# AN OVERVIEW OF THE RELATIONSHIP BETWEEN SOCIAL AND DEMOGRAPHIC FACTORS AND OUTDOOR RECREATION PARTICIPATION

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*Abstract—The relationships between a variety of social and demographic characteristics and participation in outdoor recreation activities have been studied for many years. This paper presents an overview of the more commonly studied relationships, including age, gender, income, education, and occupation. Also discussed are the less commonly examined influences of disability, ethnic minority, and coparticipant group. In addition to a review of the available literature, previously unpublished descriptive data from the 1985-87 Public Area Recreation Visitor Study are presented. Social, environmental, and economic implications are also given.*

## INTRODUCTION

The social and demographic influences on recreation behavior are many, and include both characteristics of the individual and his or her surroundings. Although distance to the resource, resource quality, and price of participation are commonly considered as important influences on outdoor recreation participation, social and demographic factors are also generally included in mathematical models of recreation participation behavior (Hartmann 1988a). This paper presents a literature review of the more commonly studied social and demographic influences on recreation behavior. Additionally, descriptive statistics from the multiagency 1985-87 Public Area Recreation Visitor Study (PARVS) are presented for each examined factor. The influences of age, gender, income, education, occupation, race, disability, and coparticipant group on outdoor recreation participation are discussed in turn. Social, environmental, and economic implications are given, with additional suggestions for future researchers.

## USE OF SOCIAL FACTORS TO PREDICT RECREATION BEHAVIOR

Most modeling efforts designed to understand or predict recreation participation behavior have included basic social characteristics as elements of those models. Characteristics of the individual, characteristics of the resource, and willingness to pay for the experience are the three major dimensions of most national models of recreation participation (Hof and Kaiser 1983). There has been continued research into understanding recreation participation behavior and modeling participation since the last major investigation was conducted for the 1979 Resources Planning Act (RPA) Assessment. This research included investigations in motivations, nonparticipation, and improved statistical and methodological procedures. Crandall (1980) presents a list of 17 motivational categories for leisure participation. Romsa and Hoffman (1980) investigated reasons for nonparticipation, and found that among the most active social groups, inadequate recreation supply factors were the most important determinants of nonparticipation, then lack of time, and finally costs of participation. Boothby and others (1981) also investigated nonparticipation, and found that the most frequently cited reasons were loss of interest, lack of facilities, low physical fitness and physical disabilities, leaving a youth organization, moving away from the area, and lack of time. Jackson's (1983) study on nonparticipation determined 15 barriers to participation, including time, money, opportunity, knowledge, ability, overcrowding, lack of partners, shyness, and lack of transportation. Napier and Mauer (1981) considered local community factors, spillover-compensatory factors, and opportunity factors.

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As social and demographic factors are important components of most models of outdoor recreation participation, the remainder of this publication will focus on the characteristics of individuals or their social surroundings, and their relationship to recreation participation. In addition to a review of the available literature, new data are provided from the 1985-87 multi-agency Public Area Recreation Visitor Study (Cordell and others 1987). Data were aggregated across all involved agencies (4 Federal agencies and 11 State agencies involved in provision of recreation opportunities, totaling 31,995 usable cases), and then social variables were examined.

## CHARACTERISTICS OF THE INDIVIDUAL RELATED TO RECREATION PARTICIPATION

Individual socio-demographic characteristics have been used in all major choice behavior models. O'Leary and others (1982) conducted a review of over 100 recreation participation studies which used socio-demographic variables as predictors of participation, and the relative value of those variables as predictors (Mueller and others 1962; Burch 1969; Field & O'Leary 1973; Kelly 1974; and many others). Age, income, education, sex, place of residence, race, occupation, number of children, and marital status were examined. The two variables with the highest and most consistent relationship to participation were age (Mueller and others 1962; Hendee and others 1971) and gender (Mueller and others 1962; Ditton and others 1975), although these associations were fairly low. O'Leary and others (1982) reported that although these statistically aggregated independent variables provided correlations between an individual's lifestyle characteristics and participation in specific activities, these correlations provide little explanation because no theoretical conceptualization of the leisure phenomenon has been established.

### The 1985-87 Public Area Recreation Visitor Study

#### PARVS Background

The 1985-87 Public Area Recreation Visitor Study (PARVS) substantially added to the quantitative research on demographics and activity patterns of users of Federal and State recreation lands. PARVS was an interagency study including (at the time of this writing) 4 Federal agencies and 11 State recreation agencies. Visitors to over 280 recreation areas nationwide were interviewed, resulting in almost 32,000 usable responses using a complex survey instrument with over 1100 variables (Cordell and others 1987). Sites were selected by each agency according to their own needs, but generally represented their recreation area system. Groups were usually selected on a random basis (although in some cases, logistical restrictions necessitated a relaxing of this requirement), and individual respondents over age 11 within the groups were selected randomly as well.

This multi-agency study inventoried both on-site and annual recreation patterns of a representative sample of Federal and State recreation area visitors, as well as their travel patterns, annual recreation expenditures and current trip expenditures, and standard demographic characteristics of the randomly-selected respondent and each group member. Additional information describing the methods and purposes of PARVS has been documented by Cordell and others (1987). An overview of the demographics of the PARVS respondents in comparison with their recreation participation patterns is presented for initial review in this paper.

#### Limitations of PARVS

The reader should be advised of the limitations of this dataset before drawing conclusions which may extend beyond the limits of the data. First, the PARVS was conducted at the recreation sites sampled rather than being a sample of the entire U.S. population. Therefore, unweighted PARVS data represent people who use the sampled sites, rather than the general public. Second, the sample from which the data were drawn includes visitors to recreation sites from only four Federal agencies (Forest Service, National Park Service, Corps of Engineers, Tennessee Valley Authority) and State park agencies in 11 states (Georgia, Indiana, Kansas, Minnesota, Missouri, New Jersey, New Mexico, North Carolina, South Carolina, Tennessee, and Virginia). Data are not available for other Federal or State land management agencies, regional, county or municipal recreation areas, or private recreation area users. Although these data may represent users of Federal and State recreation areas in general, without including representative recreation areas from **all** land managing Federal and State agencies, it is inaccurate to say definitely that PARVS represents all people who use public recreation areas.

Some limitations are also specific to the topic of this paper: some possibly important demographic data, such as marital status, household characteristics and available leisure were not included in the PARVS instrument. Also, all data represent voluntary responses by the individuals selected. Therefore, if an

individual did not wish to reveal certain demographic characteristics, for example, family income or the presence of a disability, it was not recorded. In spite of these limitations, the PARVS provides the best currently available data covering the recreation patterns and demographic characteristics of users of Federal and State public recreation areas.

### PARVS Weighting

Many sociological studies weight their data to place additional emphasis on certain portions of the data. In the PARVS project, it was found that some socio-demographic groups were underrepresented when compared to other national studies of recreationists. As the PARVS was conducted at the recreation site to represent the users of the recreation areas, and many of the other recreation studies were conducted by telephone to represent the general population, it was possible to weight the PARVS data to better represent the entire recreating public by using comparisons with other studies.

Sufficient information is available in the PARVS survey instrument and other sources (such as the 1982-83 National Recreation Survey and the National Park Service's Fee Reports) to allow weighting to provide an approximation of the annual recreation participation patterns of the recreating U.S. population. The origins of the respondents (using unweighted data) roughly approximates the geographic distribution of the population of the United States, indicating that a good geographic representation of the U.S. population was achieved, so no geographic weighting was performed. PARVS data are weighted to correct for an overrepresentation of overnight users, and weighted to represent the demographic characteristics of the U.S. population using information from the U.S. Bureau of the Census.

The weighting procedure involved adjustment of the distribution of sampled PARVS respondents so that they proportionately represented the distribution of people over 11 years old within defined population strata. Weighting these PARVS data in this manner was necessary to enable pooling across strata. Four types of population strata were recognized for each identified community: gender, age, urban or rural residence, and race. These characteristics were common to both the Census of Population and the PARVS sample.

Underrepresentation or overrepresentation among the gender-age-residence-race-defined strata was identified by comparing the percentage distribution of respondents of the PARVS sample to the percentage distribution of the total population. Further adjustment was made to account for differences in probabilities of being included in the PARVS sample. The basic determinant of this probability differential was between day and overnight users, and whether the interview site was administered by a Federal or State agency. Sampling rates and schedules differed among these sampling strata.

Each PARVS respondent was subsequently assigned a population-to-sample distributional ratio which weighted all data provided by each respondent. This made their responses proportionate to the national proportion of the population in the State matching the respondent's profile. These weighted responses then represented the equivalent of an origin-based survey for obtaining estimates of year-round participation, socioeconomic characteristics, residence situation, population, and other attributes of subregional communities from which recreation trips were generated.

The PARVS includes most of the commonly used sociodemographic variables used in conjunction with outdoor recreation participation models. Below is a review of the variables of age, gender, income, education, occupation, race, and disability as they are related to recreation participation. Following a review of the available literature for each of these variables, current information obtained from the 1985-87 PARVS is provided. Note that the PARVS data presented in this paper are just a sample of the information available in the PARVS, due to space restrictions. Additional information will be provided in the forthcoming Forest Service's Renewable Resources Planning Act Assessment of Outdoor Recreation and Wilderness and subsequent technical supporting documents.

