"Provide It . . . But Will They Come?": A Look at African American and Hispanic Visits to Federal Recreation Areas

Cassandra Y. Johnson, J. Bowker, Gary Green, and H. Cordell

ABSTRACT

Recent data from the US Forest Service's onsite National Visitor Use Monitoring Survey (National Visitor Use Monitoring Survey, 2004. *Unpublished demographic results for 2002–2003.* Data on file with Donald English, Program Manager, Visitor Use Monitoring Project, Washington, DC) shows that visits made by African Americans account for very low percentages of visits to national forests across the country. This is true even in the South, a region where African Americans are highly concentrated. In contrast, Hispanic visits to national forests in the Southwest are high, relative to their population proportion. We examine additional national level household data on awareness of federal lands and management to help understand the discrepancy between Hispanic and African American recreational use of federal lands. We hypothesized that awareness, knowledge of management objectives, and attitudes about fees would reduce African American/Hispanic visitation differences; but strong differences remained after accounting for these factors. Results suggest other factors such as private landownership, and social definitions of place may be useful in considering African American use of wildland public recreation areas in the South.

Keywords: forest recreation; minority visitation; national forests; federal lands

White Americans are the primary visitors to nature-based outdoor recreation areas in the United States, including visitors to national forests and other public lands (Chavez 2001). A good deal of research dating from the 1960s indicates ethnic and racial minorities make relatively little use of wildland public recreation areas (Mueller et al. 1962, Meeker 1973, Floyd 1999). Much of this earlier work compared participation rates between African Americans and white Americans, with findings showing African Americans were significantly less likely than white Americans to engage in forest-based activities such as camping and hiking or water-related activities other than fishing (Mueller et al. 1962). Forty years later, African American participation in specific wildland-based activities such as day hiking and developed camping has increased (Cordell et al. 2004). Overall, however, African Americans' use of undeveloped, natural settings remains notably low considering their proportion in the general population (Tierney et al. 1998).

In contrast, Hispanic use of urban-proximate national forests in some parts of the country has increased significantly over the past 20 years (Chavez 2001). This is likely due to the increasing Hispanic population in the United States, particularly in southern California. Although public lands managers still are faced with challenges to eliminate structural barriers to participation, such as lack of communication with minor-

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Cassandra Y. Johnson (cjohnson09@fs.fed.us) is research social scientist, US Forest Service, Forestry Sciences Lab, 320 Green Street, Athens, GA 30602. J. Bowker (mbowker@fs.fed.us) is research social scientist, US Forest Service, Forest Sciences Lab, 320 Green St. Athens, GA 30602. Gary Green (ggreen@fs.fed.us) is assistant professor, Warnell School of Forestry and Natural Resources, University of Georgia, Athens, GA 30602. H. Cordell (kcordell@fs.fed.us) is pioneering research scientist and project leader, US Forest Service Forest Sciences Lab, 320 Green St., Athens, GA 30602. *The authors appreciate the helpful reviews made by anonymous reviewers.*

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ity communities, and to adapt site attributes to better reflect ethnic preferences, increased use by Hispanics and Asians is prompting managers to search for innovative ways to respond to the different natural resource values held by minority visitors (Tierney et al. 1998, Chavez 2001, Chavez 2002). For example, in southern California, some national forest recreation managers have implemented "adaptive management" programming, which includes redesigning recreation amenities to reflect the recreation styles of Hispanic visitors and also including the opinions and preferences of nontraditional cultural groups in recreation planning (Chavez 2002).

This study examines African American and Hispanic awareness, knowledge, and use of federal recreation areas and also their attitudes about user fees on national forests. The investigation was prompted by preliminary findings from the National Visitor Use Monitoring (NVUM) survey (National Visitor Use Monitoring Survey [2004]), which showed striking differences between visits made by African Americans and Hispanics to national forests in regions where proportions of these two minority groups are comparatively high (National Visitor Use Monitoring Survey 2004). The present analysis augments the NVUM data by examining household-level data from a national-level data set, the National Survey on Recreation and the Environment (NSRE). The NSRE contains data on the public's awareness of and visitation to federal recreation areas and attitudes and opinions specific to national forest management (Cordell et al. 2004). These data are intended to provide a broader framework for understanding discrepancies between Hispanic and African American visitation to national forests. By examining each group's views on land management and awareness, we hope to uncover factors that might help explain visitation rate differences displayed in the NVUM data.

