

AN EXAMINATION OF SERVICE QUALITY INDICATORS AS A PREDICTOR OF
CUSTOMER SATISFACTION FOR U.S. FOREST SERVICE RECREATIONISTS

By

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A THESIS PRESENTED TO THE GRADUATE SCHOOL
OF THE UNIVERSITY OF FLORIDA IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF SCIENCE IN RECREATIONAL STUDIES

UNIVERSITY OF FLORIDA

2004

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by

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This document is dedicated especially, to my mentor, Dr. Robert C. Burns, and to all my fellow graduate students and professors in the Department of Tourism, Recreation, and Sport Management at the University of Florida. Go Gators!

ACKNOWLEDGMENTS

First and foremost, I would like to thank my family. My parents, Don and Kathie, always taught me that education should be one of my top priorities in life. My mother's favorite saying growing up was, "Go read a book." They raised me as a Florida Gator and were so excited the day I was accepted to the University of Florida. They were even more emotional on the day I graduated from college. They have supported my decision to attend graduate school every step of the way and I thank them for that. I also want to thank them for their continued patience throughout this whole process. They dealt with my anxiety, when I did not believe I would get through certain semesters, and kept motivating me to keep going. I'm thankful to Mom and Dad for believing in me. I love them very much.

My brother, Joe, also deserves thanks. I feel that my brother and I learn many things from each other. He has taught me that I should be myself at all times and not to worry about what other people think. I want to thank him for always being there for me and definitely for always making me laugh. I am so happy with the relationship we have now and want nothing more than for us to grow closer in our future years.

I would also like to thank my grandparents, Joseph and Helen Lipa, in Buffalo, New York. I wish nothing more than to be able to visit with them more often. The distance that separates us is so far, but that has never stopped the love from reaching the hearts of our family. They religiously sent me care packages and gifts throughout my undergraduate and graduate schooling and they always brought a smile to my face. I am

very grateful to my Grandma and Dzia Dzia for everything they have done! My Uncle Stan and Aunt Lottie were also a large part of my success in school. Their support and love will never be forgotten.

My grandparents, Jewell and James Farmer, and my Aunt Elaine have also been a huge part of my life. I appreciate their gifts, cards and letters. I enjoyed reading them, for they allowed my mind to take a break from the hectic days of school. Also, I especially appreciate their many prayers. They guided me in the right direction and kept me safe. I love them very much!

I would like to thank my boyfriend, Joseph Kuhn. He has taught me so many wonderful things about life, love, and happiness. Our continued support of each other has led to our success of finishing our graduate program together. We are a team, a wonderful team. I couldn't have done this without him. I love him very much I am proud that he lives his life being himself.

I would also like to thank all my awesome friends, Erica, Scott, Randy, Jackie, Nick, Jenny, Thea, Mandy, Peter, and many more, who constantly asked me, "So, what are you going to be?" They have all motivated me to figure out the answer to this question. For now, I will just hand them this thesis to read. I love them all so much.

Special thanks go to my committee members, Dr. Brijesh Thapa and Dr. Taylor Stein. Their knowledge and advisement have added to the quality of this thesis. I greatly appreciate the time and effort they took to help make this happen. Even though they lead the professor life of work, work, work, they still found time to advise and guide me, and several other graduate students in the right direction.

And most importantly, I would like to thank Dr. Robert C. Burns. I have learned an incredible amount of knowledge from Dr. Burns in the past three years. I was very lucky to be his graduate assistant during my program and work for him full-time during the summers. He taught me that completing this thesis was like raking leaves and you have to keep raking and raking until there are no more leaves left to rake. His professionalism, knowledge, and humor have contributed to my completion of this project and graduate program. He has not only inspired me, but several other students here at the University of Florida to always do the best that we can. He will forever be my mentor and I am proud to call him a friend.

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Abstract of Thesis Presented to the Graduate School
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August 2004

Chair: Dr. Robert C. Burns

Major Department: Tourism, Recreation, and Sport Management

Outdoor recreation agencies are, for the most part, in existence to provide a service for their visitors. This service may include providing proper facilities, information services, adequate information, and an overall quality experience. Previous research has shown that visitors have expectations regarding these services. Accordingly, if these expectations are not met, then the recreation agencies may not be meeting their visitors' needs. Recently, federal recreation agencies, such as the USDA Forest Service and the National Park Service, have taken part in a national effort to provide quality service to their users by examining their users' perceptions and satisfaction levels regarding their services.

The purpose of this study was to explore customer satisfaction measures as they apply to people who recreate in the national forests of Oregon and Washington. More specifically, this study examined the component dimensions of customer satisfaction and determined which variables are associated with an overall satisfaction rating. Based on

the findings of this study, the current customer satisfaction model and the current literature regarding recreational customer satisfaction were expanded upon.

There were two proposed customer satisfaction models in this study. The first model examined the strength of 22 satisfaction items with their respective domains. The second conceptual model examined the strength of the 22 satisfaction items in predicting overall satisfaction. This study also examined selected socio-demographic variables with domain-level satisfaction.

Two distinct models were tested in this thesis. The model predicting overall domain qualities explained 29-50% of the variance. The second model predicting satisfaction items to overall satisfaction accounted for 71% of the variance, which is extremely high for the recreation literature. A total of nine out of 22 satisfaction items were found to be significant predictors of overall satisfaction.

The two models tested in this study have advanced the current satisfaction model by accounting for proportions of variance in overall satisfaction that have not been as high in previous recreation studies. The satisfaction items and domains should be used for future evaluations of customer service at recreation agencies and should be tested in different areas around the country to see if similar results are produced. It should also be noted from the findings of this study, that the use of a multi-item index of satisfaction domains, rather than a single-item produced a robust outdoor recreation model of customer satisfaction.

CHAPTER 1 INTRODUCTION

Currently in the U.S., service industries provide for over 70 percent of the gross national product (GNP), while over 70 percent of the workforce is engaged in service occupations (Rosen, Karwan, & Scribner, 2003). Accordingly, improving service quality is a vital component for service managers and researchers to understand in order to satisfy the needs of customers. Then-president William Clinton recognized this importance when he took office in the United States presidential election of 1992, giving direct orders to all governmental agencies to begin addressing service quality (Absher, 1996; Burns, 2000; Clinton, 1993). More specifically, to improve public services, Clinton's Executive Order #12862 required all federal agencies, including the USDA Forest Service, to incorporate measuring trends in user satisfaction and use levels (Kocis, English, Zarnoch, Arnold, & Warren, 2003). The purpose of these orders was to assist Congress, Forest Service leaders, and program managers in making decisions that will better serve the public and the natural environment (Kocis et al., 2003).

In 2001, over 214 million people visited USDA Forest Service lands, waters, and recreation sites (USDA Forest Service, 2003b). These numbers are expected to grow annually, which may be evidence supporting the need for customer service research. This study is aimed at determining the most effective way of measuring recreationists' overall experience in a National Forest and what specific service or facility-related satisfaction attributes lead to overall satisfaction.

Over the last 20 years, businesses' attempting to improve their service quality has become quite the trend. Anderson and Zeithaml (1984) suggest that the most important purchase decision factor influencing the customer's buying decision is quality. Accordingly, Parasuraman, Zeithaml, and Berry (1985, 1988) proposed that high quality service can allow an agency to gain competitive advantage, simply by achieving customer satisfaction.

Since 1985, differentiating between the concepts of customer satisfaction and service quality has been a crucial issue for researchers attempting to advance the marketing literature (Parasuraman, Zeithaml, & Berry, 1985, 1988). Customer satisfaction is often perceived as a function of disconfirmation. The disconfirmation model indicates that a customer has expectations about a future service prior to the actual performance of this service (Churchill & Surprenant, 1982). The customer evaluates these expectations when determining whether they are satisfied or dissatisfied with the service experienced (Oliver, 1980).

Overcoming the issues in delimiting and measuring the construct of service quality, Parasuraman, et al. (1985) introduced and published the well-known SERVQUAL or Gaps model, which explains service quality as a function of the difference between a consumer's perceptions and expectations of a service. Based on the assumption that consumers use the relatively same criteria to evaluate service quality, Parasuraman et al., (1988) developed the SERVQUAL instrument. Noted as one of the most frequently cited models of customer service, SERVQUAL is defined by five dimensions, which include: 1) tangibles, 2) reliability, 3) responsiveness, 4) assurance, and 5) empathy. An organization attempting to improve their level of service quality can focus on better

understanding these five dimensions in striving to exceed a customer's expectations of the service offered.

The SERVQUAL model was first introduced to the recreation management field by MacKay and Crompton (1988, 1990), and Crompton and MacKay (1990). These authors operationalized service quality as taking a visitor's expectations and comparing them to the visitor's actual experience. These authors suggested that there are certain attributes that a visitor examines prior to the actual recreation service, including, physical representations, such as facilities, equipment, and appearance of personnel. Overall, achieving customer satisfaction is less difficult in a recreation setting when managers understand their visitor's expectations and their importance level of each dimension (MacKay & Crompton, 1989).

Bolton and Drew (1991) refer to recreational customer service as a visitor's evaluation of any given component of a recreational experience at a recreation site. Soon after, Hamilton, Crompton, and More (1991) investigated SERVQUAL in a park setting. These authors focused on whether the five dimensions of SERVQUAL were appropriate in a park context and found that the methodology developed by Parasuraman et al. (1988) methodology is generalizable across a broad range of outdoor recreation settings. Hamilton et al. (1991) concluded that since park agencies depend on their visitors' experiences, it is imperative for park managers to know how visitors define service quality and what is expected from their services.

A similar model to SERVQUAL, known as the customer service quality model (CSQ), was introduced to leisure studies in Australia and New Zealand by Absher, Howat, Crilley, and Milne (1996). These authors suggest the importance of an expanded

approach to market segmentation in customer service quality research. These authors posit that by evaluating customer expectations in more detail, leisure service managers will be provided with valuable information that will help them make sound decisions.

Customer satisfaction literature, particularly in the marketing field, has grown in abundance since its establishment in the mid 1980's (Brady, Cronin, & Brand, 2002; Burns, 2000; Rosen et al., 2003). Much of the recreation satisfaction literature has stemmed from this marketing literature and has expanded dramatically over the past two decades. This has allowed recreation managers to understand their customers better, ultimately better serving their needs. However, satisfaction has a myriad of definitions and interpretations, making it difficult to determine what actually causes one to experience satisfaction or dissatisfaction. This study aims to advance the literature by utilizing service quality indicators to predict customer satisfaction in an outdoor recreation setting.

More specifically, this thesis will examine customer service models of Burns (2000); Burns, Graefe, and Absher (2003); and White (2002). These authors focused on the development a model of customer satisfaction that adequately predicts overall satisfaction in the recreation field. This study is an extension and replication of their work.

Burns (2000) and Burns et al. (2003) explored the relationships between 19 customer satisfaction attributes, four satisfaction domains (i.e., facilities, services, information, and recreation experience), and overall satisfaction across three user groups (i.e., ramp users, campers, and day users). A total of 2,933 water-based recreationists were surveyed at ten different U.S. Army Corps of Engineers lakes. Respondents

reported their satisfaction and importance levels for 19 specific satisfaction items. Gap scores were established from these scores in order to measure how close the satisfaction item came to meeting or exceeding expectations or desires (Burns, 2000; Burns et al., 2003). The results showed that the 19 satisfaction items were relatively strong predictors of their overall domains, accounting for 24-41% of the variance associated with the quality domains. The recreation experience domain, which was the newest domain in the literature, accounted for the lowest proportion of the variance, making it the weakest model ($R^2=.24$).

Another significant finding in this study was the relationship between satisfaction-only measures and gap scores in order to determine which was a better predictor of domain-level and overall satisfaction (Burns, 2000; Burns et al., 2003). These authors found that the satisfaction-only measures were two to three times stronger predictors of overall satisfaction than the gap scores (24-41% versus 8-14%). This study illustrates yet more evidence of performance-only scores as the better predictor of overall satisfaction.

In another study involving visitors to Army Corps of Engineer-managed lakes, 12 satisfaction items, representing four domains (facilities, services, information, and fee program), were measured with regards to their predictability of overall satisfaction (Graefe, Burns, Wickham, & Titre, 1999). The recreation fee program domain was a new domain incorporated into the study, while the recreation experience domain was dropped. Graefe et al. (1999) postulated that the prediction of satisfaction was not especially strong ($R^2=.20$) in this case because overall satisfaction, as the dependent variable, was asked as a single item on a ten-point rating scale. This type of measurement for overall satisfaction is not a direct measure of quality of the four satisfaction domains, rather it

illustrates a more subjective measure of overall satisfaction with the visitor's experience (Graefe et al., 1999). As for the individual satisfaction items, the items that showed the strongest relationship with overall satisfaction included cleanliness of restrooms, value for fee paid, ease or convenience of paying the fee, and adequate ranger or assistance patrols.

In a more recent study, White (2002) explored what caused festival attendees' overall satisfaction and whether a newly proposed domain effects satisfaction. More specifically, she looked at the determinants of overall satisfaction of attendees at a downtown arts festival in Gainesville, Florida. In her explanatory study, White (2002) utilized three of the identical domains (facilities, information, services) as in the Burns (2000, 2003) study and added a new domain. This fourth domain, social experience, was utilized in place of the Burns (2000) and Burns et al. (2003) recreation experience domain. The four items used to predict the social experience domain included the social environment at the festival, the warmth/friendliness of the crowd, the opportunity to recreate without feeling crowded, and the opportunity to see the art without interference from others. Based on Crompton's (1979) study that found one of the reasons why people vacation is to socially interact with people outside of their normal social setting, White (2002) hypothesized that the social component of recreation is a key factor in predicting satisfaction. This model was tested to determine the proportion of overall variance associated with the items and the domains, with the results showing that 28% of the variance was accounted for in this model.

