Southern Rural Sociology Vol.17, 2001 pp. 111-133
Copyright © 2001 by the Southern Rural Sociological Association

Outdoor Recreation Constraints: An Examination of Race, Gender, and Rural Dwelling*

Cassandra Y. Johnson
Social Scientist
U. S. Department of Agriculture (USDA), Forest Service

J. M. Bowker
Research Social Scientist
U. S. Department of Agriculture (USDA), Forest Service

H. Ken Cordell
Research Forester
U. S. Department of Agriculture (USDA), Forest Service

ABSTRACT: We assess whether traditionally marginalized groups in American society (African-Americans, women, rural dwellers) perceive more constraints to outdoor recreation participation than other groups. A series of logistic regressions are applied to a national recreation survey and used to model the probability that individuals perceive certain constraints to participating in outdoor recreation activities. Twelve constraints related to health, facilities, socioeconomic standing, and other personal factors are examined for both participants and nonparticipants of outdoor recreation. We model the probability that individuals report being constrained in participating in their favorite activities as a function of race, gender, and rural residence. In addition, we control for income, age, regional differences, and activity groupings. Of the three groups examined, women are most likely to feel constrained--for instance, by personal safety concerns, inadequate facilities and information, insufficient funds, and outdoor pests. Race is not a significant predictor of constraints for participants, but nonparticipating African-Americans are more likely than whites to feel personal safety concerns inhibit their outdoor recreation opportunities. Rural residence does not appear to be an important factor among either participants or nonparticipants in explaining the probability that an individual feels constrained in outdoor recreation participation.

---

*We thank Myron Floyd, Gary Green, Don English, and the *Southern Rural Sociology* reviewers for helpful comments.

Race, gender, and class continue to be important predictors of success in American society (Giddens 1981; Maher and Thompson 1997; Smith 1995; Wilkinson 1995). Although wage and educational attainment discrepancies between African-Americans (hereafter referred to as blacks) and whites, and between men and women have narrowed, differences remain in the kinds of life opportunities available to various socioeconomic and sociocultural groups. The present study is an exploratory investigation of constraints[1] to outdoor recreation participation. We focus on traditionally marginalized groups— blacks, women, and rural dwellers. We hypothesize that these three groups are more likely than others to perceive their participation in outdoor recreation is constrained by factors related to socioeconomic standing, facilities, health, and other personal factors.

It is important to consider recreation constraints for marginalized groups because of the dearth of recreation equity studies focusing on these populations (Philipp 1995). The majority of studies of social inequality concentrate on employment, housing, education, or wages, often neglecting recreation access. The latter, however, can also be very important to social well-being. For example, Humphrey and Allen (1978) report that black residents in small Oklahoma towns cited recreation as either the most important or second most important need in their respective communities. Recreation was ranked ahead of what might be considered more urgent needs such as housing and job opportunities. Humphrey and Allen (1978) concluded that recreation may have been accorded such importance because these towns are isolated from other population centers and recreation fills a "basic [human] need" for relief from boredom.

Following Henderson (1991), we define an outdoor recreation constraint as "anything that inhibits people's ability to participate in leisure activities, to spend more time doing so, to take advantage of leisure services, or to achieve a desired level of satisfaction." These include internal constraints such as personal skills, abilities, knowledge, and health problems; and also external factors such as

[1]We use the term 'constraint' throughout this paper. Some use the terms 'constraint' and 'barrier' interchangeably although Jackson (1988) distinguishes between the two.

lack of money, time, transportation, or facilities[2] (Jackson 1988). Our study focuses specifically on perceived constraints to participation in the respondent's *favorite* outdoor recreation activities. These activities are reported by the individual and can take place in wild, natural settings away from the home or in more domestic places such as one's backyard. Such activities range from low-intensity pursuits like meditating and nature observation to more skill intensive activities such as mountain climbing or kayaking.

The present study assesses whether peripheral groups (blacks, women, rural dwellers) are more likely than others, (i.e., whites, men, and nonrural dwellers), to perceive constraints to outdoor recreation participation. We look at twelve specific constraints which can be grouped into two general categories, internal and external. Our primary focus is on blacks, women, and rural residents, but we also include income, age, and activity categories as control variables. We examine constraints separately for participants and nonparticipants because we believe the life situations, and thus barriers encountered by the two groups, would be distinct.

Literature Review

There is an abundant literature covering a broad spectrum of issues relating constraints to recreation participation and participation intensity (Crawford, Jackson and Godbey 1991; Jackson, Crawford and Godbey 1993). This work forms a significant subfield of contemporary leisure research. However, Samdahl and Jekubovich (1997) challenge the reigning leisure constraints paradigm and suggest that the analytic tool "constraint" may be more of an academic construct than a phenomenon which actually influences or determines people's leisure activities. Using qualitative methods to analyze factors that influence adult leisure, Samdahl and Jekubovich (1997) found their respondents did not perceive of leisure in terms of "static" inhibitions or saw themselves as "negotiating constraints." Rather,

[2] Crawford, Jackson and Godbey (1991) identify three constraints categories— structural, interpersonal (or internal), and intrapersonal. This last category has to do with psychological, emotional, and self-esteem issues specific to the individual. No constraints of this type were included on the survey we used.

leisure activity was a means to the more-valued end of social interaction with loved ones and friends.