## The Influence of Age on Outdoor Recreation Participation

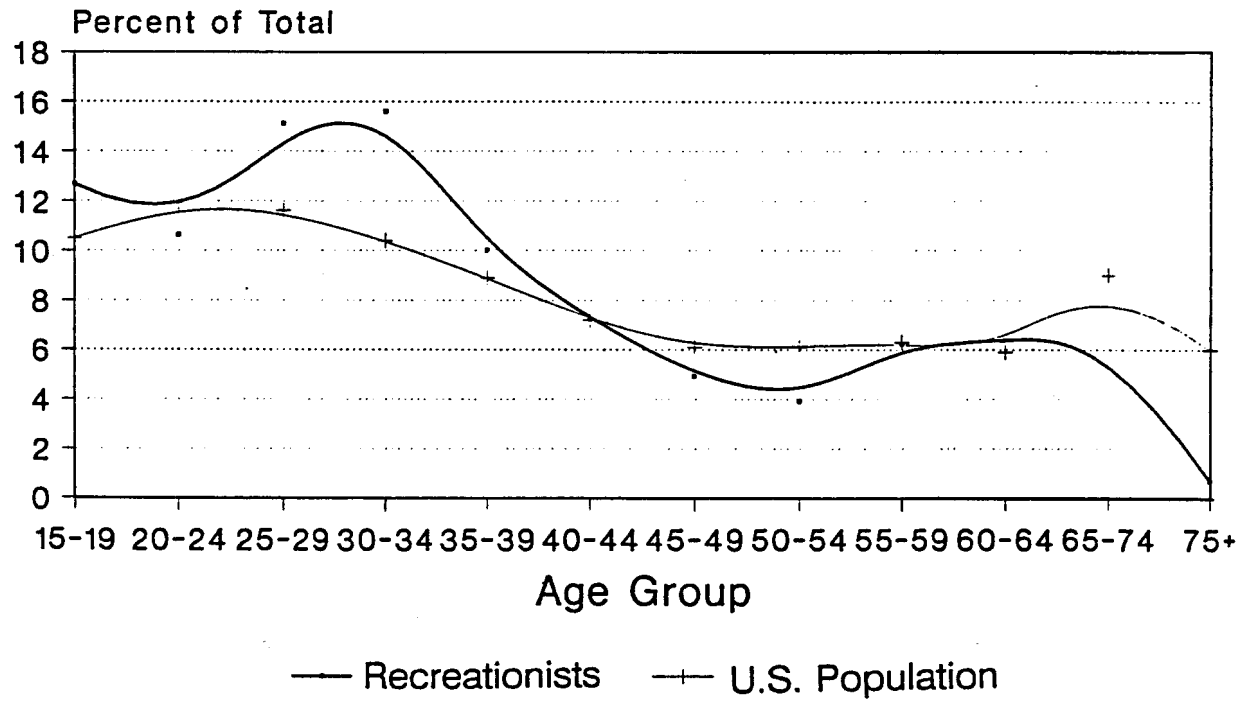
Age has been shown to be perhaps the single demographic variable with the most conclusive relationship with recreation participation. Largely, as one gets older, one's physical abilities decline and participation in recreation changes from more physical to less physical pursuits, and eventually all outdoor recreation participation declines with advanced age. That older persons participate significantly less in physical recreation than younger persons has been well documented (Kenyon 1966; Snyder and Spreitzer 1973; President's Council on Physical Fitness and Sports 1973; Unkle and Eskridge 1977). O'Leary and others (1982) reported several studies which noted either a decrease in participation with age or a shift toward participation in more sedentary types of

activities with increasing age, with the strength of the relationship varying with different studies. Zuzanek (1978) reviewed the literature on recreation participation and aging and noted a decrease in both number of activities and rates of participation with age. Babchuck and Gordon (1962) indicate that as age increases, affiliation and participation change from one type of social association to another. Their work indicates that there is a cycle of different associations related to recreation participation that parallels the life cycle.

There may be masking effects of age in relation to other variables. Unkle (1981) found a decline in participation with increasing age, but the effect of age on participation differs for females and males (discussed further in a later section). Also, participation was found to decrease faster with age for single persons than for married persons or those with children. Some barriers to participation increase with stage in the family life cycle, rather than simple biological age. For example, couples with young children had less free time than during some other life cycle stages (Witt and Goodale 1981).

Information from the PARVS tends to confirm much of the information above. Figure 1 shows that individuals under age 45 are overrepresented as visitors to resource-based Federal and State recreation areas in the United States compared to the U.S. population. Table 1 provides a detailed accounting of the percent of individuals within 12 age groups who participate in each of 25 activities. This table shows that for some activities, such as water skiing, pool swimming, and backpacking, percent of the age group who participates at least one time annually declines with age. Other activities, such as developed camping, are relatively age-independent. Some activities, such as walking for pleasure, actually increase in percentage of the age group who participate as age increases.

Figure 2 shows the patterns of length of stay on site by age group of the respondent. Both means and median length of stay increased for older individuals, indicating that older individuals stay longer on site than do younger individuals, up to about age 75. Other data from PARVS (which are presented in the RPA Assessment of Outdoor Recreation and Wilderness) indicate that some older individuals tend to take long single-destination trips, which increases the mean travel distance. A similar pattern is shown for travel time.




SOURCE: 1985-87 PARVS, n=31,995; Census, 1986.

Figure 1.—Age of visitors to Federal and State recreation areas.

Table 1.--Annual participation in outdoor recreation activities, by percentage of individuals within each age group participating one or more times annually

| Activity | Age group | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 | 45-49 | 50-54 | 55-59 | 60-64 | 65-74 | 75+ |
| | Percent | | | | | | | | | | | |
| Land activities: | | | | | | | | | | | | |
| Backpacking | 15.4 | 14.2 | 16.0 | 12.5 | 10.4 | 8.4 | 6.7 | 4.9 | 3.8 | 2.0 | 2.8 | 3.8 |
| Camping in developed campgrounds | 32.4 | 32.6 | 37.6 | 38.6 | 38.1 | 36.1 | 33.8 | 36.9 | 32.1 | 33.6 | 31.4 | 17.4 |
| Camping in primitive campgrounds | 14.6 | 17.1 | 18.3 | 17.3 | 15.7 | 14.7 | 11.3 | 10.9 | 8.4 | 8.0 | 7.0 | 7.1 |
| Driving vehicles or motorcycles off-road | 16.7 | 13.5 | 11.2 | 7.2 | 8.6 | 7.3 | 6.4 | 4.8 | 4.7 | 2.3 | 3.6 | 1.5 |
| Day hiking | 18.3 | 25.3 | 29.8 | 29.1 | 27.9 | 26.7 | 23.1 | 18.7 | 20.8 | 14.9 | 16.9 | 12.2 |
| Horseback riding | 15.5 | 11.1 | 9.8 | 9.9 | 8.4 | 7.6 | 6.9 | 3.3 | 2.8 | 2.6 | 1.8 | 1.6 |
| Wildlife observation & photography | 26.3 | 32.2 | 38.4 | 41.9 | 41.2 | 40.7 | 40.3 | 38.8 | 39.5 | 39.7 | 35.6 | 30.1 |
| Picnicking | 38.2 | 45.0 | 50.5 | 55.2 | 52.6 | 48.2 | 45.6 | 44.3 | 43.5 | 38.2 | 36.4 | 45.6 |
| Driving for pleasure | 33.1 | 38.9 | 39.9 | 42.7 | 36.4 | 39.8 | 39.5 | 44.2 | 38.6 | 38.6 | 40.4 | 44.2 |
| Sightseeing | 35.7 | 41.2 | 45.0 | 50.2 | 50.5 | 48.9 | 53.6 | 53.4 | 54.5 | 54.5 | 55.3 | 47.3 |
| Big game hunting | 11.5 | 10.6 | 10.8 | 9.4 | 11.7 | 10.7 | 11.1 | 8.7 | 7.2 | 6.6 | 5.8 | 4.6 |
| Waterfowl hunting | 15.0 | 12.6 | 13.5 | 11.4 | 12.7 | 10.6 | 10.3 | 9.8 | 8.4 | 6.6 | 7.7 | 5.2 |
| Walking for pleasure | 30.1 | 34.3 | 40.6 | 43.8 | 44.4 | 45.8 | 47.5 | 47.6 | 50.3 | 49.7 | 49.5 | 43.6 |
| Water activities: | | | | | | | | | | | | |
| Canoeing or kayaking | 19.1 | 16.8 | 18.5 | 16.2 | 14.5 | 13.6 | 11.2 | 7.3 | 7.3 | 5.0 | 3.1 | 4.8 |
| Sailing | 11.7 | 9.6 | 8.9 | 8.6 | 7.2 | 6.7 | 7.4 | 4.6 | 4.8 | 3.2 | 4.1 | 1.5 |
| Outdoor pool swimming | 68.8 | 60.1 | 56.9 | 58.4 | 54.7 | 49.6 | 42.4 | 32.5 | 34.0 | 29.9 | 21.8 | 14.8 |
| Water skiing | 25.0 | 21.8 | 16.4 | 12.6 | 10.8 | 9.1 | 8.4 | 6.5 | 4.4 | 2.6 | 2.2 | 0.4 |
| Motorboating | 26.5 | 24.5 | 23.3 | 22.4 | 22.7 | 22.4 | 22.2 | 22.1 | 19.9 | 17.9 | 13.3 | 16.0 |
| Cold Freshwater fishing | 15.8 | 15.3 | 18.6 | 16.8 | 17.8 | 16.7 | 16.2 | 15.2 | 13.9 | 12.4 | 15.8 | 14.5 |
| Warm freshwater fishing | 29.8 | 26.9 | 31.4 | 31.2 | 33.2 | 30.9 | 31.9 | 33.0 | 32.1 | 30.5 | 27.9 | 30.8 |
| Snow activities: | | | | | | | | | | | | |
| Cross-country skiing or ski touring | 6.1 | 7.2 | 9.6 | 8.2 | 6.88 | 6.6 | 6.0 | 5.6 | 5.7 | 2.9 | 3.6 | 4.3 |
| Downhill skiing | 16.3 | 15.8 | 15.2 | 9.7 | 9.7 | 7.8 | 8.1 | 4.2 | 4.4 | 2.1 | 1.8 | 1.4 |
| Ice skating | 11.1 | 8.6 | 6.4 | 7.4 | 6.5 | 4.7 | 3.9 | 1.5 | 2.0 | 0.9 | 0.6 | 1.0 |
| Sledding | 20.4 | 8.8 | 10.3 | 11.2 | 10.8 | 6.5 | 5.4 | 2.8 | 2.2 | 1.7 | 1.1 | 1.7 |
| Snowmobiling | 6.1 | 3.9 | 2.9 | 1.8 | 1.9 | 2.0 | 1.9 | 1.7 | 1.8 | 1.5 | 0.7 | 1.9 |