There are other factors that may affect one's satisfaction level, such as a person's socio-demographics. Traditionally, demographic characteristics, such as education,

income, age, gender, etc, have been utilized to explain the trends of participation in outdoor recreation. For instance, males may be more likely to participate in a particular outdoor recreation activity more than females. Past research has shown some significant differences in socio-demographic variables within the outdoor recreation field.

Cordell, Bergstrom, Hartmann and English (1990) posit that the ‘typical’ outdoor recreation participants are white, able-bodied individuals who are well-educated and of middle-income status. More specifically, males and higher-income individuals have more opportunities to recreate than any other group (Cordell et al., 1990).

Burns (2000) analyzed socio-demographic variables of respondents at ten Army Corps of Engineers managed lakes in the summer of 1997 across four quality domains (facilities, services, information, and experience). When domain satisfaction between age groups was examined, some significant differences were noted. The respondents in the “30 or younger” group were less satisfied with the performance of all four domains than all the other age groups. Accordingly, respondents in the “56 or older” group were more satisfied with the performance of all four satisfaction quality domains. Again, the importance of looking at demographic characteristics is seen in this study because these results imply that managers must understand the needs of the younger group better.

Statement of the Research Problem

The primary purpose of this study was to investigate service quality indicators as a predictor of customer satisfaction for U.S. Forest Service recreationists. Studying the determinants of customer satisfaction is vital for recreation managers. This study will expand the current customer satisfaction model, which will expand upon the current literature regarding recreational customer satisfaction. First, this thesis will explore the nature of customer satisfaction as it applies to a person recreating in the National Forests

in Oregon and Washington. Second, this thesis will examine the component dimensions of customer satisfaction and determine which variables are associated with an overall satisfaction rating.

In order to accomplish this task, this thesis will first test whether the individual satisfaction items are strong predictors of their respective satisfaction domains. This is proposed in the first conceptual model of satisfaction of items to domains (see Table 1). Next, this study will examine whether the individual satisfaction items are significant predictors of overall satisfaction. The overall satisfaction variable will be created by an index using the six quality domain items: sanitation and cleanliness, safety and security, condition of facilities, responsiveness of staff, natural environment, and information services. Determining which individual attributes predict overall satisfaction will help recreation managers better understand how to satisfy their visitors.

Research Questions

The following specific questions were proposed:

R₁: What does the sample of recreationists look like?

R₂: Do the individual satisfaction items represent their respective satisfaction domains?

R₃: Are the satisfaction items a good predictor of overall satisfaction?

R₄: Are there differences in the domain-level customer satisfaction model for various visitor segments based on gender, age, residence, and income?

Table 1. Items Used to Measure Satisfaction

Dimension	Measures
Sanitation & Cleanliness	Litter-free environment Cleanliness of restrooms and toilets Garbage disposal Recreation areas free of human/animal waste
Safety & Security	Recreation sites free of dangerous conditions Safety and security at recreation areas Risk of vandalism or theft to vehicles Compatibility of recreation use with the environment
Condition of facilities	Availability of drinking water Condition of facilities Availability of parking spaces Condition of roads and trails Accessibility for persons with disabilities or special needs
Responsiveness of Staff	Courteous and friendly staff Accessibility of uniformed FS employees Assistance for people with special needs
Natural Environment	Wildlife can be found to observe Views from recreation areas free of obstruction by buildings or development
Information Services	Clearly posted rules and regulations Current and accurate on-site information Roadside signs and directions Availability of multilingual services

Limitations

Though there are 155 National Forests across the United States, the results of this study may only apply to the 20 National Forest units in Oregon and Washington. The findings may not be generalizable to the general population of recreationists, as only residents of Oregon and Washington were sampled.

Delimitations

This study was delimited to the residents of Oregon and Washington who were contacted through the use of a random-dial telephonic survey. The respondents must have been 18 years old or older to participate in the survey.

Definitions

The following definitions are given for the purpose of this study:

National forest refers to lands and waters managed by the USDA Forest Service, which is different from state parks, National Parks, or other recreation areas.

Outdoor recreation refers to land, water, or snow-based activities.

Performance-only measures of satisfaction refers to service quality measures that involve a consumer's perception of the performance of a service provided, which is different from the gap analysis between the consumers' performance perceptions and their expectations (Brady, Cronin, & Taylor, 2002).

Recreationist is a Forest Service applied label for those respondents who answered 'yes' to the question, "Have you participated in any outdoor recreation activities during the past 12 months?"

Segmentation facilitates an understanding of what constitutes a quality recreation experience for different user groups based on common characteristics (Donnelly, Vaske, DeRuiter, & King, 1996).

Service quality refers to the comparison customers make between their expectations and their perception of the service received (Gronroos, 1982; Lewis & Boom, 1983; Parasuraman et al., 1985,1988).

Service performance gap is the discrepancy between the specifications of service and the actual delivery (Zeithaml, Berry, & Parasuraman, 1988).

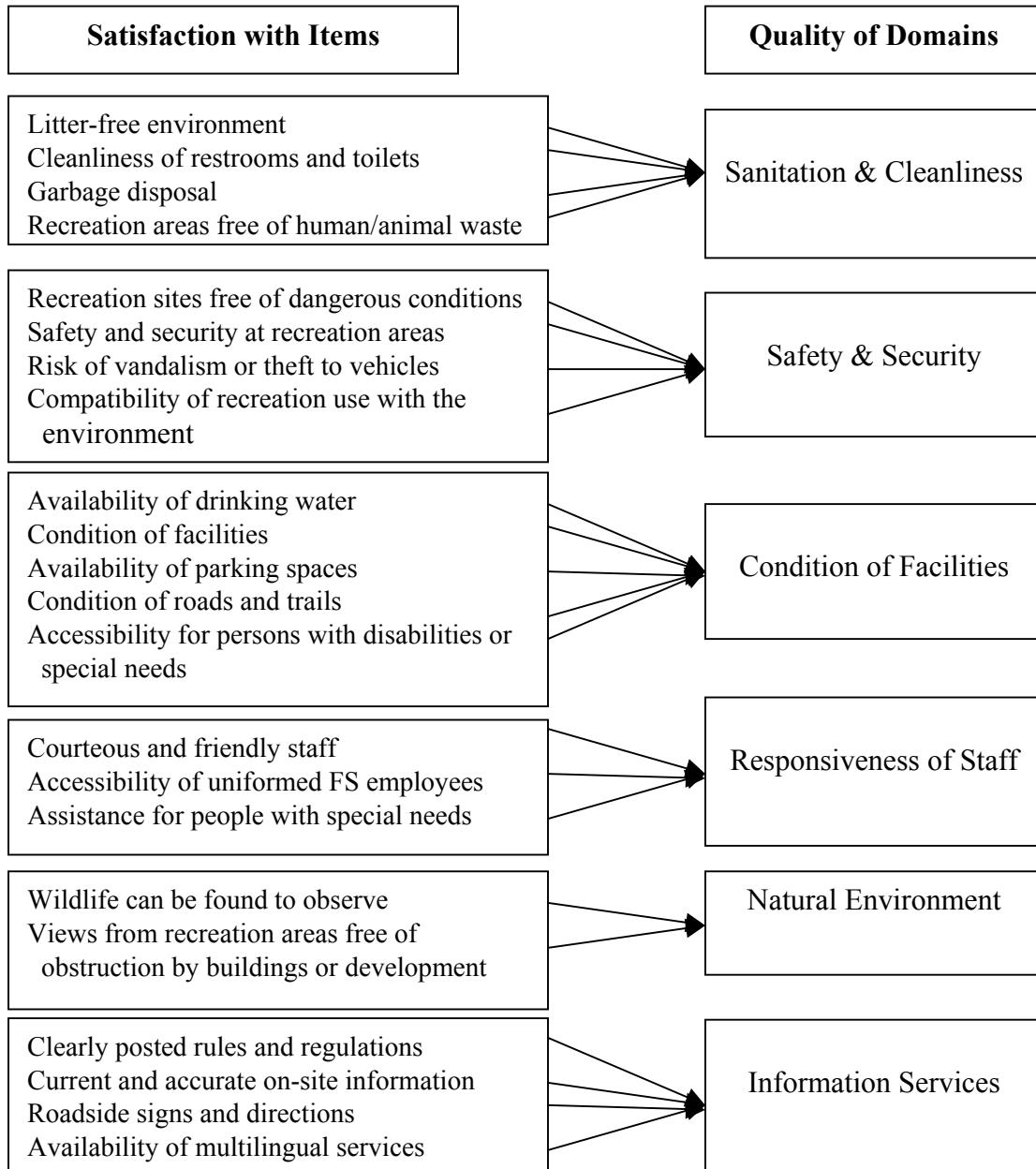


Figure 1: Conceptual Model of Customer Satisfaction-Items to Domains
(Research Question #2)

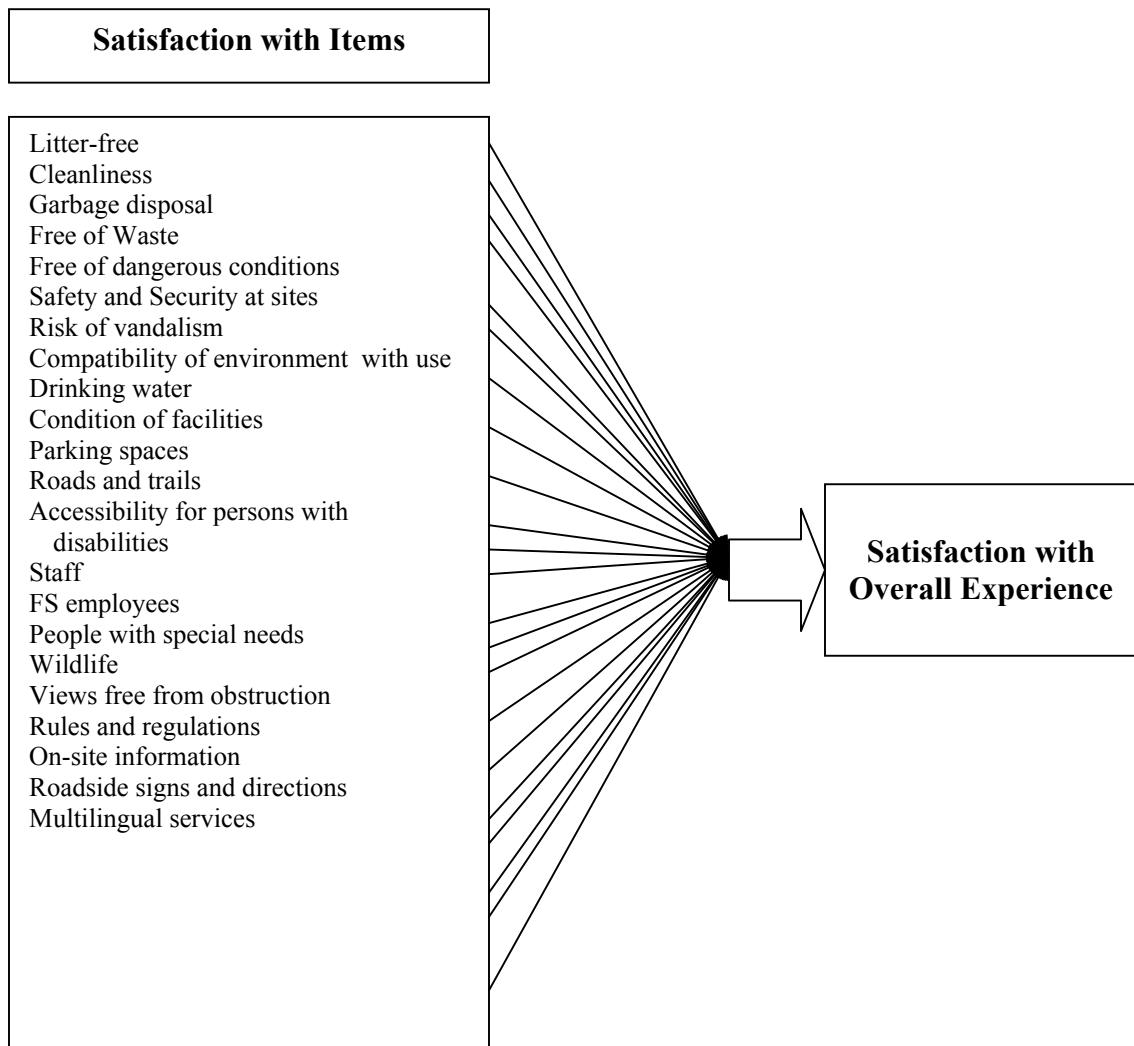


Figure 2: Conceptual Model of Satisfaction-Items to Overall
(Research Question #3)

CHAPTER 2 LITERATURE REVIEW

The purpose of this chapter is to review the relevant literature related to the marketing view of customer satisfaction and service quality, followed by, recreation satisfaction, recreation satisfaction domains and finally, market segmentation.

Introduction

Since 1992, customer satisfaction studies to obtain visitor's perceptions of services and facilities in USDA Forest Service managed areas have been increasing (Burns, 2000). This increase in customer satisfaction research is a direct result of the Government Performance and Results Act (GPRA) of 1992. Implementation of GPRA resulted in an increased interest in customer service across all federal government agencies from the US Postal Service to the National Park Service to the USDA Forest Service (Burns, 2000).

