

# Manageable Predictors of Park Visitor Satisfaction: Maintenance and Personnel

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**ABSTRACT:** A study during four consecutive seasons of visitors to 25 of Florida's State Parks was undertaken to determine manageable correlates, or predictors, of visitor satisfaction. Visitors ( $n=8608$ ) responded on a five-point Likert scale to 23 predictor items grouped into five categories. Item correlations revealed numerous strong predictors. Multiple regression analyses revealed that 34% of visitor satisfaction variance was predicted by ratings in just two categories of items: park maintenance and park personnel. Park managers who concentrate their efforts on these two manageable and demonstrably important features of the park experience—by assuring maintenance and cleanliness of the park and by training employees and their behaviors—should produce measurable and documentable increases in park visitor satisfaction. The authors suggest that cooperative planning and good communication between park managers and university researchers can greatly improve the quality and usefulness of research.

**KEYWORDS:** park visitor satisfaction, maintenance, and personnel

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The primary goal of managing parks and recreation areas is to providing satisfying experiences to park visitors. With the increase in demand for accountability, it is becoming increasingly important to document the progress toward the achievement of this goal of visitor satisfaction (Glover, 1999). Thus, it is vital to obtain reliable, objective information regarding park visitor satisfaction that can serve as the basis for sound policy, personnel, budgeting and programming decisions. Although efforts have begun to accumulate important information regarding many of the variables that predict visitor satisfaction, much of the accumulated information lacks management implications (Manning, 1999). It is especially important to identify the specific predictors of visitor satisfaction over which park managers can exert some degree of control. To this end, Florida State University Researchers worked in close cooperation with the Florida Department of Recreation and Parks' state and district level administrators

and park managers to design, coordinate and implement a large-scale examination of park visitor satisfaction. The purpose of this study was to determine the extent to which manageable variables predict park visitor satisfaction.

### **Review of Literature**

Visitor satisfaction has been the primary measure of quality in outdoor recreation beginning with the Outdoor Recreation Resources Review Commission (ORRRC) in 1962 and continuing to present-day research in outdoor recreation (Manning, 1999). But, collecting meaningful and useful information from visitors about what constitutes a satisfying recreational experience has proved to be challenging and complex (LaPage, 1983; Noe, 1992; Williams, 1989).

Considerable discussion and debate has occurred in the literature regarding the appropriate operational definition of satisfaction (McCarville, 2000). Most researchers agree that satisfaction results when positive expectations are fulfilled or exceeded (Oliver, 1993). But even that general definition fails to adequately define satisfaction when researchers report that outdoor recreationists claim their leisure experiences were satisfying despite being inconsistent with their prior expectations (Hultsman, 1998; Stewart, 1992). Achieving satisfaction in spite of unmet expectations is explained as resulting from motivational matching that occurs when people reduce cognitive dissonance by lessening the importance of original motives and increasing the importance of other motives (Engel, Blackwell, & Miniard, 1986). Thus, the assessment of satisfaction is complicated by the lack of agreement on exactly what it is that one is assessing.

As Manning (1999) suggested, satisfaction is such a multi-dimensional concept that overall satisfaction measures may be too broad to be useful to either managers or researchers and may not be sensitive enough to detect changes in the variables of interest. Further, overall satisfaction is influenced by situational variables including resource settings, social settings and management settings, and these influences are further mediated by the subjective evaluations of individual visitors according to their socioeconomic characteristics, cultural characteristics, experience, norms, attitudes and preferences (Whisman & Hollenhorst, 1998).

Advocating a transactional perspective, Williams (1989) suggested that visitor satisfaction is influenced by the settings provided by park and outdoor recreation managers, but that the ways in which these settings are perceived and evaluated by visitors may be equally as important. And as Manning (1999) reported, the perceptions of park and recreation managers frequently differ from the perceptions of visitors. Thus, obtaining objective information on visitor satisfaction is vital to informed park management. Yet, most parks managed by the U.S. National Park Service were recently shown to lack basic information on visitors, including socioeconomic characteristics and visitor satisfaction (Manning & Wang, 1998). This

situation leads one to suspect that objective visitor information may be equally as unavailable at most state and local parks.

According to Floyd, (1997), research in satisfaction in outdoor recreation has focused on two areas: (1) providing indicators of the quality of experiences and outcomes of leisure involvement and (2) providing recreation managers with information regarding the physical, social, and managerial conditions of outdoor recreation settings. The identification of manageable predictors of park visitor satisfaction is a vital component of the second area.

