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TABLE OF CONTENTS

	<u>Page</u>
OPENING SESSION: Trends in the Recreation Profession	1
Perspectives and Insights Edward Koeneemann (Vermont Department of Forests, Parks and Recreation)	3
 MOUNTAIN BIKING	 7
Recreational Challenge and Environmental Effects of Mountain Biking. Gus Bahrenburg, James Palmer (SUNY-CESF)	9
Information Sources and Attitudes of Mountain Bikers. Roy Ramthun (Radford U.)	14
Bicycle Tourism Development in the Adirondack North Country Region of New York State. Timothy Holmes (Holmes and Associate), Michael Schuett (Southwest Texas State U.)	17
 RECREATION PRICING	 25
Potential Equity Effects of a New Day-Use Fee. Stephen Reiling, Hsiang-Tai Cheng (U. of Maine), Chris Robinson (U. of Maine), Ronald McCarville (U. of Waterloo), Christopher White, ASci Corporation	27
Factors Associated with Willingness-to-Pay for Hunting License Increases Among Small and Big Game Hunters in Pennsylvania. Craig Miller, Alan Graefe (Pennsylvania State U.)	32
Increasing Revenues in Ohio State Parks: What Works and What Doesn't. Glen Alexander (Ohio State Parks)	36
 OUTDOOR RECREATION MANAGEMENT	 41
Examining the Nature of River Recreation Visitors and Their Recreational Experiences on the Delaware River. Katharine Pawelko (Western Illinois U.), Ellen Drogin, Alan Graefe, Daniel Huden	43
Increasing Michigan Boater Compliance With The Clean Vessel Act In Use Of Pumpout And Dump Stations: Information And Education Needs And Preferences. Gail Vander Stoep (Michigan State U.)	50
Managing New Forms Of Recreation In Heritage Areas. Per Nilsen (Parks Canada)	59
Crowding and the Beach: Examining the Phenomenon of Over- and Under-Manning in Alternative Environments. John Confer, Alan Graefe (Pennsylvania State U.), and James Falk (Sea Grant Advisory Service).	65
 ENVIRONMENTAL PERCEPTIONS AND RECREATION RESOURCE MANAGEMENT	 73
Environmental Ethics, Values, And Behavior: An Empirical Approach To Designing Nonformal Environmental Education Programs. Christine Negra, Robert Manning (U. of Vermont)	75
Negative Perceptions Of Natural Environments And Recreation Activity Preferences. Robert Bixler (Cleveland Metroparks), William Hammitt (Clemson U.), Myron Floyd (Texas A and M U.)	81
Comparing Quantitative And Qualitative Approaches To Characterizing Forest Recreation Environments. Robin Hoffman, James Palmer (SUNY CESF)	84
 OUTDOOR RECREATION: SATISFACTIONS AND CONFLICTS	 91
Influences on Perceived Crowding and Satisfaction on the Blue Ridge Parkway. Jefferson Armistead, Roy Ramthun (Radford U.)	93
User Satisfactions at Adirondack Forest Preserve Campgrounds. Chad Dawson (SUNY-CESF)	96
The 1994 Lake Groton Recreationist Survey: Policy Options for Resolving Lake User Conflicts. Kevin Wiberg (U. of Vermont), Susan Bulmer (Vermont Department of Forests, Parks and Recreation)	99
Activity Orientation As A Discriminant Variable In Recreation Conflict Research. Alan Watson and Hans Zaglauer (Leopold Institute), Susan Stewart (USFS)	103
Visitor Use and Conflict on the Carriage Roads of Acadia National Park. Charles Jacobi (Acadia National Park), Robert Manning, William Valliere, Christine Negra (U. of Vermont)	109
 TOURISM	 113
Legislative Mandates for Tourism in the 50 States. Eric Kingsley and Robert Robertson (Univ. of New Hampshire).	115