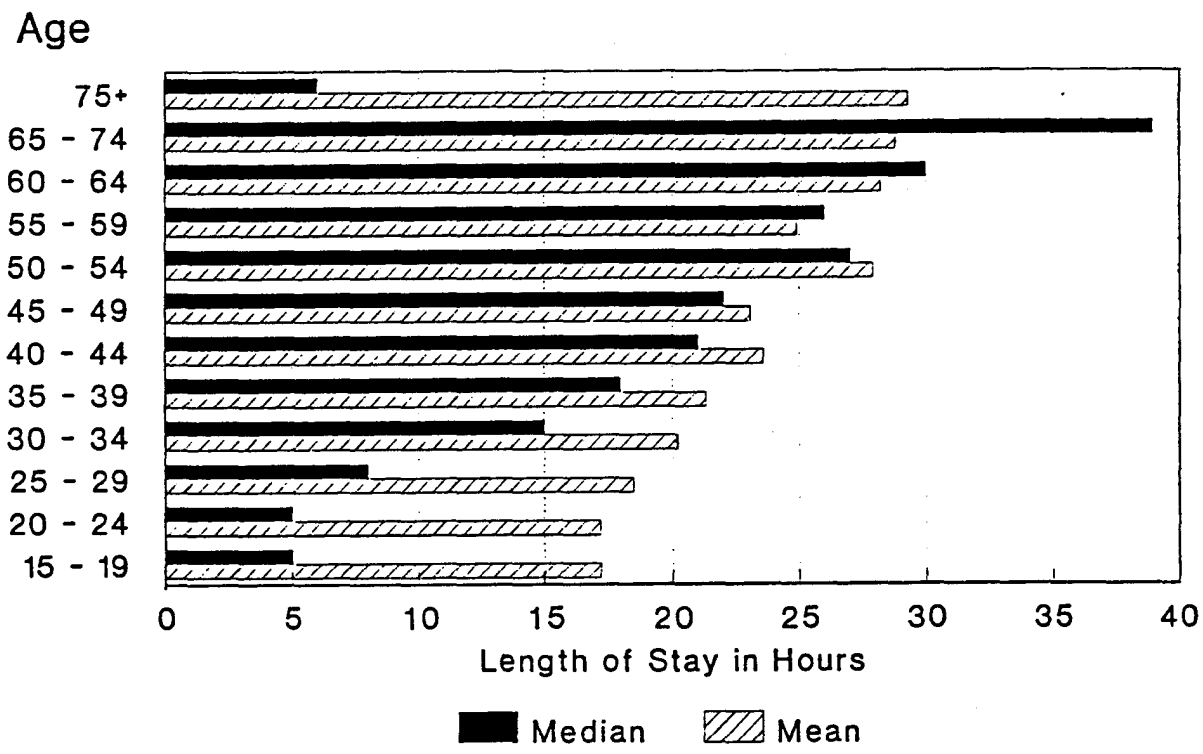
Source: 1985-87 Public Area Recreation Visitor Survey, n = 31,995.

Note: An example of how to interpret this table is as follows: 15.4 percent of all 15-19 year old respondents in the PARVS project reported that they participated in backpacking at least one time during the 12 months prior to the date they were interviewed.

Several conclusions can be made from the data presented here. First, resource-based Federal and State recreation areas serve a larger share of the individuals under age 40 than those over that age. This underrepresentation of older individuals is slightly reduced during early retirement years. Second, activity preferences differ between young and old individuals, following a fairly gradual pattern. While participation in most outdoor recreation activities is less among older individuals, participation in some activities increases. Third, travel patterns among older individuals differ from younger individuals. Older individuals tend to travel further and stay longer at the recreation area than do younger individuals.

## The Influence of Gender on Outdoor Recreation Participation

In most human societies, biological and cultural sexual identities are covariant elemental properties. The difference is that biological capacities are insufficient among many primates for complete social recognition of a particular gender. In other words, while sexual identity, like age, has a biological component, its reality in human societies emerges only through its social component. Like age, every individual member of a social group is also the possessor of a sexual identity (Cheek and Burch 1976). This sexual identity appears to be related to recreation behavior for many activities.




Source: 1985-1987 Public Area Recreation Visitor Survey, n=31,995.

Figure 2.—Median and mean length of stay on site by respondent age group.

Gender has been shown to be a significant differentiating variable in several participation studies. Males apparently participate more frequently in strenuous activities than females, but a more equal balance between males and females exists in other outdoor recreation activities (O'Leary and others 1982). Hendee (1969) demonstrating the activity specific influence of gender by showing that males dominated hunting and fishing activities, but a more equal participation balance between males and females existed in other outdoor recreation activities. Although the amount of variance explained was relatively low, Kelly (1980) found that gender and family life cycle accounted for most of the variance in forest-based and water-based recreation. Young (1983), in analyzing wilderness participation, also found gender to be an important variable in explaining who would use the wilderness. In these studies, as in most studies of differences between females and males in recreation participation (e.g., Unkle 1981), females were found to participate less frequently than males in outdoor recreation. Not only did Gentry and Doering (1979) find differences in participation rates between males and females, but they found differences in their attitudes toward leisure activities.

Zuzanek (1978) summarizes several recreation surveys and concludes that: 1) the overall participation rates in leisure activities do not differ much between men and women; 2) women take a somewhat greater part in cultural activities while lagging behind men in outdoor recreation, active sport, sport spectatorship, and home-gardening; 3) nonworking women show slightly higher participation rates than employed women in most leisure activities except going out to dinner, active sport, and sport spectatorship; 4) the total number of leisure activities in which women engage may be slightly smaller than that of men; and 5) the similarities in leisure participation rates between the sexes are more striking than the differences.

Like age, there may also be some interactive masking effects between gender and other socio-demographic variables. Presently, relatively little consistent information is available about physical recreation participation of females in different stages of the life cycle and with different role functions (Unkle 1981). Whatever the differences or similarities between female and male involvement in physical recreation, they are not static throughout adulthood (Unkle, 1981). Kenyon (1966) and Robinson (1967) reported that the decline in participation occurs earlier in life for women than for men. Results with reference to the influence of marital status and presence of children are not consistent. For example, Robinson (1967) reported that no significant relationship exists between either marital status or number of children, when age

and level of education are controlled. Hobart (1975), however, found that young, single persons have higher participation rates than their married counterparts. He also reported that marital status is a more powerful predictor of participation for young women than for young men. Hall's (1973) data indicated that for women, participation declines significantly with marriage. She further concluded that the presence of young children especially reduces participation of women. In a study of camping participation by Young and Kent (1985), females were more influenced by "important others" than were males. Males, on the other hand, were more influenced by their own attitudes about going camping which were mostly positive, although not as positive as the females. Of the referents in that study, the beliefs of one's family were the most important in making decisions to camp.

Information from the PARVS provides current information on the recreation patterns of males and females who visit Federal and State recreation areas. Table 2 shows that some activities, such as big game hunting, are largely dominated by men, where others, such as camping in developed campgrounds, are nearly equal in gender ratio. Some activities, such as walking for pleasure, show that a higher percentage

Table 2.--Percentage of recreationist participating in outdoor recreation activities at resource-based recreation areas by respondent gender

| Activity | Men | | Women | |
|---|---|---|---|---|
| | Men participating | All participants | Women participating | All participants |
| | Percent | | | |
| Land activities: | | | | |
| Backpacking | 2.6 | 59.6 | 1.7 | 40.4 |
| Camping in developed in campgrounds | 15.9 | 50.1 | 15.1 | 49.9 |
| Camping in primitive campgrounds | 4.9 | 55.5 | 3.7 | 44.5 |
| Driving vehicles or motorcycles off-road | 2.5 | 66.8 | 1.2 | 33.2 |
| Day hiking | 15.9 | 48.4 | 16.2 | 51.6 |
| Horseback riding | 1.0 | 45.5 | 1.2 | 54.5 |
| Wildlife observation & photography | 17.4 | 44.3 | 21.4 | 55.7 |
| Picnicking | 24.9 | 40.2 | 35.3 | 59.8 |
| Driving for pleasure | 25.1 | 47.3 | 26.7 | 52.7 |
| Sightseeing | 43.6 | 47.1 | 46.6 | 52.9 |
| Big game hunting | 4.1 | 90.8 | 0.4 | 9.2 |
| Waterfowl hunting | 2.5 | 93.0 | 0.2 | 7.0 |
| Walking for pleasure | 28.4 | 41.0 | 38.9 | 59.0 |
| Water activities: | | | | |
| Canoeing or kayaking | 6.2 | 54.6 | 5.0 | 45.4 |
| Sailing | 0.7 | 57.5 | 0.5 | 42.5 |
| Outdoor pool swimming | 23.6 | 42.6 | 30.3 | 57.4 |
| Water skiing | 2.4 | 55.2 | 1.8 | 44.8 |
| Motorboating | 7.1 | 60.7 | 4.4 | 39.3 |
| Cold Freshwater fishing | 6.9 | 61.9 | 4.0 | 38.1 |
| Warm freshwater fishing | 16.4 | 65.9 | 8.1 | 34.2 |
| Snow activities: | | | | |
| Cross-country skiing or ski touring | 0.4 | 60.4 | 0.2 | 39.6 |
| Downhill skiing | 0.2 | 59.3 | 0.2 | 40.7 |
| Ice skating | 0.1 | 85.6 | 0.0 | 14.5 |
| Sledding | 0.1 | 69.2 | 0.0 | 30.8 |
| Snowmobiling | 0.1 | 67.6 | 0.0 | 32.4 |

Source: 1985-87 Public Area Recreation Visitors Survey, n = 31,995.

