops Picked Or Damaged	36	0.39	2.02	-.456*
Users Ask To Use Phone, Bath, Etc.	36	0.02	.167	-.003
Unleashed Pets	36	1.63	3.26	-.682*
Noise From Trail	35	15.00	61.43	-.542*
Burglary Of My Property	36	0.42	1.38	-.668*
Discourteous Users	35	2.06	5.81	-.656*
Lack Of Trail Maintenance	33	0.70	2.08	-.184
Loss Of Privacy	34	12.21	62.43	-.539*
TOTAL	36	78.61	356.87	-.536*

* Indicates significance at .05

The adjoining landowners reported that the trail is important in proving benefits such as preserving open space, providing aesthetic beauty, community pride, and proving recreational activities. However, they did not feel that the trail was important in proving transportation alternatives or business development, both of which are often listed as important trail benefits. This may be due to the fact that this is a relatively short trail and is primarily used by local residents and does not draw many tourists to the area.

Conclusions

The results of this study provides information on how landowners feel about having a rail-trail as a neighbor. Despite the fact that many landowners reported that they had experienced some trail related problems, overall satisfaction with the trail was still quite high. This conclusion is supported by both a relatively high overall satisfaction index mean, as well as the fact that respondent reported the trail to be important in providing several quality of life benefits.

It is also important to note that user behavior problems seem to cause more dissatisfaction with the trail than do physical trail problems. Respondents who reportedly experienced problems with trail users who loitered, vandalized, burglarized, or were discourteous, were significantly less satisfied with the trail than the landowners who did not experience these problems. Also, as the number of times that these types of problems increased, satisfaction with the trail decreased.

Management Implications

By considering the following suggestions, trail planners and managers should be able to use the information provided by this study to help decrease anti trail sentiment as well as to help make trails better neighbors for adjoining landowners.

Trail planners should stress the benefits of having a trail as a neighbor to reduce adjoining landowner opposition. By proving evidence that trails provide benefits for communities as a whole and for adjoining landowners, anti trail sentiment by people who believe that this type of recreational development will not

Table 4. Perceptions of the benefits of the MKT Trail.

Benefit	Importance (n of cases)						Missing Cases
	1	2	3	4	5	6	
Preserving Open Space	2	2	1	3	10	20	0
Aesthetic Beauty	2	2	0	2	10	22	0
Community Pride	4	0	2	4	13	15	0
Business Development	17	8	8	3	0	1	1
Alternative Transportation	8	14	4	4	3	4	1
Health And Fitness	2	1	1	4	12	18	0
Accessibility	4	0	4	4	10	16	0
Recreational Opportunities	3	1	4	7	12	11	0
Environmental Education	5	4	3	12	5	9	0
Other	0	0	0	0	0	1	37
TOTAL	42	31	27	43	75	117	39

benefit them in any way can be reduced.

Trail planners should attempt to create or increase buffer zones along trails. This should help to increase trail related benefits as well as decrease trail related problems. Buffer zones can be used to both increase the benefits of trail such as improving aesthetic beauty and preserving open space, as well as, to decrease problems with vandals, invasion of privacy, and noise from trail users.

Trail managers should focus their attention on user behavior problems because they are more likely than physical trail problems to reduce adjoining landowner satisfaction. Respondents satisfaction with the trail was significantly reduced when they experienced user behavior problems such as discourteous users, vandalism, burglary, and loitering. However, problems associated with physical aspects of the trail did not significantly affect adjoining landowner satisfaction.

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**RECREATION CHOICE
AND PARTICIPATION
TRENDS**

RECREATION CHOICE BEHAVIOR: AN APPLICATION OF MULTIDIMENSIONAL SCALING

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Traditional recreation choice models have incorporated socio-demographic data, travel time, site amenities and congestion to forecast participation. This paper will apply multidimensional scaling to recreation choice and provide an example on the appropriateness of this method. Law enforcement is shown to be the most effective means in mitigating concern over interaction with others in urban parks. The underlying motivation behind this acceptance is that individuals perceive the resource is opened up.

Introduction

Participation in trail related outdoor recreation is extensive in America. Recent studies indicate that walking for pleasure remains a popular choice. (c.f., Clawson and Van Doren 1984; Cordell et al. 1990). Unfortunately most hiking trails are not found where the people are. Population centers are far removed from the large acreages of public lands available for recreation. The disparity between the source of recreation demand and the supply of hiking resources that can meet those needs necessitates proper resource planning of public urban lands where trail related activities can take place.

The purpose of this paper is to define the perceived motivations underlying trail management techniques that can be employed to optimize user satisfaction for trails in urban areas.

Problem

Since satisfaction can be determined by the success of the recreator in achieving his/her anticipated goals (ORRRC 1962; Clawson 1963; Driver, Brown and Peterson 1991), understanding the recreators' perception of the resource is needed. Furthermore, Driver and Brown (1983) state experiential dimensions influenced by various settings and management actions will contribute to the resource's carrying capacity.

This study will investigate various trail management techniques used to mitigate social interaction to determine how the most effective processes are perceived by recreators. Consequently, once the effectiveness of a particular technique has been

identified, researchers should question the conceptual basis of the recreators' choice.

Background

Interest in urban outdoor recreation, while initiated by the Outdoor Recreation Resources Review Commission, (ORRRC), in 1962, has recently resurfaced as an important element in recreation provision (Owens, 1984; PCAO, 1986). And as urban park systems try to emulate natural environments, the need to assess unique environmental attributes that may influence recreation choice becomes apparent (Knopp 1972). It is then up to planners and managers to protect both the user as well as the resource. Managed attributes in urban settings could be perceived to be very specific, as in the installation of lights, or very general, as in techniques considered to be artificial or manicured.

Since recreationists' preferences are subject to change, expressed preferences are useful for planning and management. Research has recognized that understanding recreationists' behavior is important for learning about human values for design application and user preferences (Jacob and Schreyer, 1980). But it is a complex operation, since people participating in recreation often do not have much in common, save their involvement in the activity.

Concern for the recreationist's experience and how to improve it was questioned early by Clawson (1963) and Wagar (1966) who, realizing the complexity of the human element, stated that the improvement of quality in a recreation experience was highly subjective. Recreationists' interests vary in anticipation of the experience, and it is this part of the recreation experience that needs to be broken down into the key components by way of identifying specifically as well as generally what the user may value (Probst and Lime, 1982).

Environmental planning needs to further incorporate human elements planning. The recent emphasis on human dimensions research on ecosystems has prompted a new approach for understanding resources (e.g., Symposium on Society and Resource Management). An example of this type of recreation research in environmental behavioral modeling was done in a study by Lieber and Allton (1983), who delineated certain trail attributes that were found to please various trail users. A variety of optimum trail design characteristics included slope, scenic views, trail surface, and others.

Further study in the direction of human dimensions included the effects on use of unwanted human interaction or contact (Lieber, Fesenmaier, and Bristow, 1986). Here, the research looked at trail use and how perceived interaction might influence recreationists' use. Several management techniques were evaluated alternative methods of trail management for security. These techniques were (1) tree cutting to open views (2) tree planting to screen off areas (3) installation of lights, (4) moving the trail head to reduce cross traffic and (5) the increased presence of law enforcement officers.

The last was found to be most effective in mitigating social interaction along the urban trail. This is supported by other works suggesting uniformed rangers may eliminate concern for safety in the outdoors (Campbell, Hendee and Clark 1977; Perry, 1983; Gramann, Christensen and Vander Stoep 1992).

A question might arise to why law enforcement was shown to be effective. Park rangers' presence may imply something is wrong, or why else would they be there? Do the rangers open the resource up for the trail users or do they tend to enclose it? Is the presence of rangers a simple alternative or one that may be deemed complex? Individual recreators may differ in how they perceive the management actions. The underlying dimensions of this perception is what will be investigated here.

Study Design

Scaling of ratings is widely used in behavioral studies because of the need to work with preferences, that at best, are ordinally ranked responses (Brown and Daniel 1990; Brummell and Harmon 1974; Dawes 1972). Golledge and Rushton (1971) identify three advantages of scaling in behavioral investigations. First, scaling can differentiate among perceptions or feelings (e.g., degrees of spiciness). Second, scaling can determine the relative position rather than just a difference. And third, scaling permits manipulation following laws of mathematics and logic.

Multidimensional Scaling (MDS) is a one particular method for describing a persons' perceptions, thoughts or values (Nijkamp, 1979). It provides the researcher with a way to measure and understand the relationship between perceived attributes significant to the choice process (Schiffman, Reynolds and Young 1981).

The model provided by an MDS procedure represents the individuals' perception of objects or stimuli in a spatial configuration. Unlike cluster analysis, which also describes the perceived position of stimuli, MDS spatial distances are continuous and can be expressed by a linear function (Davison, 1983). When these perceptions are plotted in space, the distance and direction will provide strengths and dimensions of the attributes (Torgerson 1958).

Data Source

The data come from a survey of trail users in the Chicago area. One hundred and eighty-eight people (n=188) responded to a questionnaire evaluating several attributes of trail use including potential interaction and management techniques.

The respondents were asked about the potential effectiveness of several trail management techniques that could be implemented to reduce potentially dangerous social interaction while on the trail. The levels of interaction (ordinal data) were arrayed as if the recreators (1) saw other people on the trail, (2) saw and heard other people, (3) saw, heard and noticed talking (gesturing), and (4) saw, heard, talking and were close to other

trail users. Each level is interpreted as increasing in social interaction, thereby denoting physical closeness.

The respondents evaluated the various levels of social interaction under several possible urban trail maintenance techniques. These were (1) tree cutting to open views, (2) tree planting to screen areas off, (3) installation of lights (4) movement of trail head (entrances) to reduce cross traffic, and (5) increased presence of law enforcement. The questionnaire specifically asked whether a certain management technique (e.g., tree cutting) would result in respondents decreased use, no change or increased use of the trail when at a particular level of contact (e.g., see and hear).

Results

Three aggregates of the total sample were analyzed in this study. Recreators that were identified as day hikers or joggers were one group. Cyclists and cross-country skiers were linked together by their dependence to recreation equipment. Finally, horseback riders and dog sledders were grouped together since they both incorporate animals in the experience.

The responses by group were submitted to the Proximities (SPSS) program (essentially to create a "correlation-like" table, where the ordinal data are mathematical ranked for dissimilarity). For each subgroup, the five management techniques taken across four interaction levels formed a 20 by 20 matrix design. This calculated a 20 by 20 dissimilarity matrix based on euclidean measurement. This matrix is an appropriate input form of the ALSCAL multidimensional scaling program.

The analysis was run for two through five dimensions. To identify the proper number of dimensions, the STRESS is calculated. While the Stress "elbowed" at four dimensions, indicating only a small improvement in the fit of the model, three dimensions are considered adequate in this analysis because of the stimulus size (20) and ease in visual interpretation. A rule of thumb states that the number of objects should be greater than four times the total number of dimensions. Figure 1 gives the respective Stress values for two through five dimensions for the three groups.

To see how all the individual recreationists perceive the management techniques, Three Way MDS was implemented. This uses the three proximity matrices for input, one for each group of recreators. The INDSCAL model included with ALSCAL calculates the spatial array of the groups (Kruskal and Wish, 1978). It also determines a dimension weight which indicates the individuals' particular weight of importance for each dimension.

Some "shrinking or stretching" of the axis may take place during the MDS procedure to fit all the data. The proportion of variance of the scaled data (disparities) that is accounted for by the original data is the R Square. Table 1 shows the various subject weights and the respective Stress values per trail user.

Stress Values for MDS

2 to 5 Dimensions

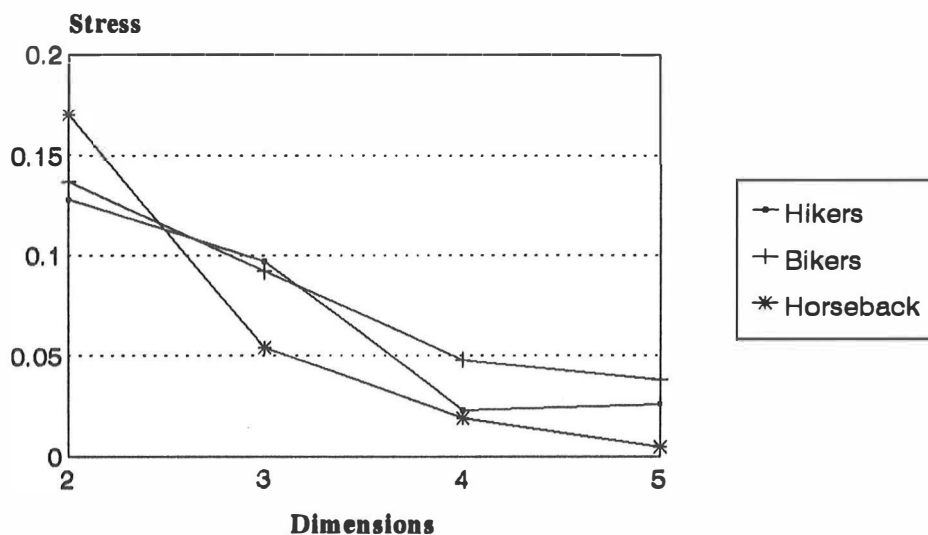


Figure 1. Stress values for 2 through 5 dimensions.

Table 1. Proportion of variance accounted for each dimension.

Trail User	Stress	Dimension Weight		
		1	2	3
Hikers/Joggers	.164	0.6845	0.5791	0.2252
Bikers/Skiers	.112	0.8237	0.3263	0.3827
Horse/Dog Sled	.171	0.4893	0.7410	0.2279
Overall	.151	0.4622	0.3303	0.0830

Clearly hikers/joggers and bikers/skiers place an emphasis of the first dimension. Dimension two, on the other hand, is more important to horse back riders and dog sledders. Choosing three dimensions as the best representation of the recreationists' perceived interpretation of the management techniques, the next step involves the interpretation of the spatial configuration. The 3D configuration is shown in Figure 2. Since this spatial map can be measured at the ratio level, one can evaluate the configuration with a multiple regression procedure.

To determine the labels of the axis and hence the underlying dimension attributes, seven dichotomous relationships were tested. The seven are:

- natural vs. manmade
- open vs. enclosed
- high vs. low density
- simple vs. complicated
- confused vs. ordered
- obtrusive vs. unobtrusive
- controlled vs. relaxed

A subsequent group of outdoor recreation enthusiasts were asked how well these dimension attributes applied to the various management techniques used to mitigate social interaction. Each attribute was placed on the end of a one hundred millimeter line and the individual was asked to indicate on the line where they believe the management technique fell. For example: Is Tree Cutting to Widen Views, something you consider:

X
Natural :-----: Manmade

Table 2. Beta coefficients of regression analysis.

Table 2. Data coefficients of regression analysis.				
Recreator Group Dependent	Rsq	Standardized Independent Coefficients		
		Dim 1	Dim 2	Dim 3
Hikers/Joggers (Dimension 1 Preference):				
Tree Cutting:				
<u>Open</u> /Enclosed	.49**	0.48**	-0.38*	0.33
Simple/Complicated	.39*	0.39*	0.22	0.46*
Controlled/Relaxed	.35	-0.58**	0.01	0.02*
Move Trail:				
Controlled/Relaxed	.41*	-0.55**	0.13	-0.31
Law:				
Natural/ <u>Manmade</u>	.42 *	-0.32	-0.07	0.54*
Bikers/Xc Skiers (Dimension 1 Preference):				
Tree Cutting:				
<u>Open</u> /Enclosed	.36	0.55*	-0.24	0.04
Move Trail:				
Controlled/Relaxed	.40*	-0.60**	0.21	-0.02
Horseback/Dog Sledders (Dimension 2 Preference):				
Tree Cutting:				
<u>Open</u> /Enclosed	.46*	0.46*	0.40*	-0.33
Controlled/Relaxed	.34	-0.30	-0.46*	0.22
Move Trail:				
Controlled/Relaxed	.53	-0.17	-0.67**	0.26
Law:				
Natural/ <u>Manmade</u>	.36	-0.07	-0.51*	-0.32

This process was used to indicate not only the strength of the variable, but the direction (Osgood et al. 1970). This technique is known as Semantic Differential and places bipolar adjectives at either end of a line. At either end, there would be a strong relationship whereas a mark at the mid-way point would show neither to be significant. The individuals' responses measured on a scale of 0 to 9 was used as the dependent variable in a multiple regression model. The three dimension coordinates found through the MDS were the independent variables.

The regression models identified some significant dimension attributes for the various recreationists. Recall that Dimension 3 (DIM 3) was the least important axis in the 3D interpretation. The most significant models are displayed in Table 2.

One can interpret the Beta Coefficients as vectors labeling the dimensions. The prevailing label as determined by the average weighting is underlined. When the cosines of the coefficients are measured from the prominent dimension, one has the labels.

Hikers and joggers are perhaps the most vulnerable in the urban environment. Because of this Tree Cutting is accepted as a "simple" means to "open" up the environment although it is viewed as a "controlled" management technique. Moving the trailhead is also considered to be "controlled" while the presence of Law Enforcement, is a "manmade" management

technique. See Figure 2 for a graphic representation for this user group.

Bikers and cross country skiers also believe Tree Cutting will "open" up urban parks, perhaps concerned about maneuvering the equipment along trails. The Movement of Trailheads is valued as a "controlling" technique of the park management.

The last group, horseback riders and dog sledders placed an importance on dimension 2 (Figure 3). There Tree Cutting will "open" and "control" the interaction of others while on the trail. Moving the Trailhead also "controls" the environment and the "manmade" nature of Law Enforcement is apparent.

Implications

Natural environments in cities offer reprise from the daily grind of urban life. Competing uses of these resources requires managers to closely monitor existing uses and to avoid unnecessary conflict on the often congested lands. Urban dwellers value these resources and may be impacted by the attempt of management to mitigate unwanted interaction.

Once the behavioral motivations of urban recreation choice are identified, the manager can better understand the decision making process involved by the users. Public acceptance of management techniques may be better if they are unobtrusive and deemed natural by the user.

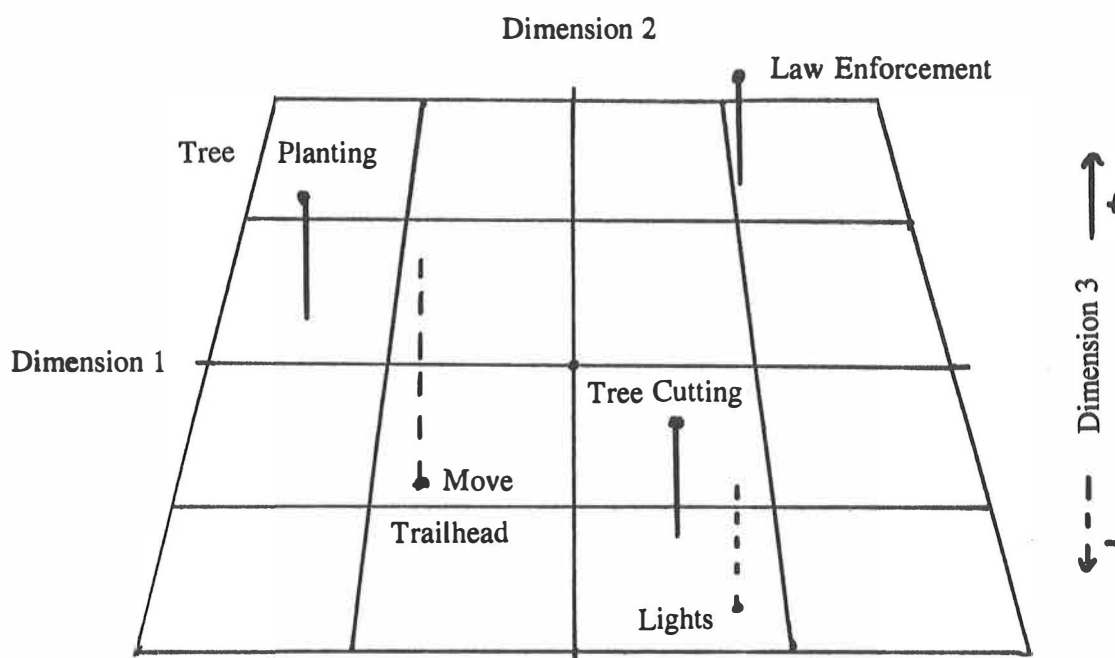


Figure 2. Three dimensional interpretation.

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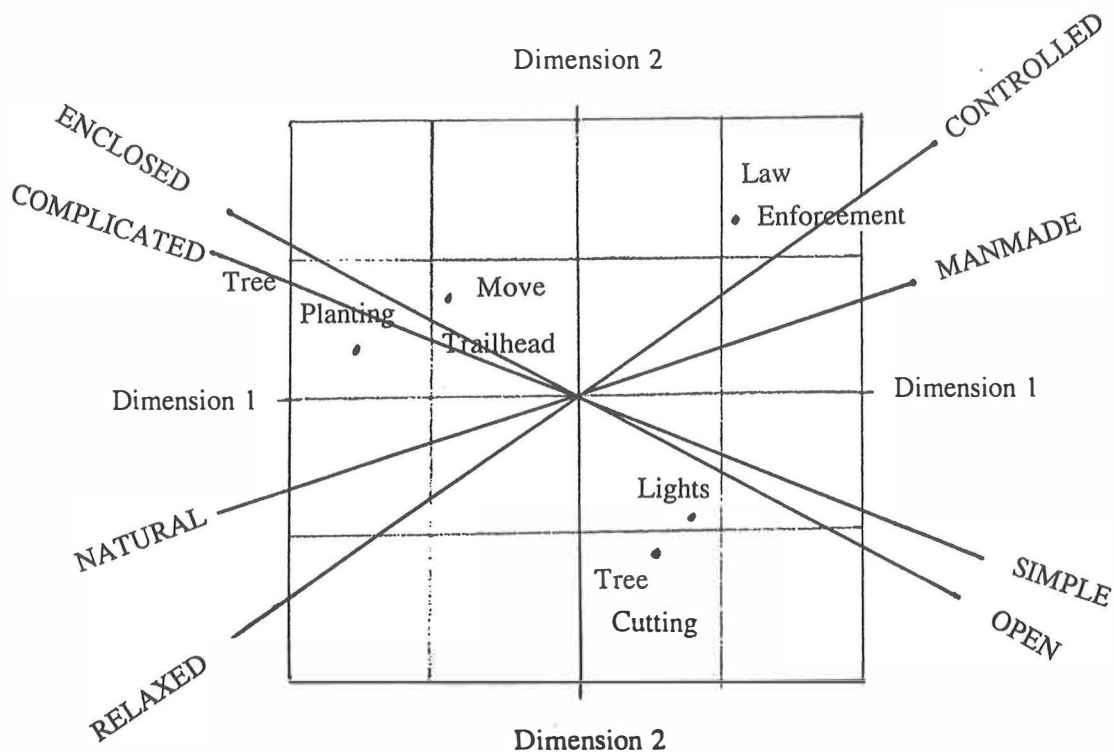


Figure 3. The two dimensional labels for hikers and joggers.

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OUTDOOR RECREATION TRENDS IN THE NORTHEASTERN UNITED STATES: 1979 - 1993, AN UPDATE

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Outdoor recreation participation trends in the northeastern United States were examined from 1979 through 1993 using secondary syndicated market research data from Simmons Market Research Bureau. Selected recreational activities reviewed included water-based, resource-based and winter-based activities. This paper updates an earlier trend paper from 1979 to 1987. Trend patterns were noted in outdoor recreation activities by participation rates, market size, and participation volume.

Introduction

The Northeast, and New England in particular, have long been recognized as providing a wide variety of outdoor recreation opportunities. Research has indicated that a number of outdoor recreation pursuits have increased in popularity over the decades of the 70s, 80s and 90s (National Outdoor Recreation Survey 1983, Clawson 1985, PCAO 1986, O'Leary, et.al. 1988; Hartmann, et.al. 1988, Kelly 1988, and Warnick 1989). While these studies have indicated increases in a number of recreation activities, others have revealed a general decline in the amount of leisure time for many Americans (Schorr 1991, Richard 1988; Manuel 1988; and Harris Poll cited in Boston Globe 1985). Other studies have revealed declines in participation rates in selected recreation activities in the United States (Warnick and Howard 1995, Howard 1992, Robinson 1987 and Warnick and Howard 1985).

In 1990, this author examined outdoor recreation participation trends in the Northeast. Trends within the relatively short context of 1979 through 1987 were found to exist. The activities were grouped into resource-based, water-based and winter-based groupings. In the resource-based activities, golf experienced a real growth pattern in the Northeast; while backpacking, camping and hunting were down. Hiking was one additional activity in which overall activity participation was up in the 80s. All water-based activities declined in the 80s, but only slightly. The number of people skiing including downhill and cross country was found to be growing. However, snowmobiling and ice skating were generally declining.

The author also found that although the market size for individual activities may be declining, there were growth segments within declining activities. For example, it was found that within camping, the market size of 25 to 44 year old campers was increasing, as were the college educated markets and the higher income groups (\$30,000 and up household income groups). For power boating, the 25 to 34 year olds and college educated groups were growing. Also, even within growth activities, the market growth was not uniform. For example, for the activity of downhill skiing, the market size growth was confined to the 25 to 44 year old segments, college educated and higher income groups. On the other hand, the market size growth for golf did cut across a wide cross-section of all age groups, educational status levels and most income groups. However, the market size growth for female golfers was particularly dramatic, although they comprise only a minority of all players.

The review in this article also found that market volume segments and amount of participation provided even more insights. For example in camping, there was no growth in the size or number of the light use or infrequent campers. The amount of camping generated by the heavy use camper, those who camped more than 10 times per year, was found to be growing which indicated more repeat use (activity patterns) or perhaps more long term camping. For downhill skiing, there was growth in the light use or infrequent segment and also growth in the heavy use segment. For golf, the growth in market size and market volume was up in all segments, but most dramatic in the light use segment. For power boating, the market was found to be declining and market volume was down for all segments except for the moderate use segment in the late 80s.

Some cautious predictions were made in that research presentation, also. Resource-based activities such as hunting and camping were predicted to not grow as rapidly as other activities. The demand for trail-based activities was expected to intensify. No predictions were made for winter-based activities due to the highly seasonal nature of these activities. Golf was predicted to continue to grow, although with some slowing in the overall rate. Water-related activities were predicted to remain relatively stable; however, concern was expressed about the continuing decline in participation for swimming. It was felt that this decline would eventually level out in the 90s.

With the rapid changes in many activities and participant interests, there is still the continual need for the monitoring and updating of a yearly regional outdoor recreation trend data base. The need for reliable outdoor recreation trend data continues to be imperative from both policy and planning perspectives. This is especially true in an area where outdoor recreation participation behavior is an essential part of the tourism experience in New England.

This study serves to re-examine the market for outdoor recreational activities in the Northeast for the years 1979 through 1993 where data exist. It updates the previous study conducted by Warnick (1989). Hopefully through this review

and the update, additional market trends during the past decade and one-half will help to better prepare and plan for future.

Data, when examined over a fifteen-year period of 1979 through 1993, provide the opportunity to monitor longitudinal outdoor recreation trends. These data also help address a number of important marketing questions. For example:

1. How many participants are there now in 1993?
2. Are the markets for outdoor recreation activities actually growing in size?
3. How frequently and extensively do participants participate in selected activities? Has this changed since the earlier report?
4. To what extent has the public's total demand for outdoor recreational activities grown?
5. What market trends are visible and what might one expect in the future?

These questions among others serve as the focus for this study.

Purpose of Study

The purposes of this research paper were three-fold: 1) to re-examine outdoor recreation activity trends from 1979 through 1993 (an update of the 1979 to 1987 study period) in three groupings of: a) resource-based activities, b) water-based activities, and c) winter-based activities; 2) to re-examine these trends specific to the northeastern United States in regard to market sizes; and 3) to re-examine regional changes in participation volume within selected outdoor recreation activities.

Methods

To analyze the trends, data were compiled from the annual surveys presented in the *Study of Media and Markets* (Simmons Market Research Bureau, Inc. 1979 through 1993). This research firm annually measures respondents' participation rates, demographic characteristics, and media use for a wide variety of leisure, sport and outdoor recreation activities. Data were obtained from household interviews collected on a national stratified random probability sample for each year from 1979 through 1993. (Please note that data for 1981 were not available for this report.) The data collection process included self-administered questionnaires and telephone interviews. The sample sizes ranged from approximately 15,000 individuals to as high as 25,000 adults. Results were then projected to the adult population, age 18 years and over, and living in the coterminous 48 states of the United States. Respondents were asked to indicate "the recreational activities each played or participated in, during the previous 12 months." Simmons Market Research Bureau (Technical Manual 1993) breaks the United States into four regions. The Northeast is defined as an area which includes the states of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey and Pennsylvania. The other regions within the United States are the South, the Midwest or North Central and the West. Alaska and Hawaii are not included within the regional configuration.

The three groupings of outdoor recreation activities examined here included resource-based, water-based and winter-based activities. Resource-based activities included backpacking, overnight camping, golf, hiking and hunting. Backpacking and hiking were treated as the same activity for 1979 and 1980, but were split into two separate activities beginning in 1982. Golf, which is often thought of as a sport, was treated as a resource-based activity due to the amount of land utilized for the activity. Golf courses also preserve a considerable amount of open space within many communities. Water-based activities included swimming, sailing, power boating, water skiing and fresh and saltwater fishing. Winter-based activities included downhill skiing, cross-country skiing, snowmobiling and ice skating.

Participation rate is defined as the percent of the total U.S. adult population who participate in the selected outdoor recreation activity. Market size is a weighted estimate of the total number of participants engaged in the activity on a yearly basis. Market volume or participation volume is derived from multiplying the market size of each participation level category (defined as participation days, categorized by 1-4 days, 5-9 days, 10-14 days, 15-19 days, etc., through 60+ days) by the median number of days for each category. Participation volume is presented by average number of days of participation per participant in selected activities of the total examined here. Those activities include camping, downhill skiing, golf and power boating. An average annual rate of change was noted for each change within each activity by each variable (participation rate, market size and participation volume). A two-point moving average is also included in the tables as a reference to smooth fluctuations from year-to-year.

Selected Results

Due to the large amount of information generated in this report, the data have been condensed for presentation purposes. Although data were collected and analyzed for each year where available, only the years 1979, 1981, 1984, 1987, 1990 and 1993 are shown in the tables. The average annual change rate is calculated across the full 15 year period where the data are available. For comparison purposes, national trends are presented first, followed by the trends within the Northeast. The tables are available by request by contacting the author.

Participation Rate Trends

National participation rate trends. Participation patterns by activity participation rate for the U.S. over the 15 year period revealed continuing declines in participation for 13 of the 15 activities examined in these groups. Only two activities actually grew in participation rates -- golf and hiking. All other activities at the national level actually experienced declining average annual change patterns. The winter activities changed the least with the exception of snowmobiling. Although the majority of activities actually declined in overall participation rates, a number of these participation rate declines were slight. For example, four activities (backpacking, cross country skiing,

downhill skiing and ice skating) had overall annual decline rates of less than one percent.

Northeast participation rate trends. In contrast, the Northeast Region differed from the national trends over the same 15 year period and within the same 13 activities. In nine (9) of the 15 activities, participation rates in the Northeast actually increased on an average annual basis. Only snowmobiling, camping, swimming, freshwater fishing, saltwater fishing and power boating declined in this region. All other activities had participation rates which actually grew on an average annual basis.

National resource-based activity participation rate trends. Participation in golf grew steadily throughout this period. The participation rate in 1979 was approximately 8.5 percent and by 1993 it had increased to 12.4 percent. Overnight camping, which peaked in the 70s, continued to decline through the early 80s until 1983 when rates rose slightly until 1986. Thereafter, the participation rates for overnight camping continued to deteriorate and stood at 9.2 percent in 1993. Participation rates for hunting dropped from 8.4 percent in 1979 to 5.9 percent in 1993. Backpacking and hiking, similar in nature, experienced somewhat different change patterns. Hiking, nationwide, actually increased in participation from a rate of 4.9 percent in 1979 to 7.1 percent in 1993. Participation in backpacking changed only so slightly -- off ".1%" over the period. However, backpacking is enjoyed by less than three (3) percent of the adult population.

Northeast resource-based activity participation rate trends. Participation rates among resource-based outdoor recreation enthusiasts in the Northeast differed from national trends. All activities, backpacking, hiking, hunting and golf, experienced average annual increases in participation rates. The only activity which did not grow was overnight camping; but, it declined only slightly ("-.5%"). Backpacking and hiking experienced substantial increases in participation rates. The average annual increase in the participation rates (remember this is a percentage change in the participation rate which is also expressed in percentages) for backpacking was 5.2 percent and for hiking 6.1 percent in the Northeast. In 1987, the participation rate for backpacking was ".9" percent and it increased to 1.7 percent in 1993 in this region. In 1979, the participation rate for hiking was 3.6 percent, by 1993 it had increased to 5.5 percent. Golf enjoyed the highest actual raw percentage changes in the region of these activities. In 1979, 7.5 percent of northeasterners golfed and by 1993 11.4 percent did so. Although hunting has declined at the national level, there was a slight increase in the Northeast (average annual increase of ".4%").

National water-based activity participation rate trends. The pattern of decline in participation in water-related activities intensified in the late 80s and early nineties. In the 1989 review, it was indicated that the pattern among these activities was primarily one of stability. However, since then the overall average for participation trend patterns have indicated declines in participation for power boating (the largest overall average decline of 3.1 percent); water skiing

(2.3 percent decline); swimming (1.6 percent decline) and sailing (1.3 percent decline). The participation rate for power boating was 8.1 percent in 1979 and 4.7 percent in 1993. Swimming also experienced a large percentage drop in participation. In 1979, 31.5 percent of all adults swam, by 1993 only 23.9% did so.

Northeast water-based activity participation rate trends. Although all four water-based activities declined in participation rates at the national level, only two did so in the Northeast. Water skiing and sailing both increased and water skiing increased the most (5.4%). The participation rates for swimming declined the most of all regions in the Northeast (it declined 2.1% in this region). Power boating also declined by 1.9 percent on an average annual basis.

National winter-based activity participation rate trends. In Warnick's 1989 study, ice skating was found to be the activity in which participation declined the most. That data covered the period of 1979 to 1987. Including the new data (1988 to 1993), it was found that ice skating actually declined the least nationally after the full 15 years were examined. Consequently, the additional trend years saw ice skating becoming increasingly more popular. Two of the other activities experienced only modest declines nationally -- cross country skiing declined ".9%" and downhill skiing declined ".7%". Snowmobiling declined the most; however, the data on this activity was considered to be somewhat unstable.

Northeast winter-based activity participation rate trends. When participation rate trends were examined within the Northeast, three of the four activities showed average annual increases in participation rates. Cross country skiing increased the most (5.7% increase); followed by downhill skiing (4.0% increase) and then ice skating which had a modest increase ("-.7%" increase). Data were only available on snowmobiling through 1990 and a decline was found; but due to the relatively low number of snowmobilers this finding is viewed with caution as it may be highly unstable.

Participation rates alone do not indicate the total story of market changes by activity. Next, the changes in market size (number of actual participants) by region are examined.

Market size changes in the Northeast

Participation does vary by region of the country. The market size in terms of numbers or participants is also important for making market decisions. In some cases, recreational participation rates may be declining slightly, but the overall market size by number of participants may actually be increasing. This is partly due to population growth and demographic changes over time. Therefore, careful review of market size data is essential in monitoring outdoor recreation trends, too. While statistics are not presented here for every region, one may want to examine further the population and demographic changes within one's own region to appreciate these impacts. For additional insights one should compare the rates of changes by region with overall U.S. changes. Due to space restrictions, national market size changes are not fully discussed here.

Resource-based activity market size trends. Nationally, three (backpacking, hiking and golf) of the five activities examined have realized actual growth in the number of participants. In the Northeast, all of the five activities actually grew in number of participants -- including camping and hunting. Growth was the most for golf (10.7%), followed by hiking (6.8%); backpacking (5.6%); then hunting ("0.9") and finally camping ("0.2%").

Water-based activity market size trends. Nationally, all four water-based activities decreased in market size from 1979 through 1993. Two activities in the Northeast actually grew in market size -- sailing (1.1%) and water skiing (1.1%). Swimming declined more rapidly in the Northeast than in any other region in the country. It dropped in market size in this region by 1.6 percent (four times the national average of ".4%").

Winter-based activity market size trends. Nationally, all four winter activities increased in market size from 1979 through 1993; however, these increases were relatively modest -- for three of the activities the increases were less than one percent. The number of participation grew in the Northeast for cross country skiing (6.5% increase), downhill skiing (4.4%) increase and also for snowmobiling (4.8% increase although caution in this number is made due to the instability of the data). Ice skating in the Northeast has traditionally held the most participants of all regions examined experienced an overall decline of 2.1 percent in the number of skaters from 1979 through 1993.