We might expect Hispanic populations in the Southwest and African Americans in the South to respond similarly to opportunities for outdoor recreation on national forests for several reasons. First, both groups represent significant proportions of the population in their respective regions. Roughly, 25% of the population in four southern states (Alabama, Georgia, Mississippi, and South Carolina) is African American, and just over one-third of the population in Arizona, California, New Mexico, and Nevada is Hispanic (US Census Bureau 2007). Second, both groups live proximal to national forests in their respective regions; third, Hispanics and African Americans are comparable with respect to socioeconomic status (percent of African Americans with a 4-year college degree or higher is 14% and for Hispanics is 10%; the 1999 median household income for African Americans was $29,423 and was $33,676 for Hispanics; US Census Bureau [2004a, 2004b]); and fourth, the groups have displayed similar outdoor recreation styles and preferences that emphasize large extended family gatherings and collective activities (Gramann 1996, Floyd 1999).

Background

The Forest Service's recent survey of recreation visitors to national forests across the country shows that the overwhelming majority of visits to most national forests are accounted for by whites (92.7%; National Visitor Use Report [2004]). Such findings are hardly remarkable given the low number of racial and ethnic minorities in regions where many national forests are located, for instance the Forest Service's Intermountain (southern Idaho, Nevada, Utah, and western Wyoming), Northern (Montana, North Dakota, northern Idaho, and northwestern South Dakota), and Rocky Mountain (Colorado, Kansas, Nebraska, South Dakota, and Wyoming) regions. (An exception is Colorado and Nevada, where the proportion of Hispanics is at least 20%, and Puerto Rico, where the majority of residents are Hispanic.)

However, there is notable ethnic diversity among visitors to forests in the Pacific Southwest and Southwest regions (Arizona, California, and New Mexico), particularly on urban-proximal forests near Los Angeles, California. Preliminary data showed that approximately 25% of estimated visits to the Los Padres National Forest in southern California were made by Hispanics from 2002 to 2003, and close to 20% of estimated visits to the San Bernardino National Forest were accounted for by Hispanics during this time (NVUM 2004).

The relatively high percentage of estimated visits by Hispanics, no doubt, reflects the large numbers of Hispanics in southern California—Hispanics are 35% of California's population and approximately 47% of the Los Angeles County population (US Census Bureau 2007). These numbers are consistent with the opportunity explanation of racial/ethnic differences in outdoor recreation participation, which accounts for minority visitation to outdoor recreation areas in terms of minority presence within a population; i.e., minorities are expected to visit outdoor recreation areas in proportion to their presence in the population proximal to resources (O'Leary and Benjamin 1982).

Also, the proportion of estimated visits by Asians to forests in the Southwest and Northwest is closer to the population proportion of Asians in these same areas. Nine percent of visits to the Cleveland National Forest in southern California were accounted for by Asian-origin individuals in 2002 and 2003. Close to 6% of estimated visits to the Wenatchee National Forest (Washington) were made by Asians. Asians have higher than national average population percentages in both California (10.9%) and Washington State (5.5%; US Census Bureau [2006a, 2006b]).

By comparison, African Americans are conspicuously absent from national forest recreation areas in regions of the country where African Americans are highly concentrated. As discussed, one-quarter of the population in Alabama, Georgia, Mississippi, and South Carolina is African American. African American concentrations are even higher in subregions in the South. As a specific example, roughly 60% of the city of Atlanta's residents are African American, and close to 30% of metropolitan Atlanta's residents are African American (US Census Bureau 2004). Also, a higher than average proportion of metropolitan Atlanta's African American population is middle class (US Census Bureau 2004a).

Similar to the Los Padres, San Bernardino, and Cleveland National Forests, the Chattahoochee-Oconee National Forest in Georgia is an urban-proximal forest near Atlanta. The Chattahoochee portion is a roughly 2-hour drive from Atlanta and is included in the forest's local county area (Recreation and Tourism Statistics Update 2006). Also, the Oconee portion is in the "Black Belt" Piedmont surrounded by rural counties with African American populations between 20 and 44% (US Census Bureau 2004b). This part of the forest is also within a 1-hour drive of metropolitan Atlanta and is a part of the forest's local county area. Despite this proximity, African Americans made only about 2% of the estimated visits to the Chattahoochee and Oconee forest reserves combined from 2002 to 2003.