While informative, the study by Samdahl and Jekubovich (1997) is based on a sample of mostly middle- and working-class respondents derived from a mid-sized town in the Pacific Northwest. More importantly, the authors make no mention of minorities. We are not so much interested in constraints for the general population as the social structural and interpersonal factors that delimit recreation opportunities for specific categories of people– blacks, women, and rural dwellers. We believe constraints may be "real" or more fixed for groups on the margins of society. Indeed, studies indicate that marginalized groups perceive greater barriers to recreation participation than those groups which constitute the core of mainstream American society, the latter being principally white, Anglo-Saxon families with middle-class incomes and values. For instance, Searle and Jackson (1985) report that marginalized groups, including the poor, elderly, and single parents, are more likely than others to perceive recreation barriers. Shaw, Bonen and McCabe (1991) also posit that factors such as gender and age may help explain constraints to recreation participation.

With respect to the groups of interest in this paper, specific studies have established that blacks are less likely than whites to recreate in dispersed settings or to travel to regional recreation areas (Washburne 1978; Dwyer 1994). The marginality theory of recreation behavior attributes minority (particularly black) differences in recreation behavior to social structural barriers such as lack of discretionary funds, transportation, and information about facilities. Proponents of this view argue that poverty and ignorance have largely shaped the way blacks respond to social and political activities (Washburne 1978). Bowker, English and Cordell (1999) found race was a factor in explaining outdoor recreation participation for all but a few activities, with blacks generally showing less involvement than other groups.

Alternatively, ethnicity theory attributes differences in minority recreation behavior primarily to value differences based on subcultural norms. That is, subcultures or ethnic minorities are thought to possess unique cultural value systems which influence their recreation behavior. To date, there has been no conclusive evidence to indicate which theory is the better explicator of minority recreation

participation. More recent studies suggest social psychological factors such as place meaning are important in understanding lack of black participation (Williams, Patterson, Roggenbuck and Watson 1992; Williams and Carr 1993).

While marginality theory offers a structuralist approach to understanding the relative lack of black representation in outdoor recreation settings, most discussions of the theory do not address marginality in terms of inter-group conflict in outdoor recreation settings. However, West (1989; 1993) and Floyd (1998) discuss marginalization as it relates to racial conflict in outdoor recreation. West (1993) cites incidences of aggression directed against blacks by whites in urban parks and how this may deter blacks from visiting such places. He concedes that these are isolated examples limited to a few individuals, but also cautions that such discrimination may be more pervasive.

According to Rojek (1985:18), women experience a unique set of barriers to leisure which are less likely to obstruct the leisure pursuits of men. These relate both to the sex role structure imposed on women from a male-dominated society and also from concerns women have as sexual objects in a male-dominated society. Henderson (1991) argues that women's lives are structured to give greater consideration to others than to themselves. The wife and mother places a higher priority on assuring that her family, rather than herself, enjoys leisure time activities. Because of the assumptions of what it means to be wife, mother, daughter, single woman, or "old lady," there is an "innate" inequity in women's leisure that cannot be easily dismissed. Along similar lines, Henderson and Bialeschki (1991) and Wearing and Wearing (1988) submit that women are more likely than men to believe that they are not entitled to leisure. Again, because of familial responsibilities, in particular the role of woman as caretaker, women tend to deny themselves opportunities to engage in outdoor and other leisure activities and in the process feel they are constrained.

Fear of attack and harassment also represent very real psychological constraints to women's pursuit of outdoor recreation. Women are more likely than men to feel inhibited in going to remote camping areas or hiking alone on backcountry trails because of a fear of rape or other sexual harassment (Henderson 1991). Henderson (1991) stresses that because such fears are so prevalent in women's

lives, they do not challenge the social structures which deny them basic freedoms, including the right to recreate in public places without fear of sexual assault.

Because of lower tax revenues and incomes in rural areas, compared to nonrural regions, rural recreation programs tend to have less funding available for facility development such as ball fields or tennis courts. Hence, rural residents may be more constrained than nonrural groups in having reasonable access to developed facilities. Constraints to outdoor recreation participation in rural areas may also be related to restricted access to dispersed resources such as hunting or fishing areas. It is not uncommon for sporting clubs, which may not include local rural residents, to close rural dispersed areas to nonmembers (Marks 1991). Members of such organizations may be more affluent, nonrural residents who effectively constrain outdoor recreation for less affluent rural locals, the latter having traditionally depended upon free access to lands for both subsistence and recreation activities.

Recreation constraints for rural residents may also be related to how sub-populations in such areas have historically defined the land. In spite of an abundant supply of public outdoor recreation land in many rural communities, the mere existence of such resources does not guarantee use by local populations. For sustained and committed use to occur, locals must not only be aware of the resources but also view interaction with such places as an expression of group values and attitudes towards the land, however minimal. For instance, Johnson, Horan, and Pepper (1997) found rural blacks in north Florida were less likely than rural whites to recreate in wildland areas although both groups had access to a local national forest. Lack of black visitation to wildlands was related to the relative lack of 'place attachment' or affectation blacks held for wildlands, compared to whites.

The preceding discussion indicates blacks, women, and rural dwellers face more structural and psychological challenges to participation in outdoor recreation activities, relative to other groups. We focus on an examination of structural and personal constraints, however, because of data limitations. The next sections discuss the survey methodology, including sample design and statistics used in the analyses.