Acknowledging the successful accumulation of important information regarding some of the variables related to visitor satisfaction, Manning (1999) suggested that much of the research in this area lacks management implications. He further suggested that explicit attention should be given to those aspects of visitors' outdoor recreation experiences upon which park managers can actually have some effect. Determining which aspects of visitors' outdoor recreation experiences are amenable to management efforts requires not only the identification of those predictors but also a determination of which of those predictors have the strongest relationship to visitor satisfaction and thus should be prioritized accordingly. Identification of those predictors through the assessment of visitor satisfaction is indeed a complex task. One of the considerations adding to the complexity of assessment is the timing of the assessment. In a review of research regarding the nature of the leisure experience, Mannell and Iso-Ahola (1987) distinguished between assessment during the on-site recreation experience and assessment sometime after the on-site recreation experience. These two constructs of recreation satisfaction, post hoc satisfaction (PHS) and real-time satisfaction (RTS) were compared by Stewart and Hull (1992). They concluded that these constructs are somewhat distinct and caution that PHS assessments are not static across time or context. However, they acknowledge that satisfaction with a recreation experience assessed after the conclusion of that experience may be the best representation of the visitors' evaluation of the total recreation experience. For studies of long-term benefits and future choice behavior, such as decisions to make return visits, Stewart and Hull concluded that the most appropriate assessments to use might be post hoc assessments.

Using post hoc assessments, recent research has identified extremely diverse—and manageable—variables that are correlated with visitor satisfaction in outdoor recreation. For example, the most important attributes of a park were identified to be the upkeep of facilities, information signs, upkeep of the grounds, information sources, and the park staff, according to McGuire, O'Leary and Dottavio (1989). Other manageable variables identified include the absence of litter, erosion and deprecatory behaviors (Hammitt, Bixler, & Noe, 1996; Shelby, 1980), low level of facility development, pleasant social demeanor of others, good condition of the trails (Shelby, 1980), the presence of park rangers (Manning, 1999), staff

characteristics (Doucette & Cole, 1993; Novatorov, Seong-Seop, Wall, & Crompton, 1998), and maintenance of facilities (Arnold & Shinew, 1998; Lee, 1975; Novatorov, et al., 1998; West, 1982). Thus, the process of identifying the manageable variables that predict visitor satisfaction has begun. There remains much more to do.

Many have called for researchers and practitioners to work together to identify manageable variables related to visitor satisfaction (Manning, 1999; McGuire & O'Leary, 1989; Schweitzer & Randall, 1974). Practitioners should provide the initiative for research in order to make certain that their specific concerns and problems will be addressed (Schweitzer & Randall, 1974). Certainly practitioners and researchers agree that the basic purpose of managing outdoor recreation is to provide satisfying experiences to visitors. Practitioners are also facing an additional concern. Concurrent with the recent decrease in public support for existing levels of investment in social programs, there has been an increase in demand for greater fiscal responsibility and accountability in social programs including parks and recreation (Glover, 1999). It is becoming increasingly important to identify and document the value of the state parks to the public and to the economy, thus enabling the managers to promote and develop those aspects of the parks. The most effective way for research to address the diverse needs, concerns, and problems of both researchers and practitioners is for both parties to work together closely from inception to conclusion of the research and, as Pedlar (1999) described, to begin to "speak each other's language".

The purpose of the overall research project for the Florida Department of Recreation and Parks (FDRP) in the Department of Environmental Protection (DEP) was to evaluate and document the quality, effectiveness, and needs of the Florida State Parks through examining visitor opinions, preferences, demographics, and satisfaction with state park visits. Thus, the Department's purpose includes, as an integral component, our purpose for this study, which was to determine the extent to which manageable variables predict park visitor satisfaction.