Note: An example of how to interpret this table is as follows: 2.6 percent of all males contacted in the PARVS project participated in backpacking during their recreation visit at the site where they were interviewed. Males comprised 60 percent of all recreation visitors contacted in the PARVS who participated in backpacking during their recreation visit to the area where they were interviewed.

of females than males participate. Differences in travel time and distance were minor.

## The Influence of Income on Outdoor Recreation Participation

In a review of studies using income as a predictor for recreation participation, O'Leary and others (1982) found mixed results. They concluded: income does not condition recreation behavior—an individual must accept the patterns of a social class for it to reflect participation patterns in leisure activities. In other words, income does not form tastes, but rather limits their expression.

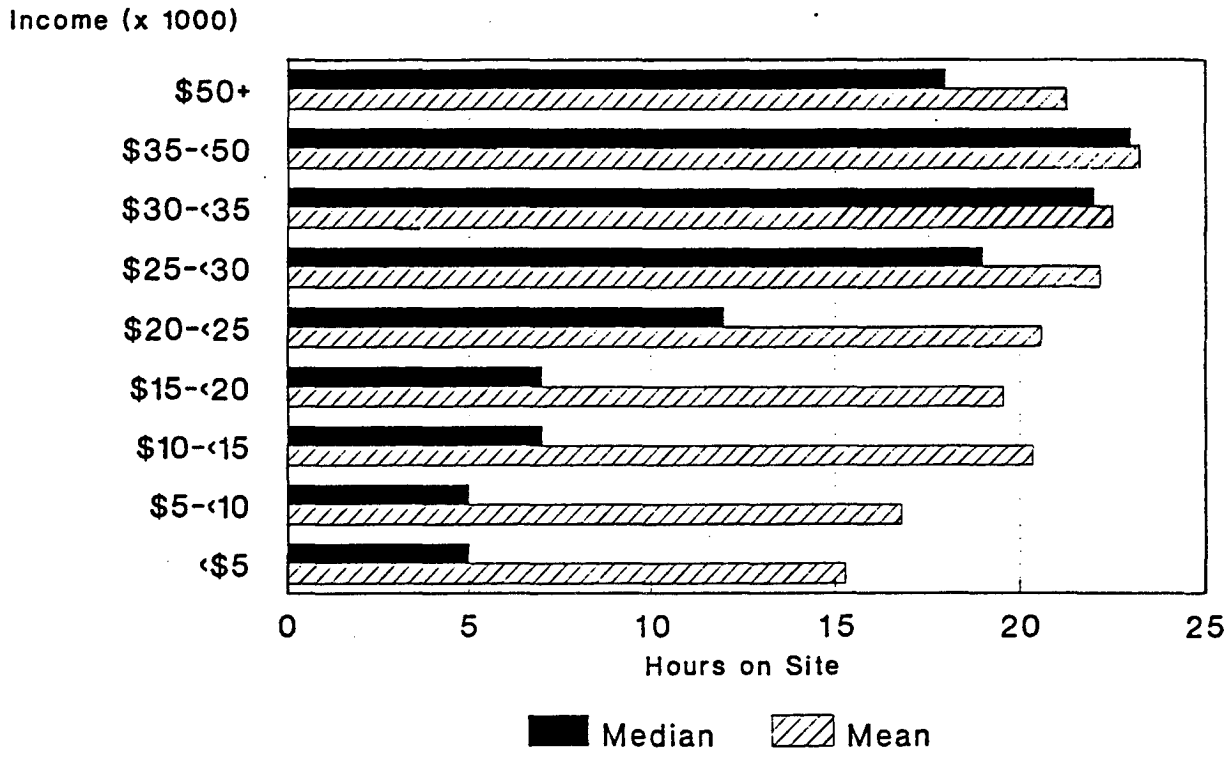
The following information from the PARVS describes recreation participation in comparison with the respondent's family income before taxes. Table 3 provides detailed information on the percentage of recreationists participating one or more times annually, by their family income. These data indicate that annual participation in some activities is relatively independent of income, such as walking for pleasure. Other capital-intensive recreation activities, such as sailing, are highly income-dependent. Curiously, backpacking has a higher percentage of participation in both low and high income groups, but less participation by middle-income groups.

Table 3.--Percentage of recreationists participating once or more annually in outdoor recreation activities by family income

| Activity | Family income (thousands) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Less than $ 5,000 | $5,000-9,999 | $10,000-14,999 | $15,000-19,999 | $20,000-24,999 | $25,000 29,999 | $30,000-34,999 | $35,000-49,999 | $50,000+ |
| | Percent | | | | | | | | |
| Land activities: | | | | | | | | | |
| Backpacking | 16.6 | 10.9 | 10.3 | 8.3 | 9.5 | 10.5 | 9.8 | 11.0 | 14.6 |
| Camping in developed campgrounds | 29.6 | 29.9 | 34.6 | 34.9 | 39.3 | 36.6 | 38.3 | 37.4 | 33.7 |
| Camping in primitive campgrounds | 15.8 | 16.0 | 15.1 | 14.5 | 16.0 | 14.8 | 14.8 | 14.5 | 14.0 |
| Driving vehicles or motorcycles off-road | 12.7 | 9.8 | 9.1 | 10.3 | 9.2 | 8.6 | 8.4 | 9.8 | 8.7 |
| Day hiking | 23.0 | 22.3 | 22.2 | 22.3 | 23.7 | 23.3 | 24.8 | 27.23 | 28.51 |
| Horseback riding | 11.6 | 9.1 | 7.9 | 9.3 | 7.6 | 7.3 | 9.1 | 8.62 | 10.01 |
| Wildlife observation & photography | 30.8 | 28.6 | 32.4 | 34.8 | 35.6 | 36.4 | 38.5 | 42.36 | 45.11 |
| Picnicking | 47.6 | 47.90 | 47.4 | 49.0 | 48.4 | 48.6 | 47.0 | 48.2 | 43.1 |
| Driving for pleasure | 35.1 | 40.73 | 41.0 | 41.1 | 39.4 | 41.4 | 37.6 | 39.9 | 37.9 |
| Sightseeing | 42.5 | 43.52 | 42.6 | 45.8 | 47.7 | 48.1 | 46.4 | 52.8 | 51.7 |
| Big game hunting | 9.4 | 8.24 | 12.3 | 11.0 | 11.5 | 11.8 | 11.1 | 10.3 | 7.6 |
| Waterfowl hunting | 10.9 | 11.30 | 12.7 | 14.7 | 13.0 | 12.6 | 13.0 | 12.4 | 9.8 |
| Walking for pleasure | 38.3 | 37.44 | 40.9 | 41.1 | 43.2 | 42.4 | 41.9 | 45.2 | 43.7 |
| Water activities: | | | | | | | | | |
| Canoeing or kayaking | 13.6 | 10.7 | 10.8 | 14.1 | 13.3 | 11.9 | 15.2 | 15.24 | 18.10 |
| Sailing | 8.0 | 5.5 | 4.8 | 5.7 | 5.2 | 6.0 | 7.8 | 8.10 | 14.80 |
| Outdoor pool swimming | 51.7 | 46.2 | 46.5 | 48.8 | 47.9 | 50.8 | 51.9 | 52.97 | 55.34 |
| Water skiing | 12.7 | 7.8 | 8.5 | 11.4 | 10.5 | 13.8 | 14.2 | 14.5 | 17.9 |
| Motorboating | 19.6 | 15.1 | 18.3 | 21.3 | 18.4 | 22.2 | 22.6 | 25.8 | 29.2 |
| Cold freshwater fishing | 17.0 | 16.9 | 16.7 | 16.9 | 17.4 | 18.4 | 18.0 | 18.6 | 16.1 |
| Warm freshwater fishing | 24.2 | 32.7 | 31.9 | 34.7 | 33.9 | 33.1 | 32.3 | 31.43 | 27.72 |
| Snow activities: | | | | | | | | | |
| Cross-country skiing or ski touring | 6.22 | 7.95 | 4.57 | 5.45 | 5.59 | 5.97 | 7.30 | 8.02 | 10.25 |
| Downhill skiing | 11.17 | 8.03 | 6.97 | 7.88 | 7.45 | 7.29 | 9.52 | 10.21 | 18.74 |
| Ice skating | 8.48 | 4.15 | 4.51 | 5.89 | 4.17 | 4.13 | 6.33 | 7.80 | 8.39 |
| Sledding | 9.92 | 7.69 | 7.70 | 7.21 | 9.25 | 7.58 | 9.96 | 10.98 | 10.78 |
| Snowmobiling | 2.85 | 3.46 | 1.86 | 2.58 | 2.29 | 2.49 | 2.68 | 3.17 | 3.44 |

Source: 1985-87 Public Area Recreation Study, n = 31,995.

Note: An example of how to interpret this table is as follows: 16.6 percent of all individuals interviewed in the PARVS who have annual incomes of less $5,000 participated in backpacking at least once during the 12 months prior to their interview.




Source: 1985-1987 Public Area Recreation Visitor Survey, n=31,995

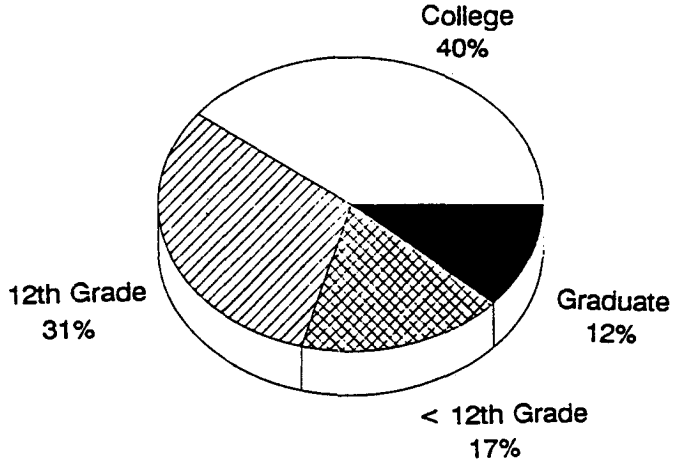
Figure 3.—Median and mean length of stay on site by respondent family income.