Regional statistics do reveal variations across the country by participation rates and number of actual participants. In this last section, the volume or intensity of participation will be examined to determine if the level of participation volume also varies across regions. Again, due to the volume of data generated here only four activities will be examined -- golf, camping, downhill skiing and power boating.

Volume of participation changes in selected activities

In this last section, the volume of participation (i.e., the number of participation days) is examined both at the national level and within the Northeast. The number of participation days per participant is presented here for camping, downhill skiing, golf and power boating. The national trends are discussed first followed by the trends within these activities in the Northeast.

National volume participation changes in selected activities. For three of the four activities examined here the average number of participation days per participant increased. This included power boating ("0.1%" increase); downhill skiing (2.4% increase); and golf (0.5% increase). For camping, the average number of participation days per participant actually declined by 1.2% per year on average.

Northeast volume participation changes in selected activities. In the Northeast, all of the activities grew by participation days per participant. Power boating grew the most (3.2% increase); followed by golf (2.4% increase), downhill skiing (2.1% increase); and camping ("0.6%")

increase). The increase for camping was modest and the moving average statistic actually indicated a decrease. The activity days per participant may be found in Tables 1 to 4.

Discussion

An examination of market outdoor recreation activity trends on a year to year basis for the period of 1979 through 1993 does reveal specific patterns and changes in the various participant markets. While not all inclusive, some discussion points are raised here.

Trend observations

First, the Northeast outdoor recreation patterns do differ from the general U.S. or national participation patterns. For 15 activities examined at the national level, participation rates are declining. However, in the Northeast, when the same 15 activities' participation rates were examined, it was found that in nine of the activities the participation rates were growing. Consequently, it would be misleading to base activity decisions in the Northeast on national participation rate trends.

Second, participation rates only tell us how the overall participation patterns are changing. More important are the number of participants and actual participation days generated by the activity participants. For example, one could have a slightly declining participation rate, but with an overall population rate growth, it would be possible to experience an actual growth in the number of participants and even participation days. When the market size or number of participants per activity were examined there were six (6) activities where the number of participants were actually growing. Therefore, as one recalls participation rates were declining in 13 of 15 activities, but the actual numbers of participants were actually increasing in four (4) of these activities even though the rates of participation were off. In the Northeast, the market sizes were actually growing in nine (9) of the 15 activities examined. The biggest increases in number of participants were in golf, hiking, backpacking, cross country skiing and some increases in sailing and water skiing were also noted. The biggest declines were in snowmobiling, saltwater fishing and swimming. It also appears that the Northeast markets for outdoor recreation activities are gaining a larger share of the national participation markets over time. The Northeast is also a growth market in some activities which are declining at the national level. A good example of this trend is water skiing where the participation rate is declining at the national level, but increasing in the Northeast.

Third, when the activity days per activity were examined, the Northeast is also a more highly active market. For three of the activities (golf, camping, and power boating), the number of participation days per participant were up. The Northeast also experienced an increase in the number of snow skiing days per skier, but this increase was far less than the increase in the Western U.S. Activity days paint a clearly different picture than just examining participation rates.

Table 1. Activity Participation Days Per Participant for Camping, 1979 to 1993.

Activity Region	Camping Year						Average Annual Change Rate	Two Point Moving Average
	1979	1981*	1984	1987	1990	1993		
Northeast	10.3	12.1	11.3	11.8	10.7	9.5	0.6%	-0.8%
Midwest	10.6	11.8	9.0	9.6	9.9	8.5	-1.3%	-1.3%
South	10.3	10.3	9.6	8.7	9.8	9.0	-0.7%	-1.0%
West	11.1	11.1	10.7	8.7	9.8	8.6	-1.4%	-1.7%
Total	10.7	11.3	10.1	9.5	10.0	8.8	-1.2%	-1.4%

*1981 data not available from Simmons, data extrapolated from 1980 and 1982 (an average estimate).

Only select years (79,81,84,87,90,93) shown due to space limitations, change rates based on all years where available.

Table 2. Participation Days Per Power Boater by Region, 1979 to 1993

Activity Region	Power Boating Year						Average Annual Change Rate	Two Point Moving Average
	1979	1981*	1984	1987	1990	1993		
Northeast	12.2	13.8	14.1	13.9	17.6	15.3	3.2%	1.0%
Midwest	12.9	12.4	13.6	13.6	14.0	12.4	0.8%	0.1%
South	13.2	13.7	14.3	14.5	16.6	10.7	-0.7%	-0.6%
West	11.4	12.5	11.7	11.3	14.1	9.1	0.6%	0.0%
Total	12.6	13.0	13.5	13.4	15.4	11.7	0.1%	-0.1%

*1981 data not available from Simmons, data extrapolated from 1980 and 1982 (an average estimate).

Only select years (79,81,84,87,90,93) shown here due to space limitations, change rates based on all years where available.

Table 3. Participation Days Per Skier, 1979 to 1993

Activity Region	Downhill Skiing Year						Average Annual Change Rate	Two Point Moving Average
	1979	1981*	1984	1987	1990	1993		
Northeast	8.00	8.36	7.40	7.81	9.73	9.47	2.1%	1.2%
Midwest	7.01	7.88	6.69	7.72	8.03	7.73	2.8%	0.2%
South	6.89	7.12	7.70	7.26	5.78	6.61	1.9%	-0.1%
West	7.67	9.25	7.35	8.09	10.94	8.15	5.2%	0.3%
Total	7.52	8.34	7.26	7.81	9.23	8.02	2.4%	0.1%

*1981 data not available from Simmons, data extrapolated from 1980 and 1982 (an average estimate).

Only select years (79,81,84,87,90,93) shown here due to space limitations, change rates based on all years where available.

Table 4. Participation Days Per Golfer by Region, 1979 to 1993.

Activity Region	Golf Year						Average Annual Change Rate	Two Point Moving Average
	1979	1981*	1984	1987	1990	1993		
Northeast	17.2	14.6	17.5	18.4	19.5	21.5	2.4%	1.5%
Midwest	16.1	15.5	16.0	15.7	17.5	18.1	1.3%	0.8%
South	20.5	16.9	18.2	15.8	15.4	19.4	0.4%	0.4%
West	18.8	16.8	16.7	13.8	14.5	16.4	-0.6%	-0.9%
Total	18.1	15.9	17.0	15.8	16.7	18.7	0.5%	0.4%

*1981 data not available from Simmons, data extrapolated from 1980 and 1982 (an average estimate).

Only select years (79,81,84,87,90,93) shown here due to space limitations, change rates based on all years where available.

Other useful insights can be found through the further analysis of each variable – participation rates, market size and participation volume. For example, it is clear that golf has been one of the big growth activities in the 80s and 90s. At the national level, the participation rate increased at an average annual rate of 3.3%, the market size at an average annual rate of 4.6%, and participation days per participant at an average rate of “0.5%”. But why the very modest increase in the average number of golf participation days per participant? This is explained primarily by the influx of new golfers who have just recently taken up the game and play at much lower rates than the core or loyal or frequent golfer and who exit and enter the game more frequently. Other reports have noted the growth in number of golfing days (Warnick 1991) in recent years. The growth in the number of participants also raises concerns over whether the participants will remain with the activity. The National Golf Foundation has expressed concern over the large influx of golfers in recent years and how the game can remain popular and retain players. They even commissioned a special study in 1995 to study why people were dropping out of the game (National Golf Foundation 1995). With the influx of so many new golfers, the slowing of the pattern was predictable and the National Golf Foundation study found that the bulk of the attrition rate in golf has come from the “occasional” golfer - the person who plays less than seven (7) times per year and are 18 to 34 years old.

A closer examination of another activity revealed other insights. For example, loyal participants who are increasing their play rates may be driving participation volume rates. This can happen when an activity’s participation rate shows only modest increase, the market size (number of participants) remains stable and may even decline, and the actual playing or participation volume increases. This was evident for downhill skiing where the participation rate actually declined (“0.7%” decrease), but the overall market size increased slightly (“.05%” increase) and the overall average number of skiing days per participant actually increased by 2.4%. Here, the more serious, loyal or committed skiers are likely dominating the activity.

Prediction Ability

The ability to predict was noted as a key point in the introduction. Although the purpose of this study was not to predict, it was also worthwhile to venture some “educated guesses” based on the patterns of changes found in these trends. First, it is worthwhile to examine what was ventured for predictions in the 1989 study (Warnick 1989) and examine what actually did happen.

Table 5. National Predictions.

Activity	1989 Prediction	1995 Actual	Result
Hunting	Decline	Declined	Correct
Camping	Decline	Declined	Correct
Hiking	Increase	Increased	Correct
Backpacking	Increase	Increased	Correct
Golf	Increase (Slowing)	Increased (slower)	Correct
Winter-Based	No prediction	All 4 decreased	N.A.
Swimming	Decrease	Declined	Correct
Other Water-Based	Stable	All 6 decreased	Incorrect

Of course with any prediction, it is a matter of how the trend is examined. These represent only results from the national level and not the regional level. This study found that such patterns can be different when examined within the regional context. The same predictions applied to the Northeast revealed slightly different results in the following:

Table 6. Northeast Predictions.

Activity	1989 Prediction	1995 Actual	Result
Hunting	Decline	Slight increase	Incorrect
Camping	Decline	Declined	Correct
Hiking	Increase	Increased	Correct
Backpacking	Increase	Increased	Correct
Golf	Increase (Slowing)	Increased (faster)	Incorrect
Winter-Based	No prediction	All 4 decreased	N.A.
Swimming	Decrease	Declined	Correct
Other Water-Based	Stable	2 of 5 increased	Incorrect

Not all predictions are correct and the venture of an “educated guess” was very conservative in that only the direction was predicted and not the amount of change. But what might the Northeast expect over the next few years? Based on the patterns showed here and the overall knowledge of the local market conditions, it is safe to say that some activities are likely to remain favorable among the Northeasterners. For example, trail related activities...hiking, backpacking and even bicycling will likely grow. This is fueled not only by the historical patterns and demographics but by the supply factor (more trails) and the technology factor (new equipment innovations) making the activity easier to do. Golf will remain somewhat stable with steady growth patterns but supply is a concern in the Northeast which will likely dampen large scale activity growth such as was witnessed in the late 80s. The demographics of an older population tend to help this activity in the long term. Hunting is likely to continue to decline. It is a matter of demographics. Likewise fishing may continue to experience downward activity participation trends. Both activities are factors of the changing American family and it is likely that there are simply not enough new participants who are entering the activity to offset those exiting the activity.

Other activities are much harder to predict in the Northeast, particularly the winter-based activities. However, it is likely that snowmobiling will simply become a highly specialized activity and is not likely to grow. Downhill skiing will likely remain relatively stable and cross country skiing may in fact grow with the increase in supply of many new trails. However, both activities are driven by the winter weather. Ice skating on the other hand shows positive signs of increasing in popularity among younger adults and may experience growth in the coming years.

Management Implications

These findings suggest specific implications for managers of outdoor recreation resources. First, the increase in popularity of trail-based activities means more visitors, more conflicts and more rescues. With the increased popularity and new technology innovations, it is likely that people will venture further into the outdoors. However, with many new participants, it is also likely the selected resources will experience higher intensity participation use. The challenge for the manager will be to disperse the growing demand for trail use. Educational opportunities for managers in "programming" resources and educating the users about resource protection, appropriate use(s) and expectations will also grow.

Some activities, such as downhill skiing, which are becoming dominated by the loyal, dedicated skier who is skiing more often, may experience the need to diversify the activity opportunities and create new challenges and trail systems which will kept the skier loyal to the activity and ski resort. The market will be challenged to introduce the activity to a new group or groups of replacement participants.

Declining activity participation is likely to challenge those in the wildlife management areas, too. Particularly the management of wildlife herds (deer, bear, small game, etc.) are likely to become more problematic with fewer hunters. Fish stocks may be renewed with fewer people who fish.

Finally, some note of caution in using the data is necessary. With raw trend data, there can be fluctuations in the estimates. This is noticed in some places. For example, golf participation in the Northeast varied significantly in the late 80s. These are called trend spikes and can substantially affect the trend results. The two point moving average can offset some of these trend variations. Should one decide to utilize the trend data and base management decisions on the patterns, it would be helpful to request the full data tables which include the moving average statistics.

Conclusion

The findings reached by analyzing these data do indicate that outdoor recreation participation patterns are clearly evident and useful when monitored on an annual basis. There is also indication that by monitoring trends in this fashion changes in participation patterns may be anticipated and interesting hypotheses about recreation participation patterns proposed. Even within declining markets, growth segments may be found.

Those agencies which incorporate some type of yearly monitoring process into their market information systems should more readily be able to develop some marketing and planning strategies for the years ahead. This study revealed some of the changing patterns within the Northeast.

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NOTE: The full statistical tables are available upon written request from the author at the address noted on title page.

FORECASTING RECREATION PARTICIPATION: A COHORT-COMPONENT PROJECTION MODEL FOR THE U.S.

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Population projections for the U.S. predict slower growth, an older population, and increased racial/ethnic diversity. If percent of the population participating in recreation activities by age and race/ethnicity remains at present levels, cohort-component projection models suggest that with projected changes in the age and racial/ethnic structure of the population between 1992 and 2050, the number U.S. participants in many recreation activities will increase at rates that are slower than population growth. Recreation participants are projected to be increasingly older and from non-white groups.

Demographic Trends

In the years ahead the U.S. population is projected to grow more slowly than in the past, become older, and have larger racial/ethnic minority components (U.S. Bureau of the Census 1989, 1992). The annual rate of growth of the U.S. population, which was 2% in the 1950's and 1% in the 1980's, is expected to continue its decline to 0.5% by 2050. Accompanying slower population growth and longer life spans will be an older population. In 1900 the median age was 23; it increased to 30 in 1980; and is expected to reach 36 by the year 2000, and 39 by the year 2050. In 1990, 36 percent of the population was less than 25 years old; but by 2050 that percentage is projected to fall to 32 percent. Racial and ethnic diversity will increase. Between 1992 and 2050 the U.S. population is expected to increase by 128 million, of which 11 million will be white non-Hispanic and the remaining 117 million (91 percent) will be from what we have traditionally thought of as racial/ethnic minority groups, including 56 million of Hispanic origin, 31 million Asian and Pacific Islander, 27 million African-Americans, and 2 million American Indian, Eskimo, and Aleut. Between 1990 and 2050 the proportion of the U.S. population that is white non-Hispanic is projected to decrease from 75 percent of the population to 53 percent of the population, while the proportion of the other racial/ethnic groups mentioned above will increase. Aging will be an important factor with all racial/ethnic groups, with the median ages of each of the major groups reported by the census expected to increase between 1992 and 2050 (Table 1).

Table 1. Projections of median age by racial/ethnic group, 1992 and 2050 (U.S. Bureau of the Census, 1992).

Racial/Ethnic Group	1992	2050
Hispanic origin	26.0	33.3
White	35.5	44.8
African American	28.5	32.8
American Indian, Eskimo, and Aleut	26.8	28.7
Asian and Pacific Islander	30.2	36.4

Variation in Participation

A 1989 survey of U.S. participation in 29 recreation activities revealed statistically significant differences in recreation participation (i.e., percent participating) according to age and racial/ethnic background (Dwyer 1994a, 1995). Similar patterns have been reported for Illinois and elsewhere (Dwyer 1993, 1995). These patterns suggest that changes in recreation participation could accompany changing age and racial/ethnic structure of the population in the years ahead. The variations in participation that are associated with race/ethnicity and age are summarized below. Subsequent discussion explores their implications for recreation participation in the years ahead.

Race/Ethnicity

There are statistically significant differences across racial/ethnic groups (African Americans, Hispanic Americans, whites, and "other") for each of the 29 activities (Dwyer 1994a, 1995). The most distinct pattern across the racial/ethnic groups is that

African Americans are significantly less likely than the other three groups to participate in a substantial portion of the outdoor recreation activities studied, particularly those that take place in a wildland setting or involve water/snow/ice. It is in selected athletic activities (aerobics, jogging/running) in which African Americans are significantly more likely than whites to participate; but in no instance is African American participation significantly higher than the Hispanic or "other" group. There is a tendency for one or more of the three racial/ethnic "minority" groups to have significantly higher participation than whites in sports and athletic activities -- and all three "minority" groups had significantly higher participation than whites in aerobics and jogging/running. Patterns of similarities and differences between whites, Hispanics, and the "other" group are not as clear as the African American/white comparisons. In many instances Hispanics, "others," or both of these groups are more likely than whites to participate in a particular activity; but the overall patterns are not clear. Perhaps the lack of a clear pattern of participation for Hispanic and "other" groups in comparison to whites and African Americans is because of the recent immigration of a number of individuals in the Hispanic and "other" groups from a wide range of countries with diverse recreation patterns and traditions. What we are most likely observing here under groupings such as "Hispanic" or "other" is composites of a number of distinct recreation participation patterns for specific ethnic groups. African Americans and whites are also composites of a number of ethnic groups; but they have an almost unanimous shared recent background in the United States. We also have relatively fewer observations with Hispanics and "other" groups, which may have hampered our efforts to identify clear patterns with these groups or to

compare them to others. A similar problem was encountered in an analysis of participation by racial/ethnic groups in Illinois (Dwyer 1993).

Age

There are significant differences in participation across the six age categories for each of the 29 activities (Dwyer 1994a, 1995). The general trend is a decrease in participation with increasing age, with the difference between activities being when that decrease begins. With nearly half of the activities (and particularly sports and athletics), there is a fairly steady decline in percent participating with each age class after the first (18-24 years), with nearly all of the other activities starting decline after the second age class (25-34). A notable exception is birdwatching where percent participating increases with age class until age 55-64, and then decreases slowly.

Projecting Number of Participants

A cohort-component projection model was used to project future numbers of participants in recreation activities by U.S. residents based on U.S. Bureau of the Census (1992) projections of the future population by age and racial/ethnic structure, as well as constant activity participation rates by age and racial/ethnic group developed from national survey for 1989 (Dwyer 1994a, 1995). For example, the participation rates for running/jogging by racial/ethnic group and age class are presented in table 2. Results of the cohort-component projection models are presented in tables 3 and 4. For other examples of cohort-component projection models applied to recreation see Murdock et al. (1990, 1991) and Dwyer (1994b, 1995a). The cohort-component projection model reflects three components of change in the number of recreation participants in the years ahead; population growth, changing age structure of the population, and changing racial/ethnic composition of the population. For example, with jogging/running, the model predicts a 57% increase in participants over the period 1992-2050. The 57% increase is the sum of a 56% increase in population, a 26% decrease due to aging of the population, and a 26% increase due to changing racial/ethnic structure of the population.

Table 2. Percent of U.S. adults participating in jogging/running by race/ethnicity and age class, 1989 (Nadkarni and O'Leary, 1992).

Age category	White	African American	Hispanic	Other
18-24	19.4	17.2	25.8	37.2
25-34	14.8	17.2	27.7	20.9
35-44	11.8	15.0	18.9	23.8
45-54	8.2	6.0	25.6	13.4
55-64	4.2	9.4	20.3	15.6
65+	2.3	3.4	2.7	0.0

The models project that during the period 1992-2050, growth in number of U.S. participants in 29 recreation activities will range from 7 to 87 percent with a median increase of 29 percent (Table 3). In only three instances (hang gliding, saltwater fishing, and jogging/running) is the projected rate of increase in participants higher than the projected increase in

population (56%). With all three activities the relatively high rates of increase in number of participants are attributable to higher rates of participation in these activities by racial/ethnic "minority groups" where there will be substantial increases in population, including younger individuals with relatively high participation rates in these activities.

The effect of age on change in the number of participants between 1992 and 2050 ranged from +8% to -38% with a median of -20% (Table 3). With race/ethnicity, the effect ranged from +58% to -30% with a median of -3%. With 17 activities, age had a larger influence on the change in the number of participants than race/ethnicity; while in eleven instances race/ethnicity had a larger influence than age. There was one instance race/ethnicity and age were of equal significance in their influence on number of participants in the years ahead.

The smallest projected percent increases in number of participants between 1992 and 2050 were for activities that are relatively popular among young whites -- a group that is projected to decrease in numbers. These activities include wind surfing, canoeing, whitewater rafting, waterskiing, snowmobiling, power boating, cross-country skiing, hunting, and hot air ballooning.

Projections suggest changes in the racial/ethnic background and age of participants as well. In 27 of 29 activities, projections suggest a decline in the number of white participants, the two exceptions being birdwatching and golf -- activities that are particularly popular with older whites (Table 4). In all 29 activities, projections call for an increase in the number of participants in the three "minority" racial/ethnic categories of African American, Hispanic, and "other". With 20 activities, the projected increase in number of participants was highest for Hispanics, while with the remaining nine activities it was highest with the "other" group. In no instances were African Americans the group with the greatest increase, and in all but one instance (hunting), the increases in participants among African Americans were below the other two "minority" groups. Low increases among African Americans are a function of modest projected growth in numbers and relatively low participation rates.

The projections of the numbers and characteristics of future participants developed for the U.S. must be evaluated in light of two key assumptions of the model: (1) participation rates by age and race will not change over time, and (2) variables other than age and race that may influence participation are not explicitly considered. For a discussion of these assumptions and their implications for predicting the number of participants in selected activities in the years ahead, see Dwyer (1995) who also provides suggestions for improved predictions, such as using changing participation rates over time.

Table 3. Predicted changes in the number of participants in recreation activities in the U.S., 1992 and 2050, and components of those changes.

Predicted number of participants age 18 and above (in thousands)			Components of change in participants 1992-2050		
Activity	1992	Change 1992-2050	Population Growth (+56)	Changes in Age	Changes in Race/Ethnicity
Swimming	63,569	+23,083 (+36)	+35,456	-9,818 (-15)	-2,555 (-4)
Bicycling	51,124	+20,816 (+41)	+28,515	-10,023 (-20)	+2,324 (+4)
Freshwater fishing	36,960	+13,287 (+36)	+20,615	-4,942 (-13)	-2,386 (-6)
Camping	33,234	+8,836 (+26)	+18,536	-5,404 (-16)	-4,296 (-13)
Aerobics	29,690	+11,749 (+40)	+16,560	-6,712 (-23)	+1,901 (+6)
Jogging/Running	22,414	+12,696 (+57)	+12,502	-5,722 (-26)	+5,916 (+26)
Golf	20,832	+5,972 (+29)	+11,619	-1,165 (-6)	-4,482 (-22)
Weight lifting	20,936	+8,659 (+41)	+11,677	-6,606 (-32)	+3,588 (+17)
Hike/backpack	20,608	+6,545 (+32)	+11,494	-4,402 (-21)	-547 (-3)
Tennis	17,287	+7,919 (+46)	+9,642	-4,606 (-27)	+2,883 (+17)
Power boating	14,625	+2,125 (+14)	+8,157	-1,706 (-12)	-4,326 (-30)
Hunting	13,160	+2,677 (+20)	+7,340	-1,774 (-13)	-2,889 (-22)
Saltwater fishing	13,640	+9,419 (+69)	+7,608	-1,766 (-13)	+3,577 (+26)
Birdwatching	13,457	+6,630 (+49)	+7,506	+1,100 (+8)	-1,976 (-15)
Downhill skiing	10,975	+3,093 (+28)	+6,121	-2,974 (-27)	-54 (-1)
Waterskiing	10,749	+1,278 (+12)	+5,995	-2,986 (-28)	-1,731 (-16)
Horseback riding	10,598	+2,813 (+27)	+5,911	-2,751 (-26)	-347 (-3)
Canoeing	9,845	+834 (+8)	+5,491	-1,884 (-19)	-2,755 (-28)
Racquetball	9,640	+4,235 (+44)	+5,377	-3,095 (-32)	+1,953 (+20)
Sailing	7,432	+2172 (+29)	+4,145	-1,110 (-15)	-863 (-12)
X-country ski	5,785	+1,000 (+17)	+3,227	-1,078 (-19)	-1,149 (-20)
Mountain climbing	5,042	+2573 (+51)	+2,812	-960 (-19)	+721 (+14)
Snowmobiling	3,741	+480 (+13)	+2,087	-685 (-18)	-922 (-25)
Whitewater rafting	3,212	+267 (+8)	+1,792	-702 (-22)	-823 (-26)
Scuba diving	3,632	+1,287 (+35)	+2,026	-1,089 (-30)	+350 (+10)
Wind surfing	1,336	+93 (+7)	+745	-339 (-25)	-313 (-23)
Hot air balloon	1,365	+300 (+22)	+761	-166 (-12)	-295 (-22)
Squash	476	+123 (+26)	+265	-180 (-38)	+38 (+8)
Hang gliding	304	+170 (+87)	+176	-82 (-27)	+175 (+58)

Predictions are made from population estimates provided by the U.S. Bureau of the Census (1992), and per capita participation rates for recreation activities developed by Nadkarni and O'Leary (1992).

(X.X) = percent change from 1992.

Table 4. Predicted changes in the number of participants in recreation activities in the U.S., 1992 and 2050, and components of those changes.

Activity	Predicted number of participants age 18 and above (in thousands)		Change by racial/ethnic group (in thousands)			
	1992	Change 1992-2050	White	African American	Hispanic	Other
Swimming	63,569	+23,083 (+36)	-2,897	+2,773	+12,260	+10,946
Bicycling	51,124	+20,816 (+41)	-2,778	+3,088	+10,909	+9,597
Freshwater fishing	36,960	+13,287 (+36)	-1,264	+2,020	+6,696	+5,835
Camping	33,234	+8,836 (+26)	-2,334	+477	+5,268	+5,426
Aerobics	29,690	+11,749 (+40)	-2,065	+3,429	+6,230	+4,156
Jogging/Running	22,414	+12,696 (+57)	-1,648	+2,153	+7,762	+4,429
Golf	20,832	+5,972 (+29)	+95	+494	+2,690	+2,694
Weight lifting	20,936	+8,659 (+41)	-2,303	+1,635	+5,411	+3,913
Hike/backpack	20,608	+6,545 (+32)	-1,872	+195	+3,991	+4,231
Tennis	17,287	+7,919 (+46)	-1,405	+1,355	+3,348	+4,622
Power boating	14,625	+2,125 (+14)	-754	+292	+1,408	+1,179
Hunting	13,160	+2,677 (+20)	-944	+479	+2,720	+422
Saltwater fishing	13,640	+9,419 (+69)	-173	+707	+4,610	+4,275
Birdwatching	13,457	+6,630 (+49)	+1,685	+582	+3,029	+1,336
Downhill skiing	10,975	+3,093 (+28)	-1,405	+194	+2,261	+2,043
Waterskiing	10,749	+1,278 (+12)	-1,709	+35	+1,978	+975
Horseback riding	10,598	+2,813 (+27)	-1,217	+699	+1,897	+1,433
Canoeing	9,845	+834 (+8)	-1,087	+189	+737	+994
Racquetball	9,640	+4,235 (+44)	-1,178	+403	+3,010	+2,000
Sailing	7,432	+2,172 (+29)	-243	+108	+1,509	+798
X-country ski	5,785	+1,000 (+17)	-544	+114	+1,072	+359
Mountain climbing	5,042	+2,573 (+51)	-342	0	+568	+2,346
Snowmobiling	3,741	+480 (+13)	-401	+66	+683	+132
Whitewater rafting	3,212	+267 (+8)	-388	+43	+310	+302
Scuba diving	3,632	+1,287 (+35)	-448	+30	+711	+994
Wind surfing	1,336	+93 (+7)	-183	0	+276	0
Hot air balloon	1,365	+300 (+22)	-57	+44	+233	+80
Squash	476	+123 (+26)	-77	0	+72	+128
Hang gliding	304	+264 (+87)	-20	0	+100	+184

Predictions are made from population estimates provided by the U.S. Bureau of the Census (1992), and per capita participation rates for recreation activities developed by Nadkarni and O'Leary (1992).

(X.X) = percent change from 1992.

In addition to changes in the racial/ethnic and age structure of the population over time, there will also be other demographic changes such as income, family structure, and education; as well as changing tastes and preferences and changing availability of opportunities to participate. It is important to recognize that these other factors exist and in some instances may overwhelm some of the forces for change that we are dealing with here. These and other variables could be built into a cohort component projection model if information becomes available on the association between the variables and participation, and projections of the variables in the years ahead were available. But for now we are focusing our attention on population growth and changing age and race/ethnicity and their possible implications for future participation.

Implications for Management

If participation rates in recreation activities by age and race/ethnicity remain constant over time by race/ethnicity and age, changes in the U.S. population and its age and racial/ethnic composition are likely to bring significant changes in the recreation participation patterns of U.S. residents. While projected changes will vary significantly across activities, the number of recreation participants is projected to increase at a slower rate than in the past, and participants will be increasingly older and from non-white groups. These changes will have wide-ranging implications for recreation resource management programs; including design and management of recreation settings, the focus of visitor programs, information and marketing efforts, and the selection and training of those who work with visitors. It may be necessary to review fee structures in the years ahead, given the increasing proportion of participants that will qualify for "senior citizen rates." The selection of staff and the development of training programs must address the needs of increasingly diverse customers. Increased attention will need to be given to communication between managers and planners and the increasingly diverse populations that they will serve. These implications will be especially significant for the management and use of resources in or near urban centers which tend to be heavily used by racial/ethnic minorities and older Americans. Change will be the hallmark of recreation resource management programs even more than in the past, and it will be increasingly important to maintain flexibility and the ability to respond to the changing needs of changing customers.

Changing participation rates over time may bring somewhat different results. For example, if the participation rates of racial/ethnic minority groups increase over time as a result of factors such as increased enculturation and reductions in discrimination and other barriers, then there will be higher numbers of participants. However, under these circumstances an even larger portion of the participants will be from minority groups, and management programs will have to be adjusted accordingly. Similarly, if older Americans increase their participation rates over time as the result of factors such as changing culture and improved health, then the number of participants will increase. However, a higher proportion of the

participants would be from older age classes, and managers will have to adjust their facilities and programs accordingly.

Implications for Research

If information from recreation surveys is to be used to estimate participation rates for racial/ethnic groups and age categories for use in cohort component projection models, it is critical that the racial/ethnic and age variables are defined in a way that is consistent with those used in the population projections. This lack of compatibility is often a problem with cohort-component projection modeling. In the present analysis, the population estimates for the U.S. were reported for white; African American; American Indian, Eskimo, and Aleut; Asian and Pacific Islander; in total and non-Hispanic categories, as well as for those of Hispanic origin. The recreation survey used four categories (African American, White, Hispanic, and "other"), consequently the population categories had to be aggregated into three groups to match up with the population estimates. The racial/ethnic categories used in recreation surveys should be the same as those used in population estimates, or at least be comparable. Age can present a problem too, and it is important that the minimum age of those surveyed for their recreation participation correspond to the lower limit of one of the population categories used in the population projections. If groupings of ages are to be used, they should be similar for the population projections and the recreation participation. Care must be taken in using state and federal data which may use different categories of age and race/ethnicity in projections. Surveys of the general population provide limited observations from minority groups resulting in sketchy information on participation rates for those groups, particularly among older participants. It is also important that sufficient data are gathered on participation in recreation activities by minority groups of all ages, particularly if estimates of the number of participant days are desired. This might require over sampling those groups. It is also critical that attention be given to estimating future activity participation rates. Among the obvious problems with using current rates to project future participation is that older individuals sampled today grew up in a quite different environment than exists today and is likely to exist in the years ahead. As such, their participation was conditioned by the environment in earlier times, and may not be indicative of the behavior of future older citizens. Examples of trends that may make these participation rates change over time include increased availability of resources, increased activity of older Americans, and reduced barriers to use of recreation resources by minority groups. These trends need to be considered in efforts to project future participation rates.

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**TRAVEL
MOTIVATIONS AND
DECISION-MAKING**

MOTIVATIONS AND CONSTRAINTS TO SPRING

BREAK TRAVEL: A CROSS GENDER

COMPARISON

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A convenient sample of students at the University of New Hampshire were the subjects of a survey examining the decision process involved in taking a vacation for the Spring Break period. Six descriptive factors have been identified for both motivations and constraints. The discriminating power of these factors was examined. The results show that male and female students base their decisions to take a vacation over Spring Break on different motivations and constraints. Some segmentation of the student travel market may be able to take these differences into account and address constraints or emphasize effective motivations.

Introduction

The travel and leisure literature is inundated with articles explaining why people travel (Mazanec, 1984; Shoemaker, 1994). Likewise there is a growing interest in understanding why people do not travel or recreate (Goodale and Witt, 1989). Identifying the factors that influence a person's decision to travel can be beneficial to travel and tourism organizations, park and recreation agencies, businesses or others interested in the travel industry. Identifying the motivations and constraints will aid in understanding the potential vacationer's decision making process. This can be used to develop appropriate marketing techniques designed to remove or reduce identified travel constraints or to enhance identified motivations of specific target markets. Past research has shown that males and females differ in their decision-making process and may therefore be influenced by different factors (Kinnaid, 1994).

Information on the possible differences between genders would also be helpful to those interested in the travel industry.

This study investigates the factors that influence spring break travel plans, and compares the relative importance of these factors in predicting spring break travel plans for male and female college students. The objectives of the study are: to identify the underlying motivations and constraints that affect spring break travel decisions for a convenient sample of college students; to examine the discriminating power of these motivations and constraints for males and females with regard to spring break travel decisions; to compare the best predictive models for males and females.

Methods

In order to identify factors that influence a student's decision to travel on Spring Break a survey was developed containing a list of possible motivations and constraints. Each was rated on a 5 point scale from not important to extremely important for motivations and no influence to very strong influence for constraints. A factor analysis was performed to help condense the motivation and constraint variables. An orthogonal rotation was used to reduce the factor loadings to a simple structure. The varimax method was used to minimize the number of variables that have high loadings on a factor.

To accomplish the objectives of this research discriminant analysis was used to examine the relationship between motivations and constraints, and whether or not the respondent would be traveling during the Spring Break period. This analysis was conducted for both male and female students. This method of analysis was chosen because it allows the researcher to ascertain differences between two or more groups with respect to several independent variables. The discrete dependent variable is defined by the number of groups, while the endogenous factors define the multidimensional space between groups. This linear combination of variables, called the discriminant function maximizes between group variation while minimizing within group variation. In these analyses, the dependent variable was the decision to travel on Spring Break. The independent variables consisted of the motivations and constraints identified in the factor analysis. To examine gender differences a separate classification was performed for males and females.

Results

Sample Characteristics

Four hundred copies of the survey were distributed to a convenience sample of eighty students in an Introduction to Tourism class. Each student completed a survey and then distributed as many as possible to friends within the university community. A total of 216 surveys were returned for a return rate of 54%. Eighty-one of the 216 respondents were male and 135 were female.

The respondents were a reasonable reflection of the University Undergraduate community. All four classes of students were

represented as well as all of the schools within the University (Tables 1 and 2). Although the number of students in each school is not evenly distributed, the number of respondents in each corresponds to the size of the individual school.

Table 1. Class standing of respondents.

Class Standing:	Number in Sample	Percent
1st year student	41	19.0
Sophomore	67	31.0
Junior	48	22.2
Senior	58	26.9

Table 2. Colleges of survey respondents.

Majors by Schools:	Number in Sample
Life Sciences and Agriculture	32
Liberal Arts	59
Health and Human Services	21
Engineering and Physical Sciences	17
Whittemore School of Business and Economics	38
Undeclared	45

Factor analysis

Factor analysis was performed on the motivation and constraint variables included in the survey. Both categories of variables produced six factors which were labelled according to the variables with the highest loadings (Tables 4 and 5). The identified factors explained 63.8 percent of the total variance for the motivation variables and 61.2 percent of the variance for the constraint variables. The six factors identified from the motivation variables (Table 3) were:

Growth and education. This factor appeared to reflect a desire among the respondents to make their vacation a time of personal development. This appeared to range from self reflections, as in spiritual growth and examination of personal values, to more general educational objectives, such as learning about an area and experiencing different cultures.

Escape The overwhelming theme among the variables with the highest loadings for this factor was one of relief from the demands of college. Escaping the pressures for relief of tension and mental recuperation appeared to be the common thread among these variables.

Socialization. This factor reflected an interest on the part of the respondents in socializing with friends in a different setting. This included the possibility of meeting new people.

Status: This factor was somewhat less clearly definable than those previously discussed. The theme identified was that the respondents seemed to desire a familiar situation with their peer group. This seemed to extend to helping others to learn, though the control aspect could be said to be retained by the fact that the respondents are in the position of helping others, rather than learning in a new situation.

Solitude and peacefulness. In a similar note to the factor called "escape", this factor reflects a desire to get away, though in this case the main concern appears to be to get away from other people. This is further reflected by the negative loading on the variable "to be where there is a lot of action".

Adventure. Experiencing new, active and perhaps dangerous situations is the theme of the final of these six motivational factors. This factor is also strengthened by a negative loading. In this case the negative loading on the variable "to visit family and relatives" suggests that this activity is seen as somewhat the opposite of an adventurous or dangerous situation.