## **Method**

### *Questionnaire Development*

The design and development of the questionnaire instrument was guided by the FDRP's need to fulfill specific information needs. Although state park visitor attendance figures were readily available, other information regarding the state parks had been collected sporadically. In order to document the accomplishments and needs of the Florida State Parks to the legislature and to other individuals and agencies who make budget decisions, convincing measures of the quality of the state park programs, services, and facilities were needed. The Division of Recreation and Parks Administrators reasoned that the most credible, influential source of information regarding the quality of Florida's State Park System would be

visitors to the state parks. The FDRP contacted Florida State University (FSU) for assistance in designing a visitor questionnaire. Various published and unpublished state and national park questionnaires and survey instruments were obtained and examined closely by representatives of the FDRP and researchers from FSU. Questionnaire items determined to be appropriate were selected and/or modified to meet the specific needs of the FDRP and the park districts in Florida. Other items were created specifically to meet the needs for information not addressed in previously existing instruments. Questionnaire items were also modified or added after consultation with the professional staff members at the Bureau of Operational Services as well as at the Office of Park Planning, which are both units within Florida's DEP. As the number of practitioners involved in the process increased, the amount of information perceived to be needed from the park visitors increased. Continued efforts were needed to limit the focus of the questionnaire. To assure content validity, the resulting draft questionnaire was closely examined by 37 other professionals from the Bureau of Operational Services and from the Office of Park Planning (including park program developmental specialists, information specialists, education and training specialists, park rangers, and district managers from each of Florida's five park districts). During a daylong training session, these professionals from the previously mentioned groups met in focus groups to examine each item for relevance and clarity. A final review by the administrators at the FSU's Department of Recreation and Parks to assure that the questionnaire met their needs for information resulted in no further revisions.

The resulting questionnaire contained 78 items that were categorized into six sections: General Park Evaluation, Park Personnel, Accessibility to People with Disabilities, Satisfaction with Park Activities, Frequency of Park Activities, and General Demographic Information. This study reports the findings of the first and second sections of the questionnaire, the General Park Evaluation Section and the Park Personnel section. The General Park Evaluation section contained 21 items related to the evaluation of the park, e.g., "The Park does not show signs of vandalism"; "The park was not too crowded." The Park Personnel section contained three items, e.g., "The staff members were courteous and friendly." (Tables 2 and 3). Responses to these positively stated items were on a five-point Likert scale (1 = strongly agree, 5 = strongly disagree).

Questionnaire instructions directed respondents to mark only one response per item, to darken responses completely, to make sure any erasures were complete, to not staple or tear the page, to refold the questionnaire and to return the questionnaire in the self-addressed stamped business reply envelope. Examples were given of proper and improper response markings. Each questionnaire was headed with prominent displays of the official seals from the DEP, FDRP, Department of Environmental Protection, the Florida Park Service, and FSU. Florida State University. Forty thousand copies of the questionnaire were printed on 8-

1/2" x 22" (21.59 cm by 55.88 cm) paper, and folded in half to form a four-page computer scannable document. During the printing process, each questionnaire was stamped with an individual identification number.

#### *Park Sampling*

There are 156 diverse state parks, state recreation areas and special feature areas within Florida's State Park System. Conducting visitor surveys at all of these sites would be cost and time prohibitive. The FDRP wished to revise their system of surveying state park visitors because they believed it focused too heavily on high attendance parks and resulted in an under-representation of park visitors to less well attended parks, recreation areas, and special feature sites. To assure reasonable generalization of the survey results, it was important to select a sample of state parks that were representative of the diverse geographic characteristics of Florida as well as representative of the each type of park and each area of the state. To this end, we used Florida's DEP Park System Characterization Analysis, which categorized parks into state recreation areas, state parks, or special feature sites. A simple random sample drawing of park names from a box containing all of the parks with staffed entrance stations was conducted for each of Florida's five park districts. The random drawing continued until two state recreation areas, two state parks, and one special feature site were selected from each district. The only exception was for district one, which has no state recreation area—in that district, four state parks and one special feature site were randomly selected. Table 1 indicates the results of the random drawing.

#### *Questionnaire Administration*

Each questionnaire form, along with a return postage paid envelope addressed to the DEP's Division of Recreation and Parks and a cover letter, was enclosed in an unsealed legal size envelope printed with the DEP Seal. The cover letter from the Director of FDRP, encouraged visitors to complete the questionnaire.

The envelopes were placed into packages of 50 and a label was affixed to each package indicating the date for distribution of those questionnaires. The park questionnaire number sequence was recorded and eight packages were placed into a shipping carton designated for that number sequence and pre-addressed for delivery to one of the 25 parks. Also included in each shipping carton were 400 green pencils imprinted with "Florida State Parks...the Real Florida" that were to be handed out with the envelopes.