Figure 3 shows that individuals with higher family incomes tend to stay longer on site than others. Other PARVS data, not presented here, show that median one-way travel distance increases in the higher income groups. There may be intervening variables (such as age) other than income alone that account for these findings.

## The Influence of Education on Outdoor Recreation Participation

In a review of the literature related to education and participation, Zuzanek (1978) concludes: 1) the rates of participation for most leisure and recreational activities and their spectrum increase almost linearly with growing level of education; 2) there may be a saturation point within this relationship at the very highest levels of college education; and 3) the few leisure activities which do not correlate positively with education include TV watching, radio listening, playing cards, special hobbies such as woodworking and knitting, attending sports events, and fishing and hunting. White (1975) found education, when used in combination with age and income, were the best predictors of recreation participation.

The PARVS also provides information on the recreation patterns of individuals who use Federal and State public recreation areas, by education group. Figure 4 shows that college-educated individuals are the largest group of users of Federal and




Source: 1985-1987 Public Area Recreation Visitor Survey, n=31,995

Figure 4.—Education levels of participants in resource-based public recreation.

Table 4.--Percentage of recreationists participating in outdoor recreation activities one or more times annually, by education level, and total participation by education level

| Activity | Less than High School | | High School | | College | | Graduate School | |
|---|---|---|---|---|---|---|---|---|
| | Within grade | Total participants | Within grade | Total participants | Within grade | Total participants | Within grade | Total participants |
| | Percent | | | | | | | |
| Land activities: | | | | | | | | |
| Backpacking | 9.6 | 15.8 | 6.3 | 18.6 | 12.8 | 47.9 | 16.0 | 17.8 |
| Camping in developed campgrounds | 33.5 | 16.6 | 35.6 | 31.5 | 36.1 | 40.4 | 34.6 | 11.5 |
| Camping in primitive campgrounds | 11.6 | 14.1 | 12.9 | 28.0 | 16.1 | 44.4 | 16.4 | 13.4 |
| Driving vehicles or motorcycles off-road | 12.0 | 23.0 | 9.4 | 32.1 | 8.6 | 37.1 | 6.0 | 7.73 |
| Day hiking | 16.6 | 12.0 | 17.5 | 22.8 | 28.8 | 47.2 | 36.9 | 17.99 |
| Horseback riding | 12.3 | 24.1 | 6.8 | 24.0 | 9.1 | 40.3 | 8.8 | 11.62 |
| Wildlife observation & photography | 25.2 | 11.9 | 29.6 | 25.1 | 43.7 | 46.8 | 50.0 | 16.23 |
| Picnicking | 42.2 | 15.8 | 44.2 | 29.5 | 49.2 | 41.6 | 52.1 | 13.1 |
| Driving for pleasure | 33.1 | 14.8 | 39.2 | 31.3 | 41.7 | 42.1 | 39.2 | 11.8 |
| Sightseeing | 39.8 | 14.5 | 45.6 | 29.8 | 50.7 | 41.8 | 56.3 | 13.8 |
| Big game hunting | 12.7 | 22.4 | 12.3 | 38.9 | 8.3 | 33.0 | 4.8 | 5.7 |
| Waterfowl hunting | 14.2 | 21.3 | 14.0 | 37.7 | 10.0 | 34.0 | 6.9 | 7.0 |
| Walking for pleasure | 32.6 | 13.5 | 40.1 | 29.8 | 45.7 | 42.9 | 49.3 | 13.8 |
| Water activities: | | | | | | | | |
| Canoeing or kayaking | 13.5 | 16.8 | 9.8 | 21.9 | 16.3 | 45.93 | 18.41 | 15.40 |
| Sailing | 6.5 | 14.7 | 4.1 | 16.7 | 9.7 | 49.19 | 12.82 | 19.43 |
| Outdoor pool swimming | 55.5 | 18.9 | 45.6 | 27.8 | 52.9 | 40.78 | 54.74 | 12.54 |
| Water skiing | 14.8 | 19.7 | 11.9 | 28.4 | 13.9 | 42.0 | 11.0 | 9.9 |
| Motorboating | 21.8 | 17.0 | 23.3 | 32.6 | 22.6 | 39.9 | 20.0 | 10.5 |
| Cold freshwater fishing | 16.3 | 17.3 | 17.1 | 32.4 | 16.7 | 40.1 | 14.5 | 10.3 |
| Warm freshwater fishing | 35.2 | 19.8 | 36.2 | 36.5 | 28.0 | 35.7 | 21.2 | 8.0 |
| Snow activities: | | | | | | | | |
| Cross-country skiing or ski touring | 4.75 | 12.41 | 3.36 | 15.73 | 8.05 | 47.58 | 13.82 | 24.28 |
| Downhill skiing | 9.91 | 16.99 | 5.70 | 17.51 | 12.22 | 47.45 | 15.63 | 18.04 |
| Ice skating | 7.74 | 22.00 | 3.75 | 19.07 | 6.85 | 44.09 | 7.76 | 14.85 |
| Sledding | 14.85 | 27.18 | 8.55 | 28.07 | 8.40 | 34.82 | 8.05 | 9.92 |
| Snowmobiling | 3.56 | 22.12 | 3.00 | 33.45 | 2.58 | 36.27 | 1.95 | 8.16 |

Source: 1985-87 Public Area Recreation Survey, n = 31,995.

Note: An example of how to interpret this table is as follows: of all respondents within the PARVS who had less than a high school education, 9.6 percent participated in backpacking at least once in the 12 months before they were interviewed. Those with less than a high school education comprised 15.8 percent of all recreationists in the PARVS who participated in backpacking at least once in the previous 12 months.

State recreation areas. Table 4 gives the annual recreation participation patterns of recreationists by education category. Figure 5 shows that high-school educated respondents stay the longest at the recreation areas where they were interviewed. Other data from the PARVS shows that highly educated visitors tend to travel farther to their recreation areas.

## The Influence of Occupation on Outdoor Recreation Participation

Occupation has been used as a partial determinant of recreation participation in many studies, however, with mixed results. O'Leary and others (1982) reported that several authors recognize a general, positive relationship between the amount and type of recreation and participation, and white collar occupations. Cheek and Burch (1976), however, place relatively little importance on occupation as a

determinant of recreation patterns, other than as a means to provide income sufficient for participation in certain activities. Zuzanek (1978), however, provides an alternate series of conclusions from a review of the literature on occupation/recreation associations:

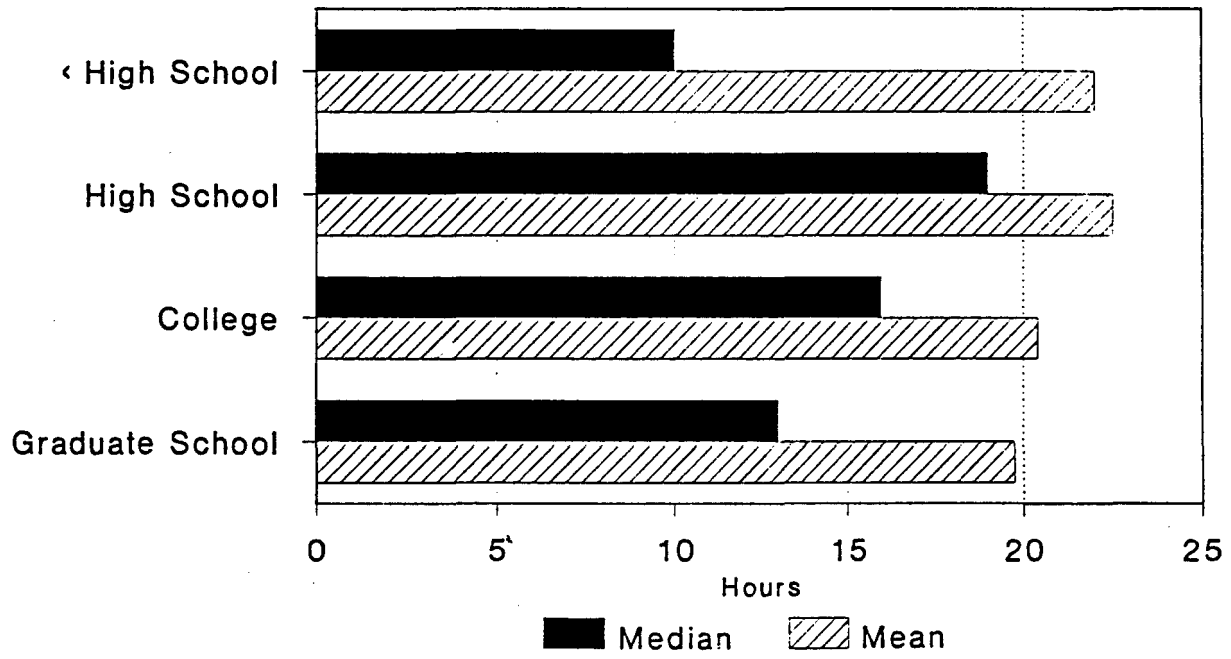
1) Participation in leisure activities is closely and positively associated with the social status and prestige of one's occupation. Professionals seem to be participating in a wider spectrum of leisure activities and at a higher rate than other occupational groups, while laborers and resource workers report the lowest rates of participation.