Table 3. Results of factor analysis on motivation and constraint variables.

Factor	Eigen value	Percent of Variance
Motivations		
1. Growth and Education	6.0262	25.1
2. Escape	3.7019	15.4
3. Socialization	1.9589	8.2
4. Status	1.4427	6.0
5. Solitude and Peacefulness	1.1427	4.8
6. Adventure	1.0363	4.3
Constraints		
1. Other Responsibilities	6.2080	27.0
2. Logistic Issues	2.5776	11.2
3. Financial Limitations	1.8024	7.8
4. Information and Indecision	1.3075	5.7
5. Social Arrangements	1.1236	4.9
6. Informed but Unimpressed	1.0604	4.6

The six factors identified from the constraint variables (Table 3) were:

Other responsibilities. This factor reflected respondents feelings that they had prior commitments or other priorities that would constrain them from travelling over spring break. There appears to be a strong theme of family related commitments or responsibilities among the variables in this factor.

Logistic issues. This factor seemed to be connected with the logistical matters involved in making travel plans for the spring break. The constraints here focussed of the process of deciding where to go and the perceived difficulty of planning the travel.

Financial limitations. The problems of financing spring break travel are reflected by this factor. The lack of money and the expense of travelling to distant locations were identified here.

Information and indecision. The theme identified from the variables in this factor is proposed to be a lack of information on destinations that are most suitable or favorable for the respondents. Respondents may have felt that the "popular" or "desirable" destinations posed problems of distance and crime, while they lacked information on alternative, and perhaps more suitable destinations.

Social arrangements. This factor appeared to reflect social conditions that prevented or constrained respondents

from travelling. The lack of a travelling companion and the distaste for crowded destinations were the constraints identified by the variables.

Informed but unimpressed. This factor appeared to describe a respondent who may have lacked any genuine interest in travelling over the spring break, despite having the information and financial resources. The constraints noted varied widely in their nature and seemed to suggest perhaps a basic lack of interest which might be influenced by previous spring break travel experiences.

Table 4. Variables of the six motivation factors.

Motivations	Loadings
Factor 1: Growth & education	
To learn what I am capable of	0.7928
To develop new skills and abilities	0.7491
To learn about an area	0.7368
To think about my personal values	0.7084
To grow and develop spiritually	0.6543
To help others learn about things	0.6408
To experience different cultures	0.6075
Explained variance: 25.1%	
Factor 2: Escape	
To get away from the demands of college	0.8565
To escape pressures of school	0.8406
To release built up tensions	0.7408
To give my mind a rest	0.7169
Explained variance: 15.4%	
Factor 3: Socialization	
To meet new people	0.7589
To socialize with friends	0.6979
Talking to new and varied people	0.6739
To explore new places	0.6204
To be where there is a lot of action	0.5008
Explained variance: 8.2%	
Factor 4: Status	
To be recognized by my peers	0.7891
To recreate past experiences	0.7071
To be in control	0.5154
To help others learn about things	0.4742
To be where there is a lot of action	0.3632
Explained variance: 6.0%	
Factor 5: Solitude and peacefulness	
Getting away from other people	0.6979
To be where it is peaceful and calm	0.6941
To explore new places	0.3739
To be where there is a lot of action	-0.2640
Explained variance: 4.8%	
Factor 6: Adventure	
To experience dangerous situations	0.6898
To explore new places	0.3188
To be physically active	0.2743
To visit family and relatives	-0.6994
Explained variance: 4.3%	
Total explained variance: 63.8%	

Discriminant analysis

The discriminating power of these factors was estimated for both male and female students by constructing models that predicted the responses to the question of whether the students were or were not going to take a Spring Break vacation. Table 6 shows the model that was the best predictor of the decision of the female students. It shows that three of the constraints were the factors that were the most powerful predictors. It is important to note that none of the motivational factors proved important for the model. Table 7 shows the results of a test of this model. Using these three constraints a prediction of whether a female student would answer yes or no would be correct 72 percent of the time. For male students this model would correctly predict the answer 61.7 percent of the time.

Table 5. Variables of the six constraint factors.

Constraints	Loadings
Factor 1: Other responsibilities	
Responsibilities at home	0.7817
School is a main priority	0.6555
Previous family commitment	0.7543
Family wants to do something else	0.6449
Explained variance: 27.0%	
Factor 2: Logistics issues	
Carrying out travel plans is difficult	0.7239
Not sure where to go	0.6162
Planning a vacation trip is difficult	0.8263
Difficulty in obtaining information	0.7284
Explained variance: 11.2%	
Factor 3: Financial limitations	
Lack affordable transportation	0.7270
Desirable destinations too far away	0.5210
Not enough money	0.8453
Parents will not give money	0.4121
Explained variance: 7.8%	
Factor 4: Information and indecision	
Unaware of travel opportunities	0.5904
Desirable destinations too far away	0.4712
Crime problems at popular destinations	0.7347
Not enough time	0.5568
Explained variance: 5.7%	
Factor 5: Social arrangements	
Friends or relatives cannot go	0.7276
No one to travel with	0.8033
Crowded conditions	0.4031
Explained variance: 4.9%	
Factor 6: Informed but unimpressed	
Weather conditions	0.3982
Did not enjoy past spring break trips	0.2771
Work commitments	0.5646
Parents will not give money	-0.4084
Unaware of travel opportunities	-0.3901
Explained variance: 4.6%	
Total explained variance: 61.2%	

A second model was constructed for the male students in the sample. The best predictors of the male students' decisions consisted of two constraint factors and two motivation factors (Table 8). The test of this model shows that it would correctly

predict responses among male students 83.3 percent of the time (Table 9). Among female students the same model was correct 65.3 percent of the time.

One important factor to note among these results is that each model is a more powerful predictor for the gender on which it was based. That is, model I is correct at predicting the decision of female students to a higher level than model II. Similarly model II is more often correct at predicting the decisions of male students than model I.

Another important result is that the two models share only one factor. Constraint factor 1, Other responsibilities, is the only factor that occurs in both of these models. Furthermore, the model based on the responses of female students features no motivational factors. That is, constraints and not motivations were the factors most important in influencing the decisions of female students.

Table 6. Model I: Discriminant analysis results for female respondents (Constraints: Factor 1: Other responsibilities; Factor 3: Financial limitations; and Factor 5: Social arrangements).

Canonical discriminant function statistics		
Wilks' Lambda	Chi-squared	Significance
0.823	13.911	0.003

Table 7. Percent of "grouped" cases correctly classified from results of predictions based on Model I.

Females	Males
72.0	61.7

Table 8. Model II: Discriminant analysis results for male respondents (Constraints: Factor 1: Other responsibilities; and Factor 2: Logistic issues. Motivations: Factor 2: Escape; and Factor 3: Socialization).

Canonical discriminant function statistics		
Wilks' Lambda	Chi-squared	Significance
0.547	33.752	0.000

Table 9. Percent of "grouped" cases correctly classified from results of predictions based on Model II.

Females	Males
65.3	83.3

Discussion

This study identified the motivations and constraints that influence a person's decision to travel during the Spring Break period. Understanding why people travel as well as why people do not travel can be useful in market segmentation. Once the elements involved in the decision-making process are identified they can be targeted to enhance the specific

motivations or reduce the specific constraints that are most influential.

The best predictive models that resulted from the discriminant analysis were different for the male and female students. For the male students both the constraints and motivations were elements of the best predictive model, whereas for female students only constraint factors were important as predictors of the decision to travel over the spring break period. This finding reveals that male and female students appear to reach the decision to travel over the spring break through a distinctly different process. In fact the results show that there is only one factor, the constraint "other responsibilities", that is shared by the genders in the decision making process.

The power of the models developed in this study were tested by calculating their predictive accuracy. This test showed that the best predictive model for each gender is the model constructed for that gender. The male model is the best predictor of the males' decision to travel with an ability to predict responses 83.3 percent of the time. The female model is the best predictor of the females' decision with an ability to predict responses for females 72 percent of the time. No one model was the best predictor for both genders. The male model when used to predict female responses is correct 65.3 percent of the time and the female model when used to predict male responses is correct 61.7 percent of the time. This is further confirmation of the finding that the decision making process for the two genders involves different factors.

The one factor that is shared by both genders, "other responsibilities", is a difficult factor to mitigate. This factor includes constraints such as; responsibilities at home, school is a main priority, previous family commitment and family wants to do something else. These constraints have to do with the respondents priorities and previous commitments. Since males' and females' decision-making processes are so different and the one common constraint is difficult to mitigate, the best strategy for those in the travel industry may be to target each group separately. These results actually suggest that the current marketing may address male students adequately by focussing on both motivations and constraints to which male students respond. However, our model suggests that female students do not respond to the same factors. Two conclusions are possible regarding this part of the findings. One is that female students do not respond to motivational factors therefore marketers should attempt to focus on the constraints to travel, as best they can. On the other hand, this study may simply indicate that the motivations currently employed in travel marketing are the wrong motivations for female students.

These two conclusions depend upon an assumption regarding the motivation variables. This study has assumed that the motivations used as variables in the survey are an accurate reflection of the motivations currently used in travel promotion. Strictly speaking it may be more accurate to say that the motivations examined in this particular study appeared to have little effect on female students and their decision-making process. Perhaps future research could focus on determining what are the existing motivations and constraints to Spring

Break travel by asking respondents to list the factors they feel influence their decisions.

This study determined the predictive power of motivations and constraints on the expected travel plans of the students surveyed. Respondents answered survey questions based on their expectations at the time the survey was completed. It would be interesting to follow-up on this study to determine the actual behavior of the students surveyed since the expected travel plans and the actual travel plans may differ significantly.

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AN EXPLORATORY ANALYSIS OF TRAVEL BENEFITS SOUGHT AMONG INTERNATIONAL BUS TOURISTS IN THE USA

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This paper explores the relationships between the travel benefits sought and status of previous visits to the USA (first time vs. repeat tourists) on socio-demographic and travel related variables among international tourists in the USA. "Seeking", "escape", "safety", "learning", "status", and "companionship" were the six dimensions of benefits sought in the bus tour. Repeat and first time tourists differ significantly in their benefits sought in regard to gender, education level, communication confidence in English, amount of travel in the past, amount of trip information received, amount of trip preparation, and source of trip information. The benefits sought by repeat and first time tourists did not differ significantly from each other in regard to where people are from, cost of bus, and their travel party. Overall, repeat tourists are more likely to seek the benefits of "escape", "safety", and "companionship"; first time tourists are more likely to pursue the benefits of "seeking", "learning", and "status".

Introduction

Motivation is viewed as a critical variable because it is the impelling and compelling force behind all behavior. An analysis of the motivational stage can reveal the way in which tourists set goals for their destination-choice and how these goals are then reflected in both their choices and behavior. More importantly, it can provide tour operators, tourism planners, and other tourist-related institutions with a better understanding of the real expectations, needs and goals of tourists. Thus, travel motivation has been defined as a meaningful state of mind which sufficiently disposes a tourist to travel, and it is consequently interpreted by others as a convincing explanation for a travel decision (Dann, 1981).

In short, travel motivation is important because it provides a reservoir of ideas for researchers to use in specific studies of

satisfaction, decision making and marketing (Pearce and Butler, 1993). Bergier (1981) suggested that benefits sought are a bundle of motive-satisfying attributes representative of factors that affect the degree to which an individual participates in an activity. Although tourists' travel benefits sought have been perceived and used as a powerful approach to tourism market segmentation (Kotler, 1986, Wicks, 1989, Loker and Perdue, 1992, and Lin, 1994), they also have the potential to be used as a measure of travel motivation. Therefore, benefits sought were used to indicate the specific desired conditions of tourists from the tour in this study.

The purpose of this study was to explore the relationships between travel benefits sought and socio-demographic and travel related variables among international tourists in the USA. Based on 12 bus tour participation experiences, the researcher sensed that general differences might exist among repeat and first time tourists on the tour. As a result, the study explored the relationships between travel benefits sought and Visit USA status (first time vs. repeat tourists) on socio-demographic and other travel related variables.

Study Methods

A questionnaire was developed as the instrument to collect data for this investigation. The questionnaire included two sections: (a) a section regarding individuals' benefits sought through pleasure travel, and (b) questions targeted towards background information such as the extent of information received about the trip, travel party arrangement, trip preparation, previous visits to the USA, perception of the bus tour and socio-demographic characteristics. The items of benefits sought for pleasure travel were derived from the tourism literature (Loker and Perdue, 1992, Gitelson and Kerstetter 1990, Kerstetter 1990, and Shoemaker, 1989). A pilot study was performed through informal interviews during a bus tour. Twenty-four statements of benefits sought were finalized after the tour. A five-point scale indicated how important each item was to the subject as a reason for traveling (Not important at all, slightly important, moderately important, very important, and extremely important).

The bus tour studied was a general interest tour (three days/two nights) that included a full range of sightseeing in the Grand Canyon, shopping at factory outlets, and taking in a night in Las Vegas for gambling, taking a leisurely walk and sampling famous inexpensive buffets. However, sightseeing was the main focus of the bus tour for the tourists. The surveys were conducted on 12 bus tours between Los Angeles and Las Vegas from April 6 through May 20, 1994. Tourists who were over 20 years old were approached by the researcher on site as the respondents of the study. Four hundred and twelve usable questionnaires were obtained, representing an 85% overall net response rate to the survey. The respondents included 235 (57%) first time tourists and 177 (43%) repeat tourists in the USA. Taiwan tourists (36.2%) were the biggest group of international tourists, followed by China tourists (21.8%), local & international students (15.8%), tourists from other areas (14.1%), and Hong Kong tourists (12.1%).

Principle component factor analysis with varimax rotation was used to examine the latent dimensions that underlie the measures of benefits sought. Internal consistency of the subscales was checked by SPSS's reliability analysis.

Multivariate analyses of variance (MANOVA) were performed to determine the relationship between the travel benefits sought and visit USA status on socio-demographic and travel related variables. To measure this relationship, factor scores of benefit dimensions were used to represent each of the dependent variables, visit USA status was always treated as the first independent variable and one of the socio-demographic or travel related variables was chosen as the second independent variable. For the socio-demographic and travel related variables, not all categories in certain variables were used in analysis in order to make sense of the results statistically. That is to say, if the number of respondents in one category of a variable was not large enough when broken down into repeat and first time tourists, this category of that variable was not analyzable in tests, and the individuals in this group were not included in the analysis. For example, respondents from Hong Kong were insufficient to split into repeat and first time tourists. Thus, Hong Kong tourists were not used in the MANOVA analysis. If the two way interaction between visit USA status and another independent variable on the benefit sought factors significantly existed, it indicated that the relationship between the overall benefit dimension and visit USA status significantly differed on the categories of that independent variable. For example, the interactive effect of gender and visit USA status was significant on the six benefit dimensions. This means that males are different from females on the relationship between six benefit dimensions and visit USA status. Therefore, MANOVA analyses of the relationship between benefit sought factors on females and males were examined separately to decide whether there is a significant relationship between the overall benefit dimensions and visit USA status. If the relationship between the overall benefit domains and visit USA status was significant, a follow-up analysis of variance procedure was utilized to determine whether each dimension was significantly different between first time and repeat tourists in USA on males or females. However, if the two-way interaction between visit USA status and another independent variable was not significant, this indicated that the relationship between the overall benefit dimensions and visit USA status was not significantly different on the categories of that independent variable. For example, the relationship between the overall benefit dimensions and visit USA status did not differ significantly in terms of areas where people are from. Thus, MANOVA analysis of the relationship between benefit sought factors and where people are from, controlling for visit USA status, and of the relationship between benefit sought factors and visit USA status, controlling for where people are from were examined. Furthermore, analysis of variance was conducted to decide whether each dimension was significantly different between first time and repeat tourists in the USA and between tourists from different areas.

Results

"Seeking", "escape", "safety", "learning", "status", and "companionship" are the six dimensions of benefits sought in the bus tour (Table 1). The six-factor solution explained 65.3% of the variance of travel benefits sought. The reliability analysis suggested a relatively consistent response pattern to each factor regarding travel benefits sought (Cronbach's alpha coefficients range between .71 and .84).

Factor 1-Seeking. This domain consisted of five items referring to the motivation of seeking or novelty. However, the item "to visit popular destination areas" also had a relatively high loading in the status dimension, which may indicate that "to visit popular destination" is a possible way to refer to people's status. The first eigenvalue was 6.49 with 27% of the variance explained.

Factor 2-Escape. This dimension was termed "escape" because of the high loadings on four items related to escape and relaxation. The second eigenvalue, which dropped sharply, was 3.01, accounting for 12.5% of the explained variance.

Factor 3-Safety. This domain clearly referred to "safety/comfort". The third eigenvalue was 2.26, accounting for 9.4 % of the variance of the benefits sought.

Factor 4-Learning. This factor was made up of items related to learning things and socializing with new people. However, the items "to learn new things" and "to know more about different culture" were also related to the "seeking" dimension since they also showed a relatively high loading on the "seeking" factor; "to meet people with similar interests" was related to the "safety", "status" and "companionship" dimensions due to a relatively high loading on all three domains. This factor had an eigenvalue of 1.63 with 6.8 % of the variance explained.

Factor 5--Status. The items of this factor were related to tourists' status awareness. However, the items in this factor were also quite related to other factors due to high loadings on those factors. "To learn more in specific attractions" is related to the "seeking" dimension; "to feel good being tourists for pleasure" is related to "safety"; "to have something to tell friends later" is related to the "socializing" and "seeking" dimensions. The fifth eigenvalue was 1.24, accounting for 5.2% of the variance.

Factor 6--Companionship. This factor is directly related to close companionship, indicated by high loadings on being with and doing something with friends and family. The sixth eigenvalue was only 1.04, accounting for only 4.3% of the variance.

Repeat and first time tourists differed significantly in their benefits sought in regard to gender, education level, communication confidence in English, amount of travel in the past, amount of trip information received, amount of trip preparation, and source of trip information. The benefits sought by repeat and first time tourists did not differ significantly from each other in regard to where people are from, cost of the tour, and their travel party (Table 2).

Table 1 Factor analysis of benefits sought items.

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
	Seeking	Escape	Safety	Learning	Status	Companion ship
Travel Benefits						
To see interesting sights	.84598	.00855	.04896	.02847	.08409	.02679
To view the beautiful scenery	.78503	.15206	.06684	-.01012	.21968	.05577
To experience new and different things	.74216	.26264	-.05812	.21385	-.03912	.08315
To explore new places	.65141	.20407	.20266	.30609	-.08468	.00408
To visit popular destination areas	.63017	.01530	.17115	.00257	.35939	-.00304
To help release or reduce tensions	.05964	.83063	.10026	.03486	.10567	-.05809
To get away from the regular routine	.21607	.76085	.00574	.09872	-.04165	.15955
To give my mind a rest	.32395	.75234	.14936	.05462	.11168	-.03660
To escape usual demands of everyday life	-.05491	.71990	.18003	.18668	-.11616	.16119
To travel with safety	.17327	.03272	.80266	.17297	-.11680	.17530
To have a well-prepared trip	.00080	.10555	.72771	.02236	.20632	.33792
To travel with an organized group	.15853	.20684	.69791	.03333	.23441	-.04464
To be in a group people are considerate	-.04312	.14270	.62466	.24727	.17894	.36737
To meet new and friendly people	.10011	.00710	.22722	.75533	.10238	.24078
To practice my English	-.05346	.09368	.12613	.69901	.09742	-.00454
To learn new things	.33293	.13488	.02188	.62487	.20712	-.06238
To know more about different cultures	.34734	.22492	-.11380	.52862	.15499	-.10031
To meet people with similar interests	.02219	.09099	.31770	.51903	.36422	.35479
To feel like achieving something trendy	-.00637	.06967	.07482	.31241	.71000	-.10485
To learn more in specific attractions	.36571	-.08268	.09896	.09308	.67028	.19068
To feel good being tourists for pleasure	.07592	.08857	.43272	.08729	.63295	-.01471
To have something to tell friends later	.38969	-.07205	-.03835	.35847	.51245	-.01594
To do something with family or friends	-.04779	.05822	.27515	.07751	.03261	.86734
To be with friends or family	.06667	.08847	.14143	.00896	.11597	.86484
Cronbach's alpha	.83	.81	.80	.75	.71	.84
Eigenvalue	6.49	3.01	2.26	1.63	1.24	1.04
Percent of Variance Explained	27.0	12.5	9.4	6.8	5.2	4.3
Cumulative Variance Explained	27.0	39.6	49.0	55.8	61.0	65.3

Controlling for socio-demographic and other travel related variables, repeat tourists differed from first time tourists in their benefits sought to various degrees except on those who had no more than high school education or those who were moderately confident in their English communication ability. There were more significant differences for benefits sought of "seeking", "safety", "learning", and "companionship"; and less significant differences in the benefits sought of "escape" and "status". No matter what the differences were among repeat and first time tourists, first time tourists were more likely to pursue the benefits of "seeking", "learning", and "status"; repeat tourists were more likely to seek the benefits of "escape", "safety", and "companionship" (Table 3).

Table 2. MANOVA analysis of the relationship between benefits sought factors and visit usa status on socio-demographic and other travel related variables

Interaction	Pillai's Value	Multivariate F	Degree of Freedom
Gender x Visit	.036	2.50*	6,403
Where from ¹ x Visit	.028	1.10	6,230
Education ² x Visit	.092	2.13**	18,203
Travel party ³ x Visit	.037	2.03	6,319
Cost of the tour ⁴ x Visit	.017	1.16	6,403
Travel Past ⁵ x Visit	.066	2.27**	12,804
Com-confidence ⁶ x Visit	.080	2.78**	12,804
Inform. amount ⁷ x Visit	.070	2.42**	12,804
Preparation ⁸ x Visit	.041	2.90**	6,403
Source inform. ⁹ x Visit	.073	2.29**	12,726

* Significant at .05 level, ** Significant at .01 level

¹ Where from included only tourists from Taiwan and China.

² Education included tourists with no more than high school education, some or junior college, college degree, and graduate degree.

³ Travel party included tourists travelling with family or with friends.

⁴ Cost of the tour included tourists perceived cost is ok or not expensive.

⁵ Travel past included tourists that did all the travel they wanted, did most of the travel, and would like to have done more travel.

⁶ Comm-confidence included tourists who were very or extremely confident, moderately confident, and slightly or not confident in their English communication.

⁷ Inform. amount included tourists who received a great amount or much, some amount, and very little or no trip information.

⁸ Preparation included tourists who had at least some trip preparation or very little or no preparation.

⁹ Source inform. included tourists who received trip information from family or friends, or newspaper.

Conclusion

The reliable results of the benefits sought in this study demonstrate the legitimate use of benefits sought as a measure of travel motivation. It also could provide the researcher a starting point to investigate international tourists' travel experiences. Further analysis might include the identification of dimensions of travel satisfactions, of significant predictors of travel satisfaction, and so on.

Certainly, the understanding of the benefits sought in this study could provide the tour agency valuable information on what needs to be done to develop a tour package to attract and satisfy the tourists.

In this study, while "seeking" was the most important factor of benefits sought, "escape" and "safety" were also two major benefits sought by the international tourists. "Learning" and "status" were two relatively minor benefits sought. Tourists sought the least benefits of "companionship" from the tour.

Overall, the expectation of benefits sought among tourists was realistic. It is logical for the tourists to be looking for novelty or something new and safe in their international travel experiences. However, it was interesting to find that "escape" was the second most important factor to explain tourists' benefits sought, although it is difficult to pursue "escape" benefits in a mass and well-structured bus tour. This might be due to the left-over effects of tourists' benefits sought for their international travel back home. The tourists also expected that "learning", "status", and "companionship" benefits were not easy to achieve. Those expectations were pretty accurate indeed considering the bus tour experiences in this study.

There were significant relationships between visit USA status and benefits sought in regard to socio-demographic and travel related variables. In fact, the benefits sought differences among repeat and first time tourists were significantly different among tourists in different categories of gender, education level, communication confidence in English, amount of travel in the past, amount of trip information received, amount of trip preparation, and source of trip information. However, repeat tourists were always more likely to seek the benefits of "escape", "safety", and "companionship"; first time tourists were more likely to seek the benefits of "seeking", "learning" and "status". This implied that visit USA status was the most important variable among socio-demographic and travel related variables associated with tourists' differences regarding travel benefits sought. In other words, the "real" travel experiences were the essential reason contributing to tourists' benefits sought differences. Therefore, from the management perspective of the tour agency, the revealed general differences of benefits sought between repeat and first time tourists implied that the identification of tourists' visit status is the first and most essential step for the successful delivery of leisure service. That is to say, the results of this study may help to reduce the costly operation of the travel business.

Table 3. Univariate analysis of the relationship between benefits sought factors and visit USA status controlling for socio-demographic and other travel related variables.

Independent Variables	Factor 1 Seeking	Factor 2 Escape	Factor 3 Safety	Factor 4 Learning	Factor 5 Status	Factor 6 Companionship
Male	First*			First*	First*	Repeat**
Female		Repeat**	Repeat**			
Where tourists are from	First**			First*		Repeat**
No more than high school						
Junior or some college		Repeat*				
College degree	First*		Repeat*			Repeat**
Graduate school	First*		Repeat**	First*		Repeat*
Travel party	First*		Repeat**			Repeat**
Cost of the tour	First**		Repeat*	First**		Repeat**
Did all the travel	First*	Repeat*	Repeat**			Repeat**
Did most travel		Repeat**				Repeat*
Would like to have done more				First*		Repeat*
Very or extremely confident	First**	Repeat*	Repeat**	First**		Repeat*
Moderately confident						
Slightly or not confident			Repeat**			
A Great Amount or Much	First*		Repeat*	First*		Repeat**
Some Information					First*	Repeat**
Very little or no information	First*		Repeat**	First*		
At least some preparation			Repeat*		First**	Repeat**
Very little or no preparation	First**		Repeat**	First**		Repeat**
Source from family	First**	Repeat*				Repeat**
Source from friends				First*		Repeat*
Source from newspaper			Repeat**		First**	Repeat**

First* means first time tourists have higher benefits sought than repeat tourists (significant at .05 level)
First** means first time tourists have higher benefits sought than repeat tourists (significant at .01 level)
Repeat* means repeat tourists have higher benefits sought than first time tourists (significant at .05 level)
Repeat** means repeat tourists have higher benefits sought than first time tourists (significant at .01 level)

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AN EXPLORATORY ANALYSIS OF INTERNATIONAL VACATION DECISIONS IN THE CONTEXT OF TERRORISM RISK

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Relationships between four personal factors (i.e., past international travel experience, risk perception level, attitude toward international travel, traveler personality) and a key stage (i.e., extent of information search) in international vacation travel decisions involving terrorism risk were examined. Five hundred subjects with either interest or experience in international travel were surveyed (48% response rate). Results revealed that risk perception level and attitude toward international travel directly predicted the extent of information search undertaken by potential travelers during their travel decisions.

Introduction

Statistics gathered by the World Tourism Organization (WTO 1993) provide strong evidence of the importance of tourism to world prosperity. The international tourism industry recorded nearly US \$304 billion in receipts and US \$3 trillion in international and domestic revenues in 1993 (WTO 1994) and is expected to reach \$5.8 trillion in 2005 (WTTC 1992). The WTO recorded over 500 million worldwide visits in 1993 and estimated between 592 and 690 million in 2000. These figures attest to the fact that international travel has become an integral and natural component of today's lifestyles for millions of people. Despite its financial strength, however, the tourism industry is highly vulnerable to the threat of international terror.

The threat posed by terrorism to the traveling public is certainly not new, however the interest it has generated is relatively so and can be traced back to the 1980s. Following the peak of international terrorist activity in the mid-1980s, the inevitable effects of terrorism on tourism became the object of attention. A few of the most publicized terrorist events include the 1986 hijacking of a PanAm airliner in Karachi (20 deaths), the 1986 hijacking of the Achille Lauro cruise ship in the Mediterranean

(1 death), the 1985 machine gun attacks at the Rome and Vienna airports (18 deaths, 100 injuries), the 1988 bombing of PanAm 103 over Lockerbie (270 deaths), and bombings of various tourist sites (e.g., Athens hotel, 1985; West Berlin discotheque, 1986). Renewed attention became focused on the topic during the 1991 Persian Gulf War, when the threat of world-wide terrorism again became a plausible concern. While travelers were not directly targeted, the threat of terrorism has taken on new dimensions after the "sarin" gas attack on Japan's subway system in March 1995 and the Oklahoma City bombing in the U.S. in April 1995.

Due to their symbolic nature, international travelers are more vulnerable to terrorist threat than domestic travelers. To understand the impact of terrorism on travelers, it is important to study individuals who undertake international travel with regard to not only their travel but also decision-making behavior. This study has focused on several personal factors and their impacts on a key stage of international vacation travel decisions which involve an awareness of terrorism and/or political instability risk.

Travel Decisions

Analyses of tourist decision-making within the established framework of consumer choice processes have revealed that potential travelers compare alternative destinations according to perceived benefits and costs (Crompton 1992; van Raaij and Francken 1984; Woodside and Lyonski 1989). Benefits involve the potential of satisfying the initial need to travel in a positive manner and costs may be monetary (e.g., travel expenses) and nonmonetary (e.g., social, psychological, time costs; various risks involved with trip). These concepts imply that potential travelers weigh benefits and costs during the decision-making process and make selections based on which destination offers the most benefits for the least cost. Several variables become important to the understanding of international vacation travel decisions involving terrorism risk, such as previous travel experience, risk perception level, attitude toward international travel, and traveler personality.

Previous Travel Experience

Both consumer and tourist decision-making literature suggest that personal experience is integrated into decision-making as passive or internal information search (Crompton 1992; Evans and Berman 1992; Howard 1963; Um and Crompton 1990).

Mazursky (1989) who examined the effects of past travel experience on tourist decisions, found that travelers' personal experience may exert more influence on decisions than information from external sources. He added that future behavioral intentions can be influenced, among other things, by individuals' extent and nature of past travel experience. Mazursky's (1989) research supports Goodrich (1978) who earlier found that perceptions of a destination depend on the individual's previous travel experiences.

Risk Perception Level

Risk perception level of the traveler refers to the amount and types of risk she/he associates with international travel. Risks associated with travel, travel constraints, and inhibitors/facilitators have been examined only recently (Crompton 1992; Mansfield 1992; Roehl and Fesenmaier 1992; Um and Crompton 1990). From seven types of risk identified in consumer behavior literature (e.g., equipment, financial, physical, psychological, satisfaction, social, time) (Schiffman and Kanuk 1991, pp. 180-181), Roehl and Fesenmaier (1992) found that financial, psychological, satisfaction, and time risks were most often associated with pleasure travel. Their analysis implies that risk perception level plays an important role in the traveler decision-making process.

Attitude Toward International Travel

Um and Crompton (1992) argued that travel attitude, which reflects individuals' beliefs, feelings, and behavioral orientations, is an important indicator for predicting a final destination choice from several alternatives. In an earlier study, Um and Crompton (1990) defined attitude as "the difference between perceived inhibitors and facilitators" and image as "derived from attitudes toward the destination's perceived tourism attributes" (p. 433). Thus, just as consumers' psychographic characteristics (e.g., attitudes, interests, opinions) impact their buying behavior (Evans and Berman 1994), individuals' attitudes toward travel impact their travel destination choices (Roehl and Fesenmaier 1992; Um and Crompton 1990).

Traveler Personality Type

Personality type refers to an individual's psychological profile as a traveler. Plog's (1974) commonly cited model of traveler personality which places tourists along a continuum ranging from "psychocentric/stabilizer" (safety-seeking) to "allocentric/venturesome" (adventure-seeking) adds another dimension to the effort to understand risk-taking and risk-avoiding behavior displayed by travelers. This classification may be used to imply that allocentric/venturesome type travelers would be less disturbed by international vacation decisions made within the context of terrorism threat than psychocentric/stabilizer types.

Extent of Information Search Involved in Decision-Making

Information search refers to the extent of active or formal search for information to establish destination alternatives, from which a choice is made. Information gathering is considered an important aspect of tourist behavior (Mansfield 1992; Mazursky 1989; Roehl and Fesenmaier 1992). Mansfield (1992) proposed that travel information comes from formal (e.g., commercial environment) and informal (e.g., social environment) sources. Roehl and Fesenmaier (1992) identified information search behavior as a common risk reduction strategy, implying that more information gathered during decision-making resulted in higher levels of self confidence and lower levels of risk perception.

Purpose of Study

Based on models of traveler decision-making influenced by perceived risk (Mansfield 1992; Roehl and Fesenmaier 1992), this study examined a key stage in the process of international vacation travel decision-making when there is an awareness of terrorism risk, namely the extent of information search undertaken, and the impact of several personal factors on it. The following hypotheses constitute the research problem:

Within the international vacation travel decision-making process involving an awareness of terrorism and/or political instability risk, information search is related to international travel experience, risk perception level, international travel attitude, and personality type. More specifically,

H_{1a}: information search is directly related to international travel experience;

H_{1b}: information search is directly related to risk perception level;

H_{1c}: information search is directly related to international travel attitude; and

H_{1d}: information search is directly related to personality type.

Methodology

A self-administered questionnaire was mailed to a random sample of 500 individuals who previously traveled internationally or who expressed an interest in international travel. A 48 percent response rate was obtained. Past international travel experience was determined through five single- and multiple-item questions. The number of past trips as well as the range of experience (i.e., different regions of the world) were grouped first into sub-scales, standardized, then grouped into an overall measure of travel experience. Four sub-scales were used to determine risk perception level: (a) perceptions of risk and safety associated with fifty countries were measured using a 5-point Likert-type scale ("very safe" to "very risky"); (b) levels of ten risk types associated with international travel were measured with a 6-point Likert-type scale ("none" to "very high"); (c) attitudes toward international travel in terms of risk were assessed with five safety/risk related adjectives with a 7-point semantic differential scale; and (d) international travel risk views were measured with fifteen statements using a 5-point Likert-type scale ("strongly agree" to "strongly disagree"). Each sub-scale was standardized and then consolidated into a "risk perception index." Cognitive and affective dimensions of attitude toward travel were measured with two sub-scales: (a) cognitive component (i.e., beliefs) was measured with nineteen bi-polar descriptors using a 7-point semantic differential scale and (b) affective component (i.e., feelings) was measured with eight statements using a 5-point Likert-type scale ("strongly agree" to "strongly disagree"). Both sub-scales were standardized and combined into an overall "travel attitude scale." Traveler personality type was determined with four questions on a 4-point Likert-type scale ("very much" to "not at all") developed and revised by Plog (1974; 1990). The scale was used with special permission from Dr. Stanley Plog and responses were computed according

to his instructions of grouping subjects into categories of personality type. The extent of information search conducted by subjects was measured by a twelve-item question regarding their use of various information sources, on a 5-point Likert-type scale ("always use" to "never use"). Reliability of each of the sub-scales (i.e., travel experience, risk perception index, attitude scale, personality type) and the measure of information search was tested with Cronbach's Alpha Coefficient.

Multiple regression analysis was utilized to test hypothesized relationships between the four independent variables (travel experience, risk perception level, attitude toward international travel, personality type) and the dependent variable (extent of information search involved in international vacation travel decisions) and to identify those independent variable(s) exerting the strongest influence on travel decisions. Relationships were considered statistically significant at the .05 level. To address the question of possible nonresponse bias, a random sample of nonrespondents were selected and interviewed by telephone. Differences between the two groups were examined by using independent sample t-tests.

Results

The most reliable scales were the "travel attitude scale" (Alpha=.87), the "travel experience scale" (Alpha=.79), and the "risk perception index" (Alpha=.74). The "personality type scale" was found to be the least reliable (Alpha=.36). Reliability of the twelve-item measure of the extent of information search was also high (Alpha=.82). An examination of the extent of travel experience revealed respondents to have significant and relatively recent international travel experience, in fact, only 5% of the sample reported they had never traveled internationally (Table 1). Approximately 20% reported having last traveled internationally in 1994 and 60% between 1990 and 1993. Forty percent of respondents reported they had traveled to between four and six regions around the world (e.g., South America, Middle East, Africa, Far East). Asked about future plans, nearly 76% indicated they were likely to travel internationally within the next twelve months.

Responses to questions regarding risks associated with various countries demonstrated that Canada, New Zealand, Switzerland, Sweden, and Australia were perceived as safe or very safe countries. On the other hand, respondents most often demonstrated perceptions of high risk for Middle Eastern and African countries, such as Iraq, Somalia, and Libya with which the U.S. has had political or military confrontations (Table 2). With regard to questions involving risk types, it was found that the risk most often associated with international travel was health (becoming sick while traveling), followed by financial (spending too much money for not enough value) risk. Equipment (problems with transportation or accommodations), terrorism (being involved in a terrorist act), and political instability (becoming involved in the political turmoil at the country being visited) risks were also among the five which were most often associated with international travel. Time (spending/wasting too much time), social (friends/family disapproving of vacation choices or activities), satisfaction

(being dissatisfied with trip), psychological (disappointment with trip), and physical (possibility of accidents) risks were the least often associated with international travel (Table 3).