An instruction sheet addressed to the park managers was included requesting that they distribute 50 of these packets in the morning and 50 in the afternoon on each of the first four days (Monday through Thursday) as visitors stopped to pay admission fees at the entrance stations. Any remaining packets were to be distributed during the following week (Monday through Thursday). Because weekend attendance at some of the parks sampled resulted in congested entrance stations, it was believed that the additional time required to distribute and explain the questionnaires would

**Table 1****Total Questionnaires Distributed and Returned at Each State Park, State Recreation Area, and State Special Feature Area during all Four Seasons**

	Questionnaires Distributed	Questionnaires Returned	Percent Returned
Alfred B. Maclay Gardens, in Tallahassee	677	141	21%
Big Lagoon, SW of Pensacola	1,600	230	14%
Grayton Beach, in Grayton Beach	1,062	281	26%
St. George Island, SE of Eastpoint	1,600	332	21%
St. Joseph Peninsula, near Port Saint Joe	1,325	263	20%
Manatee Springs, W of Chiefland	1,600	459	29%
O Leno, South of Lake City	771	218	28%
Paynes Prairie, in Micanopy	1,383	425	31%
S. Foster Folk Culture Center, White Springs	1,143	221	19%
Little Talbot Island, N.E. of Jacksonville	1,300	386	30%
Flagler Beach at Flagler Beach	714	151	21%
Sebastian Inlet at Sebastian Inlet	1,600	451	28%
Tomoka N of Ormond Beach	1,400	402	29%
Washington Oaks, S of Mainland	1,362	486	36%
Wekiwa Springs, N of Orlando	1,600	397	25%
Delnor-Wiggins Pass, S of Bonita Springs	1,600	750	47%
Hillsborough River, SW of Zephyrhills	1,600	336	21%
Gamble Plantation in Ellenton	875	189	22%
Little Manatee River, S of Sun City	638	212	33%
Oscar Scherer, S of Osprey	1,590	371	23%
Cape Florida, Bill Baggs in Miami	1,600	285	18%
Fort. Zachary Taylor, in Key West	1,600	395	25%
J.D. MacArthur Beach at North Palm Beach	1,600	460	29%
John Pennekamp Coral Reef in Key Largo	1,600	301	19%
John U. Lloyd Beach at Dania	1,600	466	29%
Totals	33,440	8,608	26%

further exacerbate the congested conditions and decrease the cooperation of the park visitors as well as the park entrance station staff. Thus, no questionnaires were distributed during the weekends. The questionnaires were distributed during a 2-week period in each of four consecutive seasons, beginning in summer, 1994 and ending with Spring, 1995. The park managers were asked to return any undistributed questionnaire forms to the administrative offices of the Division of Recreation and Parks.

#### *Data Processing*

After allowing 30 days for returns by mail, researchers examined each questionnaire for improper markings or for damage that could be corrected and made scannable. Questionnaires were scanned and converted to an SPSS data file. Researchers proofread the data file against a sample of questionnaires to assure them that all item information was scanned accurately.

Thirty days after the completion of the last questionnaire distribution, a total of 8,608 readable questionnaires had been received by the DEP. Park managers returned a total of 6,560 unused, undistributed questionnaires to the DEP. The number of questionnaires distributed, as well as the number and percentage of questionnaires completed and returned by park visitors, are shown in Table 1. The response rate of 26% is somewhat low but reasonable given that no inducement to complete the complex 78-item questionnaire was offered and no follow-up procedures were possible. Less than two percent of the returned questionnaires required corrective action to make the questionnaires readable by the scanner.

The possibility existed that some of the questionnaires may have been completely or partially completed at the park and mailed at a later time, and would thus constitute a measure of real time satisfaction which may differ somewhat from post hoc satisfaction. Post-hoc satisfaction depends more on visitors' long-term recall and consideration of the total recreation experience (Stewart & Hall, 1992). And, as Stewart and Hall found, questionnaires that were completed immediately following the park visit may have been more positive than those questionnaires completed after three weeks or more.

As with any questionnaire, results are properly generalized only to people like those who respond, and such people may differ systematically from those who do not respond. Although in a similar type of mail survey of traveler spending, Rylander, Propst and McMurty (1995) examined recall bias and found that respondents and non-respondents were similar in most respects. The preliminary inspection of the data revealed no evidence of bimodal distributions characteristic of polarized extreme views. Accordingly, the following results are presented as accurately reflecting the views of visitors to Florida's public parks — at least of visitors willing and able to complete and return a questionnaire.