2) Although attempts to "tie" leisure and recreational activities with particular occupations are subject to considerable disagreement between researchers, it appears that at least some activities acquire "status" through association. Sailing, golf, bridge, participation in high arts, to name a few, usually carry a higher occupational and class status, while bingo, softball, attending drive-in theaters, wrestling, etc., are associated with the lower or lower middle class status. A large and probably increasing group of recreational activities such as swimming, camping, recreational driving, etc., seem to lack clear status characteristics.

3) Some authors argue that intrastrata differences in rates of leisure participation caused by the type of work, age composition of particular strata, etc., may be, on occasion, more pronounced than interstrata differences (Gerstl 1961; Wilensky 1963).

Overall, it seems that there is no consensus among recreation researchers as to the appropriateness of using occupation as a predictor of recreation participation, regardless of any apparent correlations. It is possible that other factors such as income and social status may be better measures, while occupation is only related secondarily, through these other factors.

Again, the Public Area Recreation Visitor Study (PARVS) provides current data on the relationship between occupation and recreation participation. PARVS asked the respondent to choose from among a list of general Census occupation categories for their type of occupation. A comparison of this information with the recreation participation patterns, specifically participation in the activity one or more times in the past 12 months, yielded the information presented in table 5 (in two parts). Although occupation was compared with mean and median length of stay on site and travel distance, these comparisons were inconclusive at this preliminary level of data investigation.




Source: 1985-1987 Public Area Recreation Visitor Survey, n=31,995

Figure 5.—Median and mean length of stay on site by respondent education, for primary or single-destination trips.

Table 5.--Percentage of recreationist participating once or more annually in outdoor recreation activities, by occupation

| Main activity | Occupation | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Professional | Farmers | Administers & managers | Kindred or clerical | Sales workers | Craft workers | Operatives workers | Service workers |
| | Percent | | | | | | | |
| Land activities: | | | | | | | | |
| Backpacking | 14.1 | 5.9 | 10.0 | 6.1 | 8.0 | 7.8 | 7.25 | 9.29 |
| Camping in developed campgrounds | 37.0 | 33.2 | 36.3 | 35.0 | 32.0 | 37.1 | 35.88 | 35.08 |
| Camping in primitive campgrounds | 17.33 | 11.4 | 13.8 | 10.8 | 12.2 | 16.7 | 14.0 | 13.7 |
| Driving vehicles or motorcycles off-road | 7.6 | 13.2 | 8.1 | 6.1 | 9.3 | 10.6 | 10.7 | 9.4 |
| Day hiking | 32.0 | 16.2 | 23.7 | 22.9 | 17.2 | 18.7 | 15.1 | 21.1 |
| Horseback riding | 8.9 | 11.3 | 7.5 | 6.9 | 6.7 | 6.5 | 7.2 | 9.7 |
| Wildlife observation & photography | 46.3 | 31.1 | 41.6 | 33.4 | 34.5 | 32.1 | 27.6 | 32.0 |
| Picnicking | 49.8 | 34.7 | 46.2 | 49.3 | 44.4 | 42.5 | 41.4 | 49.3 |
| Driving for pleasure | 40.7 | 36.9 | 40.5 | 38.2 | 41.4 | 36.7 | 38.9 | 40.5 |
| Sightseeing | 52.6 | 48.7 | 50.1 | 49.3 | 46.0 | 43.2 | 44.5 | 47.6 |
| Big game hunting | 7.7 | 17.2 | 9.4 | 5.2 | 9.0 | 20.6 | 21.7 | 9.8 |
| Waterfowl hunting | 9.5 | 28.3 | 11.2 | 5.1 | 11.6 | 19.9 | 22.8 | 12.7 |
| Walking for pleasure | 46.7 | 30.2 | 42.5 | 50.3 | 40.1 | 32.7 | 34.4 | 41.5 |
| Water activities: | | | | | | | | |
| Canoeing or kayaking | 17.4 | 11.5 | 14.2 | 8.7 | 10.7 | 12.1 | 10.5 | 14.0 |
| Sailing | 10.1 | 1.9 | 9.7 | 5.8 | 7.6 | 4.2 | 3.4 | 5.6 |
| Outdoor pool swimming | 50.8 | 41.6 | 50.4 | 50.6 | 50.6 | 40.5 | 42.8 | 53.3 |
| Water skiing | 12.3 | 10.9 | 13.4 | 9.6 | 14.2 | 11.0 | 10.9 | 12.7 |
| Motorboating | 22.4 | 23.1 | 24.1 | 19.7 | 23.4 | 23.8 | 23.4 | 22.9 |
| Cold freshwater fishing | 16.5 | 18.3 | 18.3 | 10.7 | 15.8 | 21.6 | 18.4 | 15.3 |
| Warm freshwater fishing | 27.9 | 41.7 | 30.87 | 26.2 | 32.3 | 43.3 | 43.50 | 35.5 |
| Snow activities: | | | | | | | | |
| Cross-country skiing or ski touring | 10.2 | 6.0 | 8.0 | 4.4 | 4.2 | 5.3 | 2.5 | 7.0 |
| Downhill skiing | 12.9 | 4.3 | 10.3 | 6.3 | 10.7 | 6.2 | 4.3 | 11.0 |
| Ice skating | 6.7 | 3.3 | 5.4 | 5.1 | 4.6 | 3.3 | 2.2 | 8.3 |
| Sledding | 8.0 | 9.3 | 6.9 | 6.6 | 6.9 | 7.6 | 7.3 | 11.4 |
| Snowmobiling | 2.6 | 9.8 | 2.3 | 1.7 | 2.3 | 2.5 | 2.6 | 3.6 |

Table 5, part 2.--Percentage of recreationist participating once or more annually in outdoor recreation activities, by occupation

| Activity | Laborer | Transport equipment operatives | Armed Forces | Homemaker | Student | Unemployed | Other |
|---|---|---|---|---|---|---|---|
| | | | | Percent | | | |
| Land activities: | | | | | | | |
| Backpacking | 7.5 | 5.5 | 13.0 | 4.3 | 16.9 | 7.6 | 5.7 |
| Camping in developed campgrounds | 36.4 | 36.2 | 38.9 | 33.8 | 31.9 | 35.9 | 29.2 |
| Camping in primitive campgrounds | 14.4 | 15.9 | 13.6 | 10.4 | 14.4 | 13.4 | 8.0 |
| Driving vehicles or motorcycles off-road | 13.3 | 9.7 | 10.5 | 4.5 | 14.6 | 9.9 | 8.0 |
| Day hiking | 18.7 | 16.4 | 17.6 | 21.8 | 23.5 | 18.1 | 23.1 |
| Horseback riding | 7.5 | 6.7 | 7.4 | 6.0 | 16.2 | 5.4 | 6.2 |
| Wildlife observation & photography | 24.6 | 32.9 | 30.0 | 36.3 | 30.9 | 27.0 | 32.7 |
| Picnicking | 40.6 | 36.0 | 36.0 | 54.5 | 42.8 | 38.9 | 39.7 |
| Driving for pleasure | 41.0 | 33.4 | 35.0 | 45.0 | 31.4 | 35.0 | 40.6 |
| Sightseeing | 38.6 | 41.3 | 45.5 | 53.0 | 39.4 | 38.6 | 47.3 |
| Big game hunting | 20.0 | 19.3 | 13.0 | 5.0 | 10.4 | 8.7 | 12.0 |
| Waterfowl hunting | 21.5 | 18.2 | 16.0 | 5.6 | 13.4 | 7.5 | 11.7 |
| Walking for pleasure | 34.1 | 29.8 | 31.7 | 52.3 | 32.3 | 35.6 | 44.3 |
| Water activities: | | | | | | | |
| Canoeing or kayaking | 12.6 | 7.6 | 9.4 | 8.8 | 19.7 | 7.4 | 12.7 |
| Sailing | 5.7 | 5.1 | 7.2 | 3.9 | 10.6 | 6.1 | 5.6 |
| Outdoor pool swimming | 44.5 | 40.7 | 46.6 | 51.0 | 66.8 | 39.2 | 41.7 |
| Water skiing | 14.8 | 13.0 | 11.5 | 6.6 | 22.7 | 10.1 | 7.2 |
| Motorboating | 23.3 | 25.2 | 16.5 | 19.4 | 24.1 | 17.9 | 18.7 |
| Cold Freshwater fishing | 22.6 | 22.3 | 14.5 | 13.3 | 15.9 | 17.1 | 18.2 |
| Warm freshwater fishing | 37.7 | 41.6 | 33.6 | 27.6 | 28.5 | 31.0 | 31.9 |
| Snow activities: | | | | | | | |
| Cross-country skiing or ski touring | 4.0 | 4.2 | 3.8 | 3.7 | 7.1 | 2.6 | 6.0 |
| Downhill skiing | 6.7 | 7.1 | 10.8 | 5.1 | 16.9 | 4.6 | 6.7 |
| Ice skating | 2.6 | 2.3 | 1.8 | 4.2 | 10.9 | 2.7 | 6.7 |
| Sledding | 8.5 | 5.3 | 3.9 | 9.0 | 18.6 | 5.1 | 8.4 |
| Snowmobiling | 2.2 | 1.4 | 0.7 | 1.4 | 5.5 | 0.8 | 3.4 |

Source: 1985-1987 Public Area Recreation Visitors Survey, n=31,995.

Note: An example of how to interpret this table is as follows: Part 1 of the table shows that 14.1 percent of those respondents in the PARVS who identified themselves as professionals participated in backpacking at least once in the 12 months prior to the date they were interviewed. Part 2 of the table provides similar information for an additional set of occupations.

## The Influence of Race on Outdoor Recreation Participation

O'Leary and others (1982) cite several studies which report marked differences in rate of participation between blacks and whites. Most of the studies reported that leisure patterns were likely to be different among blacks and whites. Social class and opportunity were suggested as intervening variables in some studies. Hartmann (1988b) presents a review of the available literature on the effects of race/ethnicity on recreation participation, and concludes that blacks are underrepresented in resource-based, nonurban outdoor recreation activities—insufficient information was available in the literature to reach conclusions concerning other racial or ethnic groups.