Similar scenarios occur elsewhere in the South. The rural African American population in some counties adjacent to national

forests in Alabama and Mississippi exceeds 50% of the total. Again, visits made by African Americans to national forests in either of these states were less than 1% of the total (NVUM 2004). In addition, South Carolina's upper Charleston County, which includes significant portions of the Francis Marion National Forest, has an African American population of 64% (Berkeley-Charleston-Dorchester Council of Governments 2002). But here, only about 5% of visits to the forest were accounted for by African Americans in 2002 and 2003 (NVUM 2004).

Literature Review

An important question then is why, relative to population proportions, Hispanic visits to national forests in southern California far exceed African American visitation in the South, given that the two populations are similar in terms of ethnic minority status, leisure styles, and proximity to national forests? A number of explanations have been posited by recreation researchers to explain African American "underparticipation," vis-a-vis white participation in outdoor recreation activities. Most notable among these are the marginality and ethnicity theses. The marginality theory attributes recreation differences to societal forces such as inequitable distribution of resources and discrimination; whereas the ethnicity explanation attributes differences to more endemic group factors such as ethnic group value systems and subcultural mores (Washburne 1978). As mentioned, the opportunity theory of outdoor recreation participation attributes racial differences in visitation or participation to the lack of a significant minority presence in places near forest reserves. This explanation seems to hold for Hispanics and Asians in the Pacific West but does not adequately explain African American visitation in the South [1].

Little or no scholarship has been put forward to explain differences in forest-based recreation among ethnic and racial minority groups. The explanations cited previously address majority/minority differences. However, differences among ethnic and racial minorities are important to consider, in terms of resource use and management, because of the growing numbers of minorities relative to the US population as a whole. By 2050, the non-Hispanic white population is projected to increase by about 7%, compared with 188 and 71%, for Hispanics and African Americans, respectively (US Census Bureau 2004c). The implications of this population diversification are not entirely clear, but resource managers acknowledge that traditional ways of managing for recreation visitors may change because of differences in environmental meaning and contact (or lack thereof) held by nonwhite ethnic groups (Stankey 2000).

Tierney et al. (1998) developed and tested a model predicting wildland participation for four ethnic/racial groups—African Americans, Asians, Hispanics, and white Americans. Predictor variables included socioeconomic status, ethnic identity, assimilation, and perceived discrimination. Results suggested that the decision to recreate in an undeveloped natural area involved more than material considerations such as transportation and income, but, more importantly, perceptual factors related to ethnic group preferences, assimilation level, education, and perceived discrimination. With the exception of education, these factors suggest wildland recreation participation is motivated to some extent by intangible meaning and feelings associated with this particular type of recreation place.

We also offer that differences between Hispanic and African American visitation may be caused by, partially, the different histories the two groups have with wildlands in this country. When considering constraining factors, it is important to look not just at contemporary issues, but historical factors as well. For instance, Johnson and Bowker (2004) argue that African Americans have developed an aversion for wildlands because of past associations with slavery, plantation agriculture, lynching, and compulsive work in the southern forest industry. This aversion is rooted in an African American "collective memory" of exploitative work relationships involving agricultural and wildlands.

According to Schelhas (2002), Hispanic associations with cultivated lands in the United States also involve a history of labor exploitation and land disenfranchisement in the Southwest. However, southern African Americans may be more tightly bound by recollections of oppressive land relationships because of their continuous association with the land. The Southwest Hispanic population has been infused with continual streams of immigrant groups from various Latin American countries who may have less negative associations with US wildlands, compared with southern African Americans.

Of course, differences between Hispanics and African Americans also may have to do with less nocuous factors such as the higher rate of African American landownership in the South. Although African American landownership has declined precipitously over the past 100 years, the greatest amount of African American landownership still is concentrated in the South (Gilbert et al. 2002, US Census Bureau 2005). African American "underrepresentation" on national forests in the South may be explained, in part, by African Americans recreating on privately held lands.

Another practical issue is user fees. Previous research shows both African Americans and Hispanics are less likely than white Americans to approve of entry fees to public recreation areas (Bowker et al. 1999). Whether or not African Americans are less accepting than Hispanics of user fees on national forests is a matter of empirical inquiry. Fee opponents argue that federal recreation areas should remain as free and open spaces available to all Americans regardless of the ability to pay (More 1999). Others maintain that entrance fees are beneficial for sustaining recreation resources because fees have the effect of reducing recreation impacts (Rosenthal et al. 1984).