Marketing Research Framework For The Heritage Tourism Initiative. Dick Stanley (Parks Canada)	119
The Interplay Between Ethics and Sustainable Rural Tourism. Jeffrey Walsh (Pennsylvania State U.), Bruce Matthews (Cornell U.)	125
New York's Changing Bed & Breakfast and Inn Industry: 1987 to 1993. Diane Kuehn (New York Sea Grant), Chad Dawson (SUNY CESF)	131
ECONOMIC IMPACTS AND VALUES	135
The Economic Impact of State Forest Recreation in Southwestern Pennsylvania. Bruce Lord, Charles Strauss, Stephen Grado (Pennsylvania State U.)	137
Economic And Social Values Of Parks: An Empirical Approach. Alphonse Gilbert, Robert Manning, Christine Negra (U. of Vermont), Edward Koenemann (Vermont Department of Forests, Parks and Recreation)	141
Wetland Externalities: Implications for Policy and Decision-Making. Donald Dennis (USFS), Walter Kuentzel (U. of Vermont), Louise Tritton (USFS), Deane Wang (U. of Vermont)	148
HISTORIC AND CULTURAL TOURISM	153
Historic Preservation Attitudes Of The 90s America's Industrial Heritage Project - 1993. Deborah Kerstetter, Kelly Bricker, Patricia McGee (Pennsylvania State U.)	155
Antiquing as a Recreational Activity in Southwestern Pennsylvania. Stephen Grado, Charles Strauss, Bruce Lord (Pennsylvania State U.)	158
Residents' Attitudes Towards Tourism: An Applied Study in a Historic Community. Beth Weikert, Deborah Kerstetter (Pennsylvania State U.)	162
The Rural Action Class's Perceptions of Rural Tourism in Relation to Their Sense of Place: An Exploratory Study. Steven Burr (Western Illinois U.)	167
RECREATIONAL TRAILS	173
Differences Between Rail-Trail Users and General Trail Users of a National Recreation Area. Andrew Mowen, Daniel Williams (U. of Illinois)	175
State Trail Programs: A Survey Of State Trail Administrators. Roger Moore, Alan Roberds (North Carolina State U.)	180
Impact of Columbia's MKT Nature and Fitness Trail on Attitudes of Adjoining Property Owners. Hans Vogelsong, Hardeep Bhullar (Pennsylvania State U.)	186
RECREATION CHOICE AND PARTICIPATION TRENDS	191
Recreation Choice Behavior: An Application of Multidimensional Scaling. Robert Bristow (Westfield State College)	193
Outdoor Recreation Trends in the Northeastern United States: 1979 - 1993, An Update. Rod Warnick (U. of Massachusetts)	200
Forecasting Recreation Participation: A Cohort-Component Projection Model for the U.S. John Dwyer (USFS)	208
TRAVEL MOTIVATIONS AND DECISION-MAKING	215
Motivations for and Constraints to Spring Break Travel: A Cross Gender Comparison. Shayne Annett, Cindy Dabrowski, Robert Robertson (U. of New Hampshire)	217
An Exploratory Analysis of Travel Benefits Sought Among International Bus Tourists in the USA. Tony Yang, Alan Graefe (Pennsylvania State U.)	222
An Exploratory Analysis of International Vacation Decisions in the Context of Terrorism Risk. Sevil Sonmez, Alan Graefe (Pennsylvania State U.)	227
A Regional Arts Festival's Market: Can It be Segmented by Residence? Hoon Lee, Deborah Kerstetter (Pennsylvania State U.)	233
ROUNDTABLE AND MANAGEMENT DISCUSSION	237
Utilizing Integrated Resource Management to Achieve Recreation Goals in New Hampshire State Parks and Forests: An Evolving Model of Planning and Process. John Twitchell (NH Division of Parks and Recreation), Ken Desmarais (NH Division of Forests and Lands), John Lanier (NH Dept. of Fish & Game)	239