Methodology

Survey and Sample

Data for this study come from the National Survey on Recreation and the Environment (NSRE)[3]. The NSRE was conducted by telephone. Approximately 17,000 people aged 16 and over were interviewed for 20 minutes. Data on individual and household characteristics and information about recreation participation (activities, days, trips) were collected from everyone. In addition, a number of modules were randomly assigned to each respondent which gathered information about accessibility, last trip profile, wilderness, wildlife, land management agencies, water quality, recreation benefits, and constraints to participation in favorite outdoor recreation activities (Cordell, Helton and Peine 1996). Approximately 2,000 observations were completed for each module.

In the constraints module, individuals who indicated that they participated in outdoor recreation within the past year were queried as

---

[3]The National Survey on Recreation and the Environment (NSRE) was conducted jointly by the USDA Forest Service and the National Oceanic and Atmospheric Administration from 1991-1994. Other cooperators included the U.S. Department of the Interior Bureau of Land Management, the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency, and the USDA Economic Research Service. According to Cordell et al. (1996:217), "The NSRE describes and explores the participation of people in the United States in outdoor recreation activities, their wildlife and wilderness use and values and attitudes regarding recreation policy issues, and the outdoor recreation participation patterns and needs of people in the United States with challenging and disabling conditions." As with any national level telephone survey, the NSRE also has a potential number of biases, relating to both response and non-responses. Response bias includes recall and digit preference for respondents. Recall bias occurs when respondents have difficulty remembering whether they participated in activities, and digit preference is the inability of respondents to remember accurately how often they participated in an activity. Non-response bias includes avidity and incomplete phone numbers for non-respondents. Avidity bias results when the responses of more enthusiastic participants are over-represented in survey results. Those who do not participate or do so infrequently may be more likely than avid recreationists to refuse to answer the survey.

to their favorite outdoor recreation activities. Then respondents were read the following passage[4]:

> Following is a list of reasons people might not participate in outdoor activities as often as they want. For each reason, please indicate by a "yes" or "no" whether the reason I mentioned is one of the reasons that has kept you from doing your favorite activity. (NSRE 1991-1994)

The telephone interviewer then read a list of 14 constraints (Table 1), and the respondent was asked to indicate (yes/no) whether the constraint affected participation. For the present study, health related constraints --- personal health reasons, physical limitations, and household member limitations --- were combined into a single health constraint, resulting in twelve constraints overall. Those who reported not participating in any outdoor recreation activities were also asked to respond to each of the constraints questions but were not asked specifically what their favorite activity was.

Logistic Regression

To test whether the groups of interest (blacks, women, rural dwellers) were more (or less) constrained in their pursuit of outdoor recreation than others, we split the sample into participants and nonparticipants and developed logistic regressions for the various constraints. The logistic regression equations model the probability that an individual responded 'yes' to a given constraint toward participating in his/her favorite activity. For each constraint, the logistic regression is specified as:

$$prob(yes) = \frac{\exp(XB)}{1+\exp(XB)} \qquad (1)$$

[4]There is a potential for closed-ended responses because it may cause respondents to limit their replies to the choices contained in the questionnaire. However, the survey did offer an "other" category for constraints not listed in the survey.

Table 1. Recreation Constraints: Reasons Why Respondents Did Not Participate In Outdoor Recreation, National Survey Of Recreation And The Environment 1995.

personal health reasons	not enough time
physically-limiting disability	not enough money
household member with disability	inadequate transportation
inadequate information	no companion
inadequate facilities	outdoor pests in activity areas
poorly maintained areas	crowded activity areas
safety concerns	pollution in activity areas

Source: National Survey of Recreation and the Environment 1995.

where, X is a vector of explanatory variables and B is a parameter vector (Greene 1995). The variables of primary interest, race, gender and rural, are coded as binary (black=1, white=0; female=1, male=0; rural residence=1, nonrural=0). Rural residency is defined as living in a county with fewer than 20,000 residents. A statistically significant positive coefficient on any of these variables would indicate that the probability the respective group feels constrained in participation is higher than for those outside the group. Such a finding would suggest a null hypothesis could be rejected, and that the particular group is affected differently than others. Additional explanatory variables included as controls are per capita household income and age. These are both continuous. Regional variables were included to represent three defined regions, north, west, and south[5].

[5]West is defined as all contiguous states west of the Mississippi River; South includes VA, TN, KY, NC, SC, GA, FL, AL, MS, LA, AR; and North

(continued...)

Finally, for the participants, a set of four binary variables was included representing categories for favorite activities (winter sports, water sports, developed-setting activities, and dispersed-setting activities)[6].

Results

Logistic models

Logistic regression models were estimated using LIMDEP software (Greene 1995). Tables 2 and 3 present logistic regression results for participants and nonparticipants respectively. Each table contains results for 12 estimated constraints equations. Included in these results are: means for explanatory variables, maximum likelihood parameter estimates with asymptotic *t*-ratios, estimated partial derivatives, and two goodness-of-fit measures -- model chi-square and the percent of correct predictions. Parameter estimate and model significance at the α=.05 level or better is denoted by an asterisk. In addition, we report the predicted probability that an individual with characteristics defined at the explanatory variable means would respond 'yes' to the particular constraint question.

For people who indicated that they participated in outdoor recreation in the last year, 7 of the 12 constraint regressions were statistically significant based on model likelihood ratio tests (Greene 1995). Interestingly, race was not statistically significant in any of the constraint equations for participants. This suggests that among participants, race does not appear to be a factor in determining whether individuals feel constrained in pursuit of their favorite outdoor recreation activity. Similarly, rural residence was significant in only the 'not enough time' equation. However, in this case the

[5](...continued)
includes the remaining states. The region variables are not reported in the final models because of lack of significance.

