

CHARACTERISTICS OF WILDERNESS USERS IN OUTDOOR RECREATION ASSESSMENTS

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ABSTRACT

Wilderness use is often subsumed under outdoor recreation participation in large-scale assessments. Participation monitoring has indicated, however, that wilderness use has been increasing faster than outdoor recreation use in general. In a sample of Forest Service wilderness and nonwilderness users during the summer of 1985, detailed expenditure, activity, and travel profiles were developed. The purpose of this analysis is to explore the possibility of differentiating between the characteristics of wilderness and general outdoor recreation users on the basis of trip characteristics, expenditure patterns, and such demographic factors as age, income, education, sex, employment status, and social group composition.

INTRODUCTION

A national assessment of our renewable natural resources is a major undertaking. The Forest and Rangeland Renewable Resources Planning Act of 1974 established exactly that role for the USDA Forest Service. An assessment of such momentous proportion would expectedly be subdivided into a series of individual assessments occurring for each of the various identifiable renewable resources. Accordingly, in the last assessment, published in 1981, the nation's natural resources were divided into Wildlife and Fish, Range, Timber, Water, and Outdoor Recreation and Wilderness (USDA, 1981).

Each individual assessment is intended to provide a physical inventory and description of the overall resource situation -- the problems and opportunities, potential supply and likely demand, prices related to various output levels, and anticipated impacts. From these combined

individual assessments, the Secretary of Agriculture develops the 10-year Renewable Resources Program, which is updated every five years. The RPA Program essentially defines policy options for the Forest Service to help meet demands, solve problems, and take advantage of the opportunities identified in the assessment.

Outdoor Recreation and Wilderness have previously been combined into a single assessment chapter that emphasized recreational values. The nonrecreational values of wilderness were not given much attention. The next RPA assessment, however, will place more emphasis than before on the nonrecreational values of wilderness, in addition to assessing its recreational values as done previously. Recent research by a variety of individuals suggests that these nonrecreation values, including option, existence, bequest, subsistence, scientific, educational, and therapeutic (Walsh et al., 1984; Walsh et al., 1985; Cordell et al., 1985) may be substantial.

While it is agreed that some of the above values may be unique to the wilderness resource, a major assessment task is to determine how unique recreational use of wilderness might be. Research on recreational use and user characteristics is typically divided into five general areas: basic demographic description; characteristics of visits; motivations and benefits; perceptions, attitudes, and behavior; and trends and projections (Roggenbuck and Lucas, 1986). Trends in wilderness recreational use are not completely agreed upon. Wilderness use estimates are apparently very unreliable (Roggenbuck and Lucas, 1986; Watson et al., 1986; and Robertson, 1985). As recently as 1981, however, estimates suggested that wilderness recreation use had been increasing faster than outdoor recreation use in general (USDA, 1981). This suggests a unique resource or a unique user group. However, recent trends in the amount of use are difficult to determine. The areas of motivations, benefits, perceptions, attitudes, and behavior have been major research emphases in wilderness research with substantial discussion very recently (Watson and Roggenbuck, 1986; **Stankey** and Schreyer, 1986). The topics of interest in this study will be limited to aspects of demographic descriptions of visitors and characteristics of visits.

The purpose of this study is to utilize data from a nationwide **on-site** survey of recreation and wilderness visitors to public sites to explore differences between wilderness and recreation users. While considerable previous efforts have been invested into developing profiles of wilderness visitors, these studies have not offered substantial evidence that wilderness users are a truly unique segment of the recreating population. The fact that participation in wilderness activities has grown faster than participation in other types of outdoor recreation, however, suggests that further study to determine if unique characteristics exist may be warranted.