The Public Interest In Outdoor Recreation: Or Will The Invisible Paw Replace The Responsible Arm?	243
Ben Twilight (Pennsylvania State U.)	
Bicycling and Walking: Linking Transportation and Recreation in New York State. Jeffrey Olson (NYS DOT),	247
John DiMura (Canal Recreationway Corp), Tom Cobb (NYS Trails Council & OPRHP)	
POSTER SESSION	253
Parks as Neighbors: The Experience of Living in and Around Cape Cod National Seashore. Robert Manning,	255
William Valliere (U. of Vermont)	
A Necklace Park Plan for Historic Holyoke, Massachusetts. Stephanie Kelly, Barbara Moser, Philip Peterson	260
(Westfield State College)	
Interpretation of New York's Eastern Lake Ontario Sand Dunes and Wetlands. Gillian Earnest (SUNY-CESF),	263
Diane Kuehn (NY Sea Grant)	
A Research Framework To Assess The Biophysical Impacts Of Nature-Based Tourism: A Thesis Project. Tracy	267
Farrell (SUNY-CESF)	
Development Of A Self-Guided Auto Tour To The Salmon River Corridor: Salmon River, New York. Eric	274
Weisman (SUNY-CESF)	
The Influence of Current Technical Training on Lifeguard Staffing in Connecticut State Parks. Gus Constantine	280
(Connecticut State Parks)	
New York Statewide Trails Plan: Core Issues And Key Recommendations.	282
Thomas Cobb (NYS OPRHP)	

MISSING PAPERS

NOTE: If you are interested in getting additional information about any of the papers that were presented but were not submitted for publication, please contact the authors directly. A list of those papers is included here to assist you in identifying the authors.

- Manager Perceptions of Mountain Bike Riders: New Users/New Conflicts.** Deborah Chavez (USFS)
- Participants' Assessments of Fairness and Pricing of A Public Leisure.** Ronald McCarville (U. of Waterloo), Stephen Reiling (U. of Maine), Christopher White (ASCI Corporation)
- Shenandoah and Great Smoky Mountains National Park Campsite Monitoring Surveys: Evaluation of Dispersed vs. Designated Site Camping Management Strategies.** Jeff Marion (National Biological Survey)
- What are the Critical Issues Facing the Management of New Hampshire's Coastal Zone?** Kristine Cheetham (New Hampshire Coastal Program), Robert Robertson (U. of New Hampshire)
- Assessing the Impact of the Wilderness Act Upon Tourism.** Steve Jacob, A. Luloff (Pennsylvania State U.)
- Values in Resource Management: A Theoretical Perspective and Critique.**
Thomas More (USFS)
- The Identification of Criteria for a Trail Rating System and the Development of a Trail Rating System Model.** James Harding, Ki-Joon Yoo, Joanne Tynon, Floyd Newby, (U. of Maine)
- 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)
- Interpretive Media Plan and Preliminary Facilities Design: Kancamagus Scenic Byway, White Mountain National Forest.**
Terry Dewan (Dewan and Associates)
- 1994 Outdoor Recreation Resources of New York State Map.** John Fox, Jim McFarland, Lynn Gort (NYS OPRHP)
- A Trail Information System Using Critical Criteria of Trail Settings: A GIS-Based Case Study in Acadia National Park, Maine.** Ki-Joon Yoo, James Harding, Floyd Newby, Joanne Tynon (U. of Maine).
- New York State Snowmobile Trail Mapping with GIS.**
Randolph Hyatt (NYSPMRI).
- Demographic Changes in New York State's Urban Areas and the Resulting Impact on Urban Recreation.** Wesley Bartlett (NYS OPRHP)
- New York State Open Space Plan.** Robert Reinhardt (NYS OPRHP)

**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	130,132	37,409	52,018	219,558
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	39,376	60,534	99,911
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 region's 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	Winter		Other
	Hunting	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	\$5.15	\$3.22	\$0.55
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 Choice	Maximum	Dichotomous Choice	Maximum	Dichotomous Choice	Maximum	Dichotomous 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.