### **Sample**

Of the 8,608 respondents, 75% were adults between the ages of 25 and 64, 19% were age 65 or older, and 6% were age 24 and below. Fifty-two percent of the respondents were female and 48% male. Most (56%) of the respondents reported previous visits to the state parks, with 18% of those visitors indicating at least 11 such visits in the previous 12 months, but 43% of the respondents were visiting a Florida state park for the first time. Other people accompanied most of the respondents, with 48% indicating they were accompanied by one other person and 43% indicating they were in a party of three or more people. Only 9% were solitary visitors.

Florida residents comprised the majority of respondents (66%) with 35% of those respondents residing in the same county in which the state park was located. Thirty-four percent of the respondents were non-residents of Florida and six percent were international visitors. Ninety-three percent of the respondents indicated they were White. Seven percent of the respondents indicated widely varying racial and ethnic diversity



consistent with Hartman and Overdeest's (1990) conclusions from their review of the research regarding visitors to federal and state park and recreation areas. The income levels reported by the respondents indicated that 31% were below \$30,000 in annual income, 25% were between \$30,000 and \$45,000, and 45% were above \$45,000. These results are consistent with the demographics of visitors to other outdoor recreation areas (Roggenbuck & Lucas, 1987; Stankey, 1971). None of these demographic variables accounted for even two percent of the variance in visitor satisfaction. Thus, the analyses of manageable predictors can be generalized to all visitors.

## Results

To focus this report on visitor satisfaction predictors over which park managers have control, we examined the general park evaluation items included on the questionnaire.

Two items, "Boat ramps, if available, are in good condition," and "The snack bar and/or other concessions have the things that I need," were rejected because their unusually low response rates (54% and 67%, respectively) indicated park-specific features. Three other items, "The weather was good during my visit," "The natural and cultural features of this park are worth protecting" and "I feel safe in this park" also were rejected as non-manageable climate and personal variables.

Two items measured visitor satisfaction: "Overall, I am satisfied with my park visit" and "I would like to visit this park again."

While there may be some problems with combining overall satisfaction with one's park visit and expressed intent to return, it should be noted that this item asks only about desire to return, not intent to return. Note also that both item means are quite positive (1 = strongly agree with positive statement; 5 = strongly disagree with statement), and that their small identical standard deviations indicate uniformly high satisfaction with their visit on both items. As expected, scores were strongly correlated,  $r = .683$ , for 8,182 visitors who responded to both items. Therefore, to avoid essentially redundant analyses, and to derive a more reliable single measure of general visitor satisfaction, scores from either or both of these two items were averaged. This derived measure indicates uniformly high visitor satisfaction scores (mean = 1.5 and small SD = 0.60) from 8,247 respondents.

The remaining 23 evaluative items were categorized in order to derive a minimum number of category predictor variables. The resulting five descriptive categories and the items included in each category are shown in Table 2 along with descriptive statistics from those who responded to those items and who had a satisfaction score.

### *Item Descriptive Statistics*

As indicated by the low means and relatively small standard deviations, each of the six items in the first category, Park Maintenance, was rated quite

favorably and uniformly (Table 2). All three items in the second category, Park Personnel, were uniformly rated even more favorably as evidenced by the slightly lower means and small standard deviations. In the third category, Park Information, the two item scores indicated slightly less favorable ratings. Except for bothersome insects, ratings on the five items concerning Park Annoyances were quite favorable. Ratings of the seven items in the last category, Park Facilities, were relatively less favorable and much more varied as evidenced by their larger standard deviations.

#### *Category Descriptive Statistics*

A single category score was derived for each respondent by averaging item scores in each category. These summary category data (shown in Table 2) reveal very favorable and uniform ratings in all five categories.

#### *Correlational analyses*

To determine whether these 23 items predicted visitor satisfaction, each item score was linearly correlated with the satisfaction score. The resulting item correlation coefficients, shown in Table 3, are all positive correlations and are all statistically significant, ( $p < .001$ ).

Far more useful to park managers and theorists is the squared correlation coefficient, which is independent of sample size and directly indicates the proportion of variation in visitor satisfaction scores that is predicted by item scores. To facilitate interpretation, this statistic is presented in percentage notation. Therefore, in Table 3, under each of the five categories, individual items are listed in order of the percentage of visitor satisfaction predicted ( $r^2\%$ ) so that the reader can immediately determine the more important manageable predictors of visitor satisfaction.