Roggenbuck and Lucas (1986) suggest that it is very important to know about the users of our recreational resources. **Hendee** and others (1978) stated that the importance of understanding wilderness use and user

characteristics lies in the recognition that many of the important benefits of and threats to wilderness stem from wilderness recreation visitors. Information on use and users is also important in identifying causes and solutions of social and ecological impacts in wilderness. Information on use and users is also important in identifying causes and solutions of social and ecological impacts in wilderness. Information on visitors can also help wilderness policy makers, managers, and researchers understand the distribution of wilderness benefits among various clientele groups, the behavior of users, and the causes and potential solutions to visitor caused social and ecological impacts in wilderness. In general, it is widely held that better knowledge of visitor characteristics increases the professionalism of wilderness management and can improve the quality of visitor services (Lucas, 1980). This investigation proposes to examine various **sociodemographic** factors, travel behavior characteristics, and general expenditure patterns of a sample of recreational visitors to both wilderness and nonwilderness sites in an effort to determine if unique aspects exist which differentiate wilderness users as a special segment of the recreating population.

METHODS

Data reported in this investigation come from the 1985 Public Area Recreation Visitor Survey. Although this cooperative survey included four federal and eleven state agencies, only data collected on Forest Service sites are reported here. Study sites included 55 nonwilderness and 18 wilderness areas across the United States.

Wilderness Site Selection

Sample site selection reflects the intention of PARVS for primarily regional level analysis. A two-stage stratified random sampling scheme was utilized. The first strata was the region of the country. Each wilderness area designated by Congress as of October 30, 1984, was identified by state and thus assigned to a "region" defined as the West; Alaska; Appalachian; South, Piedmont, and Gulf; and Southwest.

Within each of these regions, the median acreage of the wilderness areas was identified. Within each region, one-half of the selected areas were chosen from among areas having acreage greater than or equal to the median acreage, and one-half were selected from areas smaller than the median acreage. The number of areas chosen from each region was based upon the number of areas in the region relative to the number of all areas in the National Forest system. Three areas were drawn from the Appalachian region, one from the South, Piedmont, and Gulf region, three from the Southwest region, ten from the West region, and one was drawn from the Alaska region.

Nonwilderness Site Selection

From a population of all ranger districts in the National Forest system, an approximate 8 percent sample of districts from three strata was selected. One-third of the sample districts was selected to represent those with intensively developed site use; one third was selected to represent heavy dispersed use; and one-third was selected to represent all of the remaining districts. Within each strata, sample lists of district names were selected randomly. Exceptions were the downhill skiing and FEVS criterion as noted below. The number of districts sampled in each region was proportionate to the number of districts in the region relative to the number of all Forest Service districts in the country.

Regions 1, 2, 3, 4, 5, and 9 each had six districts selected for PARVS interviewing; Region 6 and 8 each had nine districts selected; and Region 10 had two districts selected. In sum, 55 districts were selected for PARVS sampling.

Aside from the developed, dispersed, and other use criteria, two other criteria were used in sample district selection:

1. Downhill skiing -- At least one of the districts selected to represent heavy developed use represented a major supplier of downhill skiing. This was determined by whether the district was in the top half of districts in the region that have skiing when these were ranked by **RVD's** per year of downhill skiing.
2. 1977 FEVS -- At least one of the districts within each of the three strata for each region (except Region 10) was also within a National Forest sampled in the 1977 Federal Estate Visitor Survey.

The Survey

During summer and fall of 1985, interviews were conducted at 55 Forest Service nonwilderness areas and 18 wilderness areas. Typically, respondents were selected as their vehicle exited a Forest Service district. From each vehicle selected, a subject (over the age of 12) was randomly chosen for an interview. In some remote wilderness areas, traffic was often so light that it was more cost efficient to seek out wilderness users at trail heads rather than on an exit road.

Data collection was in three phases:

1. The interview: In the interview, the subject was asked to identify the recreation activity in which they and their group participated at the site; trip data, including origin, destination, travel time and distance; and respondent's income.