Over the last decade, the USDA Forest Service has conducted a series of in-depth studies of their recreation resource management units (National Forests, National Scenic Areas, etc.) to measure site quality and recreation management. The Forest Service's customer service effort began with the "Customer" program in the early 1980's (Cordell, et al., 1990). More recently, the Forest Service has implemented a program to evaluate visitor use patterns, customer satisfaction indicators, and economic impacts (National Visitor Monitoring Use Study or NVUM) of their managed outdoor recreation sites (Kocis et al., 2003).

In order to increase the customer's perception of a quality recreation experience, customer satisfaction must be achieved at all recreational sites. The stipulation of

maintaining consistently high-quality recreation ratings for facilities and services is a major challenge for recreation managers. The overarching goal is to maintain or improve service quality and satisfaction.

Marketing View of Customer Satisfaction and Service Quality

Over the past few decades, the construct of service quality has received a significant amount of attention from services marketing researchers, mainly due to its influence on an organization's success. The most important purchase decision factor influencing the customer's buying decision is quality, which also contributes to market-share and return on investment (Anderson & Zeithaml, 1984).

By mastering the concept of customer satisfaction, an organization will not only increase its value of customer assets, but can also create a better business performance overall. This meets one of the goals of GPRA; to ensure that federal government agencies are run more like businesses than in the past. Parasuraman et al. (1985, 1988) opine that services that achieve customer satisfaction through high quality service can differentiate an agency from its competitors.

However, differentiating between the concepts of customer satisfaction and service quality has been a critical issue for researchers who have been attempting to advance the marketing literature in the past years. Parasuraman et al. (1985, 1988) specifically suggest that service quality is an antecedent of customer satisfaction, while some researchers argue that satisfaction is antecedent to service quality. A third view of this ambiguous relationship is that neither satisfaction nor service quality may be antecedent to the other (Cronin & Taylor, 1992). According to Brady et al. (2002), while there is still a lack of consensus, the dominant theory is that service quality is an antecedent of customer satisfaction.

This section of the literature review will begin with the latter construct, customer satisfaction. Understanding what makes customers satisfied or dissatisfied and how consumers respond under these conditions is vital for quality managers in service organizations (Rosen et al., 2003). Customer satisfaction has resulted in a model of disconfirmation, under which expectations about a future service are formed in the customer's mind prior to actual performance of the service (Churchill & Surprenant, 1982). According to Oliver (1980) these are the expectations that customers make reference to when determining whether they were satisfied or dissatisfied.

Until 1985, few researchers attempted to investigate service quality because of its difficulties in delimiting and measuring the construct (Parasuraman et al., 1985). It was in this year that Parasuraman, Zeithaml, and Berry published and introduced a conceptual model of service quality. This model, known as the Gaps model, illustrated that quality is a function of the difference between a consumer's perceptions and expectations of a service. This gap between a customer's expectation of service quality and their perception of what is actually delivered is measured. Theoretically, by size; the smaller the gap, the better the quality of service (Parasuraman et al., 1985).

This model was based on an exploratory qualitative study, which employed a succession of consumer focus groups and in-depth interviews with four service agencies—retail banking, credit card, securities brokerage and product repair and maintenance. The purpose of the interviews and discussions was to discover the perceived determinants of service quality. The results were extraordinary; with consistent responses found across the various service types. Therefore, Parasuraman et

al. (1985), concluded that consumers used the relatively same criteria to evaluate service quality, regardless of the service type.

The Gaps model of service quality was formed based on ten determinants uncovered in their research, and were categorized as follows: access, communication, competence, courtesy, credibility, reliability, responsiveness, security, tangibles, and understanding/knowing the customer (Parasuraman et al., 1985).

In further research in service quality, Parasuraman et al. (1988) performed scale purification on their original model of ten determinants and reduced their model to only five dimensions, which included the following:

Tangibles:	Physical facilities, equipment, and appearance of personnel
Reliability:	Ability to perform the promised service dependably and accurately
Responsiveness:	Willingness to help customers and provide prompt service
Assurance:	Knowledge and courtesy of employees and their ability to inspire trust and confidence
Empathy:	Caring, individualized attention the firm provides its customers

These latter dimensions form the structure for what is known as SERVQUAL. The SERVQUAL model is a concise multi-item scale that measures consumer perceptions of service quality, which are based on the ten dimensions of service quality (Parasuraman et al., 1985). It has become apparent that SERVQUAL is the most popular standardized questionnaire used to measure service quality to date, with several applications.

This model also consists of gaps on the service provider's side that are also likely to affect service quality as perceived by the consumers. These gaps are as follows:

- Gap 1:** The difference between consumer expectations.
- Gap 2:** The difference between management perceptions of consumer expectations and service quality specifications.
- Gap 3:** The difference between service quality specifications and the service actually delivered.
- Gap 4:** The difference between service delivery and what is communicated about the service to consumers.

In order to improve service, retailers can apply SERVQUAL to better understand the service expectations and perceptions of their consumers (Parasuraman et al., 1988). Parasuraman et al., express the belief that the SERVQUAL model can be modified or supplemented to suit the characteristics or specific research needs of a particular organization. Another application of SERVQUAL is to determine the relative importance of the five dimensions in influencing customers' overall quality perceptions (Parasuraman et al., 1988).

In a discussion related to consumer satisfaction in a non-recreation study, Zeithaml and Berry (1996) stated that satisfaction is a broad evaluation of a service that is influenced by perceptions of service quality, product quality and price. Campbell (1980) defined satisfaction as "an act of judgment, a comparison of what people have to what they think they deserve, expect, or may reasonably aspire to" (p.22). This author also postulated that if expectations are repeatedly unmet, individuals might learn to be satisfied with less. Overall, customer satisfaction has been described as a latent construct with multiple indicators at the attribute level (Bolton & Drew, 1991).

Criticisms

There have been many critical assessments conducted to re-evaluate the SERVQUAL model (Babakus & Boller, 1992; Carman, 1990; Cronin & Taylor, 1992). Babakus and Boller (1992) examine various conceptual and methodological issues vis-à-vis SERVQUAL. They suggest that there are problems with the gap scores in that the expectation scores do not contribute to them. Carman (1990) also questioned the validity of SERVQUAL's dimensions and concluded that the expectation score did not contribute to the difference (gap) scores. Cronin and Taylor (1992) examined the operationalization and measurement of SERVQUAL, as well as the relationships between service quality, consumer satisfaction, and purchase intentions. A total of 660 questionnaires were collected from personal interviews in the southeastern United States. These authors posit three conclusions from their investigation. First, they conclude that service quality should be measured as an attitude. Second, they found that satisfaction is an antecedent of service quality. However, their model provides empirical support that perceived service quality leads to satisfaction. Finally, they discovered that satisfaction has a significant effect on purchase intentions, whereas service quality does not have such an effect in any of the four industries. Furthermore, these authors created SERVPERF, a performance-only measure of service quality to replace the expectations scale, which they claim outperforms the SERVQUAL model.

In response, Parasuraman, Zeithaml, and Berry (1993), further developed their model and proposed a continuum of desired and adequate expectations at either ends and a zone of tolerance in between. Responding to their critics, Parasuraman, Zeithaml, and Berry (1994), analyzed the performance of alternative measures. They opined that a three-column format of SERVQUAL is the most functional. This three-column

disconfirmation scale looks at a consumer's desired and adequate expectations in comparison to their performance perceptions.

Another recent study by Rosen et al. (2003) was conducted to further understand the typical results of disconfirmation measurement and its implications. The results illustrate that service businesses are typically not able to satisfy consumers' expectations of a service as directly measured by the customers themselves. Overall, customers generally expect more than they actually receive (Rosen et al., 2003). Perhaps the key point in all of this is that much more research is needed into what consumers expect and it may be site-specific.

Recreation Satisfaction

Since Wagar (1966) asked the question, "What is quality in outdoor recreation?" the concept of customer satisfaction has been dynamically researched. Manning (1986) defined quality in outdoor recreation as "the degree to which opportunities satisfy the motivations for which they are designed." In reference to recreation studies, customer satisfaction refers to a visitor's evaluation of any given component of a recreational experience at a recreation site (Bolton & Drew, 1991). Perceptions of customers' performance and experience affect the perception of satisfaction for customers (Bolton & Drew, 1991). Absher (1998) suggested that customer satisfaction is a construct that is global to customer service.

MacKay and Crompton (1988) are acknowledged as being the first to introduce the SERVQUAL model to leisure studies through the discipline of outdoor recreation. These authors posit that recreation service quality is defined as "the outcome of a comparison between expectations of a service and what is perceived to be received." In their study, which evaluated recreation service quality, MacKay and Crompton (1988) found that

leisure services could be classified along a continuum according to the relative importance of people and facilities in their delivery.

Hamilton et al. (1991) conducted a study focused on whether or not the five dimensions of SERVQUAL (tangibles, reliability, responsiveness, assurance and empathy) described service quality in the context of parks, and if so, which dimensions were most important. These authors concluded that service quality studies of outdoor recreation should be park specific, but that the original concept and methodology of service quality created by Parasuraman et al. (1988), is generalizable across a broad range of outdoor recreation settings. These conclusions emphasize the point that outdoor recreation agencies depend on their visitors' evaluations of their experiences and it is imperative for outdoor recreation managers to know how these visitors define service quality in order for them to provide the expected service.

A similar model to SERVQUAL was later developed to monitor the effectiveness in leisure service delivery for sports and leisure centers in Australia and New Zealand (Absher et al., 1996). This model is called the customer service quality (CSQ) model and suggests the importance of an expanded approach to market segmentation in customer service quality research (Absher et al., 1996). More specifically, these authors found that visitor characteristics, communication expectations, and information exchange proved to be important domains in determining customer expectations because they provide valuable information to managers of leisure services (Absher et al., 1996).

Mannell (1989) defined satisfaction as the fulfillment of drives, motives, needs or expectations. As Driver and Brown (1984) stated, the need for satisfying properties of

activities and settings exist to a large extent in the mind of the participant and not in the activity itself.

Understanding a customer's overall perception of quality among visitors is not enough to determine satisfaction. Individual attributes must be identified and defined to properly manage and increase satisfaction levels (Crompton & MacKay, 1989). In order to achieve superior customer satisfaction, managers must first identify what constitutes quality and satisfaction for those whom it serves and how they perceive it. More recently, numerous studies have examined and measured customer satisfaction and service quality to better understand the customer's perception of satisfaction (e.g., Absher, 1998; Burns et al., 2003; Burns, 2000; Mackay & Crompton, 1990).

Manning (1999) also discussed quality in an outdoor recreation setting. He suggested that because visitors want to have high-quality outdoor recreation experiences, managers must be able to provide such services. Quality in outdoor recreation has typically been measured through visitor use studies. Because managers want to provide high-quality outdoor recreation opportunities, it is important for them to recognize visitor opinions and their evaluation of these recreation sites (Manning, 1999). However, the complexity of how to measure satisfaction is still apparent today.

Numerous models and studies have been developed and adapted to measure satisfaction (Absher, 1998; Burns et al., 2003; Burns, 2000; Mackay & Crompton, 1990). In his 1998 study, Absher measured customer satisfaction and service in areas managed by the USDA Forest Service using performance-only items. He found that "the simplified performance-measure-only model seems capable of providing important answers about visitors' desired conditions and the extent to which they are actually

experienced" (p.41). Satisfaction, as well as dissatisfaction, can affect or change the entire range of management and planning procedures in establishing and implementing maintenance standards (Burns, 2000).

In a more recent study, Burns et al. (2003) recognized the discrepancy between an individual's expectations and the perceived actual experience by examining the relationships between customer service attributes, dimensions of satisfaction, and overall satisfaction. Burns et al. (2003) address the notion that customers may adjust their expectations of a recreation facility, service, or experience based on the number of trips made in the past, because they know what to expect as each additional trip is made. Therefore, these authors verified that the performance-only measures were better predictors of overall satisfaction than expectation-performance (gap) scores.

Recreation Satisfaction Domains

Recreation and leisure agencies must still acquire further research on which satisfaction domains are most effective. Several studies that attempt to measure satisfaction have used domains to narrow the satisfaction attributes (Absher et al. 1996; Burns, 2000; Cromptom & MacKay, 1989; Jaten & Driver, 1998; Parasuraman et al., 1985). Parasuraman et al. (1985) proposed ten domains or dimensions that measure customer satisfaction benefits. Later, this model was reduced to five domains of service quality: tangibles, reliability, responsiveness, empathy and assurance (Parasuraman et al. 1988).

Crompton and MacKay (1989) used the same five domain found in the work of Parasuraman et al. (1988) to measure customer satisfaction. The USDA Forest Service has also applied four satisfaction domains in their management plans, which measure quality for different types of recreation opportunities and include, health and cleanliness,

general recreation setting, safety and security, and responsiveness (Jaten & Driver, 1998).

These domains are part of the USDA Forest Service's Meaningful Measures System (MM), which has proven to be useful to recreation managers in their multiple-use agency.

Recently, Burns (2000) developed a model based on a study by Absher et al. (1996). This model used 19 attributes within four domains (facilities, services, information and recreation experience) to measure the relationship with their respective domain and overall satisfaction of customers in different users groups (Burns, 2000). Burns found that only a few individual items were predictors of satisfaction, also three out of the four domains (facilities, services, and recreation experience) were significant predictors of satisfaction (Burns, 2000). Based on this literature, a visitor's recreation experience is a key issue for recreation managers to evaluate.