[6]Because of the diversity of reported favorite activities and consequent small numbers for specific activities (e.g., backpacking), activities were combined by setting and included as explanatory variables.

Table 2. Logistic MLE regression estimates for probability of being constrained in favorite outdoor recreation activity for recreation participants.

Variable	Const	Race	Sex	PINC	AGE	Winter	Water	Disperse	Develop	Rural	χ^2_9	%
mean	1	.10	.51	18540.2	39.18	.35	.12	.23	.31	.16		
not enough time	3.01	.17[1]	-3.7E-03	1E-05	-3.9E-02	-.86	.27	.90	.88	-.69	54.0	87[5]
[.888]	(6.93)	(.42)[3]	(-.02)	(1.25)	(-5.04)	(-1.69)	(.75)	(2.77)	(2.98)	(-2.49)		
	-	.0173[4]	-3.7E-04	1E-06	-3.91E-03	-.09	.027	.09	.09	.07		
not enough money	.65	.41	-.22	-3E-05	-7E-03	1.00	.04	.29	-.72	.07	66.9	76
[.397]	(2.16)	(1.57)	(-1.40)	(-4.97)	(-1.18)	(2.23)	(.14)	(1.39)	(-3.55)	(.34)		
	-	.10	-.05	-8E-06	-1.7E-03	.24	.01	.07	-.17	.02		
health problems	-3.46	-.71	.36	-8E-06	.04	-2.10	-1.27	-.63	-.03	.03	49.2	87
[.098]	(-7.44)	(-1.55)	(1.49)	(-.89)	(5.18)	(-1.27)	(-2.37)	(-1.92)	(-.11)	(.11)		
	-	-.06	.03	-7E-07	3.7E-03	-.19	-.11	-.06	-2.6E-03	2.8E-03		
no companion	-.73	.35	.34	-5E-06	-.01	-.29	.25	-.22	.22	-.21	20.3	76
[.243]	(-2.20)	(1.29)	(1.92)	(-.71)	(-2.01)	(-.54)	(.86)	(-.86)	(1.04)	(-.85)		
	.06	.06	-8E-07	-2.5E-03	-.05	.05	-.04	.04	-.04			
inadequate transportation	-2.21	.48	-.31	-3E-05	-4.73E-03	1.65	1.10	.20	-.25	.47	22.6	93
[.058]	(-3.80)	(1.04)	(-1.01)	(-2.00)	(-.41)	(2.72)	(2.52)	(.47)	(-.58)	(1.25)		
	-	.03	-.02	-2E-06	-2.6E-04	.09	.06	.01	-.01	.03		
areas too crowded	-1.31	-.44	.02	4E-06	-4.5E-04	.11	.05	-.18	-.09	.08	3.3	79
[.208]	(-3.81)	(-1.28)	(.11)	(.64)	(-.07)	(.22)	(.15)	(-.69)	(-.41)	(.30)		
	-	-.07	3.3E-03	7E-07	-7E-05	.02	.01	-.03	-.02	.01		
personal safety	-2.76	-.02	.56	-8E-06	.01	.08	-.75	-.41	-.43	-.07	10.6	91
[.081]	(-5.38)	(-.04)	(2.03)	(-.77)	(1.34)	(.11)	(-1.47)	(-1.12)	(-1.31)	(-.19)		
	-	-1.2E-03	.04	-6E-07	9.5E-04	.01	-.01	-.03	-.03	-.01		

Table 2. (Continued) Logistic MLE regression estimates for probability of being constrained in favorite outdoor recreation activity for recreation participants.

Variable	Const	Race	Sex	PINC	AGE	Winter	Water	Disperse	Develop	Rural	χ^2_9	%
mean	1	.10	.51	18540.2	39.18	.35	.12	.23	.31	.16		
inadequate facilities	-1.42	.01	.51	-3E-06	-.01	.62	-.08	-.26	-.65	.25	16.5	86
[.131]	(-3.47)	(.04)	(2.27)	(-.35)	(-1.43)	(1.23)	(-.24)	(-.86)	(-2.26)	(.89)		
	-	1.6E-03	.06	-3E-07	-1.4E-03	.07	-.01	-.03	-.07	.03		
inadequate information	-.15	.02	.45	-7E-06	-.04	-.93	-.28	.12	-.25	.05	33.4	83
[.159]	(-.39)	(.07)	(2.19)	(-.87)	(-4.44)	(-1.32)	(-.83)	(.43)	(-.97)	(.19)		
	-	3.2E-03	.06	-9E-07	-.01	-.12	-.04	.02	-.03	.01		
poorly maintained	-1.37	-.07	.39	-6E-06	-.02	-.27	.06	-.51	-.33	-.81	13.8	90
[.093]	(-2.97)	(-.18)	(1.52)	(-.59)	(-1.63)	(-.40)	(.15)	(-1.41)	(-1.06)	(-1.89)		
	-	-6.0E-03	.03	-5E-07	-1.4E-03	-.02	4.7E-03	-.04	-.03	-.07		
pollution problems	-1.51	.42	.23	-3E-06	-.01	-.57	.06	.25	-.62	-.13	12.1	88
[.114]	(-3.50)	(1.20)	(.99)	(-.35)	(-1.33)	(-.77)	(.16)	(.85)	(-1.97)	(-.41)		
	-	.042	.02	-3E-07	-1.2E-03	-.06	5.9E-03	.03	-.06	-.01		
outdoor pests	-1.43	.49	.88	-6E-06	5.5E-04	-1.07	-.68	-.12	-.34	.29	41.5	76
[.225]	(-4.16)	(1.83)	(4.72)	(-.94)	(.08)	(-1.55)	(-2.08)	(-.48)	(-1.53)	(1.25)		
	-	.086	.15	-1E-06	9E-05	-.19	-.12	-.02	-.06	.05		