2. Demographic questionnaire: This form, filled out by the respondent or another member of the group, provides information on group size and group description, such as demographic information on sex, age, race, education, employment, and occupational classification.
3. Mailed questionnaire: A mailed questionnaire was used to collect detailed expenditure profile information including transportation, accommodation, food, and miscellaneous expenditures for the visit. The mailed questionnaire was used only in the states of Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia.
 - This restriction was imposed by the U.S. Office of Management and Budget.

RESULTS

A total of 3,796 individuals were interviewed on Forest Service sites during the summer and fall of 1985. Five hundred fifty-nine wilderness visitors were interviewed and data were collected from 3,237 visitors to nonwilderness areas.

Sociodemographic Factors

There were practically no differences between the two subject groups among the sociodemographic variables examined (Table 1). The mean age of those randomly selected for interviews was 40 years. They were approximately 62% male and 38% female. Predominately those interviewed indicated that they were Caucasian. Nearly 50% of those interviewed classified themselves in professional, managerial, or administrative positions. About 10% indicated that they were homemakers. The only sociodemographic variable for which there were significant differences was total annual family income reported by the visitors interviewed (Table 2). Slightly more wilderness visitors were in the under \$15,000 and over \$50,000 annual income groups.

Travel Characteristics

For both the wilderness and other site user groups, travel parties were predominantly members of a single family (Table 3). Approximately 70% of both area users were of this type of travelling party. Groups of friends made up approximately 12-14% of all Forest Service visitors.

Simple comparisons of travel time and distance for visitors to the two types of areas provides some insight into other trip characteristics. While the mean distance that nonwilderness visitors travelled (119 miles) appeared to be substantially greater than that of wilderness visitors (91 miles), the standard deviation of both groups was significant (Table 4). When travel time was examined, it was found that the mean time travelled for wilderness area visitors (5.1 hours) was significantly less than that of

nonwilderness visitors (8.2 hours). When time and distance were examined for only those who considered the site as a primary destination, wilderness visitors travelled a significant amount less than visitors interviewed at nonwilderness sites (wilderness: 55.96 miles, 3.75 hours; nonwilderness: 184.51 miles, 11.34 hours).

Table 1. Sociodemographic factors of Forest Service visitors

	Wilderness Visitors (%)	Nonwilderness Visitors (%)
<u>Sex</u>		
Male	61.86	62.15
Female	38.14	37.85
<u>Race</u>		
White	93.40	93.30
Black	.78	1.11
Hispanic	3.69	3.35
American Indian	1.55	1.11
Asian or Pacific Islander	.39	.60
Other	.19	.54
<u>Job Classification</u>		
Professional	35.05	32.23
Farmer	1.72	2.14
Manager/Administrator	12.04	11.12
Clerical	6.24	5.27
Sales worker	3.23	4.36
Craft worker	5.81	5.60
Operatives	2.80	3.16
Service worker	4.09	5.52
Laborer	5.38	5.23
Transportation	1.51	1.78
Armed Forces	1.08	1.42
Homemaker	9.89	9.48
Student	6.67	7.12
Unemployed	2.37	3.49
Other	2.15	2.07
<u>Education</u>		
8th grade or less	3.94	3.97
9th to 11th grades	8.86	8.62
High school graduate	29.13	31.69
Some college	22.83	22.50
College graduate	15.61	16.98
Graduate school	20.08	16.23

Table 2. Income of Forest Service Visitors

	Wilderness Visitors (%)	Nor-wilderness Visitors (%)
Less than \$15,000	21.53	19.56
\$15,000 - \$25,000	20.53	23.54
\$25,000 - \$35,000	18.71	23.02
35,000 - \$50,000	19.52	20.01
Over \$50,000	19.92	13.86

Significantly different, chi-square, $p = .026$

Table 3. Travel group composition of Forest Service visitors

	Wilderness Visitors %	Nonwilderness Visitors %
Family	72.94	69.92
Friends	12.34	14.24
More than one family	6.26	5.15
One person alone	1.29	1.58
Other	7.18	9.12