Despite past or present obstacles, it is incumbent on natural resource agencies to engage various constituencies and to redress applicable barriers. Federal agencies are mandated by Executive Order 12898 to identify differential consumption of natural resources by minorities and low-income populations. This mandate in effect extends the definition of environmental justice to include access to outdoor recreation amenities on federal lands. Also, Executive Order 12862, ("Setting Customer Service Standards"), requires federal agencies to (a) identify the customers who are, or should be, served by the agency and to (b) survey customers to determine the kind and quality of services they want and their level of satisfaction with existing services (Federal Register 1993, 1994).

Research Hypotheses

As indicated, empirical and theoretical investigations of racial/ethnic differences in outdoor recreation behavior have focused mostly on macrolevel factors such as culture, socioeconomic position, or history (Floyd 1998, Johnson and Bowker 2004). Much less attention has concentrated on factors more specific to a given resource, such as

awareness, or the administration of that resource and how these may vary among minority groups. Given the larger structure in which resource interaction decisions may be made (cultural meaning and historical references), we believe that the decision to visit a national forest is based on, in part, a number of practical factors that have to do with awareness of federal lands, knowledge that an agency's mandate includes recreation, and opinions about appropriateness of user fees.

We posit that African Americans are less aware than Hispanics of federal lands because federal agencies are less visible in the East (where more African Americans live) than in the West. Also, we believe African Americans will have less visible than Hispanics of the Forest Service's multiple-use mandate (which includes recreation) because of their relative unfamiliarity with the agency. We also hypothesize that African Americans would be less supportive than Hispanics of user fees because of a generalized lack of familiarity with recreation and fee structures on public lands. In addition, following results from the NVUM, we expect African Americans to visit federal lands less than Hispanics. Specific research hypotheses include the following (see Table 1 for questions and statements in the NSRE that measure each of these factors; note that the fee item refers to both recreational and commercial uses of national forests and should be interpreted as such):

H_1: African Americans are less likely than Hispanics to be aware of the federal land system.

H_2: African Americans are less likely than Hispanics to be aware of the Forest Service's multiple-use mandate.

H_3: African Americans are less likely than Hispanics to agree that user fees should be charged on national forests.

H_4: African Americans are less likely than Hispanics to visit federal recreation lands.

Finally, we examine whether differences in awareness, knowledge of agency mandate, and attitudes about user fees contribute to African American/Hispanic differences in visitation to federal lands. If these variables are included in a visitation model along with race/ethnicity and other control variables, we expect predicted visitation differences between Hispanics and African Americans to be mitigated.

Table 1. NSRE questionnaire items.

	Between 1870 and 1950, the United States Congress established a federal land system, including national forests and national parks. Congress also established federal agencies to manage these new federal lands in the national interest. Tell me ...
H_1	Were you aware of the federal lands we have in this country? Yes No Don't know
H_2	Please tell me which one of the following statements best describes your understanding of the United States Forest Service. (order was randomized) a. The Forest Service manages national forests primarily to preserve wildlands and wildlife. b. The Forest Service manages national forests primarily to provide timber, livestock grazing, and other commercial products. c. The Forest Service manages national forests for multiple uses including timber production, wilderness preservation, livestock grazing, wildlife habitat, recreation, and clean water.
H_3	On a scale of 1–5, with 1 meaning strongly disagree and 5 meaning strongly agree, please indicate how much you agree with the following statement. a. The Forest Service should finance itself through fees charged to commercial and recreation users of the national forest
H_4	Have you ever visited any federal lands, such as a national forest or a national park? Yes No Don't know

Methodology

To test our hypotheses and examine the discrepancy in likelihood of visits to federal recreation areas between African Americans and Hispanics, we examine responses to the questions and statements in Table 1. These were included in the NSRE (Cordell et al. 2002). The NSRE is the eighth in a series of US national recreation surveys that began in the 1960s. The 2000 NSRE began in 1999 and ended in 2004. It is a random-digit-dial telephone survey of more than 85,000 households nationally administered in 18 sequential versions of roughly 5,000 observations per version. Survey Sampling, Inc., (SSI, Fairfield, CT) supplied researchers with a listing of "working block" telephone exchanges, from which the sample is compiled. A block consists of a set of 100 contiguous numbers identified by the first two digits of the last four numbers (e.g., in the number 854-4400, "44" is the block). Selected numbers are entered into a computer-aided telephone interviewing system, and potential respondents are chosen from these numbers.