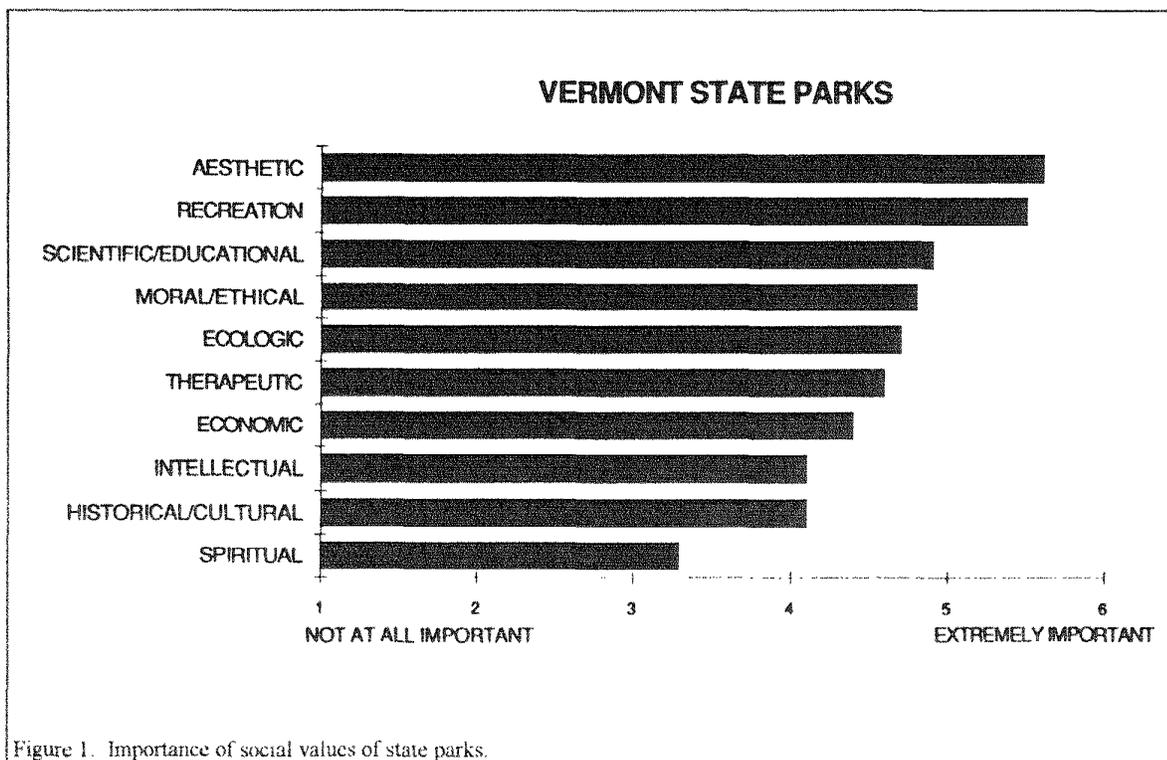


Figure 1. Importance of social values of state parks.