Table 1. Extent and range of respondents' past international travel experience.

International Travel Experience	N	%
Number of International Trips (over lifetime)		
None	10	4.2
Between 1-9	83	34.9
Between 10-19	97	40.5
Between 20-29	28	11.6
30 or more	<u>21</u>	<u>8.6</u>
Total	239	100.0%
Number of Regions Respondent Traveled to (over lifetime)		
None	10	4.2
Between 1-3 regions	85	35.4
Between 4-6 regions	96	40.1
Between 7-9 regions	42	17.5
10 or more regions	<u>7</u>	<u>2.9</u>
Total	240	100.0%
Date of Last International Trip		
1994	47	19.8%
1990-1993	142	59.9%
1980-1989	28	11.8%
1970-1979	7	2.8%
Never traveled internationally	<u>13</u>	<u>5.5%</u>
Total	237	100.0%

Table 2. Countries identified by respondents as "safest" and "riskiest."

	N	Mean ^a
Safest Countries		
Canada	239	1.17
New Zealand	240	1.22
Switzerland	240	1.23
Sweden	240	1.30
Australia	240	1.35
Riskiest Countries		
Iraq	240	4.55
Somalia	240	4.48
Libya	239	4.47
Lebanon	239	4.45
South Africa	240	4.03

a/ Responses to 5-point Likert-type scale included "very safe" (1), "safe" (2), "neither safe/nor risky" (3), "risky" (4), and "very risky" (5).

Attitudes toward international travel were found to be generally positive. The measure of the cognitive dimension of attitude indicated that respondents considered international travel to be more "interesting" (mean=6.46) than "boring," more "positive" (mean=6.02) than "negative", and more "useful" (mean=6.01) than "useless" (Table 4). Responses to statements measuring the affective dimension of travel attitude revealed that subjects disagreed or strongly disagreed with statements such as "international travel is not enjoyable" (89.2%), "I don't like

vacationing in foreign countries" (87.4%), and "foreign travel makes me feel uncomfortable" (74.7%) and in addition, respondents agreed or strongly agreed with the statement "international travel is a positive experience" (88.3%). With regard to traveler personality, the majority of respondents were found to be "midcentrics" (38.4%) located centrally on Plog's continuum. The next largest group of subjects was found to be "allocentric/venturesome" (31.9%) and the smallest group was comprised of "psychocentric/stabilizer" types (29.8%).

Table 3. Types of risk respondents most and least often associated with international travel.

	N	Mean ^a
Risk Types Most Often Associated		
Health Risk	239	3.79
Financial Risk	236	3.60
Political Instability Risk	240	3.55
Equipment Risk	240	3.54
Terrorism Risk	240	3.42
Risk Types Least Often Associated		
Physical Risk	238	3.41
Psychological Risk	238	2.85
Satisfaction Risk	237	2.85
Time Risk	239	2.57
Social Risk	239	2.10

a/ Responses to 6-point Likert-type scale included "none" (1), "very low" (2), "low" (3), "medium" (4), "high" (5) and "very high" (6).

Table 4. Respondents' attitudes toward international travel.

Bi-polar Adjectives (Value=1)	Bi-polar Adjectives (Value=7)	N	Mean
Negative	Positive	240	6.02
Relaxing ^a	Stressful	238	3.60
Secure ^a	Risky	240	3.72
Unpleasurable	Pleasurable	237	6.02
Meaningful ^a	Meaningless	238	2.39
Threatening	Non-threatening	239	4.82
Valuable ^a	Worthless	237	2.08
Unsociable	Sociable	238	5.60
Comforting ^a	Terrifying	240	3.00
Useless	Useful	239	6.01
Important ^a	Unimportant	238	2.26
Scary	Reassuring	240	4.52
Attractive ^a	Unattractive	237	2.04
Undesirable	Desirable	238	5.97
Safe ^a	Dangerous	240	3.34
Unnecessary	Necessary	236	4.95
Boring	Interesting	237	6.46
Good ^a	Bad	238	2.02
Calming ^a	Exciting	238	5.42

a/ Items were recoded in the computation of scales.

With regard to the extent of information search conducted, responses indicated that information sources most often used were personal experiences followed by travel professionals. As shown in Table 5, social interaction was found to play an important role in information acquisition. Respondents referred

to word-of-mouth information, as well as friends and family members and business associates. On the other hand, embassies and consulates of foreign countries and their travel information offices were not found to be very popular sources among respondents. Interestingly, government travel advisories were also not consulted regularly.

Table 5. Ratings of the sources of information used by respondents.

	N	Mean ^a
Sources Used Most Often		
Personal travel experiences	239	1.77
Travel professionals	240	2.43
Others' travel experiences	238	2.47
Word-of-mouth	238	2.58
Friends/family members	239	2.57
Business associates/peers	238	2.65
Sources Used Least Often		
Embassies/consulates	240	3.95
Travel information offices	240	3.69
Travel programs/videos	240	3.50
Travel advisories	240	3.25
Travel magazines	240	2.84
Newspapers' travel sections	239	2.75

a/ Responses to 5-point Likert-type scale included "always use" (1), "often use" (2), "sometimes use" (3), "seldom use" (4), and "never use" (5).

According to the results of the multiple regression analysis, only two of the four independent variables were significantly correlated with the dependent variable, extent of information search. The strongest was attitude toward international travel ($r=.447$), followed by personality ($r=.185$). The multivariate analysis revealed travel attitude to be the strongest predictor of the extent of information search, followed by risk perception level (Table 6). The combined linear effects of the four personal factors explained 25.7 percent of the variance in the dependent variable ($p<.000$). The hypothesis was partially accepted (H_{1b} and H_{1c}), for risk perception level and international travel attitude.

Table 6. Results of multiple regression of personal factors on the extent of information search (dependent variable).

Independent Variables	Bivariate r	Standardized Coefficient Beta	Unstandardized Coefficient b
International	.120	-.050	-.467
Travel Experience			
Risk Perception Level	.002	.267 ^a	2.120
Attitude Toward International Travel	.447 ^a	.597 ^a	4.742
Personality Type	.185 ^b	-.027	-.099
N = 177	R ²	.257 ^a	38.471
			(Constant)

a/ Significant at .001; b/ Significant at .01

Risk perception level was not a significant correlate of the extent of information search ($r=.002$; $p=.487$), however, it emerged from the multivariate analysis as a significant predictor ($B=.267$; $p<.000$). Findings indicate that as an individual's level of risk perception increases, so does the extent of his/her information search, while controlling for travel experience, travel attitude, and personality type. Attitude toward international travel was the strongest correlate ($r=.447$; $p<.000$) as well as the strongest predictor ($B=.597$; $p<.000$) of the extent of information search. Findings demonstrate that the more positive an individual's attitude is toward international travel, the greater his/her extent of information search.

Interestingly, travel experience did not emerge as a significant predictor of the extent of information search, although it approached significance as a correlate of the dependent variable. While findings imply that the extent of information search may increase or decrease (according to whether it is examined as a bivariate or multivariate variable) as travel experience increases, the related sub-hypothesis (H_{1a}) was rejected due to unacceptable significance levels of the results of both the bivariate and multivariate analyses. The bivariate analysis revealed a significant correlation between personality type and the extent of information search. However, while the analysis suggests that allocentrics conduct less information search than psychocentrics, results of the multivariate analysis revealed that personality type was not a significant predictor.

Conclusions and Discussion

Information search was found to increase as attitudes toward international travel improve. This finding supports Buchanan's (1985) assertion that positive interest in or commitment to a leisure activity involves a higher level of investment, when information search (i.e., consulting travel professionals, reading travel books) is considered to be an investment of time and effort. In this study, individuals who perceived higher levels of risk practiced a greater extent of information search. Findings support Roehl and Fesenmaier's (1992) assertion that information search behavior is a common risk reduction strategy. This indicates that an individual will gain greater self-confidence, and be better prepared for travel experiences, after having obtained information from various sources. Thus, the more informed individuals become about upcoming travel (e.g., destination characteristics, transportation, costs, risks) the less risk they are likely to associate with the trip.

Contrary to the proposed hypothesis, previous travel experience was not found to predict the amount of information search individuals undertake in making international vacation travel decisions within the context of terrorism risk. This study examined only the extent of previous international travel and not the nature of such experience. The quality of past experience (which may be positive or negative) may have an unrecognized impact on information search. Although personality type did not emerge as a significant predictor of the extent of information search, results do imply that individuals who are closer to the allocentric/venturesome end of the traveler personality continuum may feel less need for

information in making international vacation travel decisions in the context of terrorism risk. This may be attributed to their reliance on personal travel experiences for information.

Implications

Terrorism has the potential to sabotage the tourism industry which is reliant on peace and stability, and in turn threaten the international economic order. While tourists expect governments and the travel and tourism industry to protect them from terrorism, ultimately individuals must assess risk on their own and take appropriate actions for self-protection while traveling. This responsibility is comparable to travelers' fulfillment of inoculation requirements as stated by some countries before traveling to them. On the other hand, while governments search for methods to minimize threats posed by terrorism, it would benefit the international tourism industry to examine market variables such as consumer behavior and decision-making. Continued prosperity of international travel and tourism depends on political stability as well as comprehensive marketing activities which anticipate difficult situations. International vacation travel decisions involving terrorism and/or political instability risk are a crucial aspect of traveler behavior which must be understood by tourism marketers. Marketing efforts can become more efficient and cost-effective if traveler behavior can be predicted and kept in focus, and special efforts to deal with real or perceived terrorism risk can be identified and implemented.

The results of this study have implications for travel marketers. First, by recognizing the impact of perceived risk on travel decision-making, marketers of international vacation destinations can become more sensitive to the information needs of potential travelers and can help to reduce their customers' perceptions of risk by providing comprehensive and accurate information. Potential travelers who learn more about various aspects of international trips and destination alternatives are likely to feel more comfortable in their decision-making and choice processes. Some of the information which may be useful to provide travelers may include destination characteristics (e.g., government type, neighboring countries), local customs and culture, and actual risks involved with the trip and destinations being considered (e.g., health, political situation, terrorism) which may actually be far less than perceived risks. Second, travel marketers may benefit from the recognition that individuals who are most interested in gathering information during the decision-making process are likely to have a positive attitude toward international travel to begin with. Marketing efforts can then be focused on other areas, such as determining and satisfying traveler needs, rather than on trying to change attitudes. Third, Recognition of the importance of personal factors such as perceived risk and attitude toward international travel and their impacts on travel decisions and information needs may help marketers determine effective strategies to communicate successfully with potential clients. In other words, promotional messages may be more successful if travel professionals can anticipate and address traveler concerns.

Attitude toward international travel and risk perception level have emerged from this study as factors which play important roles in travel decisions. Marketers can only hope to influence customer decisions favorably if they understand psychographic characteristics of their customers. International vacation travel decisions involve a complex process which is further confounded by the inclusion of terrorism/political turmoil risk. It is important from a marketing perspective to understand this complicated process.

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A REGIONAL ARTS FESTIVAL'S MARKET: CAN IT BE SEGMENTED BY RESIDENCE?

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Fairs, festivals, and other community-run special events are a growing force in the tourism industry. The purpose of this study was to investigate the motivations, evaluation, and overall satisfaction of individuals attending a regional arts festival and whether they differed with respect to residence. The results of the study showed that residents differed from non-residents in the percentage they allocated to four of six motivations. With respect to evaluation of the Festival, residents and non-residents differed significantly in their evaluation of five of the thirteen statements. The same pattern held true when residents and non-residents were asked to indicate their overall satisfaction with the Festival. Non-residents were more satisfied with the Festival than were residents. Overall residents were more critical of the Festival than non-residents. The results suggest that managers of events such as festivals need to recognize differences in their visitors. In the case of this Festival, it would behoove the board to consider marketing to residents and non-residents differently.

Introduction

Festivals, in anthropological terms, serve as occasions for individuals of a community to "get their lives together"; to mutually and periodically restore the sense that their lives are coherent, significant, and satisfying (Smith, 1975). Festivals and special events are cultural manifestations of our lives and traditions, and are organized to create a positive image or enhance an existing one and bring in money to the local economy (Uysal and Gitelson, 1994). Many fairs and festivals start out as small community events where local residents and neighbors celebrate the area's heritage, history and culture. These events are often seen as an expression of the social norms and values of the community (Chock and Schooner, 1993). Festivals and special events are certainly not a new addition to the field of tourism yet there is a growing need for more research in this area. Festivals and special events are "one of the fastest growing forms of leisure and tourism related phenomena (Getz, 1991)."

Retch (1984) studied six types of impact of hallmark (e.g. festival and special events) events: economic, tourism/commercial, physical, sociocultural, psychological, and political. Sociocultural impacts appear to have the most positive functions -- they result in a permanent level of local interest and participation in activities associated with the event, and they strengthen regional traditions and values. Psychological impacts also result in an increase in local pride and community spirit (p. 4).

Occasionally, tourism brings conflict between residents and non-residents. However, Uysal and Gitelson (1994) suggested festivals and special events can minimize negative impacts, contribute to sustainable development, foster better host-guest relations, and help preserve sensitive natural or social and cultural environments (p. 3).

Several researchers have studied visitor behavior or perceptions at events or festivals (e.g., Burns, Hatch and Mules 1986; Wang and Godbey, 1987; Mohr, Backman, Gahan and Backman, 1993). Mohr, Backman, Gahan and Backman (1993) studied festival motivation and event satisfaction by visitor type. They found four visitor types: repeat general festival visitor/repeat FWA (Freed Weekend Aloft) visitor, repeat general festival visitor/first time FWA visitor, no-general festival visitor/repeat FWA visitor, and first time general festival visitor/first time FWA visitor. Significant differences did not exist between demographic characteristics and first time versus repeat festival visitors; however, significant differences were found for two motivation dimensions--excitement and event novelty. There has also a difference in festival visitor satisfaction across the four visitor types. The researchers found that tourists' motivation occurs simultaneously -- tourists desire change and escape from the daily routine at the same time they intrinsic personal and interpersonal rewards. While Mohr, Backman, Gahan and Backman (1993) addressed general behavior as it related to travel, they argued that the need exists for further information on behavior and choices in relation to festivals and special events.

The purpose of this study was to investigate the motivations, evaluation, and overall satisfaction of individuals attending a regional arts festival and whether they differed with respect to residence.

Methods and Data Collection

Ralston and Stewart (1990) studied methodological approaches of festival research studies. They suggested using a triangulation approach (Webb et al. 1966, cited in Ralston and Stewart, 1990). This approach includes checking each observation or measurement by another operational form. Since all methods have bias, obtaining converging evidence by two or more methods increases the confidence in the results compared to evidence emerging from a mono-method study (Jones, 1985; Zeisel, 1981; cited in Ralston and Stewart, 1990). The study reported here depicts an attempt at triangulation

using two techniques of on-site and mail-back questionnaires (pp. 289-291).

The Central Pennsylvania Festival of the Arts began in 1969 as a town/gown sponsored event in State College, Pennsylvania to attract business to the downtown area during the summer. After 26 years, the Festival has become a summer tradition (Kerstetter and Gitelson, 1994).

Data for the study were collected from a random sample of individuals who attended the Central Pennsylvania Festival of the Arts from Thursday, July 14th to Sunday, July 17th, 1994. Individuals were contacted via an on-site interview and a follow-up questionnaire. Two-thirds (n=715) of the sample completed both the on-site interview and the follow-up questionnaire. The follow-up questionnaire consisted of four sections: expenditure data, festival behavior, information use, and visitor information. For the purposes of this study, the only information referenced was that which was provided in sections two-festival behavior -- and section four -- visitor information.

One sample of respondents was most likely to be female (60%), relatively wealthy (2/3 earned in excess of 60,000 per year) and educated. More than two-thirds of the respondents lived outside the county in which the Festival was held (Centre County). (See Table 1.)

Table 1. Socio-demographic data of sample.

Items	Category	Frequency (N)	Percent t
Gender	Male	276	38.6
	Female	427	59.7
Income	Under 20000	61	8.5
	20000 to 39999	155	21.7
	40000 to 59999	184	25.7
	60000 to 79999	114	15.9
	80000 or More	155	21.7
Education	High School	74	10.3
	Business/Technical School	31	4.3
	Some College	82	11.5
	Graduated-College	246	34.4
	Some Graduate-Work	61	8.5
	Completed-Graduate Degree	205	28.7
Live	Centre County	250	35.0
	Other Regions	460	64.3

Data Analysis and Results

In this study, "residents" were considered to be visitors living in Centre County. Non-residents were visitors living in outside Centre County. In order to address the purpose of this study, the respondents were categorized as "residents" or "non-residents". Analyses were run to determine whether significant relationships existed between resident status and motivation, evaluation, and level of satisfaction (See Figure 1).

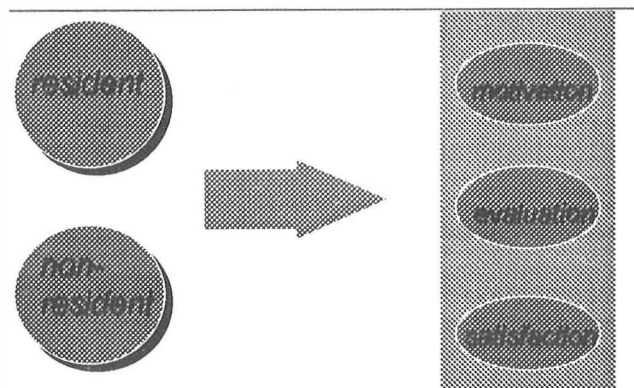


Figure 1. Relationship between residence and three dependent variables.

In order to document visitors' motivations, respondents were asked to assign a percentage as to the level of importance each of six motivations had in their decision to attend the Central Pennsylvania Festival of the Arts. They were asked to make sure that the total percentage equaled 100%.

The rankings of motivations were different between residents and non-residents. The motivation ranking of residents was as follows: (1) to have fun (30.92%); (2) to purchase fine arts & crafts (22.13%); (3) to see and learn more about the arts (15.51%); (4) to visit with friends and/or relatives (12.79%); (5) to do something different (12.51%); and, (6) other (5.99%). However, the motivation ranking of non-residents was: (1) to purchase fine arts & crafts (29.63%); (2) to have fun (28.05%); (3) to visit with friends and/or relatives (17.85%); (4) to see and learn more about the arts (11.64%); (5) to do something different (8.99%); and (6) other (3.80%) (Table 2).

Motivations to attend the Arts Festival was significantly different between residents and non-residents.

When residents and non-residents were compared, non-residents were more inclined to purchase fine arts and crafts than were residents. And, non-residents also were more likely to visit with friends and/or relatives than were residents. On the other hand, residents were more inclined to see and learn more about the arts than were non-residents. In addition, residents tended to want to do something different more than non-residents (See Table 2).

The evaluation of the Arts Festival was significantly different between residents and non-residents.

Evaluation of the Festival was obtained via 13 statements which involved responding on a five-point scale ranging from "very poor" to "excellent."

Even though respondents did not significantly differ in their overall evaluation, residents and non-residents differed significantly in their evaluation of five of the thirteen statements. In all cases, residents were more critical than non-residents of the Festival. Non-residents gave higher marks to "guest behavior," "indoor exhibitions," "food along the Route," "cleanliness," and "opportunity to learn" (Table 3).

The overall satisfaction of the Arts Festival was significantly different between residents and non-residents.

To assess overall satisfaction respondents were asked to document their feelings on a seven-point scale ranging from “low” to “high.” When residents and non-residents were compared, non-residents were more satisfied with the Festival than were residents. The satisfaction of both groups, however, was generally high (Table 4).

Conclusion

To the extent that events are often inexpensive to develop, and if properly organized will generate little negative impact, they can be viewed as being more sustainable than other forms of tourism development. And, because they are essentially cultural in nature and lead to host-guest contacts, increasingly event tourism is being looked upon as a clear alternative to mass tourism (Getz, 1994). The purpose of this study was to compare residents’ and non-residents’ motivation to attend, evaluation of, and satisfaction with the Festival of the Arts.

The fact that residents differed from non-residents in terms of their motivation to attend the Festival is noteworthy. Residents were more inclined to value “seeing and learning” suggesting that the Festival is more to them than a “fun” event.

Additionally, it is not surprising that residents were more critical of the Festival than non-residents. Retch (1984) and Uysal and Gitelson (1994) have suggested that hallmark events such as festivals have sociocultural impacts that increase residents’ level of interest and participation in activities associated with the event and strengthen regional traditions and values. The Central Pennsylvania Festival of the Arts has been in existence since 1969; thus, residents may have greater loyalty to and expectations of the Festival. These results suggest that managers of events such as festivals need to recognize differences in their visitors. In the case of this Festival, it would behoove the board to consider marketing to residents and non-residents differently. For example, the Festival as a source of culture and local pride should be reinforced to residents whereas non-residents would be presented with the message of “fun and excitement” and be reminded of the shopping opportunities at the Festival.

Table 2. T- test results of motivation between residents and non-residents (NR).

Items	Mean Value Residents (S.D.)	Mean Value NR (S.D.)	Mean Value Difference (Prob.)
To Have Fun	30.92 (22.33)	28.05 (20.50)	1.72 (.087)
To Purchase Fine Arts & Crafts	22.13 (21.41)	29.63 (26.98)	- 4.04 (.000)***
To See and Learn More About the Arts	15.51 (18.90)	11.64 (17.66)	2.65 (.008)**
To Visit with Friends and /or Relatives	12.79 (16.60)	17.85 (23.14)	-3.34 (.001)**
To Do Something Different	12.51 (18.05)	8.99 (15.36)	2.59 (.010)*
Other	5.99 (17.30)	3.80(12.62)	1.91 (.056)

* p<.05 ** p<.01 *** p<.001

Table 3 T- test results of evaluation between residents and non-residents (NR).

Items	Mean Value Residents (S.D.)	Mean Value NR (S.D.)	Mean Value Difference (Prob.)
Information	4.22 (.67)	4.17 (.73)	+0.77 (.440)
Guest Behavior	4.14 (.70)	4.31 (.66)	-3.12 (.002)**
Volunteers	4.35 (.71)	4.35 (.67)	-0.11 (.910)
Sidewalk Sale	4.20 (.77)	4.29 (.73)	-1.46 (.144)
Indoor Exhibitions	3.84 (.75)	4.11 (.75)	-2.04 (.044)*
Performing Artists	3.99 (.72)	4.13 (.71)	-1.84 (.067)
Parking	3.35 (1.07)	3.50 (.99)	-1.57 (.116)
Shuttle Bus Service	4.21 (.80)	4.32 (.84)	-0.86 (.389)
Physical Layout	3.97 (.81)	4.09 (.71)	-1.89 (.059)
Food along Route	3.77 (.82)	3.99 (.73)	-3.36 (.001)**
Cleanliness	4.08 (.74)	4.27 (.67)	-3.24 (.001)**
Opportunity to Learn	3.76 (.84)	3.92 (.78)	-2.30 (.022)*
Having Fun	4.30 (.65)	4.40 (.62)	-1.97 (.050)
Overall Rate	51.95 (7.68)	52.12 (6.64)	-0.11 (.912)

* p<.05 ** p<.01

Table 4. T- test Results of Overall Satisfaction between Residents and Non-residents (NR).

Items	Mean Value Residents (S.D.)	Mean Value NR (S.D.)	Mean Value Difference (Prob.)
Overall Satisfaction	5.36 (.968)	5.53 (.985)	-2.14 (.033)*

* p<.05

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**ROUNDTABLE AND
MANAGEMENT
DISCUSSION**

UTILIZING INTEGRATED RESOURCE

MANAGEMENT TO ACHIEVE RECREATION

GOALS IN NEW HAMPSHIRE STATE PARKS

AND STATE FORESTS: AN EVOLVING MODEL

OF PLANNING AND PROCESS

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This paper describes a simple and cost effective approach to integrated resource management utilized on New Hampshire's state-managed lands that might be applied by other resource management agencies and organizations. It is a management process that addresses a broad range of resource concerns in the development and implementation of management actions. The particular focus of the paper is on integrating recreation management goals into commercial timber harvests on state parks and state forests, and on integrated management plan development.

A Perspective of Integrated Resource Management

Integrated resource management is not a new concept, and it has been practiced in varying degrees and forms by state and federal land management agencies over the years. In fact, it is a process that has been evolving over several decades. The concept of integrated resource management, at this point in its evolution, basically consists of a project design that incorporates, as much as possible, the understanding of the implementation effects of that project within the environment that surrounds it. The effects are both biological and sociological. The decision makers/project approvers are provided with an insight on the positive or negative effects associated with each of the alternatives analyzed which allows

them to be aware of the costs and benefits and helps them choose an alternative wisely.

Integrated Resource Management on New Hampshire State-Managed Lands

New Hampshire is a relatively small state with a diverse landscape. The New Hampshire seacoast, the White Mountains, and the Lakes Region are all within a few hours drive of each other. Approximately 87% of New Hampshire's 5.75 million acres are forested, and the forest varies from the spruce-fir and northern hardwood types of northern New Hampshire to oak-pine forests of the southern part of the state. There's a little over a million acres of public land in New Hampshire. The White Mountain National Forest, at 745,000 acres is the largest public landowner in the state. The state forests and state parks comprise the majority of the remaining public lands, about 170,000 acres. The Department of Fish and Game owns about 28,000 acres.

The Division of Forests and Lands and The Division of Parks and Recreation are sister agencies under Department of Resources and Economic Development. They collectively manage the state parks, state forests, natural areas, and other department lands. Primary management responsibility varies as to whether a land unit is a state park or a state forest, but the two divisions work closely together on all department lands. Both divisions are charged by law with protecting and managing the natural resources under their stewardship for the enjoyment and benefit of present and future generations. The Division of Forest and Lands is particularly charged with the stewardship of the forest resources while the Division of Parks and Recreation is particularly concerned with recreation resources. Also within the Department of Resources and Economic Development is New Hampshire's Natural Heritage Program, which maintains a data base on rare and endangered plant and animal species, and advises on their protection and enhancement. There is no single natural resource agency in New Hampshire, and management of fish and wildlife species is the responsibility of The Department of Fish and Game. The New Hampshire Division of Historical Resources, a division of the Department of Cultural Resources, provides expertise on the management of cultural resources on state land.

These resources are managed using an integrated resource management process that has evolved over time. There has traditionally been a strong tendency to compartmentalize management disciplines, the recreation managers do their thing, the foresters do their thing, the wildlifers their thing, and so on. Other values, visual concerns, rare plants and animals, and historical cult were considered through these disciplines, if at all. The multiple-use philosophy embodied in the Multiple-Use Sustained Yield Act of 1960 has been, at best, unevenly applied on state lands. Now a new paradigm is emerging, ecosystem management (O'Hara, Seymour, Tesch, and Guldin, 1994).

Compartmentalized management results in forest management plans with recreation and wildlife addendums, or recreation plans with forestry addendums. It results in management

jurisdiction zones being defined within the same property. It means you don't harvest trees commercially or cost-effectively within recreation areas. This largely describes management on our state lands prior to the mid nineteen eighties. To be fair, there was a process in place to at least coordinate, not integrate, individual management actions. The beginning of New Hampshire's present integrated management process might be traced to a single event that occurred in 1971. The director of the Division of Parks had planned a sleigh ride for some friends and politicians at Bear Brook State Park, a major state park near the Concord headquarters of the department. Apparently unaware of the sleigh ride, or perhaps just not invited, the director of Forest and Lands ordered the snow covered roads of the park sanded the day of the sleigh road for a logging operation that was occurring in the park. Needless to say, there were some ruffled feathers. After the dust settled, a group called the Cooperative Land Management Working Committee (CLMWC) was formed. The original group was composed only of representatives of the Division of Parks and Recreation and the Division of Forest and Lands. The advantages of talking to each other soon became apparent, and the group was expanded to include the Department of Fish and Game and The Department of Environmental Services.

The Cooperative Land Management Working Committee was formalized in an agreement between the participating agencies. It met quarterly, and reviewed individual management actions and general policy issues. By the 1980's, the Cooperative Land Management Working Committee had evolved into mostly a policy group. The sheer volume and complexity of management going on state lands made it impractical for mid-level bureaucrats, the general membership of the committee, to deal with individual management actions on a quarterly basis. As recently as 1989, proposed management actions, almost exclusively timber sales, were prepared by forest technicians and presented in the form of a planning report. The planning reports were run by The Department of Fish and Game and the Division of Parks and Recreation. They might be commented on, which generally resulted in some modifications to the action. In the case of some proposals on state park lands, the project were vetoed, or conditioned to the point they became impractical to perform.

A number of resource professionals directly involved in planning and implementing management actions on the ground recognized the need for a better system. With the encouragement of people like the former Director of Parks Wilbur LaPage and the Chief of Forest Management Tom Minor, changes were made. Proposed management actions were discussed before the project planning report was written, and specialists in addition to wildlife biologists, foresters, and recreation planners were invited into the process. In particular, the Natural Heritage Program ecologist and an archeologist from the Division of Historical Resources participated and strengthened the process. With the broader participation the process began to seriously review projects other than timber sales, projects such as trail construction, prescribed burns, habitat improvement, and others.

This team approach that developed was informal at first. There were a lot of field reviews of proposed projects, and sometimes a number of visits were needed to get everyone's input. Monthly meetings were started to share projects, coordinate calendars for field visits, and determine which projects actually needed field visits. In 1991, this arrangement was formalized and the this new working group was called the State Lands Management Team. The charter of the Cooperative Land Management Working Committee has been recently revised to reflect the existence of the State Lands Management Team and its role in resource management. The Cooperative Land Management Working Committee remains active in overseeing policy and administration of the lands management program in New Hampshire.

Although the agencies participating in the present integrated resource management process due so in the formal structure just described, their participation is voluntary. The process continues to evolve, but it currently works this way: agencies bring proposed management action to the State Lands Management Team for review and input at the initial stages of planning. The review may take place at the monthly meeting of the team, or it may occur in the field. The initial proposal may be written or just a discussion, but the project should end up in a written report form as it solidifies. The more significant management proposals are generally brought back to the team a number of times, and the implementation of the action is tracked by the team.

A public comment period is provided for all significant management actions, such as timber sale. Town officials and property abutters are notified by mail, and notices are placed in local papers. Public hearings are provided for particularly sensitive actions. Management plans are usually developed utilizing a variety of public input techniques, but it should be noted that the "Bear Brook Management Plan" discussed in this paper was developed without the benefit of a formal public input process. The plan is considered a working draft and is presently undergoing public review.

Applications of Integrated Resource Management on State Lands

The Bear Brook State Park Management Plan

Bear Brook State Park is located in southeastern New Hampshire. It is the third largest property owned by the State of New Hampshire, containing 9,585 acres. Established recreation sites occupy about 672 acres (about 7%) of this park with the remainder, about 8,913 (93%), managed for dispersed recreation.

In 1991, a resource inventory was completed. Also in that year, as a result of discussions pertaining to a timber sale being planned, it was decided by the members of the State Lands Management Team that an integrated management plan was needed for the Park. This plan should address both the present condition as well as the desired future condition of the Park. The plan should be integrated so that conflicting uses are strategically located so as to not conflict with other uses.

This Park traditionally has supported a wide range of recreational activities including hiking, snowshoeing, cross country skiing, dog sledding, snowmobiling, picnicking, camping, hunting, and fishing. It also has a tradition of forest management activities such as timber harvesting.

To begin the task of management planning, similar and complimentary uses were grouped together. This permitted the planning team to simplify the tasks of organizing uses and conceptualizing possible conflicts. At Bear Brook these uses conveniently fit into 4 logical categories. These categories are briefly highlighted in this paper.

Category #4 is basically designated recreation facilities. These facilities are the paramount management concern. Other uses within the area zoned out for this use are secondary and if conflicting, will be relocated. Silvicultural goals have been altered within this area to maintain a visually pleasing "park like environment", safe from tree hazards. Visual quality and human safety will always take priority over timber quality and wildlife habitat within these areas.

Category #3 uses dealt with uses that were dispersed but of high impact. These uses are permitted but it was felt that they needed to be located in areas of the Park where they would conflict the least with other uses. These Category #3 uses traditionally were located around the outer portions of the Park for various reasons. First, they blended in well with the disturbed environment contained on surrounding private lands - feeder trails into and out of the Park, heavy cutting outside the Park boundaries, some limited agricultural activity. Second, these users probably feel more comfortable in this area away from crowded conditions, and heavily regulated uses.

Category #2 uses contain a little less impact. Many of the uses are the same but are somewhat scaled back. Wildlife and timber management in these areas will promote older forests and lighter cutting strategies. This in turn will provide very different habitats than in the areas managed under other categories. The visual impact to park users will be lighter. Nature study and wildlife viewing will offer a variety of habitats and natural communities resulting in a spectrum of floral and faunal species.

Category #1 management will promote very old forests and little impact. Hiking and other non-motorized activities are encouraged here. This area will also provide large cavities and snags as well as late successional habitats for wildlife. This Category offers a larger selection of environments for nature study by providing habitat for diverse flora and fauna. We expect foot traffic to increase in these areas.

These categories fit into the Park framework not by a mosaic of small patches but instead by design into large scale land patterns in respect to this section of New England (Hunter 1990). For example, acreage described in Category #1 constitute 2050 acres within two patches, Category #2 contains 3,366 acres within two patches and Category #3 contains 3497 acres within four patches. Category #4 contains 672 acres

within 6 patches. These patches have been strategically located to purposely prevent conflicts from differing user groups. The juxtaposition of the categories (officially termed "management criteria") also provides for maximum biological diversity by establishing a disturbance gradient by locating heavily disturbed sites near the unprotected outside private lands at the Park's perimeter. Management criteria #1 is located in the center and most protected area of the Park. Criteria #2 is located between criteria #1 and #3 as a transition from heavy to light management.

Criteria #4 is located in established sites and most probable sites for future expansion of designated recreational facilities.

The Campground Timber Harvesting Operation

Bear Brook State Park contains a public campground that is open to the public from Memorial Day to about Columbus Day for family style camping. These sites are somewhat primitive in that they contain no electrical hookups or running water. This campground opened in 1952 and has never had a forestry operation within it since that time (43 years). The forest on site is a mature Eastern white pine. The mature overstory (about 90 feet tall) was estimated to be only approximately 60 years of age. The forest was experiencing a significant amount of mortality. More than 40% of the trees in this forest contained visible metal, such as nails, as well as open wounds from vehicle scrapes and vandalism. Significant staff time was spent removing hazard trees.

A prescription was prepared with the assistance of the park staff and the State Lands Management Team. The trees requiring removal were designated with paint and sold to a local logger with the capability of chipping all logging residue and selling the residues for boiler fuel at a profit. Logs containing metal were used at various locations within the Park as barriers and the remaining logs were sold to local sawmills for lumber production.

The project resulted in a profit for the stumpage, and freed up the Park staff to do other tasks within the Park. An added benefit from the operation was the addition of sunlight to the remaining tree crowns which are expected to sustain their growth and lessen the incidence of hazard trees in the near future.

Bear Brook State Park - Vista Cuts

An area was identified along the Podunk Road in management criteria #2 for group selection cutting. The Podunk Road receives much car traffic in the summer through fall seasons from Park visitors. The project to do the timber harvesting was reviewed by the State Lands Management Team and the Division of Parks and Recreation identified the desire to place vistas along the road to enhance visitors enjoyment of the road.

The vistas were integrated into the silvicultural and wildlife goals for the project. Criteria #2 permits openings no larger than 2 acres. By working with the lay of the land, vistas were incorporated that were visually, silviculturally and biologically functional.

Kingston State Park

This park was purchased by the State of New Hampshire in 1933. There is no record of any forest operation on this tract since state ownership. This Park contained pockets of dying Eastern white pine and well distributed individual stems of dying hardwood. Many large pines were located near buildings and were a source of concern due to the decadent condition of the trees and because of their contribution to the buildings deterioration from heavy shade and pine needle build-up.

Consultation with the State Lands Management Team yielded a prescription to remove the hazard trees for public safety, thin the forest to maintain the health and vigor of the residual stems and to regenerate small patches of forest to prevent the forest from maturing all at one time. The thinning and patches would also increase habitat for some wildlife species and make such species more visible to the public.

Again, a local logging contractor was hired to remove the stems. He used a mechanical tree felling device (feller/buncher) to safely fell the stems and pile them near the roadside for skidders to access and drag to a central yarding area. All merchantable solid wood products were removed from the stems and the remainder were chipped and sold as boiler fuel. The State of New Hampshire yielded a profit by selling the stems to the logging contractor and accomplished the Park maintenance at no cost. After the logging was completed, a crew from the State Prison was brought in to remove any debris not taken by the logging contractor.