The NSRE collects data on a range of outdoor recreation and environmental topics, including outdoor recreation participation, environmental attitudes, natural resource values, attitudes toward natural resource management policies, household structure, lifestyles, and demographics. The data are weighted using poststratification procedures to adjust for disproportionate age, racial, gender, education, and rural/urban strata (Cordell et al. 2002). Other forms of potential nonresponse bias are not addressed.

Of the 18 versions of the NSRE, we use data for this analysis from version 14 because only this version has questions and statements relevant to our investigation of national forests. Per NSRE protocol, roughly 40% of version 14 respondents ($n = 2{,}524$) received questions querying knowledge of and attitudes about federal lands. The sample was reduced further by omitting any observation that had missing data for variables included in the analysis. "Don't know" and "refused" responses were recoded as "missing" and subsequently omitted from analyses. The percentage of "don't know" and "refused" responses ranged from 0.35 to 4.55% for the respective variables. The resulting sample of 2,246 contains 1,884 white Americans, 140 African Americans, 93 Hispanics, and 80 Asian and Native Americans (grouped as "other"). The respective sample sizes for Asians and Native Americans precluded analyses of these groups individually.

Analysis. To compare African American and Hispanic responses to awareness of the federal land system, knowledge of the Forest Service's mandate, attitudes about fees, and visitation, we use binary logistic regression models (Greene 2000, p. 811–837). We use these models to estimate the probability that a respondent will respond positively (in our case, "yes" or "agree") to the questionnaire items in Table

Table 2. Means and standard deviations for model variables—n = 2,246.

Variable	Sample means n = 2,246	Black means n = 140	Hispanic means n = 93	White means n = 1,884	Other means n = 80
Aware of federal land system	0.53 (0.37)	0.44 (0.50)	0.66 (0.48)	0.84 (0.36)	0.74 (0.44)
Knowledge of Forest Service mandate	0.75 (0.43)	0.61 (0.49)	0.68 (0.47)	0.76 (0.43)	0.74 (0.44)
Support user fee	0.32 (0.47)	0.31 (0.47)	0.41 (0.49)	0.32 (0.47)	0.29 (0.46)
Visit federal lands	0.83 (0.37)	0.54 (0.50)	0.80 (0.41)	0.86 (0.35)	0.84 (0.37)
Black	0.06 (0.24)	1.00 (0)	0 (0)	0 (0)	0 (0)
White	0.83 (0.37)	0 (0)	0 (0)	1.00 (0)	0 (0)
Hispanic	0.04 (0.20)	0 (0)	1.00 (0)	0 (0)	0 (0)
Other	0.04 (0.19)	0 (0)	0 (0)	0 (0)	1.00 (0)
Female	0.54 (0.50)	0.66 (0.47)	0.54 (0.50)	0.54 (0.50)	0.55 (0.50)
Age	44.41 (16.45)	36.49 (13.60)	37.81 (15.88)	45.44 (16.50)	40.51 (15.74)
Bachelor's degree or higher	0.38 (0.49)	0.34 (0.48)	0.25 (0.43)	0.39 (0.49)	0.34 (0.48)
Westerner	0.27 (0.44)	0.09 (0.29)	0.49 (0.50)	0.26 (0.44)	0.46 (0.50)

1, given a set of explanatory variables. All dependent variables are binary. The model takes the form

$$P = \text{Prob}(Y = 1\ X) = Z/1 + e^{-Z} \quad (1)$$

where e is the base of the natural logarithm and

$$Z = b_1 + b_2x_2 + \cdots + b_ix_i \quad (2)$$

The model parameters are estimated by maximum likelihood. The Z component also may be interpreted as logit (P) or the logarithm of the odds of the outcome

$$Z = \text{logit}(P) = \ln(P/1 - P) \quad (3)$$

Dependent variables are (1) awareness of the federal land system, (2) knowledge of the Forest Service's multiple-use mandate, (3) opinion about appropriateness of fees to finance Forest Service operations, and (4) whether respondent had visited a federal recreation area. Awareness and visitation are coded 1 for "yes" responses and 0 for "no" responses. For knowledge of the Forest Service's mandate, the correct response is "c," which lists the agency's multiple uses (Table 1). This response was coded 1, and the two other responses were collapsed into a single category and coded 0.