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

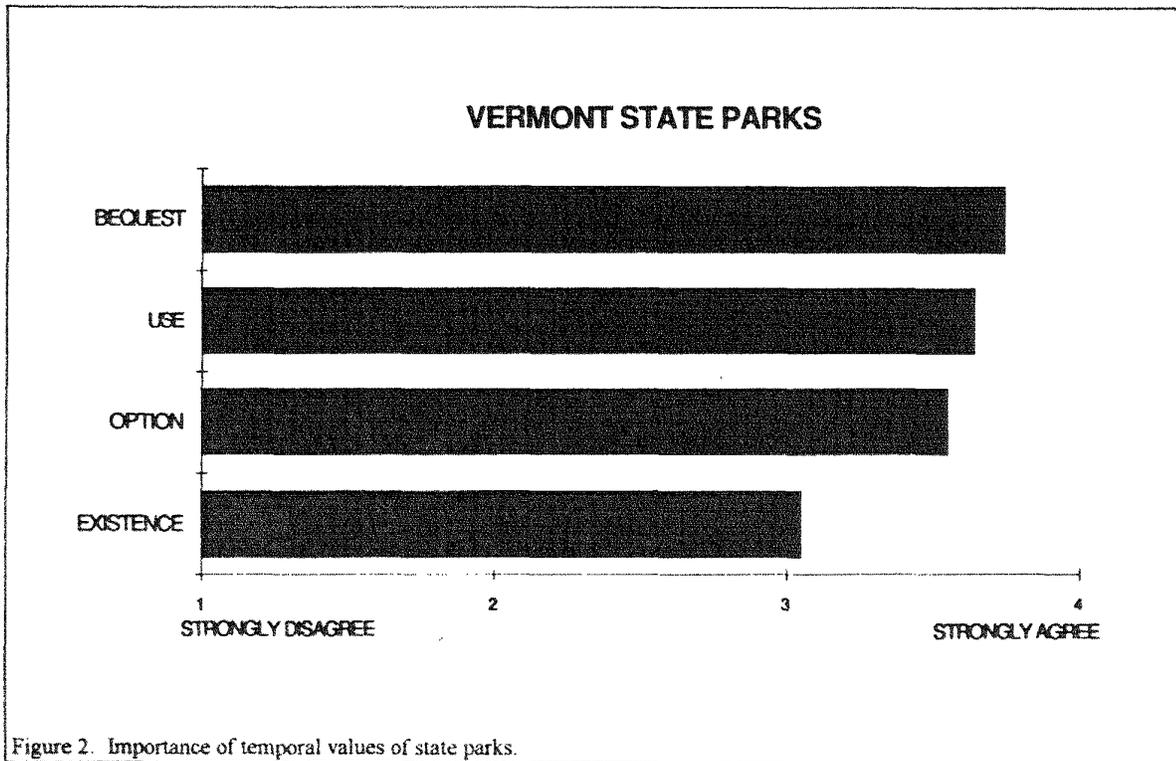


Figure 2. Importance of temporal values of state parks.

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	1,189,180	27.82	463,226	11.44
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, Communi, 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	\$6,000	\$77,900	\$83,900	\$46,700	\$34,200	1.00
	\$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 antiquing 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 (Karnel, 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	M*	SD	N
tourism impacted:			
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 (n=2)	1.46 ^{ab1} (n=26)	2.02 ^c (n=53)	2.21 ^d (n=56)	2.76 ^a (n=41)	3.24 ^{bcd} (n=59)
The commercialization of Gettysburg	2.50 (n=2)	3.12 (n=26)	2.76 ^a (n=53)	2.75 ^b (n=56)	3.35 (n=40)	3.70 ^{ab} (n=60)

¹ Means significantly different on the Scheffé 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} (n=3)	2.77 (n=85)	2.52 (n=23)	2.78 ^a (n=61)	2.02 ^b (n=58)	2.20 (n=5)
Residents ability to enjoy their own town	5.00 ^{a1} (n=3)	3.12 (n=85)	2.78 ^a (n=23)	3.20 (n=61)	3.14 (n=59)	3.40 (n=5)
The pollution of local air	4.67 ^{abc} (n=3)	2.94 (n=85)	2.91 (n=23)	2.66 ^a (n=59)	2.58 ^b (n=59)	2.20 ^c (n=5)
The number of drunk driving accidents	4.33 ^{abc} (n=3)	2.78 ^a (n=83)	2.61 ^b (n=23)	2.85 ^c (n=61)	2.91 (n=57)	2.80 (n=5)
The commercialization of Gettysburg	4.67 ² (n=3)	3.42 ^a (n=84)	3.57 ^b (n=23)	3.34 ^c (n=61)	2.36 ^{abc} (n=59)	2.60 (n=5)
The range of products and services offered by local businesses	4.67 (n=3)	3.60 (n=84)	3.87 (n=23)	4.00 ^a (n=61)	3.85 (n=59)	2.60 ^a (n=5)