Mechanical harvesting permitted the logger to safely fell stems leaning over the buildings, which otherwise would have been an expense to the Park. Normally, a tree service would be needed to remove such trees. Because of the volume of timber being removed (about 25% of the volume), the trees were felled profitably.

The harvesting took place following an exceptional bumper crop of Northern red oak acorns. Results from some non-random regeneration plots one growing season after cutting revealed seedling levels between 18,000 to 129,000 Northern red oak seedlings per acre. Estimates of the number of random plots that would be stocked would be approximately 80% or more.

Implications

New Hampshire State Parks and State Forests, like many public land management agencies, have experienced generally declining maintenance budgets over the last decade. This budget decline is exasperated by an increase in public lands and new and varied public use pressures on these lands. One result of these circumstances has been an increased willingness on the part of public land administrators to consider innovative solutions to the challenges created by reduced budgets.

It is in this environment that the integrated resource management approach described in this paper has come into being. There are a number of advantages to this team

approach, but the major advantage is probably that it provides for real integration but does not require any changes in organizational structure. In addition, this approach: pools scarce management resources; broadens the influence of any given field; shapes management decisions early on; and strengthens individual management actions by avoiding errors and providing integrity and validity.

Problems? Policy makers were at first leery of a new group that might yea or nay projects, or try to set policy. This is a matter of making everyone involved very aware of purpose and limits of the team. Team members themselves can begin to forget they only advise, except where there is law involved. Agencies have to be willing to bring their projects to the table, and not just comment on others projects. Participation is voluntary.

The future? There are a number of projects/activities that are currently non controversial and as such are not high priorities for full blown alternative and effects analysis. Thus the level of integration is low and decisions are often made regarding their implementation that are narrowly focussed. There are two major reasons why we as professional resource managers need to increase the level of integration. The first is that the availability of open land is decreasing which means that the demands placed on the remaining lands are increasing. As that happens, the level of controversy over conflicting demands will also increase. Now is the time to anticipate and prepare for this by increasing our knowledge about the effects of possible alternatives through research or practical application before there is a crisis. The second is that professional resource managers should constantly be striving to understand as many of the ramifications of implementing a plan or project as possible. A complete analysis of the issues, concerns and opportunities, coupled with an objective affects analysis, is an indication of an open objective process prepared by a truly professional resource manager. This involves shifting from a multiple-use paradigm to ecosystem management. It will require the increased use of research and technology, such as GIS, in analyzing effects, identifying alternatives and making decisions. Resource managers will use the input of interdisciplinary teams, made up of a variety of specialists, in the decision making process. Public input will also be an important source of issues, concerns and opportunities, and integrating public input in an effective and efficient manner will be one of the significant challenges to public resource managers in the future.

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THE PUBLIC INTEREST IN OUTDOOR RECREATION: OR WILL THE INVISIBLE PAW REPLACE THE RESPONSIBLE ARM?

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Recent legislative actions by the new Congress are threatening the existence of the public forests and parks, continuing the razing of the federal civil service, and have raised anew the long dormant question of the proper role of the federal government in our society. More generally, the proper role of government at any level in society is being brashly questioned.

Some economists have long been concerned with questions of the proper role of government as they have demonstrated through their investigations of "public" vs. "private" goods, or what is most efficiently produced by the public sector rather than the private sector.

For example, in 1969, University of Michigan Professor of Economics Peter O. Steiner wrote that...

"If one starts at any point and place in history--such as the United States in 1969--it is clear that the society has decided that there exist certain activities that are legitimately performed by governments. Many activities are by long tradition provided by various levels of government and are paid for by using the police powers of the state to raise funds. Others are left to the private sector. Without wishing to disparage the importance of the debate about the proper dividing line between private and public sectors, the fact is there is a large, relatively stable and broadly uncontroversial governmental "sector" of this economy, and of every other economy in the world" (Steiner 1969, 13).

Steiner then discussed the way demands for governmental activity arise, are explained, and then how they are made legitimate. To him, this process involves the nature of 'the public interest.' Steiner then states that economists have real problems in assessing what the "public interest" is. He says, for instance, that economists have excellent methods of determining which of two public housing proposals will get the 'biggest bang for the buck', but have only primitive or sometimes zero methods for deciding whether public housing is right or proper.

Dorfman (1966) describes public goods (such as law and order) essential characteristic as... "that they are enjoyed but not consumed, and their benefits are derived without any act of appropriation." However, Steiner comments that though Dorfman's definition demonstrates that there are government activities that are socially desirable that will not be achieved by the unaided private market, those are not the only class of goods which government can legitimately provide. He observes that examples are hard to find, and that the great bulk of nondefense public expenditures are for goods and services that do not meet Dorfman's definition. Steiner notes examples such as roads, schools, welfare payments, recreational facilities, housing, public power, irrigation etc., which can be consumed in whole or in part, and can be made subject to user charges (1969, 16). Indeed, many of the goods and services government provides can be privately provided, either under contract with the government through a private operator or by marketing them in some fashion. This of course is what has been called for under the recent National Performance Review sponsored by the current federal Administration.

As most readers know, the Administration has already embarked on reductions in federal programs based upon the entrepreneurial concept of government "re-invention" provided by David Osborne and Ted Gaebler (1992). The new Congress has given even heavier impetus to reductions in federal programs than has the Administration, including those providing outdoor recreation opportunities. Although these reductions began with the Executive Branch's reinvention of government efforts, Congressional efforts to balance the budget contemplate drastic reductions in the federal service using less foresight and planning than had already been criticized in the Administration effort (Kettl, 1994).

In addition, the sudden and continuing openly anti-government campaign in the U.S. political landscape, seemingly correlated with the Congressional budget cutting efforts, has been paralleled by vigilante type radical actions by citizens and groups against federal lands and installations in the Western states, such as national forest and Bureau of Land Management office bombings and clashes over roads with local governments. These were tragically surpassed by the bombing of the federal building in Oklahoma city, with some 167 deaths, and the terrorist connection apparently with various private militias of alienated citizens developing in recent years out in the countryside (e.g. New York Times, May 11 and 17, 1995; Washington Post Weekly, May 1-7 & May 8-14, 1995). News reports suggest the anti-government campaign was stirred to prominence both by recent political victories, also allegedly via several years of agitation by certain media and groups who feel alienated from government, and by growing economic stress among many citizens.

The rhetoric associated with these anti-government actions has resulted in the introduction of legislation, some with potential for enactment, of measures to turn large areas of federal lands used for outdoor recreation back to the states or counties. Other legislation passed by both houses would allow revenues from the sale of public lands and other federal assets to be calculated in budget deficit reductions (5/24/95); 52 for,

47 against in the Senate. Elimination of whole departments in the federal government are under consideration and have in at least one case have passed both houses of the Congress. Also, appropriations rescission bills have passed the House of Representatives zeroing out current fiscal year funds for the administration of such programs as the Endangered Species Act and others. Rhetoric about eliminating other government programs of one kind or another is now often in the press.

The New York Times reported that the Chief of the U.S. Geological Survey was recently before the House Appropriations Committee pleading for the survival of his agency, it having been recommended for abolition. The Commerce Department, which contains the National Marine Fisheries Service, has been voted out of existence by both houses of Congress, but as of this writing still awaits action by the President. Ironically, the private militias have apparently been meeting and training on or in the vicinity of some of the despised public wildland areas normally utilized by outdoor recreationists and their families.

All federal legislation has been hamstrung by the suspension of authority to make new regulations (H.R. 9), the same bill also requiring "Risk Assessments" and cost benefit analyses for still existing regulations. Environmental programs such as the Clean Water Act have been radically reduced in scope by the Congress, and other reductions of environmental laws have been reported out of committee. The chairman of the House Resources Committee recently suggested to the Chief of the Forest Service that he will turn the Alaska National Forests over to the State of Alaska. There have even been press reports attributed to the leaders of the House of Representatives to the effect that the professionalism of the U.S. Civil Service has somehow failed, and implying that the "spoils system" might be reinstated throughout all government agencies.

However, as noted above, little has been said about what the public interest is. Economists have tried to come to grips with this definition by discussing the nature of public goods as opposed to collective goods and private goods (see Steiner, P., 1969). However, Kettl (1993) has stated that "although the results of the American version of privatization have varied widely, the overriding lesson is that there is no function (of government) left that only the public sector can deliver."

Other analysts have been reporting on the reduction effort and the first study of the Executive Branch's National Performance Review (NPR) by an outside analyst of public management is now available and has been discussed on television (Kettl, D., 1994; PBS, McNeil-Lehrer News Hour, Sept. 14, 1994). Dr. Donald Kettl of the University of Wisconsin stated that NPR has been plagued by "a preoccupation with savings over performance improvement" and that the reinvention effort has not addressed the questions of "where do procedural due process and proper administrative safeguards become red tape? Does customer service contradict other government goals? In what direction should government steer and how good are the ideas that serve as its compass? And finally, just who are the government's customers and how can they be served?"

(Glass, More & Gilbert addressed this issue in case of wilderness 'customers' in their 1992 NERR paper)..."

Kettl notes that the driving spirit of the effort to downsize government comes from Osborne and Gaebler's 1992 book Reinventing Government. Kettl's comments were written before a National Public Radio news program in the fall of 1994 reported that a small California city starring in their book had suffered a major financial loss in regard to the private hotel center it had subsidized as part of its reinvention. And since that time of course, we have suffered the ultimate debacle in entrepreneurial government with the bankruptcy of Orange County California, through its losses of in excess of \$1.5 billion in the derivatives market, because the County treasurer had complete freedom to invest public funds without any "red tape", such as reporting his actions to the County Supervisors in writing, and being required to make his actions known to the press.

One of the prime requirements of entrepreneurial reinvented government according to Osborne and Gaebler "is the power to spend money on new ideas without having to ask for permission" (p.211). They propose that public managers have the freedom to invest taxpayers' money for profit in enterprises of one kind or another, up to \$25,000 without permission of a superior, and maybe legislative approval beyond that. "It would force managers to think like investors," they state (1992, p.212). No doubt this is just what the Orange County Treasurer was thinking. And is Gaebler going to be accountable for the losses to Visalia, California where he was City Manager when the city financed the private hotel center on city land, if it suffered the loss reported on National Public Radio news?

Bringing this situation down to earth in the arena of public lands and outdoor recreation, the Forest Service has grounded its reinvention program in what it calls a glocal perspective, but emphasizing that the glocal representatives will be "drawn whenever possible from the local community" (USFS, 1994, p.43). While this local orientation has long provided a foundation for national forest policy, is it enough now to prevent attempts of local governments to actually seize National Forest land as their own, as recently occurred on the Toiyabe National Forest, where newspaper reports state that the local Sheriff of Nye County Nevada, asserted that the county owned a closed Forest Service Road. He then ran a bulldozer out and opened the road, ignoring a Forest Service official who was ordering him to stop. Further deterioration of other federal administration and management is occurring through the contracting out of administration, selection of managers and personnel from outside the civil service system (Hoogenboom, 1961) or complete privatization of administration (Salamon, 1989).

Even though Salamon (p. 258-259) points out that indirect tools like competitive contracting have been conventionally believed to be more efficient than direct agency action for getting an ample supply of services out to program recipients. However, in practice, the degree of competition for government contracts has often been quite limited. The privatization of commercial

refuse hauling in New York, for example, did not work out because the few private companies in the business refused to compete and formed holding companies, dividing the market up among themselves.

Salamon notes elsewhere (p.12) that while the Office of Management and Budget has endorsed such privatization, the President's Council on Integrity and Efficiency conclude's that "holding managers more directly accountable for the efficient administration of their programs and operations is the single most effective means of preventing waste and deterring fraud." Salamon notes that the problem of course is that privatization and the preventing of waste and fraud are in significant conflict. How this problem is going to be solved by the reinvention programs in the Forest Service and other federal agencies is not yet explained in the re-invention plans, nor by their critic, Dr. Kettl (1994).

The agency answer may be suggested by the Forest Service's December 6, 1994, Reinventing the Forest Service: The Changes Begin, on p. 43, where it states that "For-profit organizations can offer attractive partnerships. We must eliminate the red tape and suspicion often associated with such arrangements." Was this what the Forest Service was thinking of after long time Oregon U.S. Attorney Charles H. Turner testified before a Congressional committee on October 5, 1993 that "...theft of timber from lands managed by the Forest Service in Region 6 is widespread and historical...fraud is widespread...bid rigging is believed to exist widely in Region 6...law enforcement (agents of the Forest Service) is impeded in their efforts to investigate theft and fraud..." (Turner, 1993, 18-35). The solution was decisive; the Eugene, Oregon Register-Guard headlined on April 7, 1995 with a front page story: "TIMBER THEFT WATCHDOGS SHUT DOWN. The U.S. Forest Service on Thursday disbanded its timber theft task force, which had fallen into disarray after its investigators accused superiors of deliberately interfering with their work"(1995, p.1).

Despite such horror stories, the Congressional action either contracting out or the actual transferring federal forest lands and programs, including those used for outdoor recreation, to the states or to private ownership is now within the realm of possibility. The House of Representatives has already done that with the federal school lunch program and federal welfare programs. Recreational lands would seem to be logical next candidates, since there are already private companies such as Disney that are in the intensive recreation business, and smaller companies such as Treasure Lake, Ohio, which furnish boating, swimming and overnight facilities on a large scale basis. The failure of the Bumpers amendment (May 24, 1995) to the Senate Budget Resolution suggests what may happen. Bumpers amendment would have prohibited including revenues from the sale of the public lands and other assets in budget deficit reduction calculations. The amendment lost 52-47 in a straight party line vote, with only Senator Cohen, Republican of Maine, breaking party ranks.

Transferring federal programs to the states is not a new idea. It began as far back as 1887 when the Hatch Act was passed,

transferring most all of the scientific personnel and work of the U.S. Department of Agriculture to the states. While that seems to have worked out in a fortuitous fashion, transferring the National Forests to the states might not prove such a blessing. However, it has been recommended recently by University of Washington Forest Sociologist R.G. Lee. Lee (1994) suggests "government ownership of land is proving to be a far greater threat to liberty than many of us had thought (p.171)." And he proposes transferring national forest and BLM lands to private ownership or to community development corporations or community land trusts, in order that local loggers and other residents can "govern their own lives and invent better ways of using the land (p.175)."

Public outdoor recreation lands and the research necessary for the professional management of those lands appear to be in for some rough and very lean years. Outdoor recreation has often been described as a "public" good akin to libraries, art museums, symphony orchestras, highways, sewers, etc. Loss of lands, loss of professional management, and loss of research funding crucial to decision-making appear immanent. By the time you read this, the decisions will probably have been made. Much of what has been accomplished in both conservation policy and management improvement during the past 50 years may go down the drain. Many professional careers appear to be on the line. I urge you to follow the news closely and to contact your elected officials personally or through professional or environmental interest groups. One source of current information is on the Inter-net through the environmentalist network.

We seem to have forgotten Santayana's (1906) warning that "Those who cannot remember the past are condemned to repeat it."

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BICYCLING AND WALKING: LINKING TRANSPORTATION AND RECREATION IN NEW YORK STATE

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The linkage between bicycling and walking as both transportation and recreation is important for parks, recreation and transportation professionals. This paper highlights efforts by three New York State agencies to develop innovative new bicycle and pedestrian programs, and presents survey data which suggests increased support for these modes of travel.

Introduction: Linking Transportation and Recreation in New York State

Bicycling and walking are important forms of transportation and recreation in New York State. More than 7% of New York State's commuters bicycle or walk to work (US Census, 1990) and according to the 1994 *New York Statewide Trails Plan*, bicycling and walking are among the top recreational activities statewide. The passage of the federal Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991 and the subsequent establishment of the Statewide Bicycle and Pedestrian Program at the New York State Department of Transportation (NYSDOT) in 1993 have led to increased potential for improving mobility and safety for bicyclists and pedestrians in New York State. At the federal level, the U.S. Department of Transportation (USDOT) has produced a vital document called the 1993 *National Bicycling and Walking Study* which calls for achieving two significant new national goals: 1) Doubling the amount of travel by bicycling and walking and 2) making these modes of travel 10% safer. In addition, USDOT has issued guidelines (Federal Highway Administration: Federal Register Docket No. 95-3) for the development of bicycle and pedestrian plans for each metropolitan area as an integral part of the transportation planning process. These guidelines make it clear that, by definition, bicycle and pedestrian trips should be considered as

transportation as long as these trips "connect two destinations." In other words, if a person walks to a park, that is a transportation trip, just the same as a person driving a car to the beach is a transportation trip. By the same definition, a loop trail within a park would be defined as a recreational facility. This is an important distinction in terms of funding - most ISTEA categories require that a facility demonstrate its transportation function in order to be eligible for federal funds - and it is also significant for linking the validity of bicycling and walking as transportation options which are also enjoyable forms of recreation, tourism and leisure travel.

In New York State, there are 12 metropolitan areas with populations larger than 50,000 people, and each of these areas has an existing Metropolitan Planning Organization (MPO) which is responsible for developing bicycle and pedestrian plans consistent with the federal guidelines. In addition, ISTEA requires the creation of a Statewide Transportation Plan which incorporates a Bicycle and Pedestrian element. The development of MPO and Statewide Bicycle and Pedestrian planning efforts provides the state and its varied communities with a unique opportunity to cooperatively establish the infrastructure and programs needed to improve bicycle and pedestrian mobility and safety. This effort includes the development of roadway improvements, greenways, trails, public transportation accessibility, bike lanes, sidewalks and paths which connect logical origins and destinations for bicycle and pedestrian travel. There are many existing and developing efforts which predate ISTEA in New York State upon which these efforts can and will capitalize. The Statewide Bicycle and Pedestrian Program has worked from its inception in 1993 to involve all levels of government and interest groups in the public and private sector to cooperatively create engineering, enforcement, education and encouragement efforts which will benefit the people of the state. NYSDOT and the Governor's Traffic Safety Committee have established a Statewide Bicycle and Pedestrian Advisory Council to facilitate this effort.

Since most bicycling and walking for utilitarian transportation involves trips of less than five miles, and since an estimated half of all trips by single occupant motor vehicle (SOV) in the U.S. are for less than five miles, a significant "market" potential exists for increasing the use of these modes. In addition, survey data indicates that bicycling and walking are increasingly important forms of recreation and exercise, so there is also key role for park and tourism related infrastructure in the state as well. As a result, *The New York Statewide Trails Plan* (an element of the State Comprehensive Outdoor Recreation Plan (SCORP)) and the New York State Canal Recreationway Master Plan are two of the key elements involved in the development of the state's bicycle and pedestrian program. As part of a coordinated, interagency approach, NYSDOT, the NY State Canal Recreationway Corporation and the Office of Parks Recreation and Historic Preservation (OPRHP) are working together to establish one of the nation's premier corridors for non-motorized transportation. This system, stretching from the Great Lakes to the Hudson River valley, includes more than 4.1 million residents along its 375 mile length, including upstate New York's 5 largest urban

areas: Buffalo, Rochester, Syracuse, Utica-Rome and the Albany-Capital Region. By working together, NYSDOT, OPRHP and the Canalway Corporation, along with other partners in local government, the private sector and state agencies are beginning to see a coordinated system of on-and off road bicycle/pedestrian facilities which connect local communities, recreation areas, public transportation and the programs which support all of these efforts. The following sections of this document highlight these cooperative efforts to link transportation and recreation, and provides some of the data which supports the ongoing development of these programs.

The New York State Canal Recreationway Plan

If he were alive today, Governor Dewitt Clinton would no doubt be surprised at what is happening with the New York State Canal System. For a renaissance is now underway that promises to restore the canal to its earlier position of national prominence. Once a major factor in the development of New York State, and indeed the nation, the canals fell into a gradual state of decline with the advent of rail and truck transport. However, the New York's canals once again promise to be a vehicle for economic development for the state. The canals' new life will focus around their historic and recreational significance. The canals will become a destination that people from around the world will want to visit and explore.

The purpose of this text is to describe the progress that is being made toward this reawakening. The Canal Recreationway planning effort, and in particular, the Canalway Trail initiative, which will parallel the entire Canal System -The Erie, Champlain, Cayuga-Seneca and Oswego Canals will be discussed. The importance of partnerships and linkages in the development of the Recreationway will be emphasized.

The Canal Recreationway Plan

The rediscovery of New York's Canals is primarily the result of a major planning effort that is being progressed by the New York State Canal Recreationway Commission. Work on the Canal Recreationway Plan began in 1993, as specified in state legislation (NYS Assembly Bill 121388 A) that transferred control of the canal system to the Thruway Authority. The New York firm of Beyer, Blinder, Belle was selected to develop the plan, which will incorporate canal inventory from the seven regional planning entities contiguous to the canal. An intensive outreach effort has been made to ensure that the views of the public are incorporated into the plan. Besides conducting periodic focus groups, more than 100 meetings were held with the public during the Summer of 1994 to solicit feedback on the policy recommendations developed by the Canal Commission. There will also be an opportunity for public review of the draft plan, scheduled to be released in June 1995. The Canal Recreationway Plan will provide a blueprint for future canal development. The goals of the Plan are to preserve the best of the past, enhance recreational opportunities, and foster appropriate and sustainable development. The Plan will contain recommendations for a number of projects in communities all along the canals, including seven major harbor projects at canal

gateways, and nearly 100 canal ports and locks projects. Each will provide facilities for boaters and landside users.

The Canalway Trail

The Canalway Trail initiative was launched in 1993. Like construction of the original Erie Canal, it is one of the most ambitious projects of its kind in the US and indeed the world. The goal of the trail program is to develop a system of multi-use trails parallel to New York's canals - a total of 524 miles long. The trail will provide a way for those who do not boat to enjoy the beauty and history of the canals. The system will include both urban and rural trails serving a diversity of users and populations.

Some portions of the trail currently exist. Many were developed by NYSDOT and local community groups in the years prior to the 1993 Canal Recreationway legislation. The trail will be completed by filling the gaps in the system and constructing new trails where needed, as well as providing on-road linkages using wide road shoulders where separate rights of way do not exist. The Canalway Trail system should be completed over time through a series of partnerships between the Canal Corporation and local governments, not-for profit organizations, the New York State Office of Parks, Recreation and Historic Preservation, the New York State Department of Transportation, the New York State Department of Environmental Conservation, and the National Park Service.

In 1994 - the first year of construction - more than 40 miles of trail were developed in five different areas of the state: Glens Falls, Canajoharie, Rome, Pittsford and Medina. In addition, NYSDOT established an across the state on-road bike route designated as "Bike Route 5" from the Capital Region to Niagara Falls. This route provides interim on-road connections for bicyclists travelling the canal corridor. In 1995, another 15 miles will be constructed in Fultonville and Greece, and NYSDOT will provide signage along the Champlain Canal as part of the development of "Bike Route 9" which will be signed from New York City to Montreal. In the long term, the on-road bike routes will allow experienced, faster travelling bicyclists to "share the road" with motor vehicles, while multi-use trail constituents travel at a slower pace along the off-road Canalway Trail.

Many of the partnerships mentioned above have already been formed. For example, the initial trail program was developed by an interagency working group consisting of representatives from the New York State Canal Corporation, the New York State Office of Parks, Recreation and Historic Preservation, The NYS Department of Transportation, the New York State Department of Environmental Conservation, and the National Park Service. The working group prioritized which sections to construct and developed trail design standards. New York State agencies have developed existing portions of the trail system and they have provided rights of way for new trail construction. For example, the NYS Office of Parks, Recreation and Historic Preservation has made available over 30 miles of abandoned rail right of way in the Mohawk Valley for Canalway Trail development, and the New York State Department of

Transportation is incorporating trail construction into several Mohawk Valley roadway projects.

The Old Erie Canal State Park, which is managed by OPRHP, will also become part of the statewide system. That linear park is more than thirty miles long. Similarly, at the local level, many communities have developed trails along the canal that will become part of the statewide system. These include the Mohawk Hudson Bikeway (built by NYSDOT in the 1970's and subsequently maintained by local communities) and the Town of Amherst trail. Equally exciting are the partnerships that are being formed with non profit organizations along the canal. Organizations dedicated to completing the Canalway Trail in specific regions are playing an important role in our overall program. These activities range from providing information and assistance to our trail planners and designers to actual trail development and enhancements, such as the interpretive signing that was provided along the Glens Falls Feeder Canal last year by the local Feeder Canal Alliance. The Canal Recreationway Commission will cultivate the volunteer interest along the canal with the intention of eventually establishing a statewide Friends of the Canalway Trail group.

The Canalway Trail will provide important linkages to several major statewide and national trails including the Seaway Trail, the Genesee Valley Greenway, the North Country Trail, the Long Path, the Hudson River Valley Greenway Trail and Lake Champlain Bikeways. These connections will facilitate the creation of a network of greenway trails throughout the state, as called for in both the State Open Space Plan and the State Comprehensive Recreation Plan. The Canalway Trail will also provide opportunities for linkages with several state parks and historic sites such as the Herkimer Home, Schoharie Crossing, the Old Erie Canal State Park, and eight Urban Cultural Parks, which are part of the state's Heritage Areas Program. The Canalway Trail will also pass nearby the Saratoga National Historic Park, the Women's Rights National Historic Park and the Montezuma National Wildlife Refuge. Additionally, the trail will be integrated into the canal harbor and ports and locks projects that will be recommended in the Canal Recreationway Plan.

For too long now, insufficient thought has been given to how trails greenway trails connect with communities or with other parks and recreational facilities. Trailheads are often located in areas that are difficult to reach by foot or bicycle, or they are difficult to find because of poor signage and limited connections to local streets and neighborhoods. At a time when we are attempting to reduce congestion and auto emissions, one should not have to feel that the only safe way to access a park , trail or town center is by automobile. The recently developed Canalway Trail segment between the towns of Canajoharie and Fort Plain in the Mohawk Valley is a good example of the appropriately linking transportation. This four mile long multi-use path directly links the two town centers, and is already being used by children, adults and seniors to walk, bike, in line skate and travel between the two communities. The project parallels the existing Bike Route 5 corridor, which has wide shoulders to accommodate faster bicyclists, and the trail is influencing re-development of the town centers. In Fort Plain,

NYSDOT has reconstructed the Main Street to include historic lighting, granite curbs, improved pedestrian crosswalks, and even the paving of paths in the town park using old cobblestones removed during construction. In Canajoharie, similar efforts are underway as part of the location of a new bank building in a parking lot along the trail right-of-way in the center of town.

Careful thought must be given to planning and developing these linkages. For example, the new harbors and ports along the canal will be hubs of activity, where boaters, trail users and canal visitors converge. Support services and interpretive information will be provided at these locations. Trail connections to these facilities must be provided. At park sites, we must be particularly sensitive to the concerns of park managers and the activities that are taking place. At the Herkimer Home, for example, managers of the facility are concerned about the proximity of the proposed trail alignment, an old rail bed, to the home itself. They have suggested the alignment be altered somewhat to accommodate this concern. A particularly sensitive area is the Montezuma Wildlife Refuge where concerns about the impact of the trail on the wildlife is a concern to the refuge's managers. Resolving these problems will be possible if we work together cooperatively. In summary, this is a particularly interesting time in the United States as we are slowly rediscovering the impact that sense of place has on the quality of our lives. But as we set out to reconnect with our past and to nature, we must also think about connections - in the partnerships we form and between the facilities we build and manage. If we do so, we will develop a system of greenways and parks, linked to communities, that will be accessible to all of our citizens for years to come.

The 1994 OPRHP Bicycling Survey

Survey Purpose and Scope: As more people use bicycling and walking as alternatives to the automobile, what are the implications for park managers, researchers and academics? This survey provides a baseline of data regarding New York State Parks Managers' issues and opportunity for improving bicycling as a mode of transportation and recreation as part of the State Parks system.

1. Conducted of all state park and historic site managers at the end of the 1994 summer operating season.
 - a. all but one region (NYC) participated
 - b. about 113 parks and sites / 185 (61%)
2. Purpose was to develop a basis for guidelines to better manage on-road and off-road bicycling within the State Park system.
3. Bicycling has been identified as a major concern, and will become a regulated activity.
 - a. Subject to OPRHP rules and regs
 - b. being driven by off-road mountain bike issues
4. Survey was done to provide benchmark information on the current status of bicycling

activities, and to identify concerns regarding this activity.

Usage

1. The 1990 Census: Bicycle and pedestrian modes of travel account for 6% of NYS commuter trips.
2. What's happening in the NYS Park System?
 - a. Basis of 1994 Survey
 - b. Since 1970, annual attendance at state parks and historic sites has increased by about 35%
 - c. Total attendance now at record level: 63,000,000
 - d. Favorite activities of visitors (State Trails Plan)
 - Hiking 81%
 - Biking 34%
 - Survey: 1 million bicycles / year
3. How has bicycle use changed in the past 5 years?
 - a. 74/103 (72%) report some or considerable increases
 - b. mostly individual riders and small groups
 - c. also commercial tours, races and rallies (98, of which 25 received permits)
4. How do bicycles arrive at the facility?
 - a. 20 - 25% from adjacent roads and streets
 - b. 25-30% transported in by car
 - c. 5-10 % ride-through as part of longer tour/trip
 - d. Camper's recreational use activity: 50-60%
 - e. Intermodal (bus): Bear Mountain S.P. / Palisades: 5%
5. Where are bicycles being used?
 - a. 93% on paved roads
 - b. 75% on service roads
 - c. 70% on hiking paths
 - d. also paved bike paths, carriage roads

Off-Road Bicycling Concerns

1. Selected state parks usage
 - a. Minnewaska -- 95%
 - b. Jones Beach -- 1%
 - c. Chenango Valley -- 40%
 - d. Saratoga Spa -- 25%
2. Green Lakes State Park
 - a. 70% before banned
 - b. 10% after ban
3. Has there been creation of unofficial trails through woods, shrub areas or wetlands?
 - a. yes 33
 - b. no 42
 - c. N/A 28
4. Has there been erosion of trails?
 - a. yes 20
 - b. no 28
 - c. N/A 52

General Bicycle Conflicts / Concerns

1. Have you identified trail-use conflicts?

- a. motor vehicle vs. bike - 35 parks / sites
- b. pedestrian vs. bike - 52
- c. bike vs. runner - 27
- d. bike vs. bike - 19

2. Number of lawsuits following problems on bikeways: 6

Implications for Park Management

1. Safety
 - a. No. of Bicycle related accidents reported in 1992 and 1993 combined: 260 (1 death, 62 head injuries)
 - 118 on park roads
 - 62 on trail
 - 38 at campsite
 - 6 on designated bike path
 - b. Does the park distribute bike safety information?
 - 29 yes 75 no
 - c. Do park police or park staff conduct bicycle safety programs?
 - 18 yes 84 no
 - d. Does the park have emergency procedures for inaccessible areas?
 - 19 yes 45 no
2. Enforcement
 - a. Do you feel there is a need to limit or restrict bicycle use at your facility now?
 - 43 yes 54 no
 - b. Are bikeways patrolled and inspected regularly?
 - 29 yes 32 no
3. Do you have any PARTNERSHIPS with bicycle trail groups to assist with trail maintenance, sponsor events, etc.?
 - 13 yes 57 no
4. Facilities
 - a. Does your facility have a marked or signed bikeway?
 - 10 yes 94 no
 - b. Do park roads have a 4-ft. minimum paved shoulder?
 - 7 yes 94 no
 - c. Do state or local highways leading to the entrances have paved shoulders 4 ft. or more in width?
 - 38 yes 65 no
 - d. In your opinion, what is the general condition of facility roadways for bicycle users?
 - good 27
 - fair 35
 - poor 34
 - e. Do you feel that more capital/rehab funds are needed at your facility to facilitate bicycle use in the future?
 - 63 yes 38 no

f. Are there trails in your facility that have been designated or constructed specifically for off-road bicycling?

1 yes 101 no

g. Does your facility provide bike racks or other means to park and/or secure bicycles?

65 yes 38 no (of which 20 say they are needed)

5. Information: Does your facility provide maps for bicycle use and access?

21 yes 84 no

6. Environmental: Has there been any environmental monitoring of the effects of off-road bicycling on the environment?

22 yes 20 no 61 N/A

7. What resources do you devote to bicycles in:

a. enforcement of rules and regulation?

\$ 5,250 OTPS

3,900 staff hours

b. bikeway maintenance?

8,600 staff hours

Discussion

The information presented in this paper has considerable importance to parks, recreation and transportation professionals. Bicycling and walking are among the most energy efficient, environmentally beneficial, healthy and enjoyable forms of mobility. These modes of travel are already popular both for transportation and recreation. There are considerable potential benefits to the state and our communities if more people walk and bike, and if these modes are made safer and more accessible. Key issues regarding maintenance, liability, multi-use conflicts and the other issues that attract a great deal of attention in regards to bicycling and walking can be resolved and have been resolved for automobile travel. At a time when budgets for infrastructure and programs are increasingly limited, bicycling and walking are cost-effective solutions which can be both timely and useful. If, for example, more people can safely walk or bike to a state park, it might be possible to reduce the size and maintenance requirements of large parking lots and roads. However, these kinds of solutions require careful coordination and balancing of the appropriate improvements and their relative costs and benefits. The range of options includes both on and off-road solutions, including the construction of multi-use paths, installing bike racks, re-striping roadways, building shoulders and sidewalks. It is important for professionals to consider all of these elements as part of system of solutions, just as a complete system already exists for moving automobile traffic in and out of parks and public places.

The opportunity exists for parks and recreation professionals to form new partnerships with transportation through the increased linkages provided by bicycling and walking. As each MPO and region develops its transportation program, cost effective bicycle and pedestrian improvements for mobility and safety can make parks more accessible and increase the opportunity for the public to enjoy these forms of travel.

Often, this involves simply thinking about the possibilities to improve bicycling and walking as part of the development of routine infrastructure and programs. When a road is rebuilt, striping patterns for crosswalks and bike lanes can often be added at very little cost. When a parking area is repaved, adding a few "bicycle parking" spaces in place of a couple of car parking spaces can provide increased parking without extra land or funding - 15 bicycles can be parked in the same space as a single car. Linear parks, greenways and urban cultural parks can provide new constituencies and types of facilities for a growing constituencies of parks "customers." However, the kind of thinking which generates these types of solutions is not common. In most cases, communities and planning professionals continue spending patterns which primarily provide for a system of transportation which does not integrate bicycling and walking as primary transportation choices. ISTEA in many ways has facilitated significant changes in allowing communities to make balanced infrastructure choices, but the balance still favors motor vehicle travel. Additional research, data collection and program development is needed to support the opportunity for New York to capitalize on bicycling and walking. Since bicycling and walking are already such important modes of transportation and recreation in New York State, the ongoing cooperation of state and local government with the public and private sector will play an important role in continuing to improving these conditions.

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POSTER SESSION

PARKS AS NEIGHBORS: THE EXPERIENCE OF LIVING IN AND AROUND CAPE COD NATIONAL SEASHORE

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It is clear that parks and wilderness are affected by surrounding private lands. But, do parks and wilderness also affect surrounding lands and their owners? The objective of this study is to explore the answer to this question. Private landowners adjacent to Cape Cod National Seashore were surveyed about their perception of the effects of the Seashore on their lives and their communities. A number of effects were identified. While most were perceived as positive, several were felt to be slightly-to-moderately negative. It is suggested that park and wilderness managers will increasingly need to reach out beyond the borders of their areas to deal effectively with external threats emanating from surrounding lands. However, they are likely to be more effective in the process if they are aware of and sensitive to effects they in turn have on surrounding communities.

Introduction

Many parks have become islands of nature in a sea of civilization. Development of land around parks has given rise to a variety of park management issues, including air and water pollution, limited range for animal populations, increasing demand for recreation opportunities, and incompatible development along park boundaries. These and related issues - often called "external threats" -- are reaching crisis proportions in many parks.

However, another side of these issues is beginning to emerge. Just as parks and park management can be affected by surrounding lands, so too can surrounding lands be affected by parks. Parks often draw thousands or even millions of visitors annually and public ownership of land can have important economic and other implications to communities. This study was designed to explore how the presence of a national park is perceived to affect local residents and their communities.

The study focused on Cape Cod National Seashore and surrounding communities. Cape Cod National Seashore is a major unit of the national park system and is located within six towns on outer Cape Cod. The park boundary is highly irregular resulting in a complex landownership pattern highlighted by substantial intermixture of public and private land. There are also in-holdings of privately owned properties which are completely surrounded by public land. The park is heavily visited in the summer and fall seasons.

Methods

The principal objective of the study was to determine the effects of the National Seashore on surrounding areas as perceived by local residents. A standardized questionnaire was administered by mail to a two and one half percent systematic random sample of residential property owners in the six towns comprising the National Seashore. Sampling was conducted using the property tax records of the six towns. Respondents were asked to rate the degree which the National Seashore positively or negatively affected a battery of forty items related to personal and community life. A response rate of 65 percent was attained yielding 608 completed questionnaires.