The fee item was coded originally on a 5-point scale ranging from "strongly agree" (5) to "strongly disagree" (1). To create a binary dependent variable, we collapsed values of 4 and 5 into an "agree" category and the remaining values into a "not agree" category. The middle response (3) was not explicitly defined to respondents as a neutral position, so it is not clear whether respondents interpreted this response as neutral or some combination of agree/disagree. For the fee item, we modeled the probability of an agree response, as opposed to disagree.

Three binary explanatory variables were used to depict the race/ethnicity categories, African American, white, and other. Each of these was coded one, with the base case being Hispanic (coded zero). Binary variables were also used for gender (female = 1), education level (bachelor's degree or higher = 1), and residence in West = 1 (residence in the Forest Service's Alaska, Intermountain, Northern, Pacific Southwest, and Northwest, Rocky Mountain, or Southwestern regions = 1). Age is continuous.

Results

Table 2 shows estimated means and standard deviations for the total sample and for each ethnic/racial group. Overall, 53% of respondents were aware of the federal land system, compared with 44% for African Americans and 66% for Hispanics. With respect to the Forest Service's mandate, the white and other mean was closer to the overall mean of 75%. African Americans were least likely to know the agency's mandate (61%), but Hispanics scored closer to the mean at 68%. A greater percentage of Hispanics (41%), relative to the overall sample (32%) indicated support for user fees. Other respondents indicated the least support (29%). The proportion of African Americans reporting visits to federal lands was noticeably lower than percentages for the other groups. Only about one-half of African Americans indicated visits, compared with 80% for Hispanics, 86% for white Americans, and 84% for others and the sample.

Logistic results for awareness, knowledge of agency mandate, and support for fees are reported in Table 3. Table 4 shows results for the visitation question. Both Tables 3 and 4 include maximum likelihood regression coefficients, odds ratios, model chi-square, model significance level, and percent of correct predictions. An asterisk next to a maximum likelihood estimate for a predictor variable indicates a statistically significant difference between that variable and its comparison group.

Awareness of Federal Lands. Table 3 shows that African Americans were significantly less likely than Hispanics to be aware of federal lands, but white Americans were more likely than Hispanics to be aware. Women were less likely than Men to be aware of federally designated lands. However, the likelihood of awareness increased with age, and those with at least a bachelor's degree were more likely to be aware than less-educated respondents. Those living in the West were more likely than respondents in other parts of the country to be aware of federal lands.

The odds of an African American being aware of federal lands were about 0.52 of those of a Hispanic respondent, whereas white Americans were three times as likely as Hispanics to be aware of federal lands. Substituting values for the independent variables into Equation 2 and solving for Equation 1 provides estimates of awareness probabilities for various combinations of the independent variables. For instance, the probability that an African American woman with an education below college level, aged 30 years, and residing in the East would be aware of federal recreation lands would be 18%. The awareness probability for a Hispanic woman with a similar demographic profile is about 30%.

Knowledge of Forest Service Mandate. Results also indicate African Americans were less informed than Hispanics about the Forest Service's mandate. The odds of African Americans selecting the multiple use response were about 42%, compared with Hispanic responses. Older

Table 3. Logistic regression estimates of the probabilities of awareness of federal lands, knowledge of Forest Service mandate, and support for user fees for the American public—maximum likelihood estimates, odds ratios, model chi-square, model significance, and percent correct predictions.

	Awareness of federal lands		Knowledge of Forest Service mandate		Support for user fee	
Dependent variable	Maximum likelihood parameter estimates	Odds ratio	Maximum likelihood parameter estimates	Odds ratio	Maximum likelihood	Odds ratio
Intercept	−0.67		0.65**		−0.35*	
Black	−0.65**	0.52	−0.88**	0.42	−0.03	0.97
White	1.11**	3.03	−0.09	0.91	−0.38**	0.69
Other	0.29	1.33	−0.43	0.65	−0.68**	0.51
Female	−1.01**	0.37	−0.05	0.96	−0.25**	0.78
Age	0.03**	1.03	0.01*	1.05	0.01**	1.01
Education	1.29**	3.65	0.76**	2.13	−0.24*	0.78
West	0.57**	1.76	0.38**	1.47	−0.40**	0.67
Model chi-square	496.34		105.50		48.10	
Significance level	<0.0001		<0.0001		<0.0001	
Correct predictions (%)	77.2		60.7		55.6	

$n = 2{,}246$.
$^{*}P \leq 0.05$; $^{**}P \leq 0.01$.