¹ Means significantly different on the Scheffé 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} (n=125)	3.02 ^{a2} (n=108)
The amount of traffic congestion ²	2.25 ^a (n=127)	2.66 ^a (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 Scheffé 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)	Somewhat Optimistic/ Hopeful (n=10)	Uncertain/ Unsure of Future (n=3)	Pessimistic/ Negative (n=4)
Commodity	26%	10%	3%	4%
Social	22	7	3	3
Family	8	4	2	2
Roots	6	2	0	2
Environmental/ Landscape	17	3	2	1
Heritage/Legacy	4	4	0	0

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)	21+ years (n=14)	<21years (n=3)	21+ years (n=7)	<21years (n=1)	21+ years (n=2)	<21years (n=0)	21+ years (n=4)
	Commodity	12%	14%	3%	7%	1%	2%	0%
Social	9	13	2	5	1	2	0	3
Family	2	6	0	4	1	1	0	2
Roots	1	5	0	2	0	0	0	2
Environmental/Landscape	10	7	2	1	1	1	0	1
Heritage/Legacy	1	3	2	2	0	0	0	0

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 -value = 1.65, $sig.$ = .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 -value of 2.89 ($sig.$ = .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 \$3.50, respectively (t -value = 2.99, $sig.$ = .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 -.41, sig. = .68 (Zone A) and .02, 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 (n=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 ATV's	3.62	47
Use by 4-Wheel Drives	3.45	47
Use by Motocyclists	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

μ/ 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, tourists, 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, & Gittleson, 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	1-6	3.82	4	1.18
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 providing benefits such as preserving open space, providing aesthetic beauty, community pride, and providing recreational activities. However, they did not feel that the trail was important in providing 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 providing 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 ordinal ranked responses (Brown and Daniel 1990; Brummell and Harmon 1974; Dawes 1972). Gollidge 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 sledgers 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

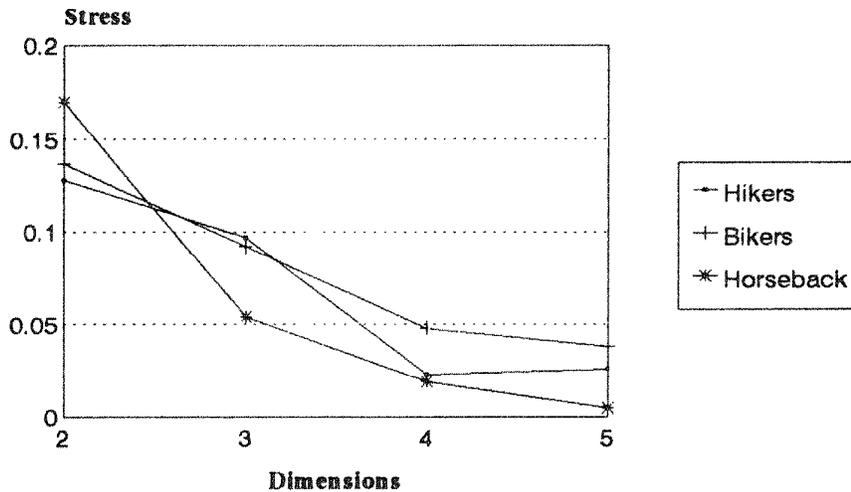


Figure 1. Stress values for 2 through 5 dimensions.

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

Recreator Group Dependent	Rsq	Standardized Independent Coefficients		
		Dim 1	Dim 2	Dim 3
Hikers/Joggers (Dimension 1 Preference):				
Tree Cutting:				
<u>Open/Enclosed</u>	.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/Manmade	.42 *	-0.32	-0.07	0.54*
Bikers/Xc Skiers (Dimension 1 Preference):				
Tree Cutting:				
<u>Open/Enclosed</u>	.36	0.55*	-0.24	0.04
Move Trail:				
Controlled/Relaxed	.40*	-0.60**	0.21	-0.02
Horseback/Dog Sledgers (Dimension 2 Preference):				
Tree Cutting:				
<u>Open/Enclosed</u>	.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/Manmade	.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 sledgers 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.