In the Park Maintenance category, for example, the first listed item addresses the park's cleanliness and maintenance. Scores on this one item alone predicted a substantial 20% of variation in satisfaction scores of 8,362 visitors who answered this item and at least one satisfaction item. In descending order, the remaining maintenance items each predicted more than 10% of observed differences in visitor satisfaction scores. Clearly, a well-maintained park is strongly related to visitor satisfaction.

Park personnel were rated highly on all three items, predicting 16% to 20% of the variation in visitor satisfaction scores. The favorable ratings indicate the competence of the park personnel, and the strong relationship of park personnel ratings to visitor satisfactions indicates the importance of good personnel training and careful monitoring of personnel.

Scores on each of the two Park Information items predicted 12% of the variation in visitor satisfaction, indicating that park signage and printed information provided to park visitors are both related to visitor satisfaction. On the five items measuring Park Annoyances, 10% of visitor satisfaction was predicted by annoyance caused by inconsiderate people or their pets.

Of the seven items referring to Park Facilities, only the parking ratings were predictive of visitor satisfaction, and then only modestly so. Clearly, the existence of picnic tables, shelters, water fountains, and other park

**Table 2**  
**Mean Score and Standard Deviation for Questionnaire Items and Predictor Categories (Likert Scale of 1 = Strongly Agree and 5 = Strongly Disagree) and Total Number of Responses**

Questionnaire Items and Predictor Categories	mean	SD	n
Park Maintenance	1.7	0.52	8,247
The park is clean and well maintained.	1.6	0.70	8,362
The park does not show signs of vandalism.	1.7	0.66	8,287
The water for fishing and swimming was free of litter and trash.	1.8	0.83	7,420
Restrooms are clean and in proper working order.	1.8	0.81	7,950
The natural environment of this park is being protected.	1.7	0.71	8,298
Picnic tables and grills are convenient and in good condition.	2.0	0.86	7,470
Park Personnel	1.6	0.63	8,247
The staff members were prompt and helpful.	1.6	0.69	8,063
The staff members were courteous and friendly.	1.5	0.65	8,227
The staff members were available.	1.7	0.73	8,156
Park Information	1.8	0.71	8,247
The park has enough direction signs (i.e., restrooms, parking, picnic).	1.8	0.82	8,341
There is enough available information (e.g., brochures about the park at the entry station).	1.8	0.85	8,259
Park Annoyances	1.7	0.57	8,247
I was not bothered by pets that other visitors brought to the park.	1.5	0.67	8,188
I was not bothered by inconsiderate people (rowdy, noisy).	1.6	0.76	8,284
The park was not too crowded.	1.7	0.73	8,314
I was not bothered by nuisance wild animals in the parks, such as raccoons, squirrels, alligators.	1.6	0.80	8,255
Insects were not a bother.	2.2	1.16	8,290
Park Facilities	2.1	0.62	8,247
There is adequate parking.	1.6	0.68	8,314
The park has enough shower facilities.	2.2	0.97	6,855
The park has enough picnic shelters.	2.1	0.99	7,498
The park has enough water fountains and faucets.	2.4	1.02	7,683
Trash containers are available.	2.0	0.90	8,064
Recycling containers are available.	2.2	1.01	7,312
Telephones are convenient.	2.4	1.01	7,024
Visitor Satisfaction	1.5	0.60	8,247
Overall, I am satisfied with my park visit.	1.5	0.66	8,182
I would like to visit this park again.	1.4	0.65	8,182

facilities is not nearly as predictive of visitor satisfaction as is the maintenance of those facilities.

#### *Multiple Regression*

The sum of the prediction percentages listed in Table 3 is greater than

100% because of correlations which normally exist among all items within and between categories. A well-maintained park will likely receive a high score on all items assessing appearance. Indeed, scores on all 23 items and general satisfaction scores may be related to, hence predicted by, other undetermined factors (unpleasant bickering among family members and/or missing bathing suits left home and/or flat tires).

While effects of unmeasured factors cannot be addressed, the effects of inter-item correlation among measured factors can be handled with multiple regression techniques. Ideally, each item can be entered into a multiple regression equation, and the total percentage of satisfaction predicted by all items can be determined after removing effects of these inter-item correlations. Scores from only those who respond to all items were included in the regression analyses. Because many respondents skipped questionnaire items, the resulting sample was reduced. Generalization from such an analysis, or from one in which a mean is substituted for all missing cases, can be problematic.