Findings

In general, residents in and around Cape Cod National Seashore felt that the park has an overall positive effect on their communities. The battery of forty items was divided into five broad categories for ease of presentation. Figure 1 shows the perceived effect of Cape Cod National Seashore on social and cultural variables. As the figure shows, respondents felt that all of these variables were affected by Cape Cod National Seashore in a positive way. The variables with the strongest perceived positive effect were the change in values, norms and customs of residents and the understanding of other cultures and people that the park provides. Additionally, respondents also felt the park had a slightly positive effect on population density, the local unemployment rate and the number of welfare recipients. Respondents also felt the park had a nominally positive effect on rates of crime, vandalism, alcoholism and drug abuse.

Figure 2 shows that residents who live in and around Cape Cod National Seashore felt that the presence of the National Seashore has a positive effect on natural resource and environmental variables. The variable with the most positive response was the quality of natural features in and around Cape Cod National Seashore. On average, residents felt that the park had a positive effect on air quality, water quality, and the quantity of water available. Additionally, residents felt that Cape Cod National Seashore had a mild positive effect on two social variables associated with the environment, the amount of noise and the amount of litter.

Respondents were also asked what effect they thought Cape Cod National Seashore had on public services in their communities. Figure 3 shows that, in general, the perceived effect was positive in nature. On average, respondents felt that

Cape Cod National Seashore affected the quality of public education, fire protection services, police services and other public services in a slightly to moderately positive direction. However, residents felt that the National Seashore had a slightly negative effect on the availability of land for public services.

Figure 4 shows how respondents felt the presence of Cape Cod National Seashore affected their quality of life. Several measures of quality of life were used, including a summary variable which asked respondents to indicate how they thought Cape Cod National Seashore affects their general quality of life. Response to this summary variable was moderately to strongly positive. Additionally, respondents perceived a positive effect on most of the specific quality of life measures. Respondents perceived the availability of recreational opportunities to be very positively affected by Cape Cod National Seashore. Additionally, respondents perceived the presence of the National Seashore to positively affect the availability of cultural activities, the quality of fishing, the quality of hunting, shopping opportunities, privacy and road conditions. However, the presence of Cape Cod National Seashore was perceived by residents to have a slightly to moderately negative effect on the availability of land for housing and traffic conditions.

Finally, respondents were asked to indicate whether the presence of Cape Cod National Seashore had positive or negative effects on several economic variables. Once again, on most of the variables, the perceived effect of the National Seashore was positive. Residents felt that the presence of the National Seashore had positive effects on the amount of tourism, the quality of tourism, the standard of living, job opportunities, income of area residents, the quality of commercial fishing and agriculture. However, residents felt that the presence of Cape Cod National Seashore increases the prices of goods and services, increases the cost of housing and increases property tax rates, all negative effects.

Discussion and Conclusions

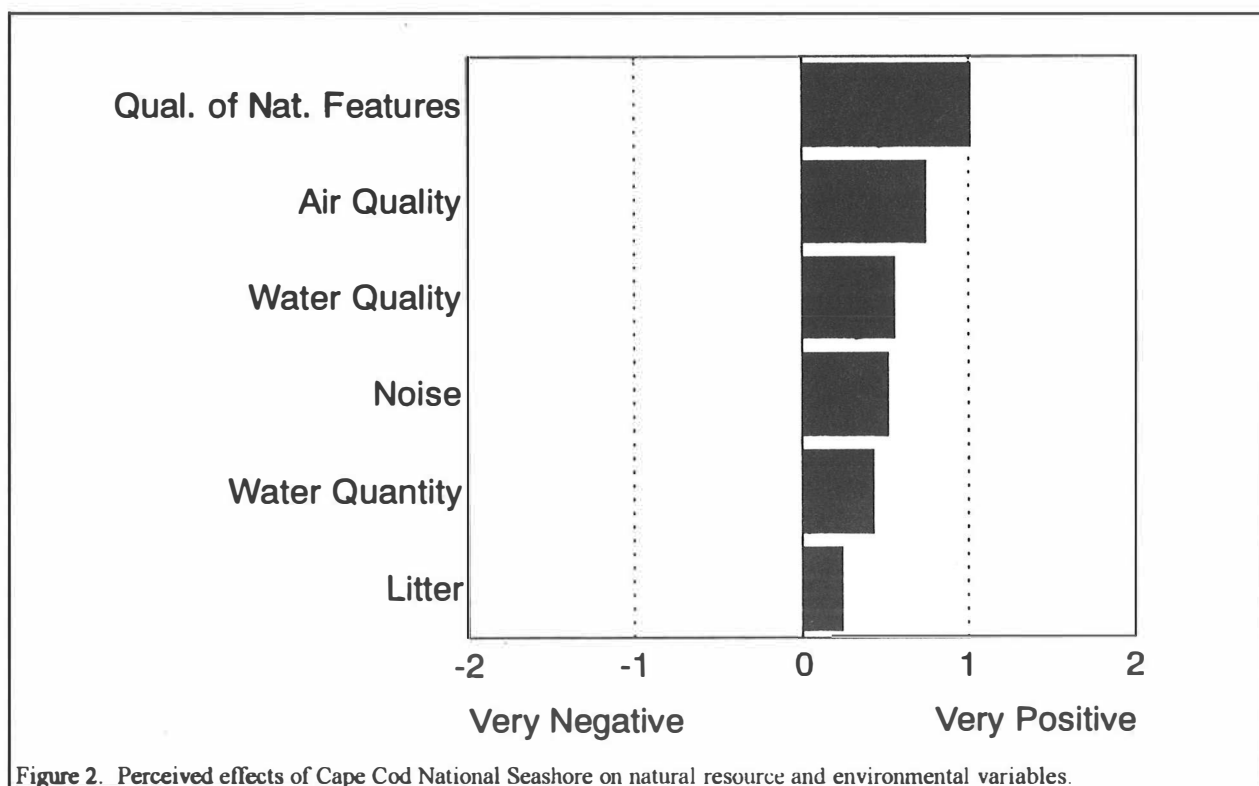
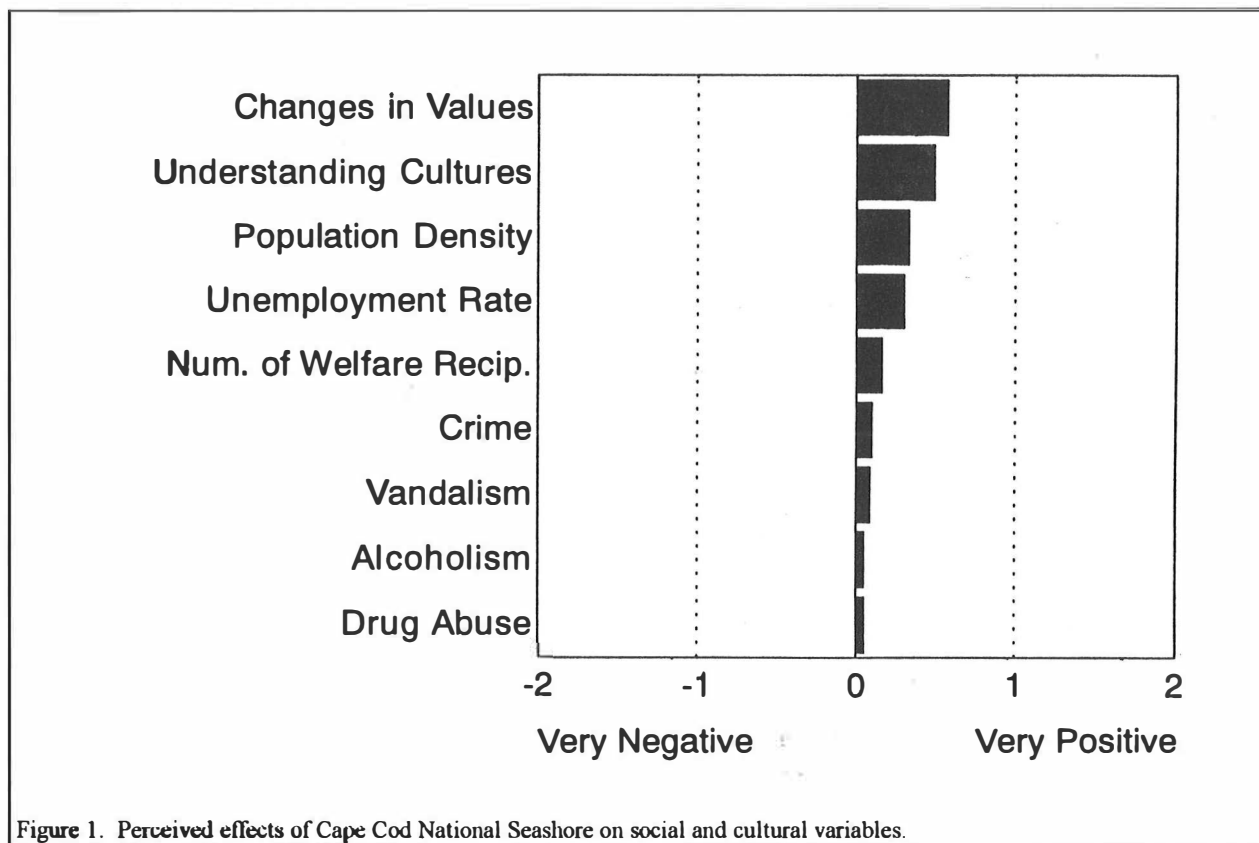
It is clear from the results of this study that respondents felt that the presence of Cape Cod National Seashore affects them in a multitude of ways. On average, respondents perceived a negative effect of the National Seashore on only 6 of the 40 items. This indicates that, overall, the National Seashore is a good neighbor. The items that had the highest negative ratings included the National Seashore's effects on traffic conditions, the cost of land and housing, and the property tax rate. The perceived negative effect on traffic conditions is probably due to the very large number of visitors who are drawn to the National Seashore each year. The perceived negative effect on the cost of land and housing is probably due to the fact that a large percentage of the land in the six towns studied is incorporated within the National Seashore. This land is not available for residential development. This may also be the cause of the perceived negative effect of the National Seashore on the property tax rate. Land that is included within the

National Seashore is removed from the tax rolls of the local towns.

The majority of items explored in the study were perceived to be slightly-to-strongly positively affected by Cape Cod National Seashore. Most residents appreciate the recreational, economic, and cultural benefits brought to the area by the large infusion of park visitors and activities available for these visitors. Additionally, most residents recognize the environmental benefits of the National Seashore. There is also an apparent belief that the presence of a major unit of the National Park Service can enhance traditional local government services like fire and police protection.

Findings from this study indicate that parks can be good neighbors. However, two notes of caution are in order. First, these findings are the **perceived effects** of Cape Cod National Seashore on local residents. The actual effects may be quite different, at least for some items. Second, although most items explored in the study were perceived as positively affected by the National Seashore, a number of items were perceived as negatively affected. Park managers should attend to these issues. Negative perceptions should be corrected where they are believed to be in error, or actions should be taken to ameliorate these negative effects when possible.

Finally, as the interconnectedness of public and private lands is more widely recognized, it will be necessary for managers of public lands to reach out beyond their borders to deal successfully with "external threats." They are likely to be more effective in this process if they are aware of and sensitive to effects they in turn have on surrounding communities.



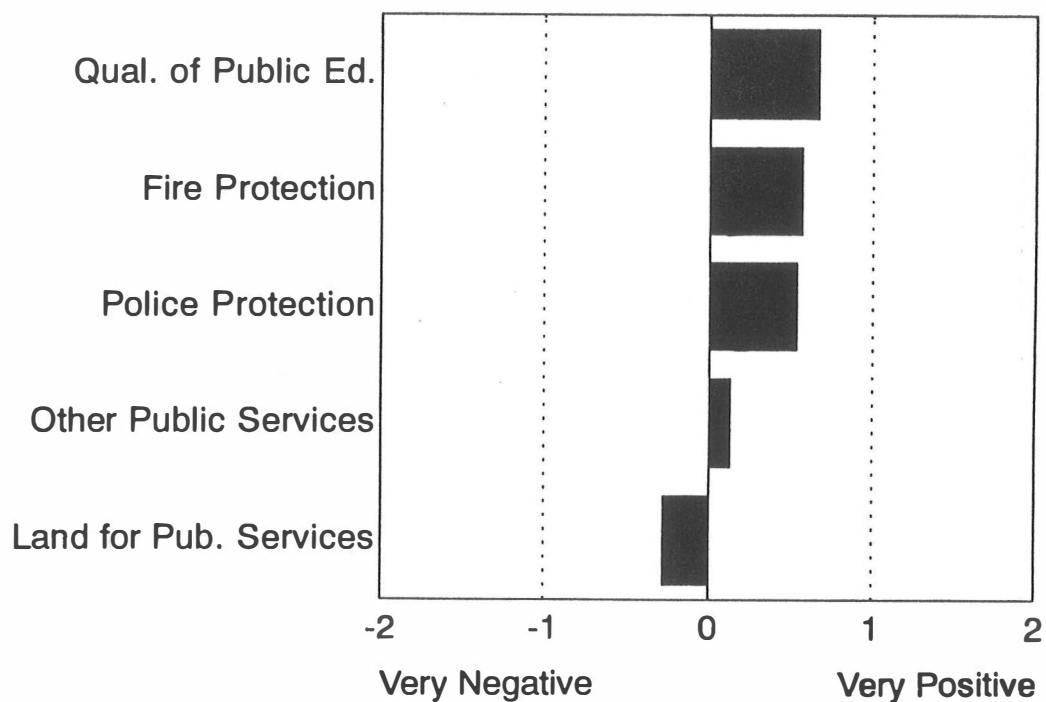


Figure 3. Perceived effects of Cape Cod National Seashore on public services.

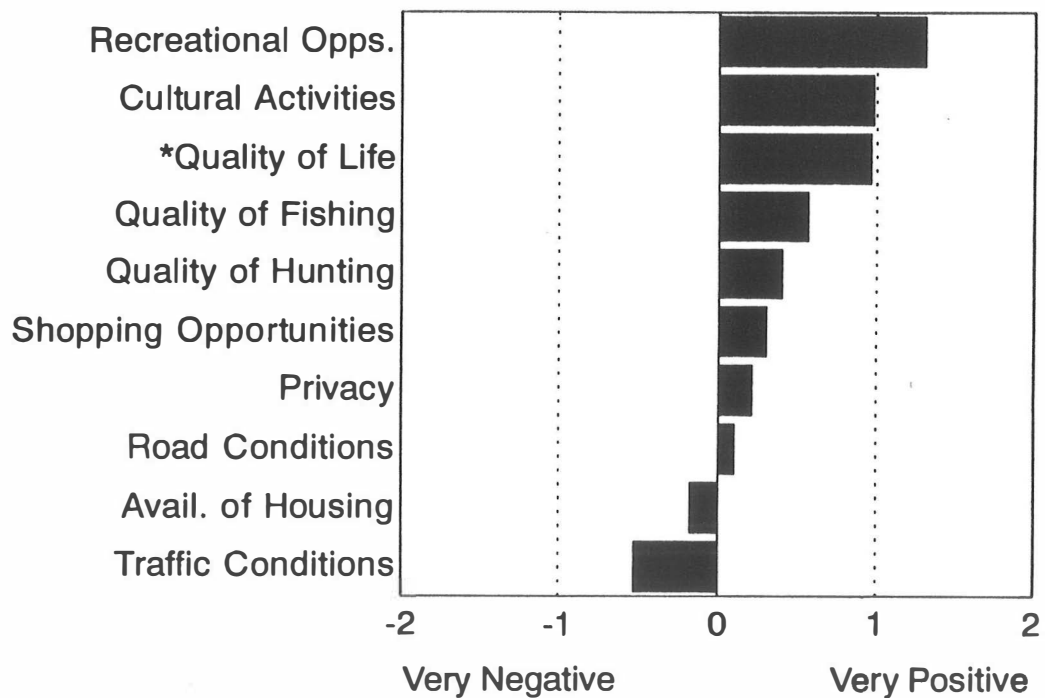
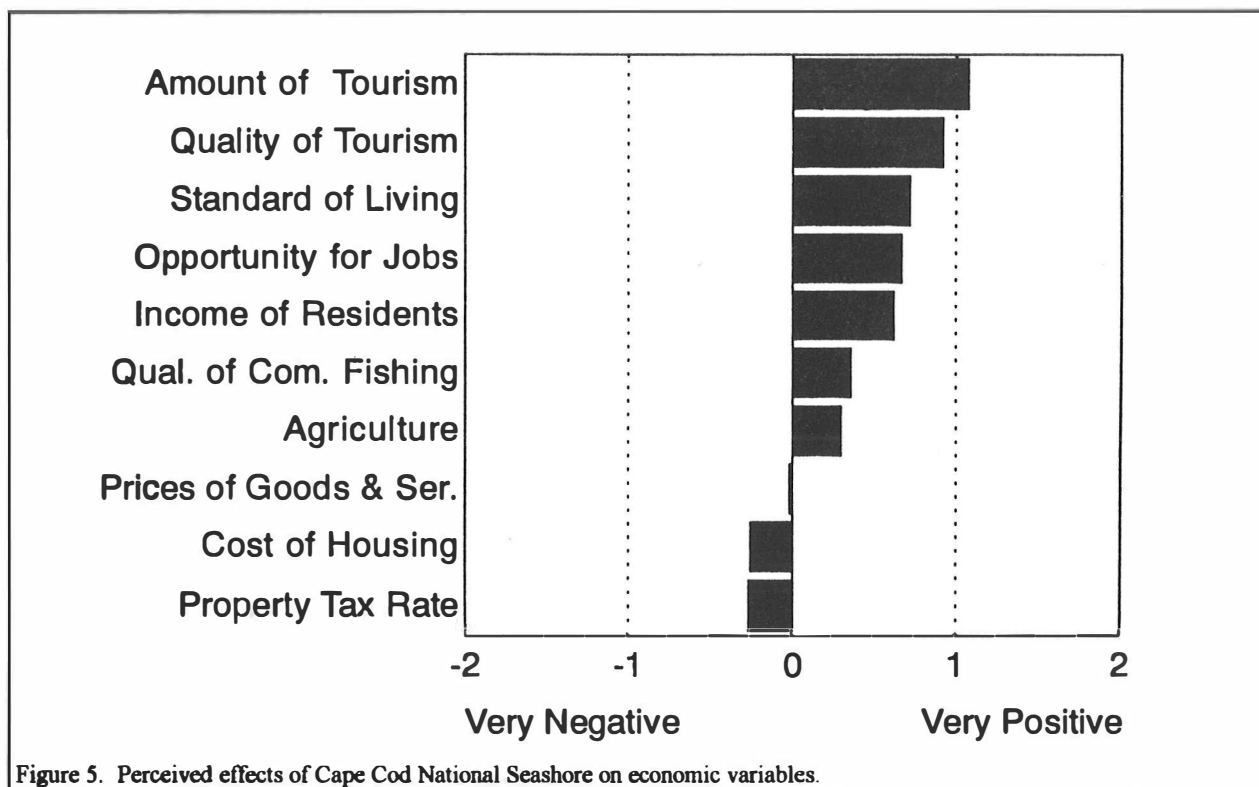


Figure 4. Perceived effects of Cape Cod National Seashore on quality of life variables.



A NECKLACE PARK PLAN FOR HISTORIC

HOLYOKE, MASSACHUSETTS

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The purpose of this study is to develop a necklace park plan composed of a three trail system for Holyoke, Massachusetts. The objectives of the plan are to: preserve remaining park areas, including several designed by Frederick Law Olmstead; create recreational opportunities for residents and surrounding communities; and link the parks together into a necklace trail system connecting recreational and historic preservation attributes.

Introduction

The city of Holyoke, located in the Connecticut River Valley of western Massachusetts, was the first planned industrial city in the United States. Once referred to as "The Paper City of the World" and "The Queen of American Manufacturing Cities," Holyoke has changed from a thriving mill city to a city in dire need of revitalization. Due to the recession and the movement of industry to the southern piedmont, the city of Holyoke today is struggling with high business vacancy and unemployment rates, as well as blighted neighborhoods and decreasing recreational opportunities. This study deals with upgrading parks and creating recreational opportunities.

Each part of the three system Necklace Park Plan for Holyoke focuses on a specific attribute of the city. The first trail system focuses on the preservation and restoration of the existing park areas along the Connecticut River and canals located in the downtown area. The emphasis here is on creating recreational opportunities for the residents of Holyoke and the surrounding communities. Several of these parks along the river were designed by the first American landscape architect, Frederick Law Olmstead. Olmstead designed such well known parks as the Boston Commons and the Emerald Necklace Park System in Boston, as well as Central Park in New York City.

The second system focuses on the preservation of the historic sites of Holyoke. The city has many historic churches and buildings, and several cultural sites of historic significance. The implementation of an historic walk highlighting these resources would provide residents and visitors with a new perspective of the city. Along with attracting tourists, park improvements would enhance business and commercial development.

The third system focuses on the design of a wilderness trail running through the Holyoke Mountain Range, located in the northern part of the city. The Wilderness Trail connects Community Field, an urban park, with the hiking trails of Holyoke Community College, Mount Tom Reservation, and the Metacomet and Manadnock Trail (M & M Trail). This trail would serve to provide recreational wilderness activities in addition to the urban parks that already exist within the city.

Overall, the intent of the Necklace Park Plan is to create three distinct trails, as well as links between the trails. For this reason, connections between the canal walk, historic walk and wilderness trail are emphasized. The conceptual drawings for the park plan specifically show ways to integrate each trail with each other and with the entire trail system.

Methodological Issues

The methodology involved in this study included data gathering in the primary areas of physical geography, economic feasibility of acquisition and conservation, and historic value. The physical geographic attributes identified for site analysis included; soil types, topography, landform, and water resources. Natural resource inventory maps of the riparian watershed and reservoirs were produced. The maps were analyzed to determine the most appropriate sites for the trail system.

An inventory of maps was generated to identify open space parcels of environmental concern. These data were especially relevant in the design of the wilderness trails and the Connecticut River and canal walk. Identification and classification of recreational parcels was conducted in order to develop an updated recreational plan for the city. A condition survey and needs assessment was also conducted in order to determine areas of severe blight.

The economic feasibility of acquisition or deed restrictions for designated parcels on the wilderness trail was determined by compiling assessor's data. The data include acreage and ownership of the parcels sited for the trail. In each case it was determined whether it was feasible to acquire or conserve the parcel. Also, a site analysis study was conducted. Site field work for this study included analysis of map overlays of natural resources, location of utilities, and other support systems for each parcel. These overlays were superimposed to identify and protect any fragile environmental areas. These environmental areas of concern should not be included in the hiking trails or recreational areas.

The Holyoke Necklace Park Plan also includes an inventory of the farmland (Chapter 61A) and forest parcels (Chapter 61B) that have deed restrictions on development. A review of the Federal Register of Historic Properties was conducted in order to identify the primary sites for the historic walk. The local Historic District Commission was contacted in order to develop a list of recommendations for building improvements and tax credits for eligible sites.

Park Proposals

The Holyoke Necklace Park Plan includes: the River Canal Walk, the Holyoke Historic Walking and Driving Trail, and the Wilderness Trail. The plan is based on the Emerald Necklace Park Plan designed for Boston by Frederick Law Olmstead in the mid 1800s.

The River Canal Walk

The first trail, the River Canal Walk, includes all four and a half miles of the canals. Log Pond Cove, used in the late 1800s as a log storage pond on the way to the mills, is also part of the canal system. The trail incorporates a dam and a three level canal system which was used in the past to create hydro-power. This section of the river has a long history of dam construction. The first dam on this site was completed on November 16, 1848, only to be washed away the same day. The second dam was completed in 1849 and lasted until a stone dam was built in 1900. The third dam, known as the "Million Dollar Dam," still stands today.

The River Canal Walk begins in the northern end of the downtown area at Heritage Park, which includes the Children's Museum, the Holyoke Merry-Go-Round, the Heritage Park Railroad, and the Volleyball Hall of Fame. From Heritage Park, the trail follows the canals to the confluence of the canals with the river. Geographically, this marks a suitable endpoint for the canal walk. There is greater access to transportation and other support services at this point than at other parts of the walk. This walk passes through many parks along the Connecticut River, including Pulaski Park and Feldman Park designed by Olmstead. The trail also passes through parks located in the downtown area along the canals.

The Holyoke Historic Walk and Drive

The starting point for the Historic Trail is Heritage Park in downtown Holyoke. From Heritage Park, the trail continues north through the downtown area. The first historic site is St. Jerome's Rectory, the seat of Irish authority in Holyoke in the late nineteenth into the early twentieth century. Other religious buildings on the trail include; St. Jerome's Institute, St. Vincent de Paul Convent, Holy Cross Church, Sacred Heart Church and Rectory, and the Second Congregational Church.

Residences of significant architectural interest on the Historic Trail include; the Michael Finn House, the Frank Towne House, the Casper Ranger House, the Dennis Landers House, and the William F. Whiting House. The architectural style of the houses are Queen Anne, Tudor, Craftsman, and Shingle style. Several of the houses are noted for cultural significance, as well as typical and scarce architectural styles.

Two other significant historic sites include Hall's Dairy and Wistariahurst Museum. Hall's Dairy is one of the few Colonial Revival buildings constructed in the Oakdale section of Holyoke for commercial business. The Wistariahurst Museum, which was originally a mill located in Haydenville, MA, was moved to Holyoke in 1874 by the owner, William Skinner. The relocation and activation of this mill was a catalyst for the Industrial Revolution in Holyoke. Housing a conservatory and music hall with the Belle Skinner collection of vintage musical instruments, the Wistariahurst was later remodeled by the renowned American Architect, Clarence Luce.

The Wilderness Trail

The third system of the Holyoke Necklace Park Plan is the Wilderness Trail. This trail connects the northwest corner of the centrally located Community Field with the Holyoke Community College Trail System. From there, the trail connects with McLean and Ashley Reservoirs and the M & M Trail which, in turn, connects with the Mount Tom State Reservation.

Diverse natural habitats abound on the trail system. Northern hardwood forest, exposed basalt ledges, and wooded swamps are the most common habitats found in this bioregion. In the immediate area there are two rare plants, the yellow lady slipper and the climbing fern. One endangered plant, the small whorled pogonia, is also found in the area.

The Wilderness Trail System provides beautiful vistas. Looking to the west are spectacular views of the Berkshires and rural landscapes. To the east are panoramic views of Holyoke and the Connecticut River Valley. The Wilderness Trail provides the people of Holyoke with an opportunity to escape the urban environment of the downtown area and, by connecting with the M & M Trail, opens up Connecticut and New Hampshire for wilderness exploration.

Plan Recommendations

In order to implement the Necklace Park Plan effectively, efforts must come from all levels of government, as well as the private sector. Implementation of the plan should follow these comprehensive steps:

- The city of Holyoke Planning Department should research available grants and funding for which the city qualifies for the park plan. The Planning Department should oversee grantwriting procedures by the appropriate environmental, historic preservation or conservation groups.
- The Department of Environmental Management (DEM), the city of Holyoke Planning Department and the Department of Public Works should coordinate the efforts to clean-up and restore the parks, trails and waterways of the city. Volunteers for the upgrading and maintenance of trails should be solicited from environmental groups and the business and private sectors.

- The Historical Society of Holyoke should focus on the Historical Trail as an educational tool for the youth of the community; as youth involvement fosters pride and respect for the community.
- supervisory board, made up of members from the DEM, the city of Holyoke, the Mount Tom State Reservation Committee, Holyoke Community College, private groups and environmental organizations should oversee the implementation of the Wilderness Trail. Creation, marking, and long term maintenance should be coordinated by the above groups.
- An advisory board should be created to organize recreational and park activities for Holyoke and regional residents. The board could consist of members from the YMCA/YWCA, church groups, schools, and other community groups.

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INTERPRETING NEW YORK'S EASTERN LAKE ONTARIO SAND DUNES AND WETLANDS

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An interpretive project has been developed by NY Sea Grant to educate and influence visitors to four state-owned properties on the eastern shore of New York's Lake Ontario. The sand dunes and wetlands in this area are showing signs of overuse by visitors. Thematic interpretation, including an area guidebook, signs and kiosks, has been developed to alleviate some of the stress to this fragile ecosystem. The planning process and implications of this project are discussed.

Introduction

During the summer of 1994 and the winter of 1995, New York Sea Grant developed a plan of recommended interpretation for the sand dune and wetland area on the eastern shore of Lake Ontario (Earnest 1995). The project was conceived as: 1) a project which could be implemented over time and by various organizations and agencies, and; 2) as a demonstration project for others wishing to develop an interpretation plan. It was developed in conjunction with member agencies and organizations of The Ontario Dune Coalition (TODC), including the NYS Department of Environmental Conservation (DEC), the NYS Office of Parks, Recreation and Historic Preservation (OPRHP), county planning agencies, local community groups, and The Nature Conservancy. TODC is a group of land-owner/resource associations and local, state and federal agencies interested in: 1) stabilizing the dune system; 2) developing measures to do so; and 3) maximizing public use while protecting the dunes and private property considerations.

Developing interpretation for the dune and wetland area is supported by previous studies. L.R. Johnston Associates (1989) notes as management problems for the eastern Lake Ontario sand dunes: 1) the increasing recreational use; and 2) the lack of public awareness and education about the dune environment. In addition, Brown et al. (1990) recommended development of thematic interpretation and access to these areas while managing for environmental impacts by visitors.

Background

The eastern shore of Lake Ontario borders New York State and includes a coastal barrier system approximately 17 miles long (Figure 1). This coastal barrier system is public and privately-owned and contains beaches, sand dunes, wetlands and ponds which are heavily used for recreation.

Approximately 7 miles of this barrier system is owned and managed by the State of New York. The remaining coastal barrier system is privately-owned and consists of vacation cottage communities, campgrounds, trailer parks and two nature preserves (Johnston Associates 1989).

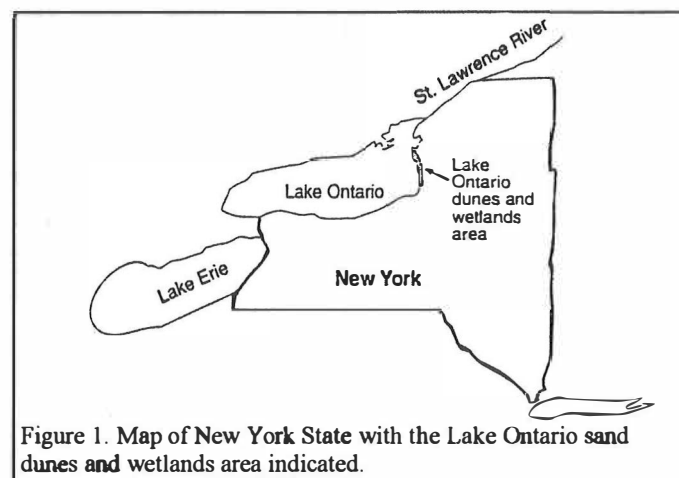


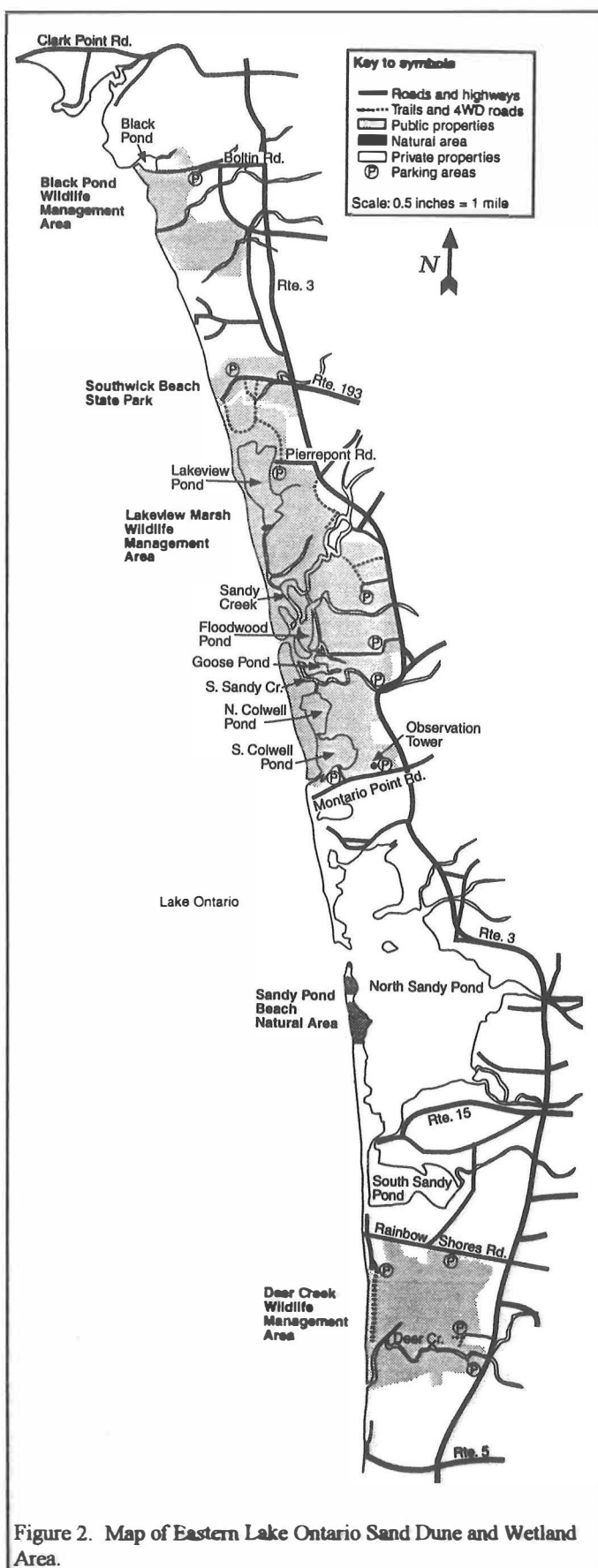
Figure 1. Map of New York State with the Lake Ontario sand dunes and wetlands area indicated.

The area is easily accessible by foot, bike, car and boat. Public access to the area is possible from the following four state-owned properties (Figure 2):

1. Black Pond Wildlife Management Area (WMA);
2. Southwick Beach State Park;
3. Lakeview Marsh WMA; and
4. Deer Creek WMA.

These areas are managed by two different New York State agencies; the WMAs are managed by the DEC and the state park is managed by the OPRHP. Additional recreational access to the sand dune and wetland area will be allowed from The Nature Conservancy's Sandy Pond Beach Natural Area, which will be managed by the DEC. Although somewhat debated, the public is also allowed access by foot along the length of the beach up to the high water line.

Recreational uses of the coastal area include boating, hunting, fishing, hiking, swimming, sunbathing, bird watching, and camping. Not all of these uses, however, are consistent with agency regulations. Different regulations govern the uses of the WMAs and the state park. Some uses, such as swimming and picnicking, are only allowed at the state park while others, such as hunting with firearms, are only allowed in the WMAs (Johnston Associates 1989). Other uses, such as hiking in the dunes, can be destructive to the fragile ecosystem, causing the destruction of beach grass and other vegetation, and the disturbance of nesting shorebirds (Bonanno 1992, Carlson and Godfrey 1989).



Planning Process/Method

The process used in planning the interpretation was based on interpretive master planning (Veverka 1994) and an interpretive planning process originally developed for scenic byways (Kuehn 1993). The following ten steps have been adapted for the project:

- Step 1 - Identification of planning team
- Step 2 - Determine goals of project
- Step 3 - Inventory of public areas
- Step 4 - Determine appropriate interpretation media
- Step 5 - Develop structure of project
- Step 6 - Determine current/potential recreationists
- Step 7 - Develop themes and subthemes
- Step 8 - Develop wording for interpretation
- Step 9 - Prioritize interpretation
- Step 10 - Publish interpretive recommendation report

The following steps continue this process beyond the scope of this project:

- Step 11 - Implement recommendations in project
- Step 12 - Promote project
- Step 13 - Evaluate project and modify interpretation as needed

Planning Team

The project planning team was made up of a New York Sea Grant Specialist and a Sea Grant Extension Scholar. Interested parties consulted for the project included DEC biologists, an OPRHP Park Manager, local community leaders, an Oswego County Planner, a The Nature Conservancy Project Manager/Stewardship Ecologist and other TODC members. The diverse backgrounds and knowledge of these interested parties greatly increased the scope and usefulness of the project.

Goals

The goals for this project are a combination of general interpretive goals (Ham 1992, Kuehn 1993, Veverka 1994) and specific goals for the area. The following are the seven goals for the project:

1. To inform and educate visitors about the area through the development of thematic interpretation;
2. To increase visitor awareness of sand dunes and wetlands;
3. To orient visitors to Lake Ontario's sand dune and wetland area;
4. To communicate proper access to visitors;
5. To communicate agency and community goals and regulations for the area to visitors, and;
6. To decrease destructive visitor impacts.

These goals are not listed in relative order of importance and should be viewed as a comprehensive planning effort.