[1] Maximum likelihood logistic regression parameter estimate
[2] Estimated probability of being constrained at sample means
[3] Asymptotic t-ratio
[4] Marginal probability
[5] Percent of correctly predicted (yes, no) responses using the estimated model

negative sign on the coefficient implies that rural residents have a lower probability of feeling constrained than their nonrural counterparts. The value of -.068 on the partial derivative implies that, other factors equal, a rural resident will be about 7 probability points less likely to be constrained by time than a nonrural resident.

Gender was significant in four of the constraints equations for participants— 'personal safety,' 'inadequate facilities,' 'inadequate information,' and 'outdoor pests.' In all cases, the coefficients were positive, indicating women feel more constrained per these reasons than men. For example, the chances of feeling constrained by personal safety concerns for a woman (with other factors at sample means) were 10.4 out of 100 while for a male the chances are 6.2 out of 100. This is only a difference of 4.2 probability points, but women are almost twice as likely as males to be constrained.

Not surprising, per capita income was significant for the 'not enough money' constraint and also for 'inadequate transportation.' Respondents with higher per capita incomes were less likely than those with lower per capita income to feel they were constrained by either lack of funds or transportation. Older respondents were less likely than younger ones to say 'insufficient time,' 'no companions,' and 'inadequate information' hindered their participation in outdoor recreation activities.

With respect to the activity categories, respondents whose favorite activity was a winter activity were more likely than participants with favorite activities in other categories to feel lack of funds and inadequate transportation constrained their participation. Those with their favorite activity in the water category felt less constrained by health problems and outdoor pests but more inhibited by inadequate transportation than others. Dispersed participants were also less likely to perceive health-related constraints but indicated they were more constrained by insufficient time than respondents in the other activity categories. Four constraints were significant for developed respondents—not enough time, not enough money, inadequate facilities, and pollution problems. These individuals were more likely to feel constrained by insufficient time but less likely to perceive lack of money, facilities, or pollution as a barrier.

Table 3 shows results for nonparticipants. Overall, 8 out of 12 constraint equations were statistically significant at the α=.05 level based on a likelihood ratio test. In contrast to the participant group,

Table 3. Logistic MLE regression estimates for probability of being constrained in favorite outdoor recreation activity for recreation non-participants.

Variable	Const	Race	Sex	PCAPINC	AGE	Rural	χ^2_6	% correct
mean	1	.17	.55	15678.5	48.31	.21		
not enough time	2.03	-.47[1]	.15	3E-06	-.03	.21	26.4	69[5]
[.616]	(4.63)	(-1.49)[3]	(.64)	(.38)	(-4.8)	(.74)		
	-	-.11[4]	.03	7E-07	-.01	.05		
not enough money	1.53	-.54	.46	-5.2E-05	-.02	-.19	51.5	65
[.416]	(3.60)	(-1.68)	(2.01)	(-4.38)	(-3.50)	(-.66)		
	-	-.13	.11	-1.3E-05	-5.9E-03	-.05		
personal health	-1.78	.21	.17	-1.4E-05	.03	-.06	18.0	64
[.363]	(-4.09)	(.67)	(.75)	(-1.62)	(3.91)	(-.22)		
	-	.05	.04	-3E-06	6.3E-03	-.01		
no companions	-.14	-1.28	.156	-2E-05	-.02	.12	16.8	77
[.211]	(-.30)	(-2.86)	(.60)	(-1.74)	(-2.04)	(.39)		
	-	-.21	.03	-3E-06	-2.6E-03	.02		
inadequate transport	-.95	.21	.66	-1E-04	-0.01	-.33	28.4	89
[.068]	(-1.47)	(.49)	(1.77)	(-3.38)	(-.84)	(-.73)		
	-	.01	.04	-6.4E-06	-5.6E-04	-.02		
areas too crowded	-1.30	.25	.18	9E-06	-.01	-.59	6.0	81
[.184]	(-2.64)	(.69)	(.64)	(1.11)	(-.90)	(-1.53)		
	-	.04	.03	1.5E-06	-1.1E-03	-.09		
personal safety	-3.74	1.60	.11	6E-06	.02	-.51	15.6	91
[.090]	(-4.96)	(3.71)	(.30)	(.60)	(1.99)	(-1.02)		
	-	.13	.01	5E-07	1.9E-03	-.04		

Table 3. (Continued) Logistic MLE regression estimates for probability of being constrained in favorite outdoor recreation activity for recreation non-participants.