Segmentation

Providing high quality recreation experiences for visitors is a top priority for many recreation agencies (Donnelly et al., 1996). One method in which resource managers can provide such experiences for their visitors, is managing by market segmentation. Kuss, Graefe, and Vaske (1990) posit that it is impossible for a single management strategy to accommodate for all visitors' preferences. This is why it is important for managers to differentiate users into more homogeneous groups (Donnelly et al., 1996). Segmentation causes users to be placed into certain groups based on characteristics in which they share, and ultimately helps managers to better understand their users. Bullaro and Edgington (1986) identified several advantages of using market segmentation in a public recreation and park settings. First, differences between groups can be identified. Second, the market's characteristics can be analyzed in more depth. Third, more effective programs can be developed when the consumer's needs are identified and met. Fourth, changing

market demands can be identified. Fifth, resources can be utilized more efficiently when directed to the segment with the most potential. Next, developing market objectives can be facilitated, and finally, future potential markets can be identified.

Several researchers have utilized market segmentation in their studies of outdoor recreation. Andereck and Caldwell (1994) investigated the segmentation of a public zoological park's visitors in North Carolina. These authors found that the visitors could be segmented by motives, demographics and trip characteristics. Andereck and Caldwell (1994) opine that public parks can make use of market segmentation to enhance their marketing strategies because segmentation based on motives helps to explain why visitors make site visits. Donnelly et al. (1996) developed a person occasion segmentation strategy to examine Colorado State Park visitor characteristics and the attributes of the parks they visited. These authors postulated that market segmentation by resource attributes-only is insufficient when parks offering different types of attributes may attract a wide array of clients.

In a more recent study, Burns (2000) explored the customer satisfaction across various segments of users, including, different user groups, past experience and demographics at water-based outdoor recreation settings. When comparing satisfaction levels across various user segments, campers were found to exhibit consistently higher satisfaction levels than the other activity groups. Managers can be assisted in managing better programs by analyzing the satisfaction levels of several different segments, which will allow for a better understanding of the differences between users.

Summary

Overall, the key to attracting and retaining visitors is to understand their expectations and performance perceptions. However, measuring the satisfaction of

recreationists is a difficult task and is not yet fully understood by researchers and managers (Burns, 2000). Also, there is still little agreement on the best measurement construct for satisfaction and future research is needed.

The following chapter outlines the methods utilized in replicating and extending the work of Burns (2000), Burns et al. (2003), and White (2002).

CHAPTER 3 METHODOLOGY

The following chapter describes the research methods used in this study. The research for this study was a secondary analysis based on a larger study conducted by the University of Florida and The Pennsylvania State University for the USDA Forest Service. A secondary analysis was used in this study from data collected in recent recreation use surveys of Oregon and Washington residents (Burns, Graefe, & Robinson, 2002; Burns, House, McCarty, Graefe, & Bright, 2003; Graefe, Burns, Robinson, & Lee, 2003). This study was funded by the USDA Forest Service, Region 6, and was intended to investigate the respondents' attitudes and opinions toward the Region 6 recreation fee program. The University of Montana and various research stations of the USDA Forest Service were the first to formally investigate the publics' view of the fee program in the Pacific Northwest (Miller, 1999). This study serves as a replication and extension of these studies.

Study Area

Region 6, otherwise known as the Pacific Northwest Region (see Figure 3) of the USDA Forest Service, includes 19 national forests (see Table 2), a National Scenic Area, a National Grassland, and two National Volcanic Monuments, all within the states of Oregon and Washington (USDA Forest Service, 2003). The respondents in the sample were asked whether they had been to a national forest in Oregon or Washington. In the state of Oregon, there are 13 national forests, including Deschutes, Fremont, Malheur, Mt. Hood, Ochoco, Rogue River, Siskiyou, Siuslaw, Umatilla, Umpqua, Wallowa-

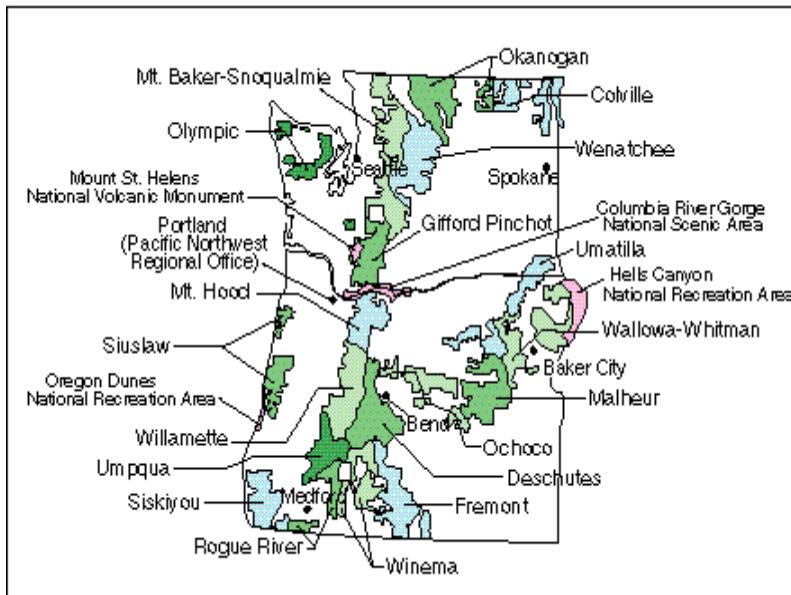
Whitman, Willamette, and Winema National Forests. In the state of Washington there are six national forests, including Colville, Gifford Pinchot, Mt. Baker-Snoqualmie, Okanogan, Olympic and Wenatchee National Forests (see Table 2 and Figure 3).

These national forests provide ample recreation opportunities for visitors, including walking, hiking, viewing natural features, visiting historic and prehistoric sites, picnicking, visiting nature centers or trails, camping, swimming, backpacking, fishing, motorized and non-motorized water travel, bicycling, horseback riding, hunting, etc. (Burns et al., 2002). The National Forests of Region 6 also provide a vast amount of wildlife, habitat for fish, plants, and animals, and some of the finest recreation lands in the country (USDA Forest Service, 2003). The Columbia River Gorge National Scenic Area is also included in Region 6. This spectacular river canyon, cutting the only sea-level route through the Cascade Mountain Range, delineates the border between the states of Oregon and Washington. More than 70,000 people are residents within the Columbia River Gorge boundaries, and recreationists visit the Columbia River Gorge National Scenic Area from around the world (USDA Forest Service, 2003).

Research regarding recreation fee issues began in earnest after the U.S. Congress implemented the Recreation Fee Demonstration Program in 1996 (USDA Forest Service, 2003). The Fee Demonstration Program was mandated by Congress, requiring federal land agencies, including the USDA Forest Service, to develop a plan for collecting fees from recreationists visiting federal lands. This program complimented the Government Performance and Results Act of 1992, signed into affect by then-president William Clinton, which established the need for customer service research at all federal agencies (Burns, 2000; Clinton, 1993).

Table 2. National Forests in Oregon and Washington

State	National Forest
Oregon	Columbia River Gorge National Scenic Area Deschutes Fremont Malheur Mt. Hood Ochoco Rogue River Siskiyou Siuslaw Umatilla Umpqua Wallowa-Whitman Willamette Winema
Washington	Colville Gifford Pinchot Mt. Baker-Snoqualmie Okanogan Okanogan Olympic Wenatchee



(USDA Forest Service, 2003c)

Figure 3: USDA Forest Service, Region 6 National Forests in Oregon and Washington

The data used in this study were collected for the USDA Forest Service with the purpose of exploring residents' perceptions of recreation fees, visitor use patterns, and

customer satisfaction. According to a management report of the study's findings submitted to the USDA Forest Service, (Burns et al., 2002), the primary research objective of the study was to understand public attitudes toward the recreation use fees.

Additional research objectives were learning about the types of users and their expectations for recreation on national forest lands, understanding the type, price, and distribution of acceptable fee systems for national forest lands, and finally, understanding the ways in which people desire information about the fee program. The study also focused on respondents' customer satisfaction levels, which is the focus of this thesis. Accordingly, this study focuses on the attitudes of Pacific Northwest residents; and more specifically their customer satisfaction levels with regards to recreation on Pacific Northwest National Forests.

Data Collection

This study used a telephonic survey, which was administered by the University of Florida's Bureau of Economic and Business Research. Residents of Oregon and Washington were contacted through random-digit dialing between the months of September and December 2001, from 4pm-9pm (Pacific Standard Time). A total of 3775 households were contacted through random-digit dialing method. The average call length was 41 minutes, and each functioning telephone number was dialed up to five times if there was no answer. As a result, 2005 interviews were completed by respondents 18-years or older. According to the American Association for Public Opinion Research (AAPOR, 2000), defining a completion rate can be conducted through numerous different methods. The response rate in this study is defined as the number of completed interviews ($n=2005$) divided by the number of eligible reporting units in the sample ($n=3775$). The end result is a response rate of 53%.

The interviewer began the survey after confirming that the respondent's age was 18-years or older. If the respondent met that criterion, the interviewer proceeded with the survey, and if the respondent was 17 years or younger they were asked to give the phone to someone in the household who was at least 18 years of age.

The respondents who were eligible regarding their age were then notified that the interview consisted of questions concerning outdoor recreation activities. In this study, outdoor recreation was defined as land, water, and snow-based activities. Next, there were screening questions employed in the survey. First, the respondents were asked whether they were very interested, somewhat interested, or not at all interested in outdoor recreation activities. Second, the respondents were asked whether or not they had participated in any outdoor recreation activities in the past 12 months. The respondents were then asked if they had ever visited a national forest in Oregon or Washington. If this previous question was answered yes, then the interviewer asked the number of times they visited a national forest within Oregon or Washington during the past 12 months. Finally, both the national forest users and non-users were asked the number of trips they took to non-Forest Service Lands in Oregon or Washington in the past 12 months. The respondents who had visited a national forest in Oregon or Washington in the past 12 months continued the survey following the Forest Service "*recreationists*" sequence of questions. The respondents who had not visited a national forest in Oregon or Washington in the past 12 months continued the survey following the "*non-recreationists*" sequence of questions. The data used in this thesis were only from respondents who were identified as Forest Service "*recreationists*."

Instrumentation

This study analyzed the responses of participants who had recreacted in a national forest in Oregon or Washington within the past 12 months of being interviewed. The survey instrument included 14 pages of questions focusing on the respondents' perceptions regarding recreation fees, management strategies, and customer satisfaction. For the purposes of this thesis, I will focus only on the section of the survey instrument dealing with customer satisfaction.

A battery of 22 items was used to measure individual customer satisfaction attributes. The respondents were asked to rate the quality of each service attribute on a typical visit to their primary national forest in Oregon or Washington using a five-point Likert scale, which included scores of awful, fair, good, very good, and excellent. A "not applicable" category was also included.

Respondents were asked to rate the quality within six domains, which included sanitation & cleanliness, safety & security, condition of facilities, responsiveness of staff, natural environment and information services, in regards to a typical visit to their primary National Forest in Oregon or Washington. The respondents reported their level of satisfaction for the six domains using a five-point Likert scale, which included scores of awful, fair, good, very good, and excellent. A "not applicable/don't know" category was also included. These satisfaction items originated from instruments designed by Parasuraman et al., (1985, 1988) for use in consumer research and for use in outdoor recreation (Burns, 2000; Crompton & MacKay, 1989; MacKay & Crompton, 1988; White, 2002).

Accordingly, the 22 quality attributes are nested under the six quality domains: sanitation & cleanliness, safety & security, condition of facilities, responsiveness of staff,

natural environment and information services. The 22 quality attributes were used in an effort to predict overall satisfaction.

The overall satisfaction variable was created by developing an index of the six quality domain measures. In previous studies, the overall satisfaction variable has been measured through the use of a single-item scale, such as a ten-point overall satisfaction scale (where one is the worst possible recreation experience and ten is the best possible recreation experience). The survey instrument in this study did not ask respondents to report their overall satisfaction, thus, the author developed the variable by creating an index of the six quality domains.

There were four socio-demographic variables analyzed from the survey. The first variable examined was gender, which is a dichotomous variable. A dichotomous variable is a two-category variable; in this case, male or female. Second, age was measured as an interval level of measurement. The data was then recoded into four age categories, including 30 or younger, 31 to 40, 41 to 55, and 56 and older. The next variable examined was residence type, which was a nominal level of measurement. The respondents were given the choice of rural, urban, or suburban residence types that best described the area in which they lived. Lastly, income was measured as an ordinal variable. The respondents chose which category reflected their total 2000 household income (before taxes). There were ten income categories ranging from under \$10,000 to over \$170,000. For analysis purposes, these ten categories were then recoded into four categories, which included <10,000 or less, \$10,001 to \$30,000, \$30,001 to \$50,000, and \$50,001 or more.

Testing of the Research Questions

The following section describes how each research question was analyzed and examined. All research questions were analyzed in SPSS (Statistical Package for the Social Sciences, Version 11.5).

R₁: What Does the Sample of Recreationists Look Like?

A total of four socio-demographic variables were examined, including gender, age, residence type and income. In order to provide a sample profile of the recreationists, frequencies were run and recorded for these variables. Valid percents were also provided.

R₂: Do the Individual Satisfaction Items Represent Their Respective Satisfaction Domains?

A total of six separate multiple regression tests were run in order to examine the relationship of the 22 satisfaction items and their respective quality domains.

R₃: Are the Satisfaction Items a Good Predictor of Overall Satisfaction?

One multiple regression test was run for the 22 satisfaction items against the overall satisfaction variable. Prior to this test, the overall satisfaction variable was created by an index of the six quality domain items.

R₄: Are There Differences in the Domain-Level Customer Satisfaction Model for Various Visitor Segments Based on Gender, Age, Residence, and Income?

An independent samples t-test was utilized to display any significant differences in mean scores between gender within domain-level customer satisfaction. The remaining three variables (age, residence, and income) were analyzed using ANOVAs, or one-way analyses of variance.

Treatment of the Data

The analysis of data was conducted through SPSS (Statistical Package for the Social Sciences, Version 11.5). The significance level of .05 was used to test all hypotheses in this study. This study serves as a replication and extension of the study conducted by Burns (2000) and White (2002), as well as earlier models of customer satisfaction.

A descriptive profile of the respondents in the study was created, including frequency distribution, valid percents, and means. The six quality domains (sanitation & cleanliness, safety & security, condition of facilities, responsiveness of staff, natural environment, and information services) were identified a-priori.

The overall satisfaction variable was created by developing an index of the six quality domains. One of the frequent criticisms of the single, ten-point overall satisfaction scale is that they account for a small proportion of the variance in a multiple regression model (Burns et al., 2003). Regression analysis is a statistical means of understanding the way a number of independent variables relates to one single variable (Burns, 2000; Graefe & Drogin, 1989). The use of a multiple-item scale was used in this attempt to develop a better model of overall satisfaction.

This thesis utilized a series of multiple regressions to examine the 22 items in order to determine how well they predict the six quality domains. It was hypothesized that the 22 items would be strong predictors of their respective quality domains. The 22 satisfaction items were then regressed against the overall satisfaction measure. Accordingly, it was also predicted that the 22 satisfaction items would be relatively strong predictors of overall satisfaction. An independent samples t-test and one-way analysis of variance analyses were conducted to examine the differences between the

respondents' satisfaction levels and the socio-economic status variables (i.e., gender, age, residence type, and income).

CHAPTER 4 RESULTS

The results of the data analysis are presented in four main sections of this chapter. First, a description of the recreationists' basic demographic profile is provided, along with the valid percent ratings of the 22 satisfaction items and the six satisfaction domains based on the responses provided by recreationists during the telephonic survey. The second section answers the research question, "Do the individual satisfaction items predict their respective domains?" The next section discusses which satisfaction items are the most appropriate predictors of overall satisfaction. The final section of this chapter focuses on four socio-demographic variables, including, gender, age, residence, and income, and tests whether there are differences in the levels of satisfaction for the six domain items

The data collected through the telephonic survey provided many insights into the perceived levels of satisfaction that the recreationists in this sample have experienced in the National Forests of Oregon and Washington. This chapter displays which satisfaction domains and satisfaction items the recreationists were satisfied with and not satisfied with, as well as, any statistical differences in the four socio-demographic characteristics discussed. Again, although 2005 total surveys were collected, this study focuses on the "recreationists-only." The number of recreationists varies within the data analysis due to missing responses.

R₁: What Does the Sample of Recreationists Look Like?

The respondents in this sample were asked several socio-demographic questions, such as, age, number of people and children living in household, occupation, ethnicity, gender, income, education, etc. This thesis focuses on four of these demographic questions; gender, age, income, and residence (see Table 3). As stated previously, this thesis examines the responses of Forest Service recreationists-only (n=1619). Forest Service recreationists were defined as respondents who had participated in outdoor recreation activities in the past 12 months on National Forests in Oregon and Washington.

A majority of the Forest Service recreationists were males (59.9%), while approximately two-fifths (40.1%) were female. Over one-third of the respondents (35.9%) were in the age category of 41 to 55 years-olds, while about two-thirds of the respondents (41.9%) were 40 years old or younger. The mean age of the respondents included in this analysis were 44.16.

When the respondents were asked to report their total 2000 household income, before taxes, the numbers ranged between under \$10,000 to over \$50,000. More specifically, over one-quarter of the respondents labeled as recreationists (28.1%) reported their total 2000 household income as \$30,000 or under, while approximately three-quarters of the respondents labeled as recreationists (71.9%) reported their total 2000 household income as \$30,001 or more.

The last socio-demographic question this thesis focuses on the respondents' residence type, such as urban, suburban, and rural. The majority of respondents, which is approximately half (48.0%), reported living in a "rural" area type. The remaining respondents were about evenly proportionate in their responses, with about one-quarter

reporting an “urban” residence type (25.3%) and the other quarter reporting a “suburban” residence type (26.7%).

Table 3. Socio-demographic profile of Forest Service Recreationist Respondents

	Frequency	Valid Percent
Gender		
Male	969	59.9
Female	649	40.1
Total	1618	100.0
Age		
30 or younger	339	21.3
31 to 40	328	20.6
41 to 55	571	35.9
56 or older	353	22.2
Total	1591	100.0
Residence		
Urban	194	25.3
Suburban	205	26.7
Rural	368	48.0
Total	767	100.0
Income		
Less than 10,000	75	5.1
\$10,001 to 30,000	341	23.0
\$30,001 to 50,000	450	30.3
\$50,001 or more	617	41.6
Total	1483	100.0

Measures of Satisfaction

The respondents were asked to report scores for a battery of several satisfaction items and domains, in order to determine their overall quality experience. First, the respondents were asked to rate an extensive battery of 22 quality attribute items relating to their experiences at the National Forests in Oregon or Washington, using a 5-point Likert scale (see Table 4).

Overall, the respondents rated all of the 22 satisfaction items relatively average, with reported mean scores between 3.66 and 2.73. The four items that were reported with means above 3.50, included views from recreation areas free of obstruction by buildings or development (3.66), courteous and friendly staff (3.64), recreation sites free of dangerous conditions (3.53), and clearly posted rules and regulations (3.52).

The four satisfaction items that showed the lowest mean scores were availability of multilingual services (2.73), assistance for people with special needs (2.74), accessibility of uniformed Forest Service employees (2.81), and finally, risk of vandalism or theft to vehicles (2.84). The two items that did not apply to the respondents the most were assistance for people with special needs (17%) and availability of multilingual services (32%).

Table 4. Satisfaction Scores for Quality Attribute Items

Quality Attribute	Awful	Fair	Good	Very Good	Excellent	Not Applicable	Mean
Views from recreation areas free of obstruction by buildings or development	1.0	9.2	35.2	30.1	22.8	1.7	3.66
Courteous and friendly staff	2.0	8.2	33.2	30.7	21.1	4.9	3.64
Recreation sites free of dangerous conditions	1.0	10.1	39.6	30.8	16.4	2.0	3.53
Clearly posted rules and regulations	1.3	10.8	40.5	28.2	18.3	.8	3.52
Roadside signs and directions	2.3	14.1	41.3	26.6	14.2	1.4	3.37
Recreation areas free of human/animal waste	3.0	18.3	34.8	26.8	15.4	1.7	3.34
Condition of roads and trails	1.7	14.2	44.7	27.8	10.9	.6	3.32
Condition of facilities	1.8	17.3	42.5	26.0	9.8	2.7	3.25
Litter-free environment	3.1	17.7	41.6	25.2	11.9	.6	3.25
Wildlife can be found to observe	2.1	22.2	37.9	22.4	13.8	1.6	3.24
Availability of parking spaces	2.5	17.6	43.9	22.5	11.5	2.0	3.23
Current and accurate on-site information	2.2	18.1	43.5	23.1	10.9	2.2	3.23
Compatibility of recreation use with the environment	2.1	20.0	42.4	24.8	9.6	1.1	3.20
Safety and security at recreation areas	2.0	18.7	45.9	21.5	9.3	2.7	3.18
Garbage disposal	5.2	20.4	43.3	19.5	8.9	2.7	3.07
Cleanliness of restrooms and toilets	4.4	25.4	39.5	19.0	9.0	2.8	3.03
Availability of drinking water	6.1	30.8	34.6	14.1	9.2	5.3	2.89
Accessibility for persons with disabilities or special needs	8.0	27.5	31.6	15.5	7.8	9.5	2.86
Risk of vandalism or theft to vehicles	8.2	31.9	33.1	15.6	8.5	2.7	2.84
Accessibility of uniformed Forest Service employees	5.4	33.6	36.9	13.8	6.2	4.1	2.81
Assistance for people with special needs	8.3	26.4	37.8	10.8	5.5	17.2	2.74
Availability of multilingual services	7.4	19.9	29.3	7.0	4.7	31.7	2.73

Response scale is 1=awful to 5=excellent

The second measure of satisfaction asked the respondents to rate the quality of six overall satisfaction domains (see Table 5). These domains included sanitation and cleanliness, safety and security, condition of facilities, responsiveness of staff, natural environment, and information services. Again, a 5-point Likert scale was used to measure these domains.

Overall, the majority of respondents reported “good” ratings for the quality of satisfaction domains, while only a small minority (1 to 3%) reported “awful” ratings. The satisfaction domain that the respondents were most satisfied with was sanitation and

cleanliness, which had a reported mean score of 3.82 on a 5-point scale, followed by the safety and security domain (3.35), and the condition of facilities domain (3.30). The responsiveness of staff domain had a reported score of 3.28, followed by the natural environment domain (3.27). The information services domain was reported as the domain in which the respondents were least satisfied, with a mean score of 3.21.

Table 5. Percentages of Satisfaction Scores for Quality Domains

Quality Domain	Awful	Fair	Good	Very Good	Excellent	Not Applicable	Mean
Sanitation and cleanliness	1.4	15.4	44.6	27.4	10.1	1.0	3.82
Safety and security	1.9	16.8	46.8	24.7	8.5	1.5	3.35
Condition of facilities	1.2	13.0	49.3	26.7	8.2	1.5	3.30
Responsiveness of staff	2.8	14.9	41.1	23.8	11.0	6.5	3.28
Natural environment	.8	5.7	32.6	31.7	28.6	.6	3.27
Information services	1.3	14.4	43.6	26.2	12.5	2.1	3.21

Response scale is 1=awful to 5=excellent

Reliability Analysis

A reliability analysis was conducted for the six satisfaction domains and their respective satisfaction predictors to determine the level of agreement among them (see Tables 6 through 17). This analysis examined the correlations between each of the items and their respective domains. The Cronbach's alpha levels achieved in the reliability analyses ranged from 0.56 to 0.75. For each of the following reliability analyses, at no point would the alpha increase if any of the items within the domains were deleted.

Table 6. Correlation Matrix and Reliability Analysis for Satisfaction Items within Sanitation and Cleanliness Domain

	Sites free of dangerous conditions	Safety and security at sites	Risk of vandalism	Compatibility of recreation use with environment
Litter-free	1.000			
Cleanliness of restrooms	.459	1.000		
Garbage disposal	.476	.394	1.000	
Recreation areas free of human/animal waste	.445	.329	.379	1.000

Table 7. Cronbach's Alpha for Sanitation and Cleanliness Domain

	Item Mean	Standard Deviation	Corrected item-total correlation	Alpha if item deleted
Litter-free	3.27	.984	.604	.635
Cleanliness of restrooms	3.03	.995	.498	.695
Garbage disposal	3.08	.990	.533	.675
Recreation areas free of human/animal waste	3.33	1.043	.484	.705

Cronbach's Alpha=.737

Table 8. Correlation Matrix and Reliability Analysis for Satisfaction Items within Safety and Security Domain

	Sites free of dangerous conditions	Safety and security at sites	Risk of vandalism	Compatibility of recreation use with environment
Sites free of dangerous conditions	1.000			
Safety and security at sites	.427	1.000		
Risk of vandalism	.318	.456	1.000	
Compatibility of recreation use with environment	.359	.335	.249	1.000

Table 9. Cronbach's Alpha for Safety and Security Domain

	Item Mean	Standard Deviation	Corrected item-total correlation	Alpha if item deleted
Sites free of dangerous conditions	3.53	.916	.486	.611
Safety and security at sites	3.18	.918	.556	.567
Risk of vandalism	2.85	1.070	.446	.641
Compatibility of recreation use with environment	3.20	.929	.401	.663

Cronbach's Alpha=.686

Table 10. Correlation Matrix and Reliability Analysis for Satisfaction Items within Natural Environment Domain

	Wildlife can be found to observe	Views are free of obstruction
Wildlife can be found to observe	1.000	
Views are free of obstruction	.388	1.000

Table 11. Cronbach's Alpha for Natural Environment Domain

	Item Mean	Standard Deviation	Corrected item-total correlation	Alpha if item deleted
Wildlife can be found to observe	3.24	1.022	.388	
Views are free of obstruction	3.66	.968	.388	
Cronbach's Alpha=.559				

Table 12. Correlation Matrix and Reliability Analysis for Satisfaction Items within Condition of Facilities Domain

	Availability of drinking water	Condition of facilities	Availability of parking spaces	Availability of parking spaces	Accessibility for persons with disabilities
Availability of drinking water	1.000				
Condition of facilities	.306	1.000			
Availability of parking spaces	.200	.310	1.000		
Availability of parking spaces	1.92	.368	.355	1.000	
Accessibility for persons with disabilities	.220	.354	.218	.372	1.000

Table 13. Cronbach's Alpha for Condition of Facilities Domain

	Item Mean	Standard Deviation	Corrected item-total correlation	Alpha if item deleted
Availability of drinking water	2.91	1.062	.326	.661
Condition of facilities	3.24	.935	.502	.578
Availability of parking spaces	3.23	.952	.388	.628
Availability of parking spaces	3.31	.917	.475	.591
Accessibility for persons with disabilities	2.75	1.011	.423	.613

Cronbach's Alpha=.666

Table 14. Correlation Matrix and Reliability Analysis for Satisfaction Items within Responsiveness of Staff Domain

	Courteous and friendly staff	Accessibility of uniformed FS employees	Assistance for people with special needs
Courteous and friendly staff	1.000		
Accessibility of uniformed FS employees	.362	1.000	
Assistance for people with special needs	.278	.397	1.000

Table 15. Cronbach's Alpha for Responsiveness of Staff Domain

	Item Mean	Standard Deviation	Corrected item-total correlation	Alpha if item deleted
Courteous and friendly staff	3.61	.996	.381	.568
Accessibility of uniformed FS employees	2.82	.976	.475	.435
Assistance for people with special needs	2.76	1.019	.408	.531

Cronbach's Alpha=.612

Table 16. Correlation Matrix and Reliability Analysis for Satisfaction Items within the Information Services Domain

	Clearly posted rules and regulations	Current and accurate on-site information	Roadside signs and directions	Availability of multilingual services
Clearly posted rules and regulations	1.000			
Current and accurate on-site information	.501	1.000		
Roadside signs and directions	.438	.476	1.000	
Availability of multilingual services	.309	.414	.402	1.000

Table 17. Cronbach's Alpha for Information Services Domain

	Item Mean	Standard Deviation	Corrected item-total correlation	Alpha if item deleted
Clearly posted rules and regulations	3.48	.968	.527	.694
Current and accurate on-site information	3.22	.980	.603	.650
Roadside signs and directions	3.39	1.001	.564	.673
Availability of multilingual services	2.73	1.014	.467	.728

Cronbach's Alpha=.745

R₂: Do the Individual Satisfaction Items Predict Their Respective Domains?

Multiple regression tests were used to determine the strength of the relationships between the individual satisfaction items and their respective domains. In order to examine this relationship, a total of six regression models were run and analyzed. The satisfaction items, or independent variables, were regressed against the corresponding dependent variable, or the respective domain. These regression models displayed that there was only one single item out of the 22 items that was not a significant predictor of its respective domain. This item was availability of drinking water within the condition of facilities domain.

The satisfaction items in the sanitation and cleanliness domain were the first items tested. All four of these satisfaction items were found to be significant predictors of sanitation and cleanliness. The strongest predictor of sanitation and cleanliness was recreation areas free of human/animal waste ($\text{Beta}=.381$). The second strongest predictor of sanitation and cleanliness was garbage disposal ($\text{Beta}=.299$). These items were followed by cleanliness of restrooms and toilets ($\text{Beta}=.141$), and finally, litter-free environment ($\text{Beta}=.079$). This model accounted for 50% of the variance in overall satisfaction with sanitation and cleanliness.

The second regression model tested four satisfaction items against the safety and security domain. Again, this model found all four items to be significant predictors of their respective domain (safety and security). Clearly, safety and security at recreation areas was the strongest predictor of the safety and security domain ($\text{Beta}=.534$). The second strongest satisfaction item that predicts the safety and security domain was risk of vandalism or theft to vehicles ($\text{Beta}=.154$). The two other independent variables were recreation sites free of dangerous conditions ($\text{Beta}=.115$) and compatibility of recreation

use with the environment ($\text{Beta}=.066$). Together, these independent variables accounted for 49% of the variance in overall satisfaction with safety and security.

Table 18. Results of Multiple Regression of Satisfaction Items with Satisfaction Domains

Satisfaction Domain	Satisfaction Domain	r	Beta
Sanitation & Cleanliness	Litter-free environment	.620***	.079***
	Cleanliness of restrooms and toilets	.556***	.141***
	Garbage disposal	.470***	.299***
	Recreation areas free of human/animal waste	.401***	.381***
		R ² =.499	F=377.763
Safety & Security	Recreation sites free of dangerous conditions	.406***	.115***
	Safety and security at recreation areas	.668***	.534***
	Risk of vandalism or theft to vehicles	.445***	.154***
	Compatibility of recreation use with the environment	.304***	.046*
		R ² =.485	F=343.397
Condition of facilities	Availability of drinking water	.244***	.044
	Condition of facilities	.515***	.334***
	Availability of parking spaces	.329***	.174***
	Condition of roads and trails	.400***	.230***
	Accessibility for persons with disabilities or special needs	.451***	.066*
		R ² =.375	F=147.947
Responsiveness of Staff	Courteous and friendly staff	.534***	.371***
	Accessibility of uniformed FS employees	.532***	.342***
	Assistance for people with special needs	.377***	.136***
		R ² =.430	F=265.810
Natural Environment	Wildlife can be found to observe	.481***	.256***
	Views from recreation areas free of obstruction by buildings or development	.406***	.380***
		R ² =.286	F=315.355
Information Services	Clearly posted rules and regulations	.558***	.300***
	Current and accurate on-site information	.607***	.375***
	Roadside signs and directions	.443***	.097**
	Availability of multilingual services	.372***	.084**
		R ² =.467	F=191.612

Response scale is 1=awful to 5=excellent

* significant at .05 level, ** significant at .01 level, *** significant at .001 level

The third satisfaction model indicated that four of the five satisfaction items were significant predictors of the satisfaction with condition of facilities. The strongest

predictor of condition of facilities, was the condition of facilities ($\text{Beta}=.334$). The second strongest predictor of condition of facilities was condition of roads and trails ($\text{Beta}=.230$), followed by availability of parking spaces ($\text{Beta}=.174$) and accessibility for persons with disabilities or special needs ($\text{Beta}=.066$). Availability of drinking water was the single satisfaction item that did not show a significant prediction level. This regression model accounted for 38% of the variance associated with the condition of facilities domain.

The fourth satisfaction item model tested three satisfaction items with the responsiveness of staff domain. All three of these items were found to be significant predictors of the responsiveness of staff domain. The strongest predictor within this domain was courteous and friendly staff ($\text{Beta}=.371$), followed by accessibility of uniformed Forest Service employees ($\text{Beta}=.342$) and assistance for people with special needs ($\text{Beta}=.136$). This model accounted for 43% of the variance associated within the responsiveness of staff domain.

While there were only two satisfaction items hypothesized to be strong predictors of the natural environment domain, both proved to be significant predictors. Views from recreation areas free of obstruction by buildings or development was the strongest satisfaction item that showed significance within the natural environment domain ($\text{Beta}=.380$), while wildlife can be found to observe followed ($\text{Beta}=.256$). However, because there were only two satisfaction items hypothesized to be strong predictors within the natural environment domain, the variance was relatively low. About 29% of the variance can be was accounted for within this domain.

The sixth and final regression model tested for the first research question was for four satisfaction items within the information services domain. All four of these items were found to be significant predictors of satisfaction within the information services domain. The strongest predictor of the information services domain was current and accurate on-site information ($\text{Beta}=.375$). Clearly posted rules and regulations followed ($\text{Beta}=.300$), along with roadside signs and directions ($\text{Beta}=.097$), and availability of multilingual services ($\text{Beta}=.084$). These four satisfaction items were combined and accounted for 47% of the variance within the information services domain.

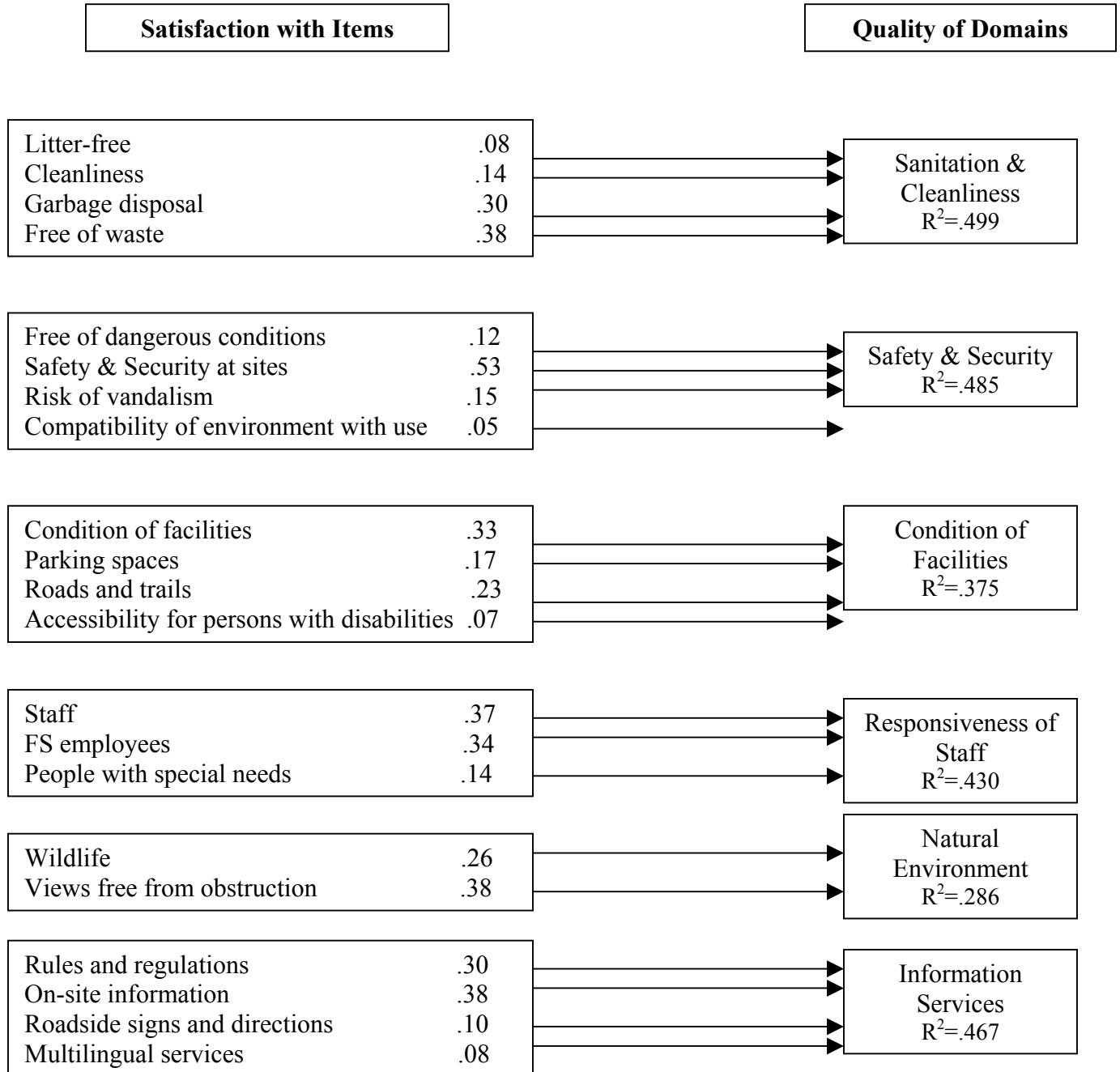


Figure 4: Model of Items to Satisfaction Domains

R₃: Are the Satisfaction Items a Good Predictor of Overall Satisfaction?

In order to determine the strength of the relationship between the individual satisfaction items and overall satisfaction, a multiple regression test was utilized. One regression model was used; the individual satisfaction items represented the independent variables and overall satisfaction represented the dependent variable. This regression model illustrated that nine of the 22-satisfaction items were significant predictors of overall satisfaction.

While all 22-satisfaction items were hypothesized to be significant predictors of overall satisfaction, only nine items were found to be significant. The strongest predictor of overall satisfaction was litter-free environment ($\text{Beta}=.218$). The second strongest predictor of overall satisfaction was clearly posted rules and regulations ($\text{Beta}=.154$), followed by safety and security at recreation areas ($\text{Beta}=.137$), and cleanliness of restrooms and toilets ($\text{Beta}=.127$). The next satisfaction items found to be significant predictors of overall satisfaction were accessibility of uniformed Forest Service employees ($\text{Beta}=.107$), followed by courteous and friendly staff ($\text{Beta}=.094$), and wildlife can be found to observe ($\text{Beta}=.085$). Lastly, views from recreation areas free of obstruction by buildings or development ($\text{Beta}=.060$) was also a significant predictor of overall satisfaction. Overall, this regression model accounted for approximately 71% of the variance associated with overall satisfaction.

Table 19. Results of Multiple Regression of Satisfaction Items with Overall Satisfaction

Satisfaction Items	r	Beta
Litter-free environment	.654***	.218***
Cleanliness of restrooms and toilets	.558***	.127***
Garbage disposal	.470***	.048
Recreation areas free of human/animal waste	.369***	-.008
Recreation sites free of dangerous conditions	.470***	.010
Safety and security at recreation areas	.589***	.137***
Risk of vandalism or theft to vehicles	.376***	-.002
Compatibility of recreation use with the environment	.404***	.014
Availability of drinking water	.278***	.011
Condition of facilities	.496***	.020
Availability of parking spaces	.430***	-.020
Condition of roads and trails	.511***	.042
Accessibility for persons with disabilities or special needs	.369***	-.041
Courteous and friendly staff	.547***	.094**
Accessibility of uniformed FS employees	.542***	.107***
Assistance for people with special needs	.467***	-.001
Wildlife can be found to observe	.469***	.085**
Views from recreation areas free of obstruction by buildings or development	.465***	.060*
Clearly posted rules and regulations	.617***	.154***
Current and accurate on-site information	.599***	.121***
Roadside signs and directions	.457***	.028
Availability of multilingual services	.413***	.038

 $R^2 = .706$ $F=61.766***$

Response scale is 1=awful to 5=excellent

* significant at .05 level, ** significant at .01 level, *** significant at .001 level

Satisfaction with Items

Satisfaction Item	Beta
Litter-free environment	.22
Cleanliness	.13
Safety & security at sites	.14
Staff	.09
FS employees	.11
Wildlife	.09
Views free from obstruction	.06
Rules and regulations	.15
On-site information	.12

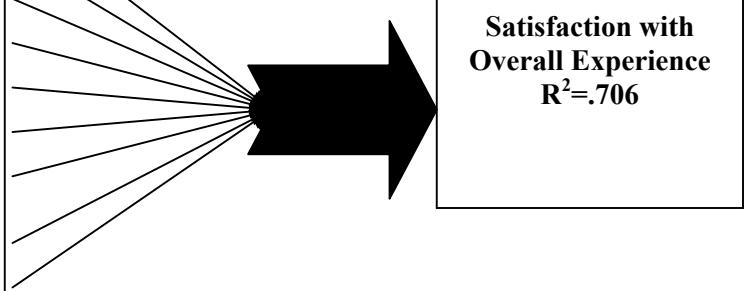


Figure 5: Model of Items to Overall Satisfaction

R₄: Are There Differences in the Domain-Level Customer Satisfaction Model for Various Visitor Segments Based on Gender, Age, Residence, and Income?

An independent sample t-test was used to determine whether there were any differences in the mean scores of domain level satisfaction by gender. The test illustrated one domain having a significant difference of satisfaction levels between males and females. This domain was the natural environment satisfaction domain. The mean score by males for the natural environment domain was 3.80, while the mean score for females within this domain was 3.96. Males were significantly less satisfied with the natural environment domain than the females, demonstrating a difference at the p<.001 level (t=-3.184, df=1173.18).

Table 20. Independent Samples t-test Results of Satisfaction Domains by Gender

Gender	Male	Female	df	t
Sanitation and cleanliness	3.30	3.30	1400	-.013
Safety and security	3.18	3.29	1380	-2.177
Condition of facilities	3.29	3.28	1381	.173
Responsiveness of staff	3.23	3.36	1256	-2.269
Natural environment	3.80	3.96	1173.18	-3.184***
Information services	3.28	3.44	1367	-3.176

Response scale is 1=awful to 5=excellent

*** significant at .001 level

A one-way analysis of variance was used for the remaining three socio-demographic variables to determine whether there were significant differences of mean scores. Three individual one-way analysis of variance tests were used for each of the remaining socio-demographic variables to determine whether there were significant differences between the mean score satisfaction levels. First, a one-way analysis of

variance was run for the satisfaction domains by age. This test showed no significant differences in the satisfaction domain mean scores for the four different age groups.

Next, a one-way analysis of variance test examined the six satisfaction domains by income. There were no significant differences found within the satisfaction domain mean scores for the four different income groups. Lastly, residence type, including urban, suburban, and rural were also tested against the six satisfaction domains in a one-way analysis of variance. The test results showed no significant differences in the satisfaction mean scores for the three residence types.

Table 21. ANOVA of Satisfaction Domains by Age

Age	30 or younger	31 to 40	41 to 55	56 or older	F-value
Sanitation and cleanliness	3.25	3.31	3.32	3.31	.443
Safety and security	3.29	3.27	3.23	3.13	1.751
Condition of facilities	3.20	3.33	3.33	3.28	1.612
Responsiveness of staff	3.19	3.29	3.32	3.30	1.060
Natural environment	3.88	3.80	3.93	3.79	2.092
Information services	3.28	3.34	3.37	3.36	.488

Response scale is 1=awful to 5=excellent

Table 22. ANOVA of Satisfaction Domains by Income

Income	Less than 10,000	\$10,000 to 30,000	\$30,001 to 50,000	\$50,001 or more	F-value
Sanitation and cleanliness	3.05	3.31	3.29	3.36	2.204
Safety and security	3.08	3.30	3.23	3.24	.993
Condition of facilities	3.21	3.25	3.28	3.37	1.821
Responsiveness of staff	3.31	3.28	3.22	3.34	1.093
Natural environment	3.76	3.82	3.87	3.93	1.128
Information services	3.39	3.40	3.29	3.36	.791

Response scale is 1=awful to 5=excellent

Table 23. ANOVA of Satisfaction Domain Items by Residence Type

Residence Type	Urban	Suburban	Rural	F-value
Sanitation and cleanliness	3.34	3.34	3.29	.218
Safety and security	3.27	3.26	3.17	.964
Condition of facilities	3.36	3.28	3.29	.493
Responsiveness of staff	3.30	3.33	3.28	.141
Natural environment	3.83	3.89	3.86	.192
Information services	3.33	3.38	3.42	.537

Response scale is 1=awful to 5=excellent

Conclusion

This chapter analyzed the research questions included in this thesis. First, a demographic profile was shown to illustrate what the recreationists in the sample looked like. Second, six multiple regression models were developed to examine the relationship between the satisfaction items and their respective domains. Next, a single multiple regression model was used to explore the strength of the satisfaction items against overall satisfaction. Finally, the socio-demographic variables were examined using an independent samples t-test and one-way analyses of variances.

CHAPTER 5 DISCUSSION

The purpose of this study was to investigate service quality indicators as a predictor of customer satisfaction for U.S. Forest Service recreationists. The determinants of customer satisfaction play a crucial and valuable role in the way recreation supervisors manage recreation lands. President William Clinton embraced this idea when he took office in the United States presidential election of 1992, signing an Executive Order requiring all governmental agencies to begin addressing service quality (Absher, 1996; Burns, 2000; & Clinton, 1993). It was this emphasis on making government accountable that has positioned all federal agencies to improve public services, including the USDA Forest Service. This has resulted in the measurement of trends in user satisfaction and use levels (Kocis et al., 2003). The purpose of this Executive Order was to assist Congress, Forest Service leaders, and program managers in making future decisions that will better serve the public and the natural resources of the land (Kocis et al., 2003). This study expands the current customer satisfaction model, further contributing to the current recreational customer satisfaction literature. This chapter reviews and discusses the four research questions. At the end of the chapter, recommendations for future research are discussed.

Summary of Procedures

This study is a secondary analysis of a larger study in which data were collected from residents of Oregon and Washington via a telephonic survey. The interviews took place between the months of September and December 2001. A total of 2005 completed

surveys were conducted from the 3775 total households contacted. This thesis explored four proposed research questions, with the overall purpose of discovering what leads to overall satisfaction of a recreationist in the National Forests of Oregon and Washington. The data analysis utilized SPSS v. 11.5 to uncover the results of the proposed research questions.

Discussion of Research Questions

R₁: What Does the Sample of Recreationists Look Like?

The profile of the sample labeled as “recreationists” was found through running frequencies in SPSS v. 11.5. Again, “recreationists” were defined as a respondent who answered yes to the question, “Have you participated in any outdoor recreation activities during the past 12 months?” The vast majority (80.7%) of the original sample answered ‘yes’ to this question.

Nearly two-thirds (59.9%) of the participants were males, while 40.1% were females. The largest proportion of the respondents 35.9%, fell into the age category of 41 to 55. The remaining three age groups were distributed relatively equally, with about one-fifth of the respondents for each group. In other words, 21.3% were 30 years or younger, 20.6% were 31 to 40 years of age, and 22.2% were 56 years or older.

The respondents were also asked which residence type (urban, suburban, or rural) best describes the area in which their permanent residence resides. The analysis showed that about half of the recreationists in the sample (48.0%), live in rural areas. About one-quarter of the respondents (25.3%) live in urban areas and the remainder of the respondents (26.7%), live in suburban areas.

The respondents were also asked their total household income (before taxes) in the year 2000. Over half of the respondents (53.3%) reported a 2000 household income between \$10,001 and \$50,000, while 41.6% reported this amount to be \$50,001 or more.

Overall, the respondents labeled as “recreationists” in this sample have a very typical socio-demographic profile. Regarding research question #1, the greatest proportion of the respondents were male, between the ages of 41 and 55, lived in a rural area and accounted for a 2000 annual household income (before taxes) of \$50,001 or more.

R₂: Do the Individual Satisfaction Items Predict Their Respective Domains?

Multiple regression analyses were employed to determine the strength of the 22 satisfaction items to their respective domains. A total of six multiple regression tests were run, one for each of the six quality domains. First, litter-free environment, cleanliness of restrooms and toilets, garbage disposal, and recreation areas free of human/animal waste were regressed against the sanitation and cleanliness domain. All of these satisfaction items were found to be significant predictors of this domain. This was the strongest model accounting for 50% of the variance in overall satisfaction with sanitation and cleanliness.

The four satisfaction items used to predict the safety and security domain were tested next, also with a multiple regression test. These items included recreation sites free of dangerous conditions, safety and security at recreation areas, risk of vandalism or theft to vehicles, and compatibility of recreation use with disabilities or special needs. All four of these satisfaction items were found to be significant predictors of the safety and security domain. These independent variables accounted for 49% of the variance in overall satisfaction with safety and security.

Next, the following five satisfaction items were tested against the condition of facilities domain, again, using a multiple regression test. These items were availability of drinking water, condition of facilities, availability of parking spaces, condition of roads and trails, and accessibility for persons with disabilities or special needs. Availability of drinking water was the single satisfaction item that was found not to be a significant predictor of the condition of facilities domain. This regression model accounted for 38% of the variance in overall satisfaction with condition of facilities.

The fourth regression model examined the responsiveness of staff domain, with the items courteous and friendly staff, accessibility of uniformed Forest Service employees, and assistance for people with special needs as the independent variables. All of these satisfaction items were found to be significant predictors of the responsiveness of staff quality domain. This model accounted for 43% of the variance in overall satisfaction with responsiveness of staff.

There were two satisfaction items hypothesized to be strong predictors of the natural environment domain, and both were found to be significant. These items were wildlife can be found to observe and views from recreation areas free of obstruction by buildings or development. However, this model accounted for just 29% of the variance in overall satisfaction with natural environment. This may be due to the fact that only two satisfaction items were regressed against the natural environment domain.

The final regression model included four satisfaction items regressed against the information services domain. These individual satisfaction items included clearly posted rules and regulations, current and accurate on-site information, roadside signs and directions, and availability of multilingual services. All four of these items were found to

be significant predictors of the information services domain. This final model accounted for 47% of the variance associated with information services.

Overall, in reference to research question #2, all of the satisfaction items were found to be significant predictors of their respective domains, except for one single item. The independent variable, availability of drinking water, was found not to be a strong predictor of the condition of facilities domain.

R₃: Are the Satisfaction Items a Good Predictor of Overall Satisfaction?

One multiple regression model was used to determine the strength of the relationship between the individual satisfaction items and overall satisfaction. SPSS (version 11.5) was used to develop an index of the six quality domain items in order to create the overall satisfaction variable. A total of nine satisfaction items out of the total 22 satisfaction items were found to be significant predictors of overall satisfaction. These items included litter-free environment, cleanliness of restrooms and toilets, safety and security at recreation areas, courteous and friendly staff, accessibility of uniformed Forest Service employees, wildlife can be found to observe, views from recreation areas free of obstruction by buildings or development, clearly posted rules and regulations, and finally, current and accurate on-site information. Overall, this regression model accounted for 71% of the variance associated with overall satisfaction.

R₄: Are There Differences in the Domain-Level Customer Satisfaction Model for Various Visitor Segments Based on Gender, Age, Residence, and Income?

The four socio-demographic variables examined in this study were gender, age, residence type, and income. Domain-level customer satisfaction by gender was tested utilizing an independent sample t-test in order to determine any significant differences between the mean scores of the male and female respondents. The t-test showed that

there was a significant difference in mean scores within the natural environment domain. Males' mean score given for the natural environment domain was 3.80, while females' mean score given was 3.96. Since males were significantly less satisfied with this domain, recreation managers that have more males visiting their sites, may want to make more sound decisions in how they manage the natural environment at their particular sites.

The remaining three socio-demographic variables were tested using a separate one-way analysis of variance (ANOVA) for each variable to determine whether there were any significant differences in mean scores reported for the satisfaction domain items. These remaining variables included: age, residence type, and income. The three ANOVA tests displayed no significant differences between mean scores reported. However, these results are delimited to the residents of Oregon and Washington whom were contacted through the random-dial telephonic survey.

Discussion

The purpose of this study was to extend and replicate several models of customer satisfaction, in an attempt to develop a model of recreational customer satisfaction that accounts for a high proportion of the variance associated with the prediction of overall satisfaction with a National Forest visit.

This study succeeds in building upon earlier research that dates back to the original marketing models of customer satisfaction (Parasuraman et al., 1985, 1988). This study, similar to many of the previous attempts to build a satisfaction model, clearly demonstrates the complex nature of determining customer satisfaction.

The sample of respondents examined in this study were representative of the recreationists who typically recreate on the National Forests of the Pacific Northwest.

The respondents were highly likely to have participated in outdoor recreation activities on National Forests in the Pacific Northwest over the previous 12 months (80%), the ratio of males to female was about 60-40, and the breakdown of age groups was relatively evenly distributed across the four age brackets. Nearly half of the respondents reported that they lived in rural areas, and the greatest proportion of the respondents reported income over \$50,000.

The hypothesized relationship between the socio-demographic variables (gender, age, residence, and income) showed that only gender showed any differences with regards to differences in customer satisfaction. Males were significantly less satisfied with the condition of the natural environment. No other differences were noted across any of the other socio-demographic variables. This seems to indicate the pure homogeneity of this sample, and of the population of the Pacific Northwest. As is typically seen in outdoor recreation research, few significant differences were found in for the different segments of the population. However, this sample was very representative of the general population of the Pacific Northwest and seems to portray a realistic picture of recreationists in this region.

Similar to the findings in previous outdoor recreation customer satisfaction literature, the hypothesized relationship between the 22 satisfaction attributes and their respective domains was upheld, thus confirming a robust model of customer satisfaction at the domain level. Within the domains, the items accounted for between 29—50% of the variance associated with overall domain satisfaction. This result is similar to the findings of Burns (2000), where the satisfaction items accounted for between 24—41% of the variance in their respective independent measures of domain satisfaction. The

natural environment domain was accounted for the lowest proportion of variance (29%), while the other five domain-level models accounted for between 38—50% of the variance.

The finding that the natural environment domain was rated lowest may be a function of the particular setting in which this research was conducted. As noted previously, the Pacific Northwest hosts twenty large National Forests, as well as numerous other National Parks, state parks, and other federal and state wild lands. The opportunity to recreate in outdoor recreation settings are virtually limitless, and this gives potential recreationists the opportunity to recreate in just about any setting in which they desire.

An alternate examination of the predictability of the 22 items in a separate satisfaction model was tested in this study. Of the 22 items, nine items proved to be significant predictors of overall satisfaction. This model of recreational customer satisfaction accounted for a surprisingly high 71% of the variance associated with overall satisfaction. This finding indicates that this model is a much better model of customer satisfaction than is typically noted in the outdoor recreation literature. In his 2000 study, Burns' model, from which this model is derived, nine of nineteen satisfaction attributes accounted for 44% of the variance associated with overall satisfaction. White (2002) developed a satisfaction model that was a replication and extension of Burns' (2000) model. This model explained 28% of the variance associated with overall satisfaction.

This finding may be a validation of the importance of using a multi-item scale as an overall satisfaction variable and dependent variable. Burns (2000) made use of a single item, 10-point scale of overall satisfaction with trip experience. The single-item measure

itself may be a relatively poor measure of overall satisfaction. This in turn would impact the robustness of the model of overall satisfaction, resulting in the lower proportion of variance being accounted for in this model.

The use of the multi-item scale, combined with the appropriate satisfaction items for this particular setting have provided for a model of overall satisfaction that is rarely, if ever, been reported in the existing outdoor recreation customer satisfaction literature. Accordingly, the hypothesized relationship between the satisfaction attributes and overall satisfaction was upheld.

Management Implications

The findings in this study offer implications for the managers of outdoor recreation agencies. A total of nine satisfaction items were found to be significant predictors of overall satisfaction, accounting for 71 percent of the variance associated with overall satisfaction. This is an extremely high amount of variance for a satisfaction model in the field of outdoor recreation. Of all the satisfaction items, a litter-free environment, along with clearly posted rules and regulations, safety and security at recreation sites, and cleanliness of restrooms and toilets proved to be the best predictors of overall satisfaction. In the future, resource managers should look at these items within specific recreation areas to ensure that they are meeting the consumers' expectations. Perfecting these satisfaction attributes could help increase their visitors' overall experience, which could lead to repeat visits, or at least satisfy the requirements of the Government Performance and Results Act.

Mangers should also recognize the high variances accounted for in this study within the model that examined the satisfaction items and their respective domains. Of the six domains included in the model, three of the domains accounted for 47-50% of the

variance. These domains included sanitation and cleanliness ($R^2=.50$), safety and security ($R^2=.49$), the information services domain ($R^2=.47$). Managers could include these satisfaction domains on comment cards, in order to continue monitoring and evaluating their visitors' overall experience at their recreation sites. Comment cards are an efficient and effective way to capture the perceptions of visitors that will help to maintain quality recreation sites.

Lastly, this study poses the question of why study customer satisfaction in an outdoor recreation setting? Some managers may feel that if the visitor numbers are maintained or increasing, then why be concerned if whether their visitors are satisfied with their recreation experiences. This is an issue that several managers are faced with today, especially with persistent budgetary limitations. One of the answers to this question involves socio-demographic variables. For instance, this study asked respondents several socio-demographic questions, such as age, income, education, employment, residence type, etc. However, if this study was conducted again in five years and there were differences in the demographic profile of the visitors, then somewhere in those last five years there may have been visitors that experienced displacement. One of the causes of this displacement could be that the visitors were not satisfied. Therefore, not only should recreation managers continue to monitor and evaluate their recreation sites, through comment cards and research studies such as this one, they should always include the examination of socio-demographic variables as well.

Recommendations for Future Research

In the future, it would be interesting to conduct a study at actual recreation sites, using the same six quality domain items (sanitation and cleanliness, safety and security, condition of facilities, responsiveness of staff, natural environment, and information

services) and the same 22-satisfaction items. Visitors may report their satisfaction levels differently depending on when they report them. For instance, the data collected in the survey used in this study required the respondent to rate their satisfaction levels on the individual satisfaction attributes and domains from their experiences in National Forests in Oregon and Washington within the past 12 months.

Also, there are variables in the larger study that were not examined used in this study that may affect a visitors' satisfaction level. For example, the weather may have a detrimental effect on whether a visitor is satisfied or dissatisfied with their trip. There also may be personal issues or constraints, such as monetary issues or family issues that could lower or heighten a visitor's level of satisfaction during their outdoor recreation trip.

Overall, customer satisfaction is extremely difficult to measure. This finding has been replicated across many academic fields, including many service industries and especially in recreation management. Because customer satisfaction has proven to be a concept that is hard to define in the past and present, more research is needed to help determine what causes overall satisfaction. This study analyzed 22-satisfaction items and their effect on overall satisfaction. Only nine of these 22-items were found to be significant predictors of overall satisfaction. Therefore, future studies should analyze different attributes from this study to establish which attributes are most logically associated with recreational customer satisfaction.

This study also analyzed whether the individual satisfaction items represented their respective satisfaction domains. The natural environment domain consisted of only two predictors. These predictors included views from recreation areas free of obstruction by

buildings or development and wildlife can be found to observe. Both items were found to be significant predictors of the natural environment domain, however, this model accounted for only 29% of the variance. Future research should include additional items within the natural environment domain, such as, the sounds of nature can be appreciated or the natural quiet can be appreciated.

APPENDIX SURVEY INSTRUMENT

The following 13-page survey instrument was developed for the larger study conducted by Burns et al. (2002) to examine the Pacific Northwest Fee program. For the purpose of this study, the following variables were used. First, the 22 satisfaction items are the variables noted as qrs4_1-4_22 on page 70. Second, the six satisfaction domain items are noted as variables qrs5_1-5_6 on page 70. The four socio-demographic variables (gender, age, residence type, and income) are located on the last page of the survey instrument.

Introduction XX.

First I would like to ask you some questions about outdoor recreation activities. By outdoor recreation, we mean land, water, and snow-based activities.

screen1 1. How interested are you in outdoor recreation activities? Are you very interested, somewhat interested, or not at all interested in outdoor recreation activities?

58.3%	Very Interested
32.5%	Somewhat Interested
8.8%	Not at all Interested
.4%	Don't Know
.0%	Refused

screen2 2. Have you participated in any outdoor recreation activities during the past 12 months?

80.7%	Yes [If yes, follow sequence for Recreationists after screening questions]
19.2%	No [If no, follow sequence for Non-Recreationists after screening questions]
.0%	Don't Know [If don't know, follow sequence for Recreationists after screening questions]
.0%	Refused

What kinds of outdoor recreation activities do you like to do?
 [INTERVIEWER: Open-ended, record response verbatim]

4. A lot of outdoor recreation opportunities in Oregon and Washington are on lands managed by the Forest Service and are called National Forests. National Forests are different from State Parks and National Parks.

What do you think of when you hear the words "National Forest?" Please tell me the first few characteristics, images or things that come to mind. [INTERVIEWER: Open-ended, record response verbatim]

locat2 5. Have you ever visited a National Forest in Oregon or Washington?

88.2%	Yes (If yes— <i>Forest Service recreationist, go to Q6</i>)
11.8%	No (If no— <i>other recreationist, go to Q8</i>)
3.	I don't know (If don't know— <i>other recreationist, go to Q8</i>)

FS RECREATIONISTS

q6 6. During the last twelve months, how many trips have you made to any National Forest in Oregon or Washington? Mean = 9.75

FS RECREATIONISTS

7. What is your primary National Forest in Oregon or Washington—the one that you visit most often?

q7a 7a. Do you have a favorite place or area within the National Forest that you return to on a regular basis?

56.5% No 43.5% Yes [If yes] Why do you go there?

What makes this place special to you? _____

ALL

q8 8. During the last twelve months, how many trips have you made to non- National Forest lands (e.g. National Parks, State Parks, private lands, etc.) in Oregon or Washington? Mean = 10.73

Non-Recreationists Sequence

qnrs 1_1 to 1_17 1. I'd like to read some reasons why people do not visit forests, or don't visit them very often. For each one, please tell me if it is a major reason why you haven't visited a National Forest in the last year, a minor reason, or not a reason for you. The first one is... [Read each item, randomize list and rotate start]

Would you say this is a major reason, a minor reason, or not a reason why you haven't visited a National Forest this past year?

Reason	Major Reason	Minor Reason	Not a Reason	Not Sure
	%	%	%	%
Fear of the outdoors	2.9	7.7	89.4	0
Don't have enough time	45.8	25.8	28.4	0
Have no way to get to the forests	11.6	12.9	75.6	0
Lack of information about the forests or things to do there	23.4	31.5	45.1	0
Fear of crime	7.1	12.3	80.5	0
Too busy with other activities	53.7	26.2	20.1	0
Poor health	11.7	10.4	78.0	0
Don't have anyone to go with	12.6	21.0	66.5	0
National Forests are too far away	15.2	29.4	55.4	0
National Forests are too crowded	3.5	15.6	81.0	0
Like to do other things for recreation	23.9	38.4	37.7	0
Don't like to do things outdoors	6.2	12.7	81.1	0
I, or someone I travel with, is physically unable to visit National Forests	10.7	6.5	82.8	0
National Forests have too many rules that I don't like	5.2	13.5	81.3	0
Don't like the facilities in National Forests	2.1	14.7	83.2	0
Can't afford to go to the National Forests	10.1	20.6	69.3	0
Areas are closed when I want to visit	5.3	17.9	76.7	0
Are there any other reasons you haven't visited a National Forest this past year [If any, record response verbatim]				

qnr2 2. The National Forests in Oregon and Washington provide a place for a wide variety of land, water, and snow based activities, such as hiking, biking, camping, fishing, hunting, observing nature, and other outdoor recreation activities. Knowing that the forests offer these opportunities, how interested are you in visiting them? Are you very interested, somewhat interested, or not at all interested?

- 32.1% Very Interested
- 47.4% Somewhat Interested
- 20.2% Not at all Interested
- .3% Don't Know

qnr3_1 to 3_23 3. [Ask if answer to question 2 is very or somewhat interested] What would you be interested in doing in the National Forests in Oregon or Washington? [Read list, random order and rotate start, check all that apply]

80.8	Camping in developed sites
52.8	Primitive camping (motorized)
62.3	Backpacking, camping in unroaded areas
73.9	Resorts, cabins, and other accommodations on FS managed lands (private or FS)
93.9	Visiting a developed site, such as Multnomah Falls or Mt. St. Helens
88.3	Picnicking and family gatherings in family or group sites
92.3	Viewing natural features such as scenery, wildlife, birds, flowers, fish, etc. (on FS lands)
90.7	Visiting historic and prehistoric sites/areas
83.7	Visiting a nature center, nature trail, or visitor center
58.9	Nature study
90.7	General/other-relaxing, hanging out, escaping heat, noise, etc.
61.9	Fishing
23.0	Hunting
44.1	Off-highway vehicle travel (4-wheelers, dirt bikes, etc.)
78.9	Driving for pleasure on roads
56.7	Motorized water travel (boats, ski sleds, etc.)
37.4	Other motorized land/air activities (plane, other)
86.6	Hiking or walking
46.6	Horseback riding
55.2	Bicycling, including mountain bikes
59.3	Nonmotorized water travel (sailboarding, kayaking, rafting, canoe, etc.)
75.2	Other nonmotorized activities (swimming, games, and sports)
41.9	Gathering mushrooms, berries, firewood, or other natural products

4. What could the Forest Service do that would make you more likely to visit the National Forests?

Recreationist Sequence

qrs1 1. Do you visit the National Forests in your area as often as you would like to?

Yes 31.1%

2. No 68.5%

qrs2_1 to 2_17 2. I'd like to read some reasons why people do not visit forests, or don't visit them very often. For each one, please tell me if it is a major reason why you haven't visited National Forests as often as you would like to, a minor reason, or not a reason for you. The first one is... [Read each item, randomize list and rotate start]

Would you say this is a major reason, a minor reason, or not a reason why you do not visit National Forests as often as you would like to?

Reason	Major Reason	Minor Reason	Not a Reason	Not Sure
Fear of the outdoors	.7	7.2	92.1	.1
Don't have enough time	59.9	25.3	14.6	.3
Have no way to get to the forests	6.8	12.8	80.2	.2
Lack of information about the forests or things to do there	8.2	26.7	64.9	.2
Fear of crime	2.5	14.2	83.1	.3
Too busy with other activities	50.1	33.2	16.8	0
Poor health	9.7	12.5	77.8	0
Don't have anyone to go with	9.9	20.8	69.3	0
National Forests are too far away	7.8	25.1	66.6	.5
National Forests are too crowded	4.5	25.4	69.5	.7
Like to do other things for recreation	11.0	48.6	40.4	0
Don't like to do things outdoors	1.1	8.5	90.3	.1
I, or someone I travel with, is physically unable to visit National Forests	8.5	11.1	80.4	.1
National Forests have too many rules that I don't like	7.1	20.6	71.8	.5
Don't like the facilities in National Forests	2.0	15.9	81.3	.8
Can't afford to go to the National Forests	7.2	21.6	71.1	.2
Areas are closed when I want to visit	8.5	24.5	66.5	.5
Are there any other reasons you haven't visited a National Forest as often as you would like to [If any, record response verbatim]				

2a. What could the Forest Service do that would make you more likely to visit the National Forests?

FS RECREATIONISTS

qrs3_1 to 3_17 3. Here is a list of some benefits people have told us they seek through outdoor recreation. Please tell me how important each of the following benefits is to you when you visit your primary National Forest in Oregon or Washington. [One is not at all important and five is extremely important]

	