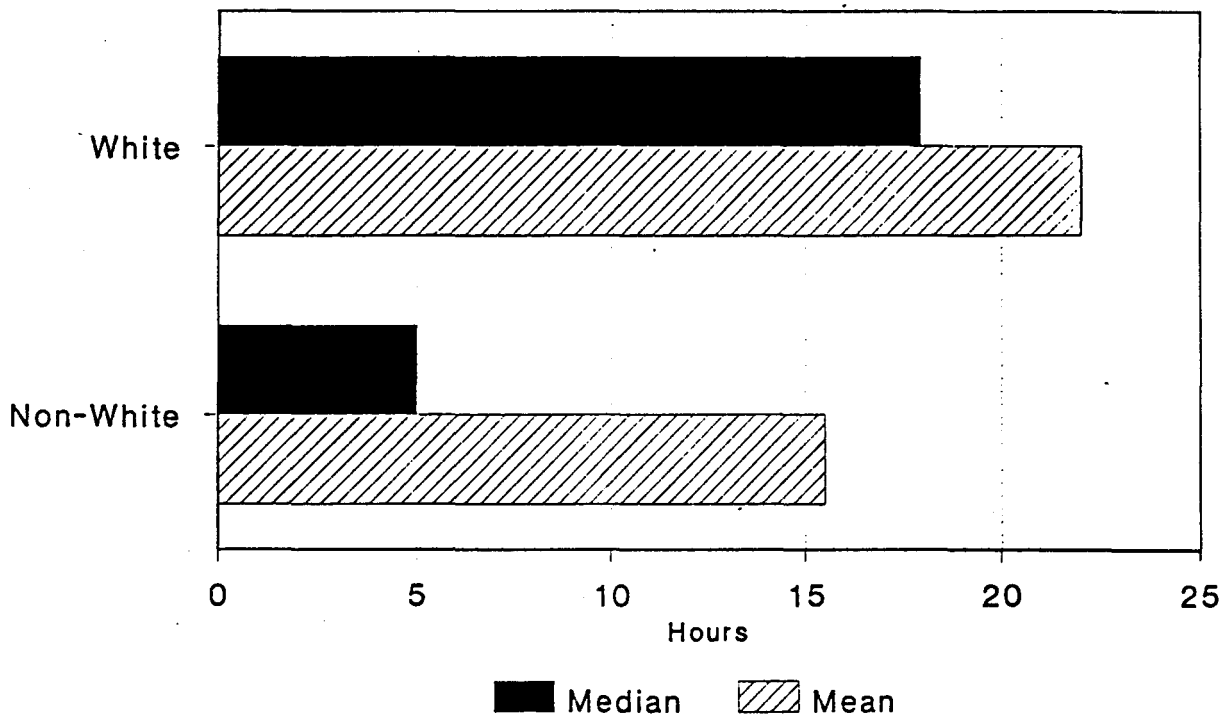
The PARVS provides information on the differences in recreation participation by race/ethnicity, using standard Census classifications of race. Percentages of the several categories of nonwhite users of Federal and State recreation areas are quite small, therefore the information presented below is categorized only by white/nonwhite. Table 6 displays this information. Figure 6 shows that there is a substantial difference between whites and nonwhites

Table 6.--Percentage of recreationist participating once or more annually in outdoor recreation activities, by respondent race

| Activity | White | | Non-white | |
|---|---|---|---|---|
| | Percent of whites participating | Percent of total participants | Percent of non-whites participating | Percent of total participants |
| | Percent | | | |
| Land activities: | | | | |
| Backpacking | 11.0 | 92.5 | 6.5 | 7.5 |
| Camping in developed campgrounds | 36.9 | 92.3 | 22.4 | 7.7 |
| Camping in primitive campgrounds | 15.0 | 92.7 | 8.7 | 7.4 |
| Driving vehicles or motorcycles off-road | 9.4 | 90.9 | 6.9 | 9.1 |
| Day hiking | 25.2 | 92.1 | 15.8 | 7.9 |
| Horseback riding | 9.3 | 92.3 | 5.6 | 7.6 |
| Wildlife observation and photography | 37.9 | 90.6 | 28.7 | 9.4 |
| Picnicking | 46.3 | 87.0 | 50.6 | 13.0 |
| Driving for pleasure | 39.3 | 88.7 | 36.9 | 11.4 |
| Sightseeing | 48.7 | 89.7 | 40.8 | 10.3 |
| Big game hunting | 10.4 | 92.6 | 6.1 | 7.4 |
| Waterfowl hunting | 12.1 | 91.5 | 8.2 | 8.5 |
| Walking for pleasure | 42.7 | 89.4 | 37.0 | 10.6 |
| Water activities: | | | | |
| Canoeing or kayaking | 14.7 | 92.1 | 9.2 | 7.9 |
| Sailing | 8.3 | 94.4 | 3.6 | 5.6 |
| Outdoor pool swimming | 51.9 | 89.2 | 45.9 | 10.8 |
| Water skiing | 13.9 | 93.8 | 6.8 | 6.2 |
| Motorboating | 23.5 | 92.6 | 13.6 | 7.4 |
| Cold freshwater fishing | 17.0 | 91.2 | 12.0 | 8.8 |
| Warm freshwater fishing | 31.7 | 90.1 | 25.5 | 10.0 |
| Snow activities: | | | | |
| Cross-country skiing or ski touring | 7.1 | 94.7 | 2.9 | 5.3 |
| Downhill skiing | 10.6 | 92.1 | 6.6 | 7.9 |
| Ice skating | 6.5 | 93.1 | 3.5 | 6.5 |
| Sledding | 10.2 | 93.8 | 4.9 | 6.2 |
| Snowmobiling | 2.99 | 93.13 | 1.61 | 6.87 |

Source: 1985-87 Public Area Recreation Visitors Survey, n=31,995.

Note: An example of how to interpret this table is as follows: Of all whites contacted in the PARVS, 11 percent participated in backpacking at least once in the previous 12 months--whites comprised 92.5 percent of all PARVS recreationists participating in backpacking one or more times annually in the preceding 12 months.




Source: 1985-1987 Public Area Recreation Visitor Survey, n=31,995

Figure 6.—Mean and median length of stay on site by respondent race.

in terms of their length of stay on site. Nonwhites had a median visitation time of only 5 hours, while whites had a median figure over three times that. Other PARVS data not presented here show that mean travel time and distance was less for non-whites, as well.

## The Influence of Disability on Outdoor Recreation Participation

Hartmann and Walker (In press) provide a review of the information available on disability and outdoor recreation participation. They conclude from both a literature review and additional data from the PARVS, that a far smaller percentage of disabled individuals participate in outdoor recreation activities than nondisabled individuals. (Please see that publication elsewhere in these proceedings for additional information.)

## Group Differences in Recreation Participation

An individual's behavior may be quite different if he or she is recreating with family, a group of same-age friends, or alone. Most recreation behavior in wildland settings occurs in group situations. The dynamics of group interaction, the effects of differing leadership styles, the balancing of conflicting interests among others, must all play a significant, if not dominant, role in choice behavior. Clark and Downing (1985) also refer to the importance of "group needs," resolving intragroup conflict about alternatives, and the desires of the group in recreation participation decision-making situations. Hartmann (1988a) provides a review of the available literature on the relationship of group influences and recreation participation.

Field and O'Leary (1973) found that including the social group in which one participates helps explain differential frequency of participation. They also discussed the concept of "interchangeable activities," that is, groups of activities which provide equal opportunity to achieve the participation desired for a given social group. Zuzanek (1978) investigated leisure behavior based on occupation and socioeconomic status. He found that money expenditures follow class lines, participation rates are more egalitarian across class lines, but amount of leisure time available is inversely related to social centrality and social status.

The Public Area Recreation Visitor Study also provides information on recreation patterns by coparticipant group types, for activities done on the recreation sites where they were interviewed. Table 7 provides a detailed accounting of the percentage of each group type that participates in various recreation activities. Most participants visited the PARVS sites in family or family/friendship groups, therefore for most recreation activities the most common group type was the family or family/friendship group. However, when comparing participation rates within each group type, more meaningful comparisons can be made. For example, backpacking is more common among organized groups or solo recreationists than family groups, while the reverse is true for developed camping. Additional activities most commonly participated in by family groups (more so than other group types) include sightseeing, walking for pleasure, wildlife observation and photography, driving for pleasure, fishing, and motorboating. Activities most commonly participated in by friendship groups (more so than other group types) include sailing, downhill