Variable	Const	Race	Sex	PCAPINC	AGE	Rural	χ^2_6	% correct
mean	1	.17	.55	15678.5	48.31	.21		
inadequate facilities	-2.24	.66	.56	-9E-06	6.3E-04	.22	6.7	87
[.130]	(-3.80)	(1.65)	(1.70)	(-.72)	(.07)	(.59)		
	-	.07	.06	-1E-06	7E-05	.02		
inadequate information	-.38	-.70	.70	-9.6E-06	-.03	.56	26.1	80
[.174]	(-.79)	(-1.68)	(2.38)	(-.82)	(-3.40)	(1.77)		
	-	-.10	.10	-1.4E-06	-4.2E-03	.08		
poorly maintained	-2.55	.65	.14	-2.7E-06	.01	.12	2.6	88
[.117]	(-4.05)	(1.54)	(.43)	(-.22)	(.73)	(.30)		
	-	.07	.01	-3E-07	7.5E-04	.01		
pollution problems	-3.00	.53	.26	-6E-06	.01	-.65	3.9	91
[.087]	(-4.09)	(1.09)	(.68)	(-.42)	(1.15)	(-1.20)		
	-	.04	.02	-5E-07	1E-03	-.05		
outdoor pests	-1.19	.35	1.02	-1.2E-05	-3.5E-03	.66	28.8	68
[.315]	(-2.72)	(1.08)	(4.17)	(-1.24)	(-.46)	(2.40)		
	-	.08	.22	-2.6E-06	-7E-04	.14		

[1] Maximum likelihood logistic regression parameter estimate
[2] Estimated probability of being constrained at sample means
[3] Asymptotic t-ratio
[4] Marginal probability
[5] Percent of correctly predicted (yes, no) responses using the estimated model

race was significant for 2 of 12 constraints -- 'no companions' and 'personal safety.' Black nonparticipants were less likely than white nonparticipants to feel constrained because they had no companions with whom to participate. However, blacks were more likely than whites to feel constrained because of personal safety concerns. With other factors at sample means, the probability that a black nonparticipant would feel constrained by personal safety factors was approximately .27 whereas as for a white counterpart, the probability was only .07. This suggests that black nonparticipants were about 4 times as likely as whites to feel constrained by personal safety factors.

Nonparticipating women were more likely than men to say they did not participate because of lack of funds, inadequate information, and outdoor pests. Both participating and nonparticipating females felt constrained by inadequate information. Rural nonparticipants felt more constrained by outdoor pests than those living in nonrural areas. Also, similar to participating respondents, nonparticipants with higher per capita income were also less likely to feel constrained by lack of funds and inadequate transportation.

Among nonparticipants, age was significant for 6 of the 12 constraints. Older respondents were more likely than younger people to feel constrained by health and personal safety concerns but were less likely to say they were constrained by insufficient time, money, no companions, or inadequate information.

Overall, the most prevalent constraints to both participants and nonparticipants were time, money, outdoor pests, and lack of companions. The major difference came with the health constraint where participants were far less constrained than nonparticipants.

Discussion

We hypothesized that groups historically marginalized in society—blacks, women, and rural residents— perceived more constraints to outdoor recreation participation than their counterparts. We examined, through the use of logistic regressions, a number of internal and external constraints to recreation across participants and nonparticipants. Controlling for age, income, and types of activities, we expected to find statistical evidence that blacks, women, and rural residents had higher probabilities of feeling constrained than their counterparts. Our findings are somewhat contrary to expectations.

Time and money remain the most common constraints individuals feel toward pursuing their favorite outdoor recreation activities. For the most part, these are universal across the groups examined in this study, with the exception that nonparticipating females feel more constrained than males by lack of funds.

Among participants, race was statistically insignificant across all 12 constraints to outdoor recreation participation. This says that when other factors such as income, age, gender, place of residence, and activity choice are held constant, race is immaterial in determining the likelihood that someone is more (or less) constrained from participating in their favorite outdoor recreation activity. However, a couple of caveats should be mentioned. First, one could argue that historical patterns of discrimination may have influenced the formation of current preferences and 'favorite activities' and thus altered the way immediate barriers would be perceived[7]. Second, after lack of time, 'not enough money' was the most probable constraint among participants. The fact that per capita income among blacks is on average less than whites, suggests that until income levels in society become more equal, blacks as a group are still likely to be more constrained in outdoor recreation than whites.

Among nonparticipants, race was significant for two constraints -- personal safety and no companions. The companion constraint was significant but negative, implying that blacks are less likely than whites to be constrained by not being able to find someone with whom to recreate. Personal safety among nonparticipants was the only constraint in this study for which race was statistically significant and positive, meaning that black nonparticipants were more likely than their white counterparts to perceive safety as a factor keeping them from participating in their favorite outdoor recreation activity. This appears to be an important finding.

We interpret concern for personal safety as external or outside the individual's control. The survey did not ask about specific safety concerns, i.e., whether there was a fear of humans, animals, or other sources. We can only speculate as to what these concerns may relate. Safety issues for nonparticipating blacks in rural areas may involve fears of wild animals inhabiting woodlands or have to do with possible

[7]This important idea was brought to our attention by an anonymous reviewer.

racial conflict in outdoor recreation areas. Black urban nonparticipants, on the other hand, may be more concerned with possible violence at community recreation sites.

Results indicate that blacks who do not recreate outdoors have concerns about safety which are apparently not shared by participating blacks. In terms of outdoor recreation participation, this difference suggests constraints for blacks may not necessarily be uniform. Wilson's (1978) argument of diverging class structures within the black population may help to explain this difference. Nonparticipating blacks appear to be marginalized to the extent that they have concerns for personal safety in outdoor leisure areas. Other constraints related to structural factors -- inadequate facilities and poorly maintained areas -- were not significant at the .05 level for nonparticipating blacks but were significant close to the .10 level for this group (inadequate facilities, α=.10 and poorly maintained areas, α=.12), with blacks more likely to feel constrained by these problems.