Area Recreationists

The area is heavily used by a wide variety of recreationists. Market analysis for the Oswego-eastern shore communities, including the sand dune and wetland areas (Brown et al. 1990), identified four target markets for the area: 1) young active

Table 1. The use and potential for expansion of target markets for coastal Lake Ontario recreational activities.

Activities	Target Markets				
	Young Active Adults	Families with Children	Pre-retirement Adults	Active Seniors	Local Residents
Fishing	E	E	E	L	E
Boating	E	E	E	L	E
Camping	E	E	G	L	L
Nature Study	G	G	L	L	G
Biking	P	L	L	L	P
Hunting	E	E	E	L	E
Cross-country Skiing	E	E	E	L	E

Key: E = Established market expected to maintain similar levels; G = Existing markets with growth potential; P= Limited or nonexistant market with potential for expansion; L= Limited or nonexistant market with limited potential.
Adapted from source: Brown et al 1990.

adults (individual adults and couples under 45 without children); 2) families with children (one or more adult with children under 16); 3) pre-retirement individuals (individuals and couples in their mid 40's to mid 60's who no longer have children at home); and 4) active seniors (older individuals and couples, in good health and generally no longer working full-time). An additional market has been identified for the area: 5) local residents; which includes individuals and families living within 10 miles of the sand dunes and wetlands. Table 1 indicates these markets, their recreational use of the area, and their potential for expansion.

Because most markets are shown to be well established in the area and many are repeat visitors, developing interpretation should be an effective management tool for changing recreationists' behavior.

Interpretation Media

Five different types of interpretation media have been developed for the project. The interpretation is meant to be used throughout the four state-owned areas, linking the noncontiguous areas for recreationists.

Erosion prevention signs. These small signs have been designed to deter entry into dunes. They are to be placed at regular intervals along the beach with a physical barrier, such as snow fencing.

Guidebook. A guidebook has been designed for the area: "Sand, Wind, and Water: Lake Ontario Sand Dunes and Wetlands." The guide includes interpretation of area flora and fauna, maps with public access and parking indicated, trails and canoe routes, and agency rules.

Kiosks. One- and three-sided kiosks are recommended for the seven major access points. Each kiosk has an area map, and interpretive and informational panels.

Interpretive signs. Signs have been designed for interpreting points of interest. They are to be placed at various locations visited by recreationists.

Self-guided interpretive trail. Signs interpreting different habitats and trailhead kiosks have been developed for a trail system that links Lakeview Marsh WMA and Southwick Beach State Park.

Themes and Subthemes

Effective interpretation includes the development of themes. Themes are ideas, concepts or messages that form the basis of interpretation for visitors. In larger interpretive plans, the theme can be narrowed into related subthemes for each interpretation component (Ham 1992, Kuehn 1993, Veverka 1994). Themes and subthemes developed for the project are listed in Table 2.

Recommendation Report

The interpretative recommendations have been compiled into a report. This report includes: area and site maps; themes and subthemes; draft of the guidebook; suggested wording and placement of interpretive signs and kiosks; and interpretation that should be considered in the future (Earnest 1995).

Discussion and Implications

The project is not designed to directly deal with management issues but to develop interpretation and suggest where and how it should be used. In designing the interpretation, however, several management issues are implied.

The fact that the public areas are managed by two different state agencies, has both enriched and complicated the project. The manicured state park provide visitors with various day and overnight recreational opportunities, while the nearby WMAs offer day-use, nature-based opportunities. Letting visitors know about these differences in a simple way has been a challenge of the project.

Table 2. Themes and selected subthemes developed for the interpretation project.

Interpretation Media	Theme
Project	Balancing the use and preservation of the fragile sand dunes and wetlands of Eastern Lake Ontario is important for both wildlife and people.
Trail	Transition through a diversity of natural areas can be seen on the Southwick/Lakeview Trail.
Subthemes for the kiosk panels and signs	- The beach, sand dunes and wetlands support a diversity of life. - Sand dunes are very fragile and easily eroded. - There are many different types of habitats along the Lake Ontario shoreline. - Lake Ontario's sand dunes and wetlands are ever-changing natural resources. - Sand dunes are held together by plants. - Wetlands are an important natural resource. - Two kinds of plants can live in watery environments, aquatic and emergent plants. - Many different types of wildlife live in Lake Ontario's meadows. - Agricultural use of the area has had a lasting effect on the Lake Ontario environment.

Some concern has been raised that development of interpretation may bring in additional recreationists to an area already showing signs of overuse. In order to keep visitor impacts on the environment to a minimum, promotion of the area is not a focus of the project. Instead, it has been designed to educate the visitors as they enter the area and direct recreationists to proper access points, away from fragile areas. Visitors need to be made aware of where and what recreational uses are appropriate. Interpretation has been shown to be an effective means of indirectly managing recreationists, affecting their behavior, and communicating information to visitors (Ham 1992).

The present recreational use of the four-state owned properties have been considered in the project. The present recreational use shows where interpretation would be most effective and suggests the type of interpretation media needed. Physical structures, such as dune walkovers, have been shown to effectively decrease dune erosion. Although they are beyond the scope of this project, they are encouraged. The potential for expansion of this project includes development of an interpretive center, a formal educational program and hiring seasonal or full-time interpretive staff.

Conclusion

Many people visit the eastern Lake Ontario sand dune and wetland area every year. Years of recreational use has stressed this area, causing the need for improved visitor management and interpretation. The preservation of this fragile area depends on the cooperation of visitors, local community groups, and local, regional and state agencies. Without this cooperation, this unique and fragile area could not exist. Interpretation can provide a means to help manage this area.

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A RESEARCH FRAMEWORK TO ASSESS THE BIOPHYSICAL IMPACTS OF NATURE-BASED TOURISM: A THESIS PROJECT

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Introduction

Nature-based tourism has become increasingly popular within the tourism industry due to tourist and industry perceptions of host country benefits, tourist demand, and the potential for obtaining revenues while emphasizing environmental preservation. Although a commonly discussed concept, little research has been conducted to determine the impacts of nature-based tourism. The majority of the current literature emphasizes policies and procedures for governing, organizing and developing facilities and attractions. Effective planning and management of natural resources for nature-based tourism purposes must be based on information regarding positive and negative social, economic and biophysical impacts. The success and future direction of planning and development for nature-based tourism can be determined based on researching these impacts.

Biophysical impacts linked to nature-based tourism activities can be prevented by incorporating research into natural resource planning strategies. The purpose of the thesis project was to propose a general research framework to set nature-based tourism industry standards, influence policy decision making, and establish linkages between biophysical impacts and the activities of nature tour operators, guides, and tourists.

A case study conducted in Belize, Central America, examined the availability of research related resources and considered factors affecting the framework's ability to establish linkage. Case study methods included personal observations, and interviews with site employees, nature tour operators, and other tourism and environmental professionals. The general research framework was adapted to Belize to identify its strengths and weaknesses and recommended revisions and implementation procedures.

Definitions

Mass tourism, nature-based tourism and ecotourism definitions can be likened to the recreation opportunity spectrum to describe a range of development, environmental quality, access, and recreation opportunities. At the furthest end of the spectrum, mass tourism is based upon greatest accessibility and extensive development of man-created attractions such as dance

clubs, restaurants, stores, theme parks, and hotel chains (Kusler 1991). The sites may be severely degraded or of diminished environmental quality and support activities that require certain equipment such as scuba diving, or development of special facilities.

Nature-based tourism falls in the middle range of the spectrum implying moderate accessibility and development. It was defined for the purposes of this thesis project as engaging in recreation activities that emphasize use of the natural resources at a facility, site or attraction (Ziffer 1989). The environmental quality of the sites directly affects visitor experiences and can form the basis for setting area carrying capacities to prevent biophysical impacts. The nature-based sites are relatively undisturbed natural areas or inhabited rural environments and support a variety of activities that do not require large scale development of facilities or services.

Ecotourism includes the most undisturbed or pristine areas that are the least developed and have minimal vehicle or human access on the spectrum. Ecotourism attempts to incorporate cultural, economic, and environmental benefits for host countries and communities by encouraging small scale development projects, resource planning, and site management for minimal use (Boo, 1990).

Ecotourism is often incorrectly used to describe nature-based tourism but includes a smaller range of activities and settings. In order to be considered ecotourism, tourism related activities must be coordinated with user ethics, user responsibility, and natural resource planning efforts. The common misuse of the word ecotourism to describe nature-based tourism leads to different host country expectations (Ziffer 1989).

Nature tour operations are the on site activities engaged in by outbound or inbound nature tour operators. Nature tour operators are not commonly distinguished from other tour operators but can be described based on the nature-based sites they visit and the outdoor experiences they offer. Outbound nature tour operators are foreign owned companies that coordinate, organize, and promote nature-based tourism, and arrange for the transportation, accommodations or other tourism related services. They may or may not have a branch located in the host country. Inbound nature tour operators are locally owned companies fulfilling some or all of the same tasks but operate on a smaller scale. They typically maintain closer relationships with on site activities due to their closer proximity and greater familiarity with local sites, customs and traditions.

Guides are local or foreign individuals who interpret site attributes. Duties include interpretation of attractions, describing local customs and culture, and providing transportation or otherwise assisting tourists. They are distinguished as on or off site based on their employers. Guides include those employed by nature tour operators, referred to as off site guides, those employed by the sites, otherwise known as on site guides, and those independently employed, who are also categorized as off site guides. The main definitive qualification for guides is on site interpretation.

Biophysical Impacts of Nature-Based Tourism

Both negative and positive impacts can occur at national, regional and local or site levels. It is difficult to separate biophysical impacts because they are heavily intertwined and need to be considered both together and individually. Potential positive impacts include preservation or conservation of natural areas, support to protect additional areas, less intensive resource use options, and protection of areas and features unique to the world. Potential negative impacts include overcrowding, weather unpredictability, inadequate resource protection and management, unplanned development and poor land use practices, and ecological stress increases. Unattractive areas become unpopular and the tourists leave, taking the economic base with them (Boo 1990).

The primary focus of the thesis project was on the impacts linked to the activities involved in site use. Ecological stress and pressures from tourists, guides, and tour operators have sometimes in some cases resulted in a shift in the balance from preservation to exploitation. In the well known areas the number of tourists frequently exceed the capacity of the staff to handle them. Personnel is also often under skilled and unfamiliar with visitor and resource management, magnifying some of these problems (Boo 1990).

Tourism related and local activities on site can harm or destroy plants and animals, increase erosion in sensitive areas, compact soils, increase air and water pollution, and disturb or displace animals. The potential impacts mentioned in Table 1 were categorized by resource type for the purposes of designing the general research framework. Site resources compose the biophysical environment and may be affected in numerous ways by the actions of locals, nature tour operators, guides, and tourists.

Nature tour operators, guides, site staff and tourists are most frequently engaged in on site activities and likely contribute the most to biophysical impacts. They experience direct and regular contact with sites, they affect the quality and existence of site resources, and their activities utilize the resource base (Wood 1989). Research can determine relative impact magnitudes and the associated events or roles of locals and the key participants within the nature-based tourism industry.

The cause, intensity and severity of biophysical impacts are influenced by a complex variety of natural and site use factors. Nature tour operators, guides, tourists, locals, and other users

of site resources contribute to impacts through specific actions and behaviors such as walking on trails, disposing of garbage and wastes, concentrated use in fragile areas, and contact or interactions with species. Other factors like site layout and design, also effect the intensity of impact. Environmental elements such as the type of water body, climate, topography, and habitat composition, also affect biophysical impacts either in conjunction with or independently from nature-based tourism activities.

General Research Framework Design

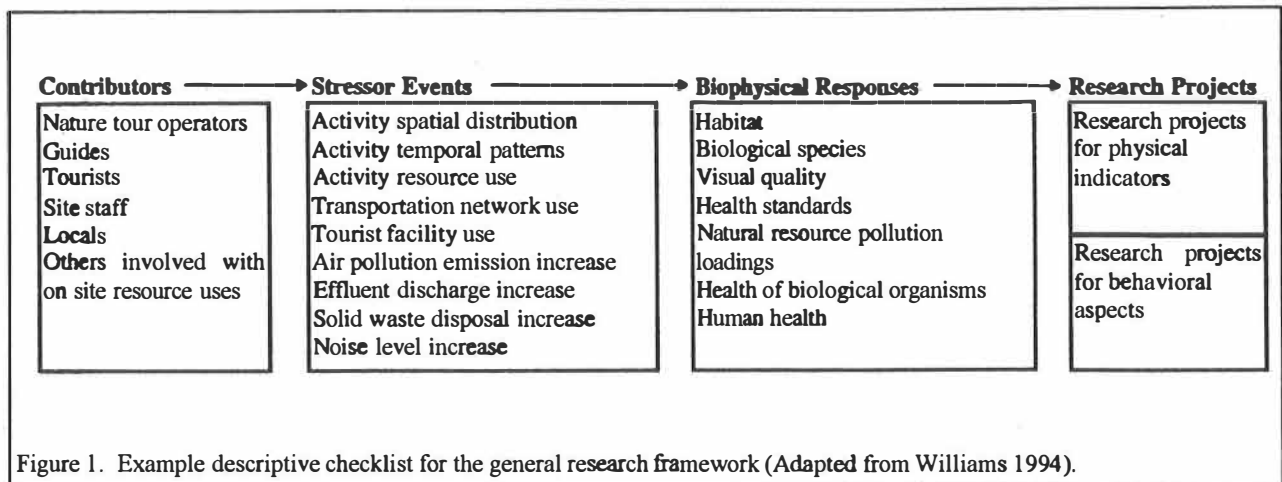
Impacts for the general research framework were chosen based on their capability to study nature-based tourism's contributory role to biophysical impacts. The largest potential barrier to the success of researching impacts is connecting specific tourism activities and actions to identified or observed biophysical responses or impacts. To establish this potential linkage, the general research framework proposes a descriptive checklist, matrix, network, and research projects, combined to connect behavioral aspects to physical indicators of impact. The framework descriptive checklist suggests the contributors, events, and biophysical responses. The matrix assigns the relative magnitude and importance of stressor events related to impacts. The network identifies physical indicators to measure. Data generated by the framework is intended to direct site management and apply the Limits of Acceptable Change and Visitor Impact Monitoring models, formulate industry policies and set regulations, apply guidelines for nature tour operations and guides, evaluate the success of nature-based tourism, and illustrate some of the relationships between environmental conservation, tourism and nature-based tourism.

Checklists identify criteria related to development or operation of facilities that will affect the environment. Structured checklists select relevant impact related factors to be considered including ecological, site characteristics, and social (Canter 1977). Simple checklists classify impacts based on similar references of time, space or the nature of impact. The disadvantages of these checklists are their lack of researcher instruction and inability to identify the importance or potential severity of impacts (Williams 1994).

Simple checklists can be expanded to include planning, design, construction and operation impact criteria. Descriptive checklists modify and improve upon this technique by adding specific research guidelines to consider the factors contributing to impacts. Scaling weighing checklists can then enlist rating

Table 1. Potential resource impacts related to nature-based tourism activities (Adapted from Marion 1991 and Williams 1994).

Soil	Water	Air	Ecological/Biological	Aesthetic/Visual
Erosion	Pollution and siltation	Public health	Habitat alteration	Scenic quality
Compaction	Ground water quality	Air quality	Species displacement	Site design
			Vegetation composition	Noise level



systems to evaluate the magnitudinal relationships between impact factors, increasing the depth of research (Williams 1994).

The general research framework descriptive checklist in Figure 1 was adapted as an example identifying the contributors and potential tourism related events that add to biophysical responses or impacts. The checklist also introduces research projects to measure the impacts.

Matrices and networks, Figures 2 and 3, offer the most extensive analyses developed to assess and compare impacts. Matrices are used to identify various factors linked to specific impacts. A matrix is a two dimensional checklist arranged to allow consideration of each stressor event as it relates to each biophysical response. Matrices are employed to compare the relationships between individual events and impacts, indicating which combinations are of greater significance (Canter 1977).

Matrices utilize diagonal lines to denote both the magnitude and importance of impacts based on specific actions and the expected biophysical responses. A matrix is adapted to the general research framework to illustrate potential research priorities based on the strength of impact relationships to stressor events. The degree of impact is reflected by assigned numerical values to formulate ratios. The design of the matrix is flexible and can be limited to checklists identifying impact criteria over time and space, using positive or negative symbol signs (Williams 1994).

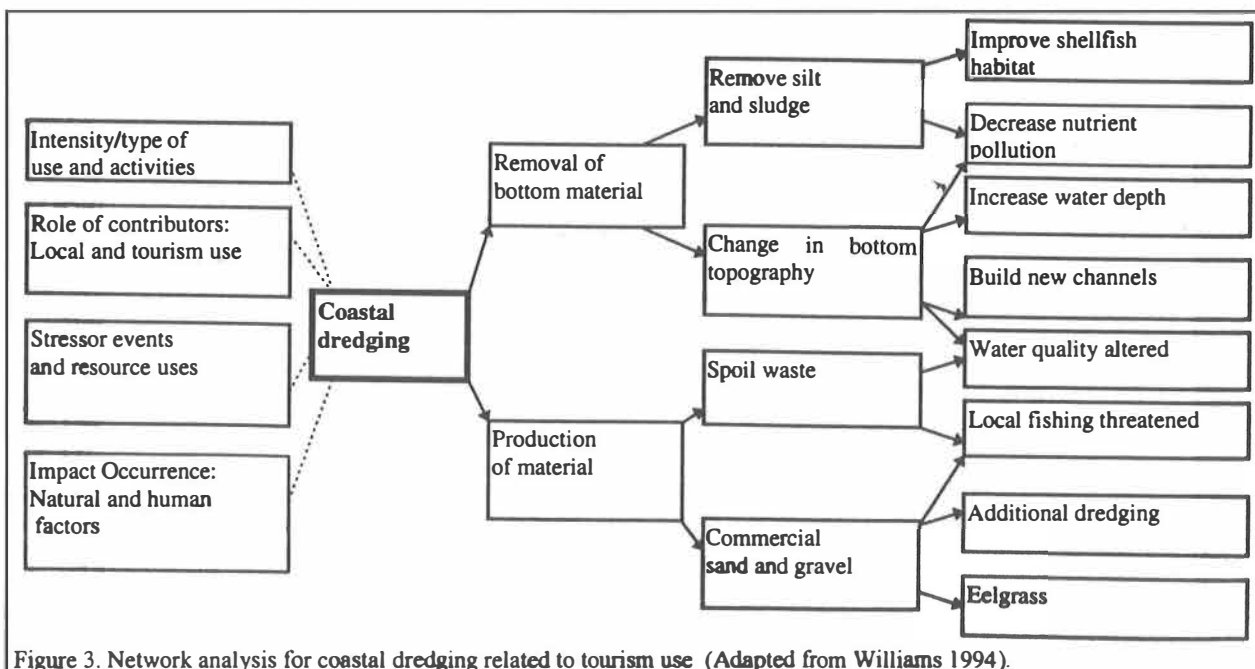
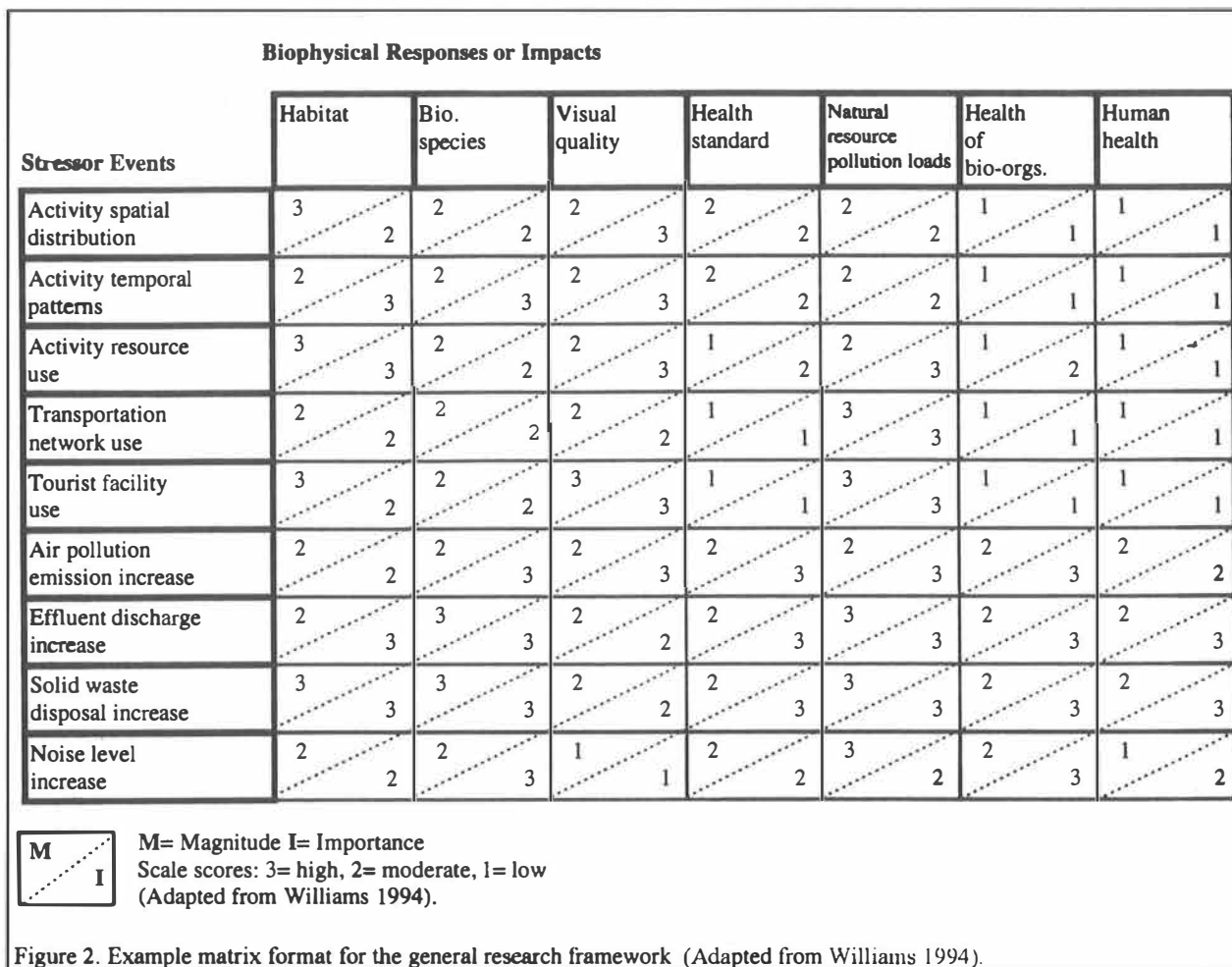
Activity spatial distribution, activity resource use and solid waste disposal increases have the highest magnitude and importance as they potentially affect habitats in this example matrix. Effluent discharge increase, tourist facility use, and solid waste disposal increase have a greater impact on natural resource pollution loadings than on habitats, according to the matrix example. The matrix depicts magnitude and importance relationships between stressor events and biophysical responses to set research priorities and select the most relevant impact relationships.

Networks consider primary, secondary and tertiary impacts related to tourism development or activities. Relevance trees use branches similar to the network format and establish general impacts leading to more specific indicators to research (Canter 1977). A network is applied to the general research framework to exemplify physical indicators of impacts that can be measured through research projects. Illustrated in Figure 3, a chain of events is triggered by a singular action or set of impact events (Williams 1994). The network example demonstrates the complicated nature of impact assessment. The full range of impact events need not be studied but at least understood in order to interpret the significance of researching specific impacts and selecting physical indicators to measure through research.

The framework combines impacts of varying environmental complexity, rates and severity with nature-based tourism characteristics and behaviors in order to depict a broad scope of biophysical impacts. It is designed to establish linkage by identifying and studying specific nature-based tourism characteristics while concurrently monitoring and observing biophysical impacts on site. The physical indicators of impacts and the behavioral aspects of nature-based tourism are addressed independently by incorporating a flow chart of research projects, as illustrated in Figure 4, in order to establish linkage.

The physical indicators of impact are selected using the network analysis. Secondary data analysis and inventories direct the design of monitoring programs and site specific applied research by identifying relevant factors and issues on site that affect the impacts and their measurement. The intent is to isolate the selected physical indicators from other impacts and non tourism related stressor events. If these indicators are not clearly identifiable, linkage cannot be established.

Nature-based tourism characteristics and case studies clarify research questions and indicate the type of nature tour operators, guides, tourists and intensity of site use. Patterns of behaviors can be established and compared to potential biophysical impacts.



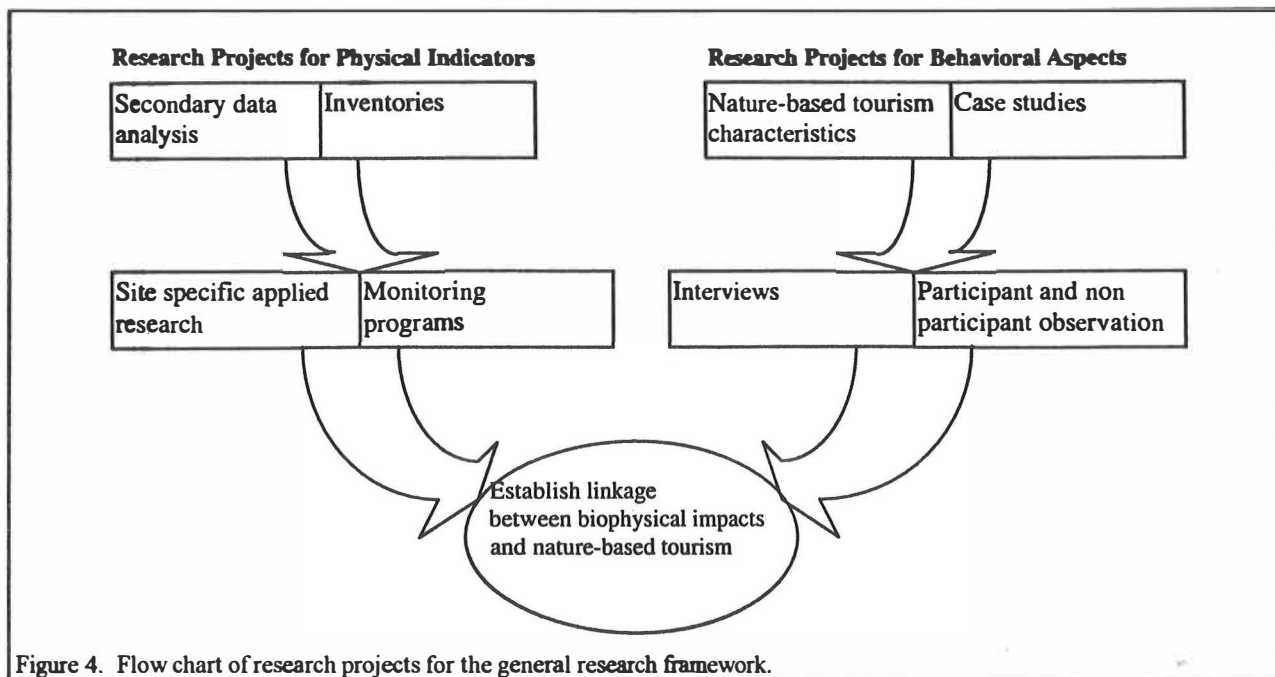


Figure 4. Flow chart of research projects for the general research framework.

The activities and behaviors related to stressor events can be interpreted through interviews with key participants and on site observation studies. If the behaviors and actions related to stressor events cannot be identified or interpreted, linkage cannot be established to biophysical impacts.

Research framework projects attempt to account for the environmental factors influencing the impacts, the site layout and design, and the resources available to research organizations. Access to background information, equipment, and researchers, and local assistance, also effect project and method selection. Final considerations include support of local and non local organizations, and the structure required to gather, organize and analyze the data collected. The complex interrelationships among impact factors can be described by combining various research projects to target specific impacts. Nature-based tourism activity impacts must be separated from those caused by other site users and nature. The Projects were intended to compare control groups to experimental groups as well as assess the character of nature-based tourism activities and site use patterns.

Results of the Case Study and General Research Framework Adaptation Process

The general research framework is based on a set of assumptions and conditions that are only useful and valid if they can be tested by adapting a version to a host country. The feasibility and utility of the impacts and research projects was assessed by adapting a version to Belize composed of a descriptive checklist, a matrix, networks, and research projects. The case study examined the research related resources, the tourism and nature-based tourism industries, private and public tourism related organizations, and the environmental and design characteristics of sites in Belize

The low demand for the inland sites represents the greatest reason to test and apply the research framework to Belize. These sites have not yet experienced extensive visitation which enables baseline data gathering, carrying capacity studies and impact assessment to occur. Current mass tourism demand in Belize emphasizes the coastal sites, along the second largest barrier reef in the world. Mass tourism sites have experienced larger degradation of the resource base and cannot be used to monitor and measure the process of impacts. Personal observations of the sites and BTB data indicate minimal deterioration of sites' visual quality and attractiveness, limited on site local use, and the potential to establish linkage between biophysical responses and nature-based tourism related stressor events. The advantages of testing and adapting the research framework to Belize are vast undisturbed areas, the lack of a language barrier, high diversity and quality of natural resources, and excellent inland and water based sites (Nicolait and Associates 1984).

The supportive structure, research related resources, characteristics of the sites, and other aspects of framework implementation investigated by the case study, indicate that a version of the general research framework could be adapted to Belize. The responsibility of implementing research projects, coordinating and organizing the data, and ensuring quality control can be met by the Belize Tourist Board with the support it receives from the Ministry of Tourism and the Environment. The Belize Tourism Industry Association, the Belize Audubon Society, and the Belize Center for Environmental Studies, can design the research projects, select the sites and sampling points to measure, evaluate the success of the framework, assess quality control, and train locals and employees to participate as research assistants.

Impact selection, description of impact relationships, and designation of research projects was addressed in the thesis to adapt a version of the general research framework to Belize. Impacts of differing degrees of complexity were selected to provide a variety of results, employing multiple research projects. A combination of six impacts was chosen for the framework based on a literature review of the biophysical characteristics of site environments and the following impact criteria:

- They could be easily defined.
- They appeared to be highly observable or illustrate a common occurrence at multiple sites.
- They could potentially generate results through proposed research projects.
- They could be related to nature-based tourism activities.
- They represented the desired spatial and temporal dimensions for research.

The framework combined the following short and long term impacts; trail erosion, litter, water pollution, human waste concentration, howler monkey calling, and bird nesting behaviors. The results from multiple versus singular impact analyses are more conclusive and can better describe the character of nature-based tourism activities and their impacts.

The general research framework was adapted to Belize to consider its usefulness and discuss issues affecting its application in host countries. The significance of the changes made during the adaptation process are described in the thesis as they affect the utility of the general research framework. Conditions and requirements are suggested to promote successful application of the general research framework based on the results of adapting the framework to Belize.

Recommendations For The General Research Framework

The general research framework proposes a method of scientifically evaluating nature-based tourism's role in preserving natural resources as a measure of determining its success. The following recommendations are based on the results of adapting the framework to Belize and suggest revisions, application and implementation procedures.

1. To adapt the framework, select impacts that are direct impacts, are not prohibited by resource constraints, and can describe typical nature-based tourism activities or related stressor events.
 - Determine the amount of local or other non tourism related site use.
 - Assess the quality of natural resources at sites, they must not be extensively degraded prior to starting a baseline study for monitoring.
2. Establish potential linkage between biophysical impacts and nature-based tourism related stressor events by adapting the general research framework.
 - Formulate descriptive checklists, matrices, networks and computer models, networks and matrices to assess impact relationships.
 - Select biophysical indicators and stressor events that are likely to occur, are not greatly affected by natural factors or other site resource uses, and represent typical on site nature-based tourism activities.
3. Implement framework research projects according to their functions.
 - Conduct inventories and secondary analyses to design monitoring programs.
 - Conduct monitoring programs to record impacts using simple and easy techniques, and enlist locals or guides as research assistants.
 - Conduct site specific applied research to record long term impacts, designed and primarily undertaken by experts, who may eventually develop monitoring programs.
 - Collect user characteristics data and conduct case studies to clarify definitions, roles and relationships between the key participants within the nature-based tourism industry.
 - Conduct interviews and analyze company literature to understand the motivations and interpret the behaviors observed of nature tour operators and guides on site.
 - Conduct participant observation studies to observe on site activities, and to indicate the contributors and involvement of nature tour operators, guides, tourists, and other players in stressor events.
4. Implement the framework research projects in stages beginning with recording nature-based tourism characteristics.
 - Compare group size, origin and number of visitors among different categories of nature tour operators and guides.
 - Begin to build the database to explain the nature of site visitation, potential impacts, and influence the direction of framework research.
 - Conduct inventories, analyze literature and interview nature tour operators to adjust or adapt the proposed framework monitoring programs and participant observation research, increasing the potential to establish linkage.
5. Clarify host country definitions of nature-based tourism, nature tour operators, and guides.
 - The same terminology must be used to distinguish between impacts of ecotourism, nature-based tourism and mass tourism in order to interpret research results and set industry regulations or standards.
 - On site and off site nature tour operators should be differentiated based on access to financial and personnel resources, and their interactions with on site activities.
 - Guides should be distinguished by the nature of their employment, training, and contact with on site activities.

6. Consider national, regional, and local needs in addition to potential impacts, to set research framework goals and objectives.
 - Apply the continuous planning process and integration within multiple levels of communities and governments to adapt the research planning process suggested in chapter three.
 - Set research objectives to direct LAC and VIM strategies, zoning, and multiple use planning based on research results.
 - Design research projects to reflect various biophysical impacts, their relative severity, and their potential affects on the nature-based tourism industry.
7. Investigate means to share research costs within the public and private sectors of the nature-based tourism industry.
 - Rely on government organizations and managers of natural resource preservation areas to conduct research on their own sites, supply equipment or provide research assistant training programs to privately owned sites.
 - Consider introducing a fee system to the government owned nature-based tourism sites to supply research revenues.
 - Provide financial incentives for the privately owned and operated sites to participate in research and contribute to the database.
 - Encourage professional environmental and tourism associations and outbound tour operators to donate financial, technical and logistical support.
8. Utilize a government tourist board to plan, coordinate and implement specific research projects.
 - Implement research based on the strength of research related resources and the supportive structure.
 - Research project designs and methods should be coordinated by the tourist board relying on the expert opinions of environmental scientists, tourism researchers and government agencies.
 - Select impacts and research projects that can be applied to most sites, and monitor quality control and adjust research design.
 - Choose sites to research that represent different ownership and management, and feature various natural, historical or other features of the sites' attraction.
9. Implement programs to train locals as research assistants, and obtain technical and logistical support from environmental and tourism organizations.
 - Facilitate training and utilize host country residents as research assistants.
 - Organize financial, personnel and other means of research support with local environmental and tourism organizations.

Conclusion

Negative biophysical impacts decrease the viability of tourism as a less consumptive use of natural resources. Sustainable tourism and research of impacts can best be achieved by relying on the support of public and private organizations, agencies and companies involved in the nature-based tourism industry. The general research framework can assist with the design of LAC and VIM for site management, set industry policies and standards, and provide the foundation to apply evaluation guidelines to the actions of nature tour operators, guides and tourists.

Application to individual countries and usefulness of the general research framework is affected by political, cultural, environmental and site design factors, as well as government and non government organizations that compose the nature-based tourism industry. The greatest contribution offered by the framework to the nature-based tourism field is it's recognition of the need for scientific research to assess biophysical impacts linked to nature-based tourism.

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DEVELOPMENT OF A SELF-GUIDED AUTO TOUR TO THE SALMON RIVER CORRIDOR: SALMON RIVER, NEW YORK

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In addition to informing, educating and entertaining visitors, interpretation assists stewards of an area in accomplishing management goals. This case study looks at the development of an interpretive publication in Upstate New York. The process adapted from previous literature is explained as well as several implications of the guide's publication in the study area.

Introduction

The Salmon River runs 44 miles from its headwaters on the Tug Hill Plateau and drains into Lake Ontario at Port Ontario, New York. The last 12 miles of the river system through Oswego County is the main focus for anglers who arrive due to the fall salmon spawning.

Oswego County, located in upstate New York, has been affected by both the positive economic benefits and negative social impacts of tourism. The Oswego County Department of Promotion and Tourism has successfully positioned the county as one of the premier sportfishing capitals in the world. Two New York State Department of Environmental Conservation fish hatcheries within the county, and the area's location along the shores of Lake Ontario have contributed to the success of their marketing strategy.

However, there have been several negative effects of the increased tourism along the Salmon River. Conflict exists between those whose families have lived there for many generations and those who have newly discovered the area. Roadside stands offering sales of fishing equipment, fish cleaning services, and parking spaces giving anglers easy access to the river have become ubiquitous during the fall salmon run. Other impacts include erosion along the river, due to soil compaction, litter and fishing line left behind by inconsiderate anglers, and trespassing onto the property of residents whose homes are on the river banks.