Table 4. Logistic regression estimates of the probabilities of awareness of federal lands, knowledge of Forest Service mandate, and support for visits to federal recreation areas, reduced and expanded models—maximum likelihood estimates, odds ratios, model chi-square, model significance, and percent correct predictions.

	Visit (reduced model)			Visit (expanded model)	
Dependant variable	Maximum likelihood parameter estimates	Odds ratio	Dependent variable	Maximum likelihood parameter estimates	Odds ratio
Intercept	0.30		Intercept	−0.05	
Black	−0.79**	0.45	Black	−0.61**	0.54
White	0.61**	1.84	White	0.32*	1.38
Other	0.35	1.42	Other	0.31	1.36
Female	−0.57**	0.57	Female	−0.38**	0.69
Age	0.01**	1.01	Age	0.01*	1.01
Education	1.01**	2.75	Education	0.68**	1.97
West	1.31**	3.69	West	1.18**	3.25
			Aware	1.38**	3.96
			Forest Service mandate	0.08	1.09
			Fee	−0.43**	0.65
Model chi-square	312.51			452.28	
Significance level	<0.0001			<0.0001	
Correct predictions (%)	73.7			79.0	

$n = 2{,}246$.
$^{*}P \leq 0.05$; $^{**}P \leq 0.01$.

persons, those with higher education levels, and westerners were more likely to provide the correct response. In substantive terms, the probability of either a Hispanic man or woman, aged 45 years, living in the West, with a college education, knowing the agency's mandate is about 88%. The probability is 76% for an African American man with the same characteristics and virtually the same for a African American woman with a similar demographic profile (75%).

Financing through User Fees. Whites and Others were less likely than Hispanics to agree that the Forest Service should finance operations with user fees. Also, women, more educated individuals, and those living in the West were less likely to agree that user fees should be charged. Older persons were more likely than younger respondents to agree with national forest fees. The probability of an agree response for this question would be about 35% for both an African American and Hispanic woman, aged 40 years, with eastern residence, and college education. Whether one lives in the western part of the United States has a notable impact on attitudes toward fees. For instance, the probability of agreement for African American and Hispanic women with the aforementioned profile would decrease to 27% for women who live in the West.

Visitation. H_4 states that African Americans are less likely than Hispanics to visit federal recreation areas. We also hypothesized that visitation differences between African Americans and Hispanics would diminish with the inclusion of variables in a model indicating awareness, knowledge of agency mandate, and attitudes about fees. To assess the effects of these variables on visitation probability, we first modeled visitation (reduced model) only as a function of demographic variables, includ-

ing race/ethnicity, gender, age, education level, and region.

The reduced model in Table 4 shows the "African American" variable is significant with the expected results. African Americans were less likely than Hispanics to say they had ever visited federal recreation lands, and white Americans were more likely than Hispanics to visit. Also important are gender, age, educational, and regional differences. Older respondents, those with more education, and Westerners were more likely than their counterparts to visit federal lands. Women were less likely than men to say they had ever visited a federal recreation area.

Next, we modeled visitation as a function of the demographic variables, plus awareness (aware), knowledge of mandate (FS mandate), and attitudes about fees (fee). The expanded model in Table 4 shows African Americans were still less likely than Hispanics to indicate visitation, even when awareness, knowledge, and the fee variables were included in the analysis. In addition, white and age remain significant, although their effects are diminished. Both gender and region remain highly significant. Women were still less likely than men to visit, and Westerners were still more likely to visit.

Those who were aware of the federal land system were more likely than others to visit; whereas those supporting user fees were less likely to visit. Residence and awareness are by far the strongest predictors of visitation, both in terms of model coefficients and odds ratios. The odds of visitation for those aware of federal lands were nearly four times the odds of those not aware of the system, and the odds of Westerners visiting were more than three times those of non-Westerners.

Discussion and Conclusion

We hypothesized that African Americans are less likely than Hispanics to be aware of the federal land system, less likely to be aware of the Forest Service's multiple-use mandate, less likely to agree that the agency should charge user fees, and less likely to visit federal lands. We also posited that visitation differences between African Americans and Hispanics could be explained by differences in awareness, knowledge, and attitudes about user fees. Findings support research H_1, H_2, and H_4. Results did not indicate significant differences between African Americans and Hispanics for the fee item (H_3), and visitation differences between the two groups remained despite the inclusion of awareness, knowledge, and attitudes about fees.