Participating women were more likely than men to report being constrained by two structural constraints, personal safety and inadequate facilities. Women who did not participate were more likely to feel constrained by insufficient funds. In contrast to the situation for blacks, it appears that women are more likely to participate in outdoor recreation despite personal safety concerns. Participation by women, given safety concerns, may relate to Henderson's (1991) contention that females, more than males, are more conscious of the possibility of assault upon their persons and incorporate these concerns within their daily lives. For instance, women may be more likely than men to carry self-defense devices such as mace or take more precautions with navigating public spaces such as shopping areas and also outdoor recreation areas, whether developed or dispersed. It may be that females participate in outdoor recreation activities but with more of an awareness and a concern for their vulnerability.

Concern related to the natural environment (pests) was also perceived as a barrier for women regardless of whether or not they had participated in the past year. This finding suggests that natural phenomena, and not fear of male domination alone, inhibit outdoor recreation for women.

For the most part, rural dwellers do not perceive constraints listed in this study as barriers to recreation participation. Outdoor

pests were perceived as a constraint for non-participating rural respondents. However, there were no other constraints mentioned by rural dwellers which recreation managers could potentially address.

The findings of a single study should be viewed with appropriate caution. In this case, the questions used in the survey are broad and do not probe deeply into the complexities and meanings behind the constraints. Moreover, the responses are linked only to 'favorite activities.' Nevertheless, the findings about personal safety concerns by black nonparticipants and female participants merit closer scrutiny from researchers as well as public and private land managers. While the latter have little direct influence over time and money issues, actions can be taken to determine the relationship between perception and reality concerning personal safety issues for blacks and females. Once determined, programs ranging from increased information provision to increased security presence could be designed to address the problem.

Future constraints research

Future constraints research should examine more closely the nature of reported constraints, for instance, whether fear of personal safety is related to animals or threats by humans (if potential recreationists are afraid of members of their own community or if threats are from outside the community). In addition, we need to better understand what is meant by inadequate facilities. Future constraints research would also benefit by examining barriers in the larger context of people's lives and exploring the connections among recreation constraints and other social justice issues like equal housing and job opportunities. We believe inaccessibility to outdoor recreation is not an isolated inequity; rather, it may be but a single indicator of more far-reaching injustices.

More generally, as Samdahl and Jekubovich (1997) suggest, we recommend more rigorous, in-depth qualitative investigations into the social meaning of leisure in the lives of non-dominant groups like blacks and Hispanics, those in the middle, working, and poorer classes. These groups may also see themselves less as victims without access outdoor recreation than as active agents who are able to determine the course of their lives.

Jackson (1991) urges constraints researchers to consider more deeply the psychological aspects of recreation barriers. Similarly, Greider and Garkovich (1994) argue that any given landscape or natural area contains a multiple number of meanings, depending upon the sociocultural meanings the observer brings to the landscape. Along with the obvious, physical characteristics of environments, there also exist intangible, socially-constructed definitions of a place. These constructed meanings arise from one's cultural and historical interactions with a specific place or type of place (Johnson 1998). A forested recreation area may not hold the same meaning for every person who beholds the sign "Big Tree National Forest." For one ethnic or gender group, the sign may denote resource extraction, for another group, recreation and leisure, and for a third group, the label may speak of fear and intimidation.

Along similar lines, Bixler and Floyd (1997) stress the importance of better understanding of the apprehensions different societal groups hold towards the natural environment. Both these implicit and explicit meanings are important because for some groups of racial minorities, the resources per se have been the site of exploitation (slavery and sharecropping for Blacks and land loss for American Indians) (Snipp 1996). Both recreational use and non-use of natural, outdoor recreation areas is inextricably tied to these historical relationships; yet these relationships remain unexplored.

References

Bixler, R.D. and M.F. Floyd. 1997. Nature is Scary, Disgusting, and Uncomfortable. *Environment and Behavior* 29:443-67.

Bowker, J.M., D.B.K. English, and H.K. Cordell. 1999. "Outdoor Recreation Participation and Consumption: Projections 2000 to 2050." Pp. 323-50 [Chapter 6] in *Outdoor Recreation in American Life: A National Assessment of Demand and Supply Trends*, edited by H.K. Cordell, C.J. Betz, J.M. Bowker, D.B.K. English, C.Y. Johnson, S.H. Mou, J.C. Bergstrom, R.J. Teasley, M. A. Tarrant, and J.Loomis. Champagne IL: Sagamore Press, Inc.

Cordell, H. K., G. Helton, and J. Peine. 1996. "Communities and Human Influences in Southern Appalachian Ecosystems: the Human Dimensions." Pp. 17-86 in *Southern Appalachian Man and the Biosphere: the Southern Appalachian Assessment: Social/Cultural/Economic Technical Report. Report 4 of 5.* Atlanta: U.S. Department of Agriculture, Forest Service, Southern Region.

Cordell, H.K., B.L. McDonald, B. Lewis, M. Miles, J. Martin, and J. Bason. 1996. "United States of America." Pp. 215-235 in *World Leisure Participation: Free Time In The Global Village*, edited by G. Cushman, A. J. Veal and J. Zuzanek. Wallingford: CAB International.

Crawford, D.W., E.L. Jackson, and G. Godbey. 1991. "A Hierarchical Model of Leisure Constraints." *Leisure Sciences* 13:309-20.