Table 4. Travel time and distance of Forest Service visitor

	Wilderness Visitors (Mean)	Nonwilderness Visitors (Mean)	(P)
Distance (miles)	92 S.D. = 585.17	119 S.D. = 724.75	.3244
Time (hours)	5.05 S.D. = 17.54	8.20 S.D. = 36.40	.0013

Local Expenditures

From the mailed questionnaire, three composite variables were formed by summing visitor expenditures made in the vicinity of the study areas (Table 5). Accommodations expenditures includes motel expenses, rental homes, rental RV sites and camping expenses paid in the private sector. The food composite variable includes food and alcoholic beverages purchased at stores or restaurants. Transportation costs include auto or RV rental, gas and oil, and repair costs. No significant differences were found when wilderness and nonwilderness visitors were compared on these three composite variables.

Table 5. Expenditures made in the vicinity of Forest Service sites by visitors

	Wilderness Visitors (Mean)	Nonwilderness Visitors (Mean)	(P)
Accommodations	\$56.54 S.D. = 249.99	\$36.56 S.D. = 115.84	.1802
Food	\$62.35 S.D. = 127.51	\$5 1.03 S.D. = 112.93	.1576
Transportation	\$15.70 S.D. = 50.06	\$13.60 S.D. = 58.11	.5234

CONCLUSIONS

Analysis of responses made by visitors to this stratified sample of Forest Service areas indicated a high probability that characteristics of wilderness visitors may not be all that unique. On all sociodemographic variables examined, except annual income, the two groups were very similar. One difference that emerged was that those who are in the very low (less than \$15,000) and the very high (over \$50,000) income groups are more likely to be wilderness visitors.

In a recent review of published research on wilderness visitors, Roggenbuck and Lucas (1986) characterized this visitor group as principally young adult, male, highly educated, and in professional or technical positions. Forest Service visitors included in this study conform very well to this description. Previous research indicated that wilderness visitors are predominantly under 35 with under representation in the age group over 56. For this nationwide sample, 41% of the wilderness visitors were under

the age of 35. Roggenbuck and Lucas concluded that as much as 40% of wilderness visitors are in professional or technical positions. In this sample, it was slightly higher (47% for wilderness, 44% for nonwilderness). Previous research led Roggenbuck and Lucas to the surprising conclusions that as high as 40% of wilderness visitors were college graduates. This is much higher than the figure for the general population. The PARVS Forest Service sample produced evidence that 35% of wilderness visitors have college degrees. **Over** 33% of nonwilderness visitors, however, had also graduated from college. Income appears to be the only visitor characteristic investigated in this study for which significant differences exist.

Groups who come to both types of Forest Service areas are most likely to be composed of family members. This is consistent with findings of previous wilderness visitor investigations (Roggenbuck and Lucas, 1986). Judging by the distance and time visitors travelled, it appears that Forest Service nonwilderness attractions may be more unique than previously perceived. While regional differences are expected to exist among wilderness visitors (Hartmann et al., 1986), the direction of the differences in travel behavior between the two groups in this study were surprising. Since a substantial amount of research has been conducted that suggests unique expectations of wilderness visitors (Watson and Roggenbuck, 1986) it was expected that these unique expectations would be evidenced through increased willingness to travel for participation.

While there was a great deal of variation in the expenditure responses, the generally held assumption that wilderness visitors do not contribute a substantial amount to the local economy must be examined much more closely. Even though wilderness experiences are themselves primitive and not development dependent, those who travel to the site for these experiences are evidently more willing to pay for local services than may have been predicted. In fact, expenditures by wilderness visitors are not uniquely different for local services and goods from general Forest Service outdoor recreation participants.

For nationwide assessments, the recreation user groups for both outdoor recreation and wilderness resources may be expected to be very similar. These findings apply only to sociodemographic factors and some visit characteristics. Trends which suggest that the amount of wilderness recreational use is increasing at a rate faster than that of outdoor recreation in general may be due in part to unique aspects of wilderness use other than sociodemographic factors and visit characteristics.

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