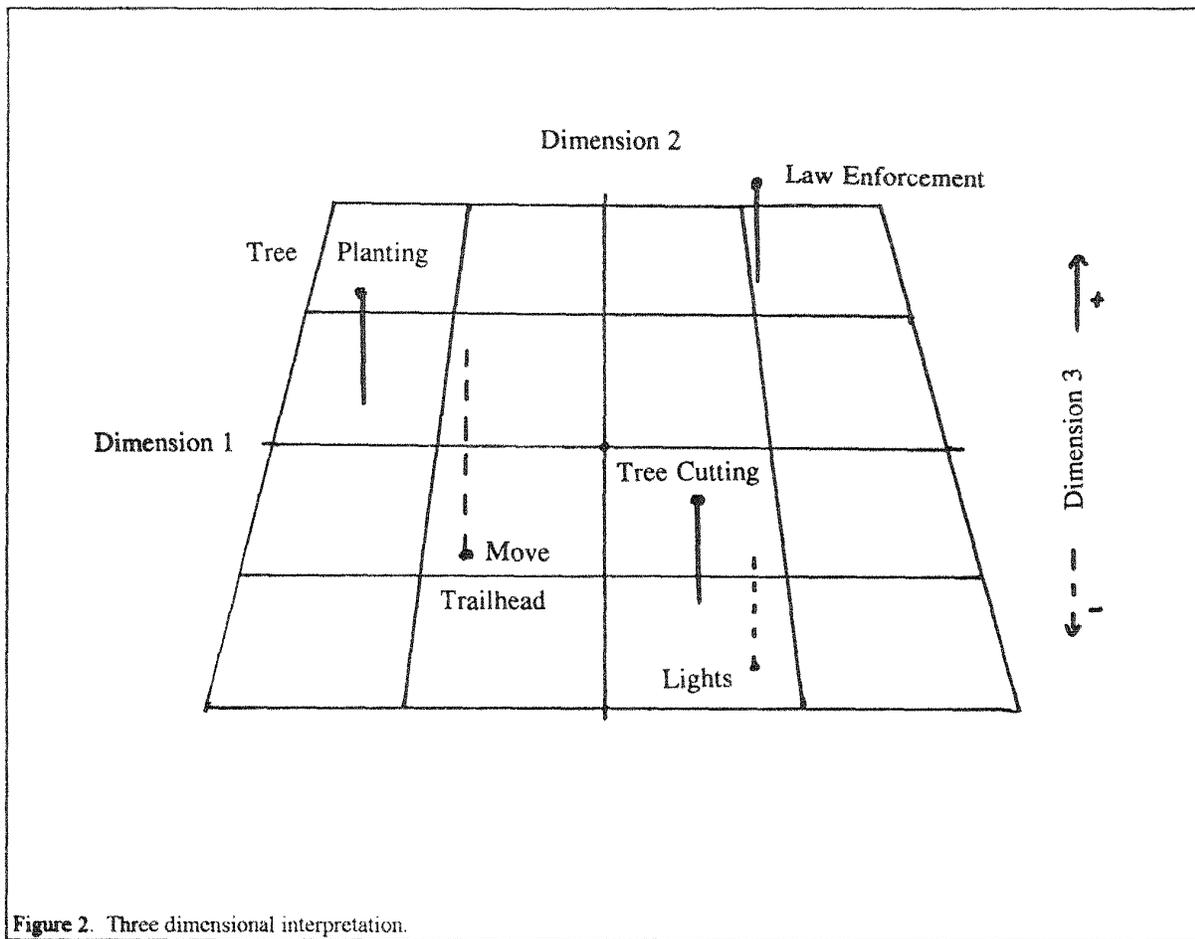


Figure 2. Three dimensional interpretation.