Dwyer, J. 1994. *Customer Diversity and the Future Demand for Outdoor Recreation.* GTR: RM-252. U.S. Department of Agriculture (USDA). Fort Collins: USDA Forest Service, Rocky Mountain Forest and Range Experiment Station.

Floyd, M.F. 1998. "Getting Beyond Marginality and Ethnicity: The Challenge for Race and Ethnic Studies in Leisure Research." *Journal of Leisure Research* 30:3-22.

Giddens, A. 1981. *A Contemporary Critique of Social Materialism.* London: Macmillan.

Greene, W.H. 1995. *LIMDEP Version 7.0.* [Limited Dependent Variables.] Plainview NY: Econometric Software, Inc.

Greider, T. and L. Garkovich, L. 1994. "Landscapes: The Social Construction of Nature and the Environment." *Rural Sociology* 59:1-24.

Henderson, K.A. 1991. "The Contribution of Feminism to an Understanding of Leisure Constraints." *Journal of Leisure Research* 23:363-77.

Henderson, K.A. and M.D. Bialeschki. 1991. "A Sense of Entitlement to Leisure as Constraint and Empowerment for Women." *Leisure Science* 13:51-65.

Humphrey, C.A. and D.E. Allen. 1978. "Educational and Social Needs in Small All-Black Towns." *The Journal of Negro Education* 47:245-55.

Jackson, E.L. 1991. "Leisure Constraints/Constrained Leisure: Special Issue Introduction." *Journal of Leisure Research* 279-85.

_____. 1988. "Leisure Constraints: A Survey of Past Research." *Leisure Sciences* 10:203-15.

Jackson, E.L., D.W. Crawford, and G. Godbey. 1993. "Negotiation of Leisure Constraints." *Leisure Sciences* 15:1-11.

Johnson, C.Y. 1998. "A Consideration of Collective Memory in African American Attachment to Wildland Recreation Places." *Human Ecology Review* 5:5-15.

Johnson, C.Y., P.M. Horan, and W. Pepper. 1997. "Race, Rural Residence, and Wildland Visitation: Examining the Influence of Sociocultural Meaning." *Rural Sociology* 62:89-110.

Maher, F.A. and M.K.T. Thompson. 1997. "Learning in the Dark: How Assumptions of Whiteness Shape Classroom Knowledge." *Harvard Educational Review* 67:321-49.

Marks, S. A. 1991. *Southern Hunting in Black and White.* Princeton: Princeton University Press.

National Survey on Recreation and the Environment (NSRE). 1991-1994. U.S. Department of Agriculture (USDA) Forest Service, Athens, GA.

Philipp, S. F. 1995. "Race and Leisure Constraints." *Leisure Sciences* 17:290-304.

Rojek, C. 1985. *Capitalism and Leisure Theory.* London: Travistock Publications, Inc.

Samdahl, D.M. and N.J. Jekubovich. 1997. "A Critique of Leisure Constraints: Comparative Analyses and Understandings." *Journal of Leisure Research* 29:430-52.

Searle, M.S. and E.L. Jackson. 1985. "Recreation Non-Participation and Barriers to Participation: Considerations for the Management of Recreation Delivery Systems." *Journal of Park and Recreation Administration* 3:23-36.

Shaw, S.M, A. Bonen, and J.F. McCabe. 1991. "Do More Constraints Mean Less Leisure? Examining the Relationship between Constraints and Participation. *Journal of Leisure Research* 23:286-300.

Smith, B.E. 1995. "Crossing the Great Divides: Race, Class, and Gender in Southern Women's Organizing, 1979-1991." *Gender & Society* 9:680-96.

Snipp, C.M. 1996. "Understanding Race and Ethnicity in Rural America." *Rural Sociology* 61:125-42.

Washburne, R.F. 1978. "Black Underpartcipation in Wildland Recreation: Alternative Explanations." Leisure Sciences 1:175-89.

Wearing, B. and S. Wearing. 1988. "'All In a Day's Leisure': Gender and the Concept of Leisure." *Leisure Studies* 7:111-23.

West, P.C. 1993. "The Tyranny of Metaphor: Interracial Relations, Minority Recreation, and the Wildland-Urban Interface." Pp.109-115 in *Culture, Conflict and Communication in the Wildland-Urban Interface*, edited by A.W. Ewert, D.J. Chavez, and A.W. Magill. Boulder: Westview Press.

_____. 1989. "Urban Region Parks and Black Minorities: Subculture, Marginality, and Interracial Relations in Park Use in the Detroit Metropolitan Area." *Leisure Sciences* 11:11-28.

Wilkinson, D.Y. 1995. "Gender and Social Inequality: The Prevailing Significance of Race." *Daedalus* 24:167-78.

Williams, D.R., and D.S. Carr. 1993. "The Sociocultural Meanings of Outdoor Recreation Places." Pp. 209-19 in *Culture, Conflict and Communication in the Wildland-Urban Interface*, edited by A. Ewert, D.J. Chavez, and A.W. Magill. Boulder: Westview Press.

Williams, D.R., M.E. Patterson, J.W. Roggenbuck, and A.E. Watson. 1992. "Beyond the Commodity Metaphor: Examining Emotional and Symbolic Attachment to Place." *Leisure Sciences* 14:29-46.

Wilson, W.J. 1978. *The Declining Significance of Race.* Chicago and London: The University of Chicago Press.