To maintain generalizability by keeping as many respondents as possible in the regression analysis, scores were averaged over all answered items within each category, and thus a small set of five category predictor scores was derived for each respondent. If items within each category reflect some general characteristic of the park, and if respondents perceive that characteristic consistently, then this average score over a number of items should constitute a more valid and reliable measure than one derived from a single item. Descriptive data for these five category predictor variables are shown in Table 2 opposite the category label, and all are based on 8,247 visitors with a satisfaction score plus all five category scores. Pearson correlation statistics are reported in Table 3 in terms of percentage of visitor satisfaction predicted by each single category score. Average park maintenance scores, for example, predicted a full 29% of differences in visitor satisfaction scores. All other category scores made lower — but still substantial — predictions of visitor satisfaction. All of these category predictors were positive correlations and statistically significant ( $p < .001$ ).

Because even these category scores are probably correlated, it was necessary to remove that correlation with stepwise multiple regression, predicting visitor satisfaction from these five category scores. The stepwise procedure essentially begins with the strongest predictor and repetitively adds to the regression equation the next strongest predictor, if the additional correlation is statistically significant, after adjusting for correlation with predictors already in the equation. Applied to these data, the stepwise regression solution produced the following order of four statistically significant ( $p < .001$ ) predictor categories and their cumulative percentages of predicted visitor satisfaction: Park Maintenance alone, 29%; adding Park Personnel, 34%; adding Park Information, 35%; and adding Park Annoyances, 36%. The last predictor, Park Facilities, added a trivial .001% which was not statistically significant ( $p > .05$ ) even with this large sample because of its modest separate correlation with visitor satisfaction

**Table 3**  
**Percentage of Park Visitor Satisfaction ( $r^2$  %) Predicted by Each**  
**Questionnaire Item and Each Predictor Category**

Questionnaire Items and Predictor Categories	r	$r^2$ %
Park Maintenance	.538	28.9
The park is clean and well maintained.	.450	20.3
The park does not show signs of vandalism.	.382	14.6
The water for fishing and swimming was free of litter and trash.	.366	13.4
Restrooms are clean and in proper working order.	.356	12.7
The natural environment of this park is being protected.	.347	12.0
Picnic tables and grills are convenient and in good condition.	.334	11.1
Park Personnel	.464	21.5
The staff members were prompt and helpful.	.444	19.7
The staff members were courteous and friendly.	.418	17.4
The staff members were available.	.404	16.3
Park Information	.412	16.9
The park has enough direction signs (i.e., restrooms, parking, picnic).	.358	12.8
There is enough available information (e.g., brochures about the park at the entry station).	.351	12.3
Park Annoyances	.385	14.8
I was not bothered by pets that other visitors brought to the park.	.321	10.3
I was not bothered by inconsiderate people (rowdy, noisy).	.317	10.1
The park was not too crowded.	.278	7.7
I was not bothered by nuisance wild animals in the parks, such as raccoons, squirrels, alligators.	.262	6.8
Insects were not a bother.	.192	3.7
Park Facilities	.392	15.3
There is adequate parking.	.346	12.0
The park has enough shower facilities.	.282	8.0
The park has enough picnic shelters.	.271	7.3
The park has enough water fountains and faucets.	.268	7.2
Trash containers are available.	.253	6.4
Recycling containers are available.	.243	5.9
Telephones are convenient.	.235	5.5

and because these category scores were strongly correlated with those from the first four categories. The standardized Beta coefficients, which confirm the relative importance of the variables, were .31 for Maintenance, .21 for Personnel, .14 for Information and .11 for Annoyances. Other regression statistics are shown in Table 4.

This final regression analysis revealed that fully 34% of reported differences in visitor satisfaction were predicted by just two variables: Park Maintenance and Park Personnel.

## Implications

While this survey successfully identified substantial predictors of visitor satisfaction, the correlational nature of this research prevents an automatic causal interpretation. Unknown variables (e.g., traffic congestion on the way to the park) could have influenced both predictor and predicted scores. However, so long as those unknown variables continue to have the same effect on visitors in the future, we can expect a change in visitor satisfaction following a change in one or more of the predictor variables identified in this research.