Findings concerning awareness of federal lands are consistent with prior research on outdoor recreation constraints, which found that among nonparticipants, African Americans were more likely than white Americans to say they did not participate in their favorite activities because of a lack of awareness of opportunities (Johnson et al. 2001). In terms of user fee findings, prior research shows minorities are less likely than whites to support fees (Bowker et al. 1999). This finding is also supported by our results. Our analyses found no statistically significant differences between African Americans and Hispanics on this issue, which suggests that African Americans and Hispanics may hold similar attitudes about user fees. Still, we believe it is important, given sufficient sample sizes, to disaggregate responses for different racial/ethnic groups because the category "minority" may not be sufficient to explain the responses of particular groups included in a generalized category.

Contrary to expectations, differences in likelihood of visitation did not diminish significantly when we included variables indicating awareness of federal lands, knowledge of agency mandate, and attitudes about fees in an expanded visitation model. These results suggest that visitation differences may be explained better by factors not included in our models. We posited that factors directly related to a resource such as direct knowledge of the resource and attitudes about paying for access to the resource would better explain visitation differences. Although this may indeed be the case in some instances, it also may be that some of the more overarching cultural and structural factors play a role in African American visitation, particularly for southern African Americans.

Social and cultural definitions of outdoor places may be important considerations in the selection of recreation destinations. If a given recreation site has acquired the label of a "Black" or "Hippie" park or a "redneck" fishing site, then groups that define themselves in opposition to such labels are likely to avoid these areas. In other instances, the lack of visitation by a certain group may have more to do with the desire to avoid perceived or actual discrimination, either from site managers or from other recreation visitors.

Rural areas, particularly minority communities, are beset with many problems common in urban African American environments such as lingering poverty, low educational attainment, and a lack of recreational services (Rankin and Falk 1991). The Forest Service could help address some of these concerns by becoming more of an active participant in rural schools, where the emphasis would center on environmental education and practical training programs in the natural sciences and recreation programming. Results from a recent exploratory study of rural communities adjacent to a national forest in South Carolina suggested that African American students at a predominantly African American area high school had very little knowledge of the natural environment in the area, despite the fact that they lived in a forested community (Johnson and Floyd 2006). These educational efforts could have the immediate effect of producing better land stewards and possibly could result in increased numbers of African Americans pursuing advanced training in natural resource fields.

Western residence also was a consistently strong predictor of awareness, knowledge of agency mandate, fee attitudes, and likelihood of visitation. These results make sense given that there is more federal land in the West, and Westerners are more familiar with agencies and policies regarding these lands. Westerners also were more likely than those in other parts of the country to visit federal lands. Again, this likely has to do with abundance of federal land and the presence of federal agencies in the culture of the American West.

Our analysis provides only an overview of factors that potentially influence forest visitation. To more fully understand factors affecting African American visits, more specific data are needed to address (1) types of recreation activities preferred by African Americans, (2) suitability of national forests for engaging in these activities, (3) the availability of private lands as alternative places to recreate outdoors, (4) perceived constraints to national forest recreation (both internal and external), and (5) meanings associated with forested settings and national forests.

We should emphasize that the goal here is not to impose a set of normative outdoor recreation interests on ethnic minority communities with the expectation that African Americans should behave similarly to His-

panics or any other racial/ethnic group. It may be that "outdoor recreation" for some groups (even rural dwellers) involves more structured settings in an urban environment and that urban forestry outreach efforts may prove more fruitful for engaging these populations. It is not incumbent on forest managers or the federal government to *change* recreation interests and behavior but to provide the opportunity for all Americans, irrespective of background, to experience the many benefits of nature engagement on public lands.

Endnote

[1] These explanations are made more explicit by literature focusing on specific constraints to leisure and outdoor recreation participation. Constraints are classified generally as internal or external. Internal constraints have more to do with personal or cultural factors that might inhibit one's leisure involvement, for instance lack of companionship, interest, or knowledge about specialized forms of leisure. External constraints involve structural impediments such as poorly maintained facilities, unsafe recreation areas, or lack of public transportation. Whether a particular constraint should be classed as internal or external is not always clear, because the fundamental reason for a limiting factor may not be readily apparent. For instance, lack of transportation may be considered by some to be an external factor in the case of lower income groups with limited access to public transportation; and others may argue that transportation is a personal responsibility. Recent work in this area includes an edited volume by Jackson (2005), Shinew et al. (2004), and Pennington-Gray and Kerstetter (2002).

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