Initiation of Project

In 1994, the Oswego County Department of Promotion and Tourism, in response to a recommendation in a tourism development plan, contracted for the research, development,

and layout of a draft version "Interpretive Guide to the Salmon River Corridor." The broad mission of the guidebook are to further the goals of the Department of Promotion and Tourism while attempting to reduce some of the negative impacts from tourism. The guidebook was designed to include three major parts; 1) a driving tour to the area's historical and natural resources and attractions, 2) site-specific children's activities, and 3) a list of recreational activities in the area.

Process

Previous literature (Kuehn, 1992, Veverka 1994) concerning the creation of interpretation and interpretive planning was adapted to create this guidebook. Figure 1 summarizes the process used during the development of the publication.

Step 1. Organizing Project

At this stage of the project, themes, goals, and objectives for the guide were formulated which act to direct the project. The main theme of the guide is: "The Salmon River Corridor is the focus of unique ecosystems, history and recreational opportunities." The goals and objectives support the main theme throughout the guide. These are:

Goal 1. Further assist in developing the Salmon River Corridor as a Tourism Destination Zone.

Objectives

- Create Driving Tours to link sites and towns along the Salmon River Corridor.
- Promote the year-round activities available to visitors to the Salmon River Corridor.
- Promote the attractions found along the Salmon River Corridor.

Goal 2. Teach the value of protecting and enhancing the natural, scenic, and cultural resources of the Salmon River Corridor.

Objectives

- Promote and encourage safety and stewardship in conjunction with recreational uses.
- Give visitors to the area an awareness and appreciation of the history of the Salmon River Corridor.
- Increase awareness and appreciation of natural resources along the Salmon River Corridor.
- Develop children's activities to assist in increasing awareness of history and natural resources.

Goal 3. Reduce conflict with visitors in order to enhance and maintain the quality of life for Salmon River Corridor residents.

Objectives

- Increase visitor consciousness and respect for private landowner rights.
- Increase economic benefits to residents due to increased tourism.
- Promote awareness and appreciation of Salmon River Corridor history and resources.

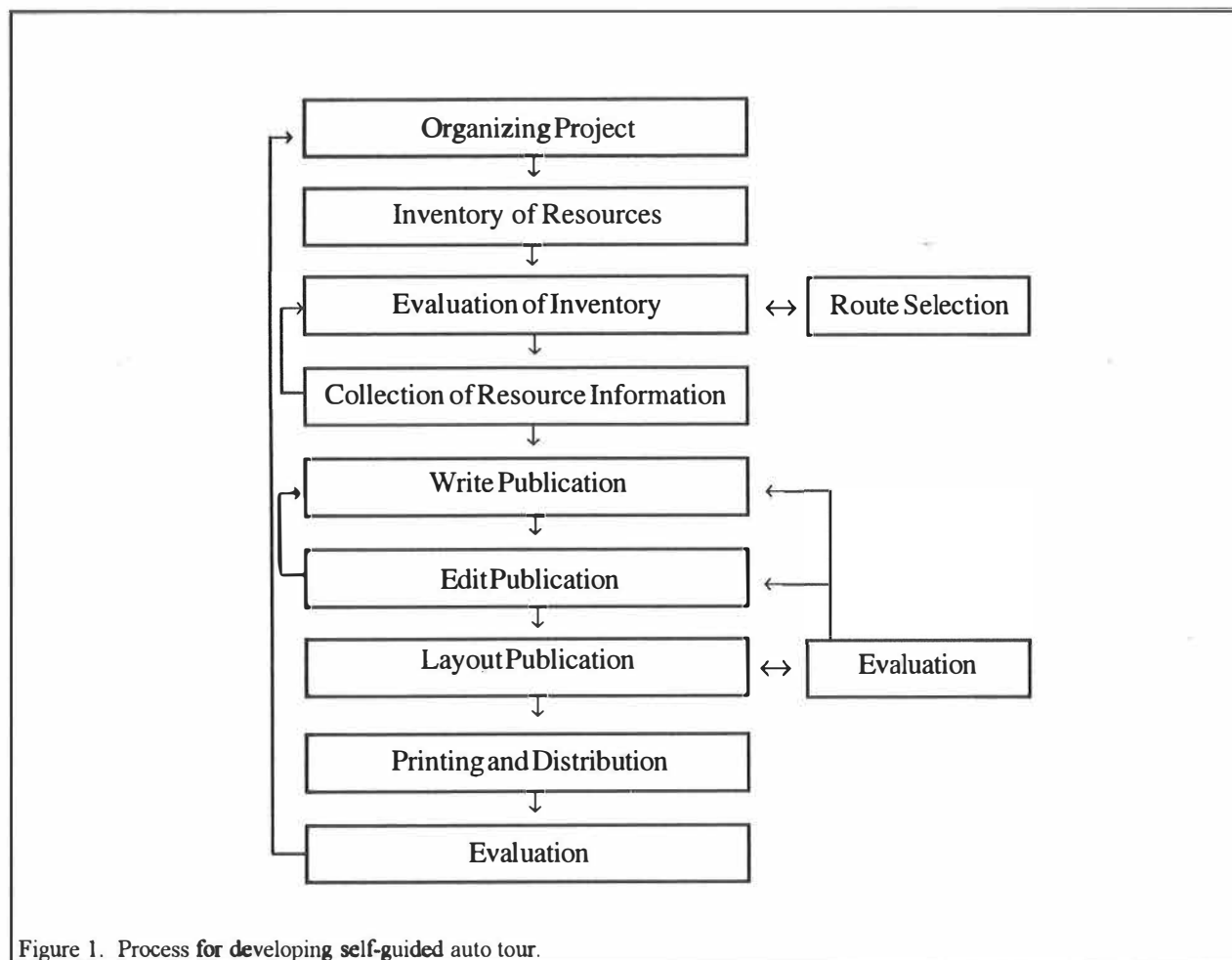


Figure 1. Process for developing self-guided auto tour.

The different topics to be included in the guide may be considered subthemes and further assist the interpreter in reaching the target markets (Table 1).

Also in this step, initial contact was made with historians, agencies, and other interested parties who might be of assistance in the project via a letter.

Step 2. Inventory of Local Resources and Selecting Priorities

After touring and becoming familiar with the Salmon River Corridor, the possible sites and attractions to be included were identified. These were then evaluated by weighing each based upon various features such as relationship to theme, accessibility, uniqueness, aesthetics, and historical significance. Assigned values could then be used to determine which sites should be included in the guide. Based upon the sites selected the route for the driving tours could be set.

Step 3. Route Selection

The selection of the route occurred in close conjunction with the evaluation of inventory in step 2. This step is not always necessary, such as when a guide is written for a trail that is already in place or the route is on a linear trail. By selecting a

route at this stage, the project committee was forced to evaluate what features and attractions throughout the area best represent the project's themes, goals, and objectives. In addition, selection at this point made the collection of information more efficient because it was known what sites would be used in the final version of the guide. The route was designed to go near features of the most importance for inclusion.

Step 4. Collection of Resource Information

At this point in project development, actions included: visiting all of the possible sites and attractions; researching the area and its' history in community and area libraries; and speaking with interested parties. A unique aspect of this particular interpretive guide is a section detailing recreational opportunities for visitors to the area. Therefore, at this stage site investigation and participation in the activities where activities could be encouraged also took place.

Using the mailing list created, various people were contacted and meetings were held to discuss the project. These meetings furthered the project's development in: learning basic information about the site for use in the guide; finding out what activities and opportunities exist for visitors of the site; learning of further possible sources of information, e.g. other

Table 1. Guidebook Sections by Target Markets

	Young Active Adults	Families with Children	Pre-Retirement Adults	"Anglers"/"Sportsmen"	Active Seniors	Residents
Driving Tours						
Human History		X	X		X	X
Natural History	X	X			X	X
Natural Resources	X	X	X		X	X
Attractions						
Hatchery	X	X	X	X	X	X
Falls	X	X	X	X	X	X
Lighthouse	X	X	X	X	X	X
Hydropower Facility		X		X	X	X
Children's Activities						
Human History		X				X
Natural History		X				X
Natural Resources		X				X
Recreational Opportunities						
Fishing		X		X		X
Hiking	X	X	X		X	X
X-Country Skiing	X	X	X			X
Snowmobiling	X		X	X		X
Canoeing	X	X	X			X
Kayaking	X					X
Biking	X	X				X

Young Active Adults: Includes married and unmarried young adults without dependent children.

Families with Children: Combines one and two parent families with either younger or older children.

Pre-Retirement Adults: Includes both individuals and married couples who no longer have children at home; their age ranges from 40's to 60's.

"Anglers"/"Sportsmen": Includes visitors to whom sportfishing is the primary reason for visiting the Corridor.

Active Seniors: Includes older individuals (65+ years old) and married couples no longer working full-time who are still in generally good health.

"Residents": Includes residents of the Salmon River Corridor. (Adapted from Kelly 1987)

people or published information; and learning what the representative considers important for inclusion.

Libraries were valuable sources for obtaining further information and insights about the area, its history, and ecology. County, university, and community libraries all were accessed for the wide variety of resources offered. The community libraries within the Salmon River Corridor, while very often quite small, frequently contained sections of local interest and/or history including rare or not widely distributed publications.

The guide was also designed to include a section concerning recreational opportunities for visitors to the site. Several of those that were to be included had little site specific information published. In order to best represent to the visitor what s/he might expect to find, research took the form of participating in the activities at the sites where they would be recommended. Ten potential sites were identified, they were visited and explored. Considerations such as length of trail, level of difficulty, appropriateness for different abilities,

accessibility and space for parking, and aesthetic beauty were then used to determine whether the trail might be suitable for inclusion in the guide. Those that best accommodated differing abilities, and which were considered preferable based on the criteria mentioned above, were selected.

Step 5. Writing and Structuring the Publication

Using established interpretive techniques, the publication was written in a style appropriate for most visitors to the area. In keeping with the original themes and objectives the writing and material presented was mostly targeted toward "families with children."

Step 6. Edit Publication

The guide was edited at three different stages of its development. The first was upon completion of the first written pages when editing and critiques were provided by participants in the project committee. Editing the pages early in the process allowed for feedback and guided the subsequent writing of different sections. The second editing occurred when

the draft was submitted, and the third and final editing process takes place after review by the various interested parties.

The different editors that will be involved have varying backgrounds and areas of expertise that directly relate to the topics in the publication. Pages that relate to a particular agency's site are sent to a representative to allow for fact checking, and to be certain that no critical information is omitted. For example, when preparing the section about the Bennetts Bridge Hydropower Facility operated by Niagara Mohawk, a representative of the company, Mr. Gregg Carrington, was interviewed. During the editing stage, sections that relate to any aspect of the facility will be reviewed by Mr. Carrington or another representative of Niagara Mohawk. Because there may be various interests in one particular site, some of the pages should be reviewed by several parties. While the opinions of the reviewers must be respected and taken into consideration, all final decisions about content remains in the hands of the Oswego County Department of Promotion and Tourism.

Step 7. Publication Layout

The layout is defined as "the arrangement of informational materials (including text, illustrations, photos, and maps)." (Kuehn 1992) The look and design of the publication is important to attract and keep the interest of the visitors. In order to be visually appealing to a potential reader, it should look clean and uncluttered, text and illustrations should work in combination, and there should be careful use of open space. The inclusion of various types of graphics such as current and historic photos, maps, and illustrations is also essential in creating an effective and aesthetically pleasing publication.

A general rule in designing interpretive trails is to include no more than seven to ten stops. However, with self-guided auto tours, this rule does not apply because much greater distances will be covered. (Veverka 1994) The issue of distance to be traveled along the Salmon River Corridor created some conflict between the information included and the needs of prospective users. To follow the entire route, including stops, may have taken between five and six hours, and there was concern that this might be excessive. Most hiking trails are designed so that they take from 30 to 45 minutes and not much longer (Ham 1992). Even though much greater distances are covered on auto tours, the time traveled should not be much greater. To address this, the entire route was broken into four individual driving tours, each of a more reasonable length. The tours begin and end at one of the designated attractions and the user is then given a choice to continue to the next "tour" or turn around at that point. In addition, the beginning of each tour includes an introductory paragraph giving the user a brief description of the tour and explains what will be encountered. Finally, the introduction to the guide includes brief descriptions of the four tours including the distance covered, the approximate length of travel time, and the attractions that will be seen along the route.

In addition, in order to minimize errors and the need for costly revisions after publishing, a "mini-evaluation" should be done before final printing. Several volunteers, who are not familiar

with the area, should follow the tours in order to measure for those factors to be discussed in the evaluation stage (Step 9). These trial runs should look at distances, time traveled, ease of reading, and interest in the subject matter as a whole. Because previous editing had taken place in pieces, once the guide is put together, potential problems which may not have previously been considered may arise, and should be fixed before publishing.

Step 8. Printing and Distribution

After being printed, the guide will be provided free to people who contact the Oswego County Department of Promotion and Tourism and specifically request it or inquire about information which is contained within the guide. Due to the high cost of production, approximately \$1.50 per copy, it is not cost effective to make the guide openly available to those who might pick it up but not use it.

Step 9. Evaluation of the Guide and Its' Effectiveness

An evaluation of the publication's effectiveness for both visitors and the community will take place soon after its publication. This is an opportunity to measure whether the goals and objectives of the guide have been reached.

New York Sea Grant will coordinate an effort to evaluate the guide via a self-addressed and postage-paid questionnaire that will be included within the first printing of the publication. This survey should be used as a pre-test for a more extensive survey to be done. Some of the questions that will be included are: how they found out about the area; how they found out about the guide; whether they used the guide; what section of the guide were more/less useful; what information did they need/hope to find that was not included; demographic information about the users (how many people in the group, gender, age, etc.).

Finally, the evaluation process should include the means to improve upon and make changes to future editions of the guide. The guide should be reevaluated, updated, and revised at regular intervals.

In addition to a survey of the users, further evaluation should be made which consider the residents of the community and measure whether the original objectives of the project have been met. The Department of Promotion and Tourism should send a more extensive survey to a randomly selected group of people that they have sent the guide. Upon completion of the evaluation, the information obtained should be used as feedback for Step 1 in order to run through the process again.

Project Implications

The original impetus for the project's initiation was a recommendation in a community development plan for the Oswego-Eastern Shores region. Upon completion of this project, part of the goals of the plan has been reached and the Salmon River Corridor will become a better identified spur off of the Seaway Trail. This publication also furthers the goals of the Oswego County Department of Promotion and Tourism.

Table 2. Achievement of Goals and Objectives by Subtheme

Goals and Objectives	Subtheme 1. “The attractions found throughout the Corridor have histories which reveal the development of the area.”	Subtheme 2. “The natural resources and natural history of the Corridor are worthy of admiration and preservation.”	Subtheme 3. “Through stewardship and respect, the year-round recreational opportunities available along the Corridor can be maintained.”
Goal 1. Further assist in developing the Salmon River Corridor as a Tourism Destination Zone.			
Objective A. Create Driving Tours to link sites and towns along the Salmon River Corridor.	X	X	
Objective B. Promote the year-round activities available to visitors to the Salmon River Corridor.	X		X
Objective C. Promote the attractions found along the Salmon River Corridor.	X		X
Goal 2. Teach the value of protecting and enhancing the natural, scenic, and cultural resources of the Salmon River Corridor.			
Objective A. Promote and encourage safety and stewardship in conjunction with recreational uses.			X
Objective B. Give visitors to the area an awareness and appreciation of the history of the Salmon River Corridor.	X		
Objective C. Increase awareness and appreciation of natural resources along the Salmon River Corridor.		X	
Objective D. Develop children’s activities to assist in increasing awareness of history and natural resources.	X	X	
Goal 3. Reduce conflict with visitors in order to enhance and maintain the quality of life for Salmon River Corridor residents.			
Objective A. Increase visitor consciousness and respect for private landowner rights.	X		X
Objective B. Increase economic benefits to residents due to increased tourism.	X		X
Objective C. Promote awareness and appreciation of Salmon River Corridor history and resources.	X	X	X

Finally, other projects which are being developed along the corridor, such as a Salmon River Greenway Plan or a Sportfishing Hall of Fame, may gain priority as the Salmon River Corridor gains a stronger identity as a tourism destination zone.

As evidenced in table 1, the publication also has the potential to bring many different market segments into the same places. This is especially true of the “family with children” and “resident” markets. Because this may occur, the third goal of

the project, reducing visitor conflict, becomes especially important and should be reinforced beyond that of the guide.

Project Summary

From May 1994 to December 1994, a nine-step process, adapted from previous literature about interpretation, interpretive planning, and self-guided trails and auto tours, was followed to create the draft "Guide to the Salmon River Corridor."

The processes that were previously developed (Kuehn 1992, Veverka 1994) acted together to direct the guide's creation, but as every project will be different adaptations were necessary.

Goals and objectives were developed to direct the project's development and were supported by three major themes found within the guide. When published in the summer of 1995, the guide's themes will be used to accomplish these goals. Table 2 shows how the themes, goals, and objectives work together in order to be achieved. Furthermore, it is recommended that both before and after publication, an evaluation to measure the effectiveness and success in reaching stated objectives be performed. This evaluation will assist in the necessary update and revision.

Conclusions

The goals of interpretation state that by using established interpretive techniques and planning, interpretation can be an effective instrument for: promoting an area and its attractions, increasing appreciation and understanding about an area, and increasing awareness about and assisting in accomplishing management goals. The publication of the guide is a demonstration of how these goals and objectives can be achieved.

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THE INFLUENCE OF CURRENT TECHNICAL TRAINING N LIFEGUARD STAFFING IN CONNECTICUT STATE PARKS

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A Connecticut State Lifeguard in 1966 was expected to swim a 100 yard front-crawl approach in under a 90 second time limit, retrieve a 10 pound brick in 12 feet of water and apply back-pressure arm lift or mouth-to-mouth resuscitation on a drowning victim. Three lifeguard examinations were held in March and April to fill 166 positions distributed among 22 swim areas throughout the state. Each exam attracted approximately 100 candidates, who were required to be at least 18 years old. After the third exam, the Department of Environmental Protection hired the top 166 candidates and placed alternates on a waiting list. All positions were filled by Memorial Day.

The Parks Division of DEP presently conducts seven examinations from April to July in order to attract enough candidates to fill 99 possible positions for 18 swim areas. Although lifeguard staffing has been reduced for budgetary reasons, recruiting qualified candidates has been a more significant factor in reduced lifeguard hiring (Belanger 1989).

Unlike the prolific '60s, each exam currently attracts an average of a dozen candidates, despite an aggressive recruiting program of personal and written contacts to high schools, colleges, YMCA's, YWCA's, Red Cross chapters, local employment agencies, affirmative action agencies, and a number of other athletic organizations. Due to the economic boom in 1986, and a myriad of job opportunities, it was necessary to lower the minimum qualifying age from 18 to 17 in order to compete with local municipalities and private organizations, which hired lifeguards at age 16 (Hanley 1984). Only 88 out of a possible 99 Connecticut State Lifeguard positions were filled during the summer of 1994.

Almost 30 years later, the beach scenario has become less glamorous and more demanding. To qualify as a Connecticut State Lifeguard, a candidate is required to pass the DEP "Lifeguard Qualifying Examination" and obtain a professional CPR certificate, which must be renewed annually (Connecticut Department Of Health Services 1989).

Once these initial qualifications are satisfied, the lifeguard must then receive on-the-job training. A state lifeguard must demonstrate proficiency in utilizing one-way valve resuscitation masks, oxygen-equipped resuscitators, rescue boards, rescue

buoys, spine boards with cervical collars, CPR boards, rubber gloves, bag-valve masks, diving masks, and rescue boats. Competency in team rescues, spine injury management, and search and rescue techniques are measured by the "mid-term" and "final" examinations, which are graded and filed.

To return for a second season, a freshman guard, which earns \$6.00 per hour, must pass the mid-term and final exams, receive a favorable service rating, obtain a First Aid Certificate (which entails 8 hours of instruction and a \$60 fee), and procure a safe boating certificate (which involves 10 hours of in-house instruction and a \$25 fee). After satisfying these requirements the employee is then classified as a senior lifeguard, which earns \$6.50 an hour. If a freshman or senior guard demonstrates leadership qualities, along with meeting the above requirements, the employee may be promoted to a lifeguard supervisor, and earn \$7.00 an hour. As the supervisor acquires additional years of experience, he or she may be transferred to direct a larger crew at an inland park and earn \$7.50 per hour as a senior supervisor, or supervise a shoreline park and earn \$8.00 as a beach director (Cavanaugh 1986).

Supplying the lifeguard program with personal protection strategies, such as one-way valve masks, rubber gloves, pith helmets, sun screen, resuscitators, Hepatitis B vaccinations and employee training, (which involves transmission and protection against blood-borne diseases), has encumbered an already underfunded agency. Since August 15, 1988, Connecticut's Labor Department's Occupational Safety and Health Administration has had a significant impact on all employees who have first responder medical duties in emergency situations (Connecticut Department of Labor 1988). Complying with these regulations has been time-consuming as well as costly.

In conclusion, lifeguarding in the '90s has become more complicated than working on a good tan and enjoying the status and glamour that is depicted on the television show "Bay Watch" (Waldman 1986). With the advent of documented safety concerns regarding the harmful ultraviolet rays of the sun and the risks involved in the exposure to blood-borne pathogens, lifeguarding is now a profession that demands swimming expertise and medical training, which is costly and time consuming to the employee as well as the employer. The diminishing pool of candidates can be attributed to a negative interpretation of personal safety hazards, an unwillingness to invest time and finances to become qualified for a summer position, and a disproportionate monetary compensation for the moral and legal responsibilities involved (Wawrzynowicz 1985).

Although these are legitimate concerns, there are still candidates who are willing to obtain experience in outdoor public service for future career goals in recreation, rescue, law enforcement, teaching and medicine. A reputable lifeguard program is a positive attraction to those who desire a professional affiliation with a highly rated lifesaving organization, and "word of mouth" is often the best recruitment tool. A sluggish economy with a limited job market is, ironically, another advantage in recruiting since many other

options are not available to the job-seeker. In contrast to the heyday of the '60s, creative recruiting has become an essential strategy in staffing the lifeguard crews of the '90s.

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NEW YORK STATEWIDE TRAILS PLAN: CORE ISSUES AND KEY RECOMMENDATIONS

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The New York Statewide Trails Plan was prepared to assist communities, public and private agencies, and trail users involved with trails, recreationways, and greenways in New York State. It was developed in cooperation with the New York State Trails Council, a citizen advisory committee of motorized and non-motorized trail interests.

Introduction and Purpose

The New York Trails Plan is a component of the 1994 Statewide Comprehensive Outdoor Recreation Plan (NYS OPRHP 1994). Its primary purpose, and subject of this paper, is to identify major issues and needs, and develop recommendations to further advance trail use policy and management in New York State. Additional objectives are to:

1. facilitate consultation and coordination among trail users and supporters through the identification of model projects and relevant planning initiatives; and,
2. provide information on potential sources of technical and financial assistance, as well as volunteer and advisory programs pertinent to trails, recreationways and greenway corridors.

The Plan is the first comprehensive study of issues and recommendations generic to both motorized and non-motorized trail interests in New York State. It is one of 16 trail plans that have been prepared in the past five years by state park and recreation agencies in the United States, including Vermont, New Hampshire and New Jersey in the Northeast (Moore 1994).

Background: Trails Across New York

The New York Statewide Trails Plan (Cobb 1994) establishes the diversity, uniqueness and extent of public interest in trailways to help emphasize the importance of the study. The Plan defines a trail as a linear corridor, on land or water, which provides for public access for purposes of recreation and transportation as well as related outdoor education and sport activities.

Motorized and non-motorized trail opportunities in New York are provided by local, state, and federal agencies, as well as through a range of formal and informal cooperative agreements with voluntary organizations and private landowners. It is estimated that volunteers help maintain about nine thousand miles of trail; 7,500 miles on private land, and 1,500 miles on public land.

The formal origins of recreation trail use in New York State occurred in 1892 when the State legislature appropriated \$250.00 for completing a "public path" to the summit of Slide Mountain, the highest peak in the Catskill Park (Van Valkenburgh 1985), and a mountain popularized in the early nature writings of John Burroughs.

New York State now offers an estimated 16 1/2 thousand miles of trailways exclusive of the rapidly growing system of designated on-highway bicycle routes in urban, suburban, and rural areas. Long-distance trails across New York often follow historic transportation corridors including rivers, canal towpaths, mountain ridgelines, logging roads, old town roads, and abandoned rail corridors.

Trails such as the end-to-end Canalway Trail of the NYS Canal Recreationway, the Hudson River Trail, and Genesee River Trail are important components of greenways that are recognized in the report of the President's Commission on Americans Outdoors (PCAO) as the nation's most important land-based effort for conservation and recreation in the next several decades (PCAO 1987).

Self-contained trail systems are typically clustered in parks or other public lands. In New York City, about 220 miles of trails are managed by the City of New York Parks Department. The six-mile Ocean Parkway Bike Path in Brooklyn, established in 1895, and linking Prospect Park to Coney Island, is reputed to be the oldest designated bikeway in the United States. It constitutes a component of the Greenway Plan for New York City (NYC Dept. of City Planning 1993).

In the Adirondack Park, a six-million acre greenline park in northern New York State, are about two thousand miles of trails in wilderness and other classified units of the New York State Forest Preserve. The many hundreds of miles of water trails includes the 90-mile Fulton Chain of Lakes, an historic canoe route between Saranac Lake and Old Forge. The snowmobile trail system in Old Forge, including about 500 miles of groomed trails on private land, has made this hamlet the "snowmobile capital" of the Northeast. Near Lake Placid is the Nordic ski and biathlon trail system of the 1980 Winter Olympics. An extensive network of scenic roads and bikeways has been designated by the Adirondack North Country Association, a regional development and tourism organization (Cobb 1990).

The Wilkinson Trail, located in the Saratoga National Historical Park; the Long Island Greenbelt Trail; and the Seaway Trail, a scenic byway and bicycle route along the St. Lawrence River and Lake Ontario, and connecting to Pennsylvania, are three of 14 trails in New York State that have

been designated as national recreation trails. Similarly, the Appalachian Trail and North Country Trail in New York are components of two national scenic trails designated in 1968 when Congress passed the National Trails System legislation.

The Station for the Study of Insects, situated along the Appalachian Trail in Bear Mountain State Park, was the impetus for the development of an early experimental nature trail by the American Museum of Natural History in 1925, and is considered among the first interpretive trails to use wayside exhibits (Focht 1992). And in eastern New York, the Harlem Valley Rail Trail in Dutchess and Columbia Counties is depicted by the national Rails-to-Trails Conservancy as "among the most desirable, useful and attractive in the nation" (Harlem Valley Rail Trail Assn.

On the first National Trails Day in 1993, New York had over two thousand participants at more than one hundred events throughout the State. The Newburgh-Beacon Greenway Trail over the Hudson River was a recipient of a Trails Day Award that year, as was the dedication of a 70-mile section of The Long Path at John Boyd Thacher State Park in 1994.

Collectively, trail-related activities account for the largest percent of the State population seeking outdoor recreation opportunities (Table 1) as well as those types of facilities suggested as most needed by people who seek close-to-home recreation (Table 2).

Critical Issues

The major issues and recommendations for trail use policy and

management identified in the New York Statewide Trails Plan have been corroborated in large part by representatives of the State's motorized and non-motorized trails community. The New York State Trails Council (NYSTC), in particular, played an important role in developing the Plan. Established in 1981 to insure citizen participation in trail planning and management at all levels of government, the NYSTC consists of delegates representing hiking, snowmobiling, water trails (small boats), all-terrain vehicles (ATVs), motorcycle trail riding, four-wheel driving, snowshoeing, Nordic skiing, equestrian, and bicycling interests.

Among the core issues is funding for trail maintenance and operations. Of trail systems managed by public agencies, about 25 percent are in poor condition and require extensive rehabilitation or reconstruction. About 400 miles of trail were closed by public agencies from 1987-1990 due primarily to safety problems, lack of funding, and other management issues. Similarly, about eight percent of trails managed by private organizations are in poor condition. Only about 325 miles of trail are considered barrier free (NPS and AMC 1991).

Six additional major issues are:

1. expanding public support for trails and recreationways;
2. adequacy of liability protection for landowners and volunteers;
3. resolving conflicts between user groups for multi-use trails;
4. maintaining public access to existing trail systems;
5. availability of information on where to go; and,
6. user education, training, and

Table 1. Percent of population participating in selected trail activities as compared to other sports, recreation, and leisure interests (NYS OPRHP 1993).

Activity	Rural	Suburban	Urban	Intercity	Statewide
Relaxing in the park	67.9	65.1	69.8	70.8	67.0
Swimming	53.9	47.6	41.8	44.5	48.4
Bicycling	28.5	23.0	26.3	25.2	25.3
Golfing	15.7	19.8	19.2	7.7	17.0
Jogging	13.9	15.4	16.7	17.6	15.3
Tennis	11.2	18.2	21.7	14.6	16.3
Basketball	11.4	11.9	10.6	15.8	11.8
Field Sports	11.3	11.3	13.8	14.2	11.9
Visiting Zoos/Natural Areas	52.7	55.0	55.1	67.3	55.4
Visiting Historic Sites	52.4	51.7	49.6	55.2	51.3
Camping	33.1	17.6	23.7	29.2	24.0
Hiking	36.8	29.6	31.1	28.8	31.6
Hunting	10.2	4.2	3.7	5.7	6.0
Gardening	39.8	29.5	22.1	23.3	30.9
Boating	35.1	30.2	25.8	20.0	29.6
Fishing	28.1	17.3	17.6	17.1	20.4
Ice Skating	15.4	15.8	17.4	14.5	15.5
X-Country Skiing	13.9	6.8	11.7	5.9	9.4
Snowmobiling	6.8	2.5	1.7	3.1	3.6
Downhill Skiing	13.9	14.1	14.6	10.7	13.9

Another issue is to merge transportation needs and recreation values, including making trail facilities components of local and regional transportation improvement projects. Additionally, the economic importance of multipurpose trail systems to the travel and tourism industry has not been sufficiently established.

In addition to these core issues are others more specific to one type of user group. Motorized trail interests, in particular, are concerned that there are very few trails in New York State that have been designed and maintained for ATVs and trail bikes, and take umbrage at ATV registration fees not being used as a designated revenue source. It is estimated that 63,953 ATVs as well as 64,300 motorcycles and 43,852 light trucks were used off-road for recreational purposes in 1992 (Hu, Trumble and

Table 2. Types of facilities suggested by people who believe more recreation facilities are needed within 30 minutes of their residence.

Facility Type	Percent Population
Summer Facilities	
General	54
Picnic Area	46
Swimming Pool	32
Raquetball/Handball Courts	28
ATV Trail	27
Playground	26
Hiking Trail	19
Local Parks	18
Tennis Courts	16
Bicycle Trail	16
Fishing Access	14
Golf Courses	12
Tent/RV Camping	12
Beach	8
Boat Launch	8
Basketball Courts	8
Maintenance	7
Nature Trail	5
Jogging Trail	5
Soccer	4
Hunting	3
Baseball/Softball Fields	3
Winter Facilities	
Ice Skating Rink	14
Cross-Country Skiing	13
Downhill Skiing	3
Snowmobile Trail	1

Note: These data derive from the New York State general public recreation survey conducted in 1991. When directly asked if more facilities are needed within thirty minutes of where they lived, about 43 percent of the respondents responded "yes." The facilities requested most by this group are noted in Table

Hu 1994). These data suggest the seriousness of the problem. Similar problems arise over the growing off-road use of mountain bicycles, and conflicts with hikers and equestrians.

Other important issues recognize the need for a universal system of signage, appropriate compliance with the Americans with Disabilities Act, securing abandoned railroad corridors, the design and location of trail heads, and dismantling of abandoned bridges before being assessed for potential railway purposes.

Key Recommendations

To help resolve issues impeding trail use policy and development in New York State, nine recommendations and associated action strategies are identified in the Statewide Trails Plan.

1. Congress and the State Legislature should support State and private initiatives that enhance forest-based trail and other recreation opportunities for the public.
 - A. Strengthen provisions of the New York State General Obligations Law to protect landowners who allow responsible public recreational use of their properties.
 - B. Update liability statutes to establish hold-harmless mechanisms whereby the State underwrites a landowner's defense against personal injury suits, or assumes costs for property damage and littering from public use.
 - C. Reduce property taxes for landowners who allow responsible public use of their lands.
2. Formally establish a Statewide Trail Planning and Development Program in New York State.
 - A. Create the position of "State Trails and Recreation Coordinator" in State government to assist landowners and trail users.
 - B. Convene an intergovernmental advisory committee of municipal, town, county, state, and federal representatives to work in cooperation with the New York State Trails Council.
 - C. Maintain a statewide inventory of trails and recreationways utilizing Geographic Information System (GIS) technology.
3. Provide adequate funding for trails and outdoor recreation.
 - A. Congress should institute a national excise tax on outdoor specialty recreation equipment for funds that should support public access as well as management and expansion of outdoor recreational opportunities on public and

- private lands in order to meet the needs of landowners and land users.
 - B. Support continued funding of bicycle and pedestrian projects, scenic roads, and other eligible projects of the Intermodal Surface Transportation Efficiency Act (ISTEA) and the National Recreational Trails Act.
 - C. Support an increase in appropriations to the Land and Water Conservation Fund.
- 4. Encourage coordination of trail planning and development across lines of political jurisdictions, agencies, and levels of
 - A. Provide good examples of partnership agreements between trail user groups, private or corporate landowners, and land management agencies to enhance or develop new trail opportunities.
 - B. Integrate trails into the regional, state, and local planning processes, including zoning.
 - C. Facilitate intermodal opportunities for both transportation and recreation purposes, including linkages to bus and rail transit systems.
- 5. Foster better communication and cooperation among all types of users and providers.
 - A. Post trail etiquette and user responsibility guidelines at local and State trail areas, and publish them in guidebooks and trail maps.
 - B. Establish local and regional trail advisory committees.
 - C. Provide and encourage public information and maps showing trail opportunities with good information on accessibility and levels of difficulty, including those that provide facilities for the disabled.
- 6. Enhance trail connections and public access to parks, historic sites, greenways, water routes, interpretive centers and/or other natural and cultural resources.
 - A. Research and develop trail designs that facilitate access for all trail users as opposed to separate facilities for the handicapped.
 - B. Continue to advance the development of a statewide system of interconnected trails and greenways, including conducting an inventory of abandoned rail corridors.
 - C. Identify and coordinate linkages to the Seaway Trail, Canalway Trail, Hudson River Trail, East Coast Greenway, bikeways, scenic roads, snowmobile trails and other long-distance trail systems in New York State.
- 7. Advance stewardship of the State's existing trail system.
 - A. Encourage community and user groups to participate in adopt-a-trail maintenance programs as well as assist with police and fire protection.
 - B. Develop a "Trail Management Manual" that incorporates policies, guidelines and standards for the planning, construction, operation, and maintenance of trail systems.
 - C. Support volunteers and expand their involvement in the maintenance, management, and development of trail resources.
- 8. Increase public awareness of the economic, social, educational, health, and environmental benefits associated with trails and greenway corridors.
 - A. Foster citizen participation in annual New York Trails Day activities or other events which encourage recognition of trails and trail projects throughout the State.
 - B. Develop multi-media presentations and articles on trail benefits and opportunities for local media and civic organizations.
 - C. Publicize volunteer trail projects, opportunities, and recognize accomplishments.
- 9. Conduct research in trailway use and development; encourage information exchange and training programs.
 - A. Monitor trends in trail activities through surveys, registrations, sales figures, and experience of other states.
 - B. Establish a clearinghouse for maps, plans, design standards, and other trail information with emphasis on the land and water trailway system of New York, neighboring states, and provinces.
 - C. Develop case studies on innovations and model demonstration projects, including nominations for additions to the National Recreation Trail system in New York State.

Discussion

The issues and recommendations set forth in the New York Statewide Trails Plan are intended to be consistent with planning initiatives associated with trails and greenways, locally and regionally, including the findings and recommendations of the Report of the New York/New England Trails Summit (NPS and AMC 1993). The Summit convened 270 trail users and supporters in 1992 to assess trail needs and issues, and to identify ways to protect and enhance trailway resources on a regional basis.

Other relevant plans and reports include pertinent recommendations of the Northern Forest Lands Council (NFLC 1994); New York State Open Space Conservation Plan (NYS DEC and OPRHP 1992); State of New York Snowmobile Trail

Plan (Wood 1989); and, the Statewide Bicycle and Pedestrian Concept Plan (Olson 1994).

The Report of the National Trails Agenda Project (American Trails and National Park Service 1990); Americans Outdoors: The Report of the President's Commission (PCAO 1987); and, the national survey of state trail administrators, State Trail Programs (Moore 1994), provide important national policy perspective on trail use policy and management.

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