The results of this large survey indicate that visitor satisfaction is strongly related to maintenance of the park and to behaviors of park personnel. Because both of these areas are manageable, we recommend that park managers and researchers focus their efforts on these demonstrably important features of public parks. The second item in table 3 suggests, for example, that park managers should react immediately to signs of vandalism as such action should quickly and inexpensively increase park visitor satisfaction.

Park cleanliness was shown to be very important to park visitors. These results are consistent with those of Hammitt et al., (1996) who reported that litter negatively influenced the quality of the park experience even though litter was not observed often. Similarly, our visitors agreed strongly that the parks were clean, yet their satisfaction with their visit was related to their different perceptions of that park's cleanliness. In similar research, Arnold and Shinew (1998) reported that 38% of park visitors indicated that maintenance of facilities limited their use of community or neighborhood parks, and Novatorov et al., (1998) found that recreation center users rated cleanliness and maintenance as extremely important. Similarly, the absence of litter and the absence of pollution were positively correlated with visitor satisfaction in Yosemite National Park (Lee, 1975) and in backcountry forest recreation (West, 1982). As Manning (1999) emphasized, maintenance and the lack of litter are universally important indicators of quality in recreational areas. Therefore, park managers who vigilantly stress the maintenance, cleanliness, and appearance of their parks should find measurable and documentable increases in park visitor satisfaction.

Behaviors of park personnel, i.e., being prompt, helpful, courteous and friendly, were also shown to be important to park visitors. In any enterprise, customers are positively affected by the presence and politeness of staff members, or negatively affected by their absence and indifference. Manning (1999) reviewed 28 major research investigations of backcountry visitor attitudes toward management policies and concluded that the majority of visitors favor the presence of wilderness rangers. Similarly, Novatorov et al., (1998) reported that visitors rated staff characteristics as very important while rating actual performance much lower. And, visitors rate personal contact with rangers and other employees as the most important and most effective means of communication and education

**Table 4**  
**Summary of Stepwise Regression for Predicting Visitor Satisfaction from Ratings in Categories (N = 8,247)**

Predictor Categories	<i>B</i>	<i>SE B</i>	$\beta$	R <sup>2</sup> Change
Maintenance	.360	.013	.310	.289
Personnel	.198	.010	.206	.051
Information	.120	.009	.141	.014
Annoyances	.122	.011	.115	.010
			Total	.364

(Doucette & Cole, 1993). Our visitors were quite positive in their ratings of the park staff. Their few and/or minor differences in those staff ratings, however, were enough to influence the reported quality of their visit. Researchers could help park administrators maintain high-quality staff by soliciting and reporting specific behaviors (not people) that are perceived negatively and positively. In addition, park managers who carefully train and monitor their employees' behaviors should produce measurable and documentable increases in park visitor satisfaction.

Obviously, providing satisfying experiences to park visitors is the primary goal of managing outdoor recreation. And, documenting the progress toward the achievement of this goal is becoming increasingly important. Therefore, we must continue to collect information from visitors about what determines a satisfying recreation experience. Because the two categories of Park Maintenance and Park Personnel together predicted 34% of visitor satisfaction, it seems logical that administrators and researchers should conduct more focused surveys in these two areas. Certainly these two categories are under the practical control of park administrators, and Surveys should be designed to provide park-specific information about park maintenance and park personnel that could serve as the basis for actual policy, personnel, budgeting, and programming decisions.

Future research efforts should emphasize communication and cooperation between park administrators, park managers and researchers, beginning with the definition of the research problem and continuing throughout the entire research process, as Schweitzer and Randall (1974) suggested over a quarter of a century ago. Manning (1999) reiterated that suggestion and recommended that managers and researchers work together in order to insure that the managers' problems will be addressed as directly as possible and to ensure that the outcomes of the research will be satisfying to both parties. A study of federal and state outdoor recreation managers found that only six percent had regular contact with university researchers (McCool & Schreyer, 1977), which is extremely unfortunate

for managers, for researchers, and especially for our recreation consumers. Manning concluded his review of outdoor recreation research by calling for an increase in researchers' and managers' understanding and appreciation of each other's roles and processes in outdoor recreation research. As a result of this research project, we suggest that Manning's goal of increased understanding and appreciation could be achieved through cooperative planning and good communication between park managers and researchers. Such cooperation should begin with the conceptualization phase and continue throughout the entire research process.

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