Table 7.--Participation in outdoor recreation activities at Federal and State outdoor recreation areas by type of group

| | Family | | Friends | | Family & friends | | Group or club | | Solo | |
|---|---|---|---|---|---|---|---|---|---|---|
| Activity | Group | Total | Group | Total | Group | Total | Group | Total | Group | Total |
| | Percent | | | | | | | | | |
| Land activities: | | | | | | | | | | |
| Backpacking | 1.5 | 42.0 | 3.3 | 29.0 | 2.1 | 8.2 | 4.9 | 5.0 | 3.1 | 15.8 |
| Camping in developed campgrounds | 19.0 | 74.6 | 10.1 | 12.0 | 13.8 | 7.2 | 10.5 | 1.4 | 6.8 | 4.7 |
| Camping in primitive campgrounds | 4.9 | 58.8 | 4.9 | 21.0 | 4.3 | 8.1 | 5.7 | 2.8 | 3.7 | 9.3 |
| Driving vehicles or motorcycles off-road | 1.7 | 55.0 | 2.2 | 21.6 | 2.2 | 9.6 | 0.5 | 0.5 | 2.3 | 13.2 |
| Day hiking | 16.7 | 62.7 | 16.0 | 18.2 | 13.7 | 6.9 | 19.4 | 2.6 | 14.7 | 9.7 |
| Horseback riding | 1.1 | 58.3 | 0.9 | 14.9 | 1.8 | 12.7 | 0.9 | 1.7 | 1.3 | 12.4 |
| Wildlife observation & photography | 31.9 | 67.9 | 27.0 | 15.3 | 26.0 | 7.1 | 25.0 | 1.7 | 22.3 | 7.9 |
| Picnicking | 32.4 | 65.2 | 25.0 | 15.0 | 39.3 | 10.6 | 46.9 | 3.3 | 16.0 | 5.6 |
| Driving for pleasure | 28.1 | 66.2 | 24.5 | 17.5 | 21.5 | 6.8 | 9.1 | 0.8 | 21.4 | 8.8 |
| Sightseeing | 49.2 | 66.6 | 39.2 | 16.1 | 38.7 | 7.0 | 35.3 | 1.7 | 36.4 | 8.6 |
| Big game hunting | 1.3 | 35.9 | 3.8 | 32.0 | 1.7 | 6.3 | 0.0 | 0.0 | 5.3 | 25.8 |
| Waterfowl hunting | 0.7 | 38.0 | 2.8 | 16.2 | 1.0 | 9.0 | 0.5 | 1.1 | 3.2 | 35.7 |
| Walking for pleasure | 37.6 | 68.3 | 27.1 | 14.9 | 31.9 | 7.8 | 29.7 | 1.9 | 22.5 | 7.1 |
| Water activities: | | | | | | | | | | |
| Canoeing or kayaking | 3.7 | 41.8 | 9.9 | 33.7 | 9.5 | 14.2 | 17.3 | 6.8 | 1.8 | 3.6 |
| Sailing | 0.6 | 57.2 | 0.7 | 21.3 | 0.4 | 5.8 | 0.2 | 0.8 | 0.9 | 14.9 |
| Outdoor pool swimming | 28.3 | 62.3 | 27.5 | 13.5 | 38.8 | 14.7 | 36.3 | 2.1 | 18.9 | 7.7 |
| Water skiing | 2.3 | 65.4 | 1.7 | 14.3 | 2.9 | 11.1 | 0.7 | 0.7 | 1.7 | 8.5 |
| Motorboating | 6.3 | 65.5 | 5.1 | 16.2 | 5.5 | 7.6 | 1.2 | 0.4 | 5.6 | 10.2 |
| Cold Freshwater fishing | 6.0 | 65.8 | 4.7 | 15.5 | 5.7 | 8.3 | 3.0 | 1.1 | 4.8 | 9.2 |
| Warm freshwater fishing | 13.0 | 73.3 | 11.1 | 13.2 | 8.8 | 4.1 | 4.7 | 0.3 | 15.9 | 8.8 |
| Snow activities: | | | | | | | | | | |
| Cross-country skiing or ski touring | 0.2 | 36.3 | 0.5 | 29.9 | 0.1 | 3.2 | 0.1 | 0.3 | 0.8 | 30.3 |
| Downhill skiing | 0.1 | 28.1 | 0.5 | 56.1 | 0.0 | 0.0 | 0.1 | 0.8 | 0.3 | 19.1 |
| Ice skating | 0.0 | 71.6 | 0.0 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 27.1 |
| Sledding | 0.0 | 40.2 | 0.1 | 28.9 | 0.0 | 4.2 | 0.0 | 0.0 | 0.2 | 34.7 |
| Snowmobiling | 0.0 | 28.6 | 0.1 | 27.2 | 0.1 | 20.9 | 0.0 | 0.0 | 0.1 | 23.2 |

Source: 1985-1987 Public Area Recreation Survey, n=31,995.

Note: An example of how to interpret this table is as follows: 1.5 percent of family groups interviewed in the PARVS participated in backpacking during their visit to the recreation area where they were interviewed. Forty-two percent of all PARVS respondents indicating they participated in backpacking during the recreation trip where they were interviewed belonged to family groups. It was inappropriate to make a comparison between group type and annual recreation participation as group type may change during other recreation experiences. Therefore, direct comparisons with the other tables presented in this paper must be made with caution.

skiing, and sledding. Common family/friendship activities are outdoor pool swimming, driving off-road vehicles, horseback riding, waterskiing, and snowmobiling. Common group or club activities are picnicking, day hiking, canoeing/kayaking, camping in primitive campgrounds, and backpacking. Common solo recreationist activities are warmwater fishing, big game hunting, waterfowl hunting, driving off-road vehicles, and cross-country skiing.

## OTHER SOCIAL CHARACTERISTICS RELATED TO RECREATION PARTICIPATION

Others have made suggestions for improving recreation participation projection models. Field and O'Leary (1973) discuss the importance of social group in determination of recreation participation, and propose an analytic strategy in which social group variables (such as family groups, groups engaged in common leisure activities, or groups belonging to the same voluntary association) might be employed in conjunction with social aggregate variables (like occupation, income, education, age, and marital status) to enhance measurement of participation in leisure activities. Moeller and Echelberger (1974) and Young and Smith (1979) stress the need to understand human motivational factors that underlie recreation behavior.

Additional factors were considered to help explain outdoor recreation participation. Schreyer and others (1984) found that extent of previous participation can help explain diversity among users of the same environment. Napier and Maurer (1981) consider personal community factors, spillover-compensatory factors, opportunity factors, socio-economic factors, and personal characteristics in their investigation of participation. They were able to explain very little variance in their models, and suggest participation requires much more complex predictive models than the sociodemographic variables used by leisure researchers to date.

In the early 1980's there were several studies suggesting sophisticated procedures to model recreation participation. Witt and Goodale (1981) suggest nonlinear models for regression modeling, particularly relating to the family life-cycle variable. Yu (1981) offers a leisure demand projection model which combines several socioeconomic variables into a single score, and also advances the idea of a leisure typology, or prediction of demand by activity package rather than by individual activities.

## CONCLUSIONS

### Likely Futures

This paper makes no attempt to track trends, model current outdoor recreation participation or predict future participation. However, with the knowledge that the population is aging, and the information supplied in this paper about the recreational activities of older persons, one likely conclusion is that the activities favored by older persons, such as walking for pleasure and developed camping will continue or increase in popularity in the future. Conversely, those activities favored by younger individuals, such as waterskiing and backpacking, will decline in popularity.

#### Social, Environmental, and Economic Structures

The data presented above provide a current and clear picture of Federal and State recreation area users. Although no statistical tests were performed in this paper, the patterns found in the data indicate that Federal and State public recreation areas are serving a certain portion of the United States population: largely the young, white, well-educated, and able-bodied middle class. Older, nonwhite, lower income, the disabled, and the wealthy are found recreating on these lands in smaller proportions relative to their numbers in the U.S. population.

These findings raise some interesting questions. Why are some groups not using these areas as much as others? Some possible answers include personal preference, lack of opportunity, lack of transportation, lack of information about the resource, social and physical barriers, fear, insufficient disposable income, insufficient leisure, and many others. As the demographics of the U.S. population continue to change, some of the patterns found in the data may increase in prominence and emerge as social issues.

Because of time and space constraints, this paper did not address environmental or economic issues, although the data are available in the PARVS project to examine this area.

#### Opportunity or Need for Improvements

From the above discussion, it follows that the primary need identified in this paper is in identifying the reasons for the lack of population-wide use of these recreation lands. It may be found that the barriers to participation are beyond the control of the agencies managing these recreation areas. However, it may also be found that some actions could be taken to remove obstacles to participation.

### Barriers or Constraints

The barriers to participation in outdoor recreation identified in this paper are dependent on the activity in question. Some activities, such as walking for pleasure, seem to have very few barriers. Other activities may have a variety of barriers, ranging from age, income, gender, and, probably, supply of the resource. It is likely that these barriers will continue in the foreseeable future, regardless of the actions taken by managing agencies.

### Improving the Baseline Knowledge

The PARVS has provided a rich data source—perhaps the most information on the recreation patterns of visitors to Federal and State lands that has ever been available from a single source. This paper presents some of the first data from that survey, but the authors recommend that researchers continue to examine this fertile data base for more detailed descriptive explorations, hypothesis testing, and theory development. PARVS and other similar surveys are very expensive, and we as a profession should make the greatest possible use of this data source.

The information that is currently being extracted from PARVS will be very useful to recreation managers and policy makers. Analyses will provide detailed information on persons who engage in specific activities, regional differences in participation, the contribution of recreation resources to local and regional economies, participation patterns by specific user groups, and much more. Also, by using PARVS in conjunction with other data sources such as Census information, it will be possible to make comparisons of recreation users with regional or national populations.

Additionally, it is strongly recommended that the PARVS system be continued, to allow additional comparisons among regions, agencies, and various social strata. Currently, 3 years of data are available in the PARVS full data set. With continuation of this system, over time, longitudinal analysis will be possible.

The 1979 Renewable Resources Planning Act Assessment of Outdoor Recreation and Wilderness was largely limited by lack of extensive and reliable data. For this 1989 Assessment, much more comprehensive data are available, but advancements can still be made in this area by implementing standard measures of recreation participation (or accurate conversion factors) for all such data collection efforts. Although considerable advancements have been made in projections of future demand, supply, and the resulting "gap", the underlying theories used in understanding current recreation participation data (as discussed in this paper) are largely the same. The next step in the progression of understanding recreation behavior is further advancements in theory, using the data developed for this assessment.

### Questions For Discussion

The data provided in this paper indicate that some segments of the population are participating in resource-based recreation much less than other segments. Some questions emerge:

1) Is it worthwhile for recreation researchers to seek to determine the reasons for these differences in participation?

2) What can and/or should resource managers do to help increase recreation opportunities for all segments of the population, if anything?

3) With an aging population, is it desirable to place more emphasis on those activities currently favored by older recreationists?

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