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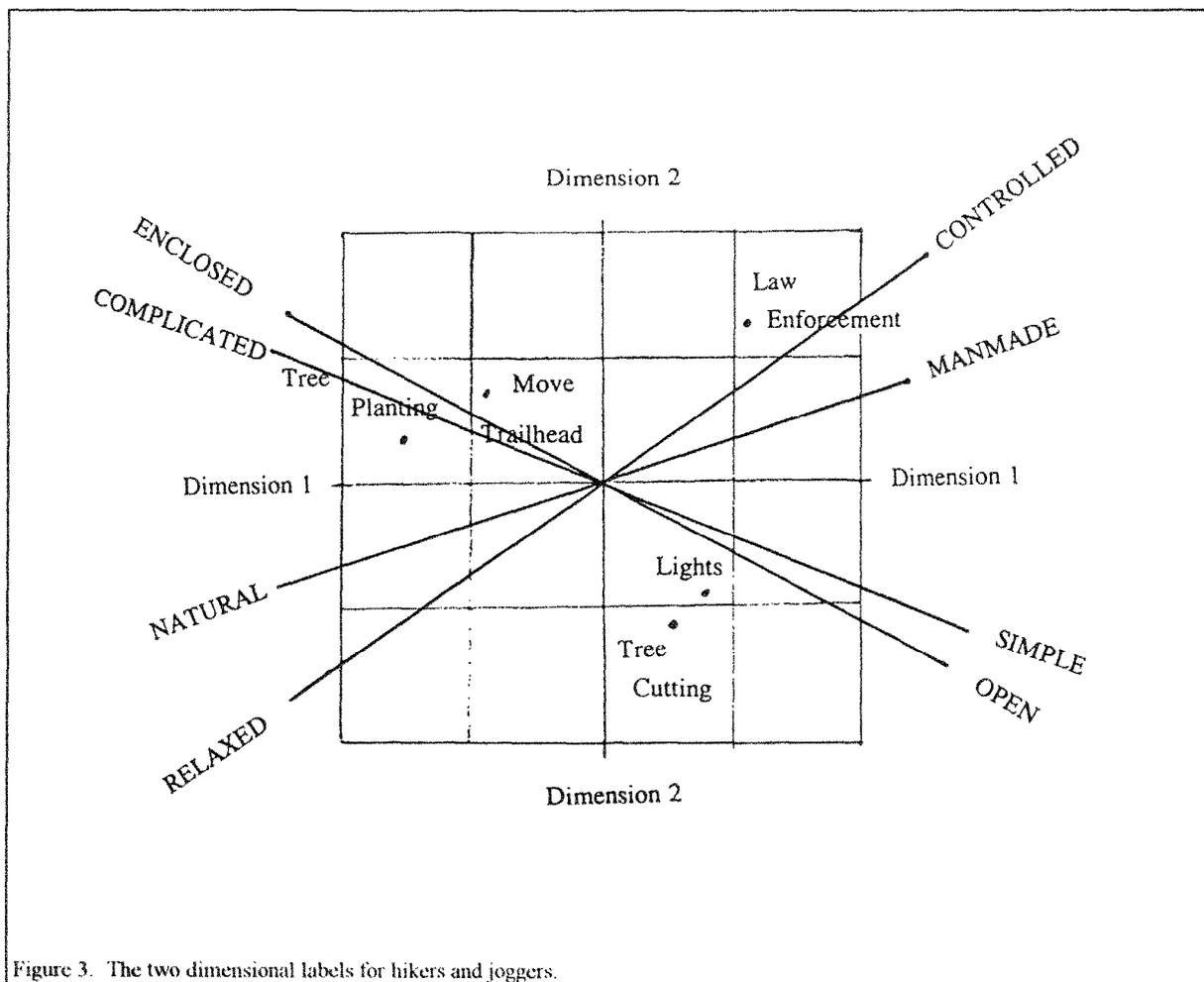


Figure 3. The two dimensional labels for hikers and joggers.

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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 coterminus 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						Average Annual Change Rate	Two Point Moving Average
	Year							
	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						Average Annual Change Rate	Two Point Moving Average
	Year							
	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						Average Annual Change Rate	Two Point Moving Average
	Year							
	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						Average Annual Change Rate	Two Point Moving Average
	Year							
	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 keep 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.

Activity	Predicted number of participants age 18 and above (in thousands)		Components of change in participants 1992-2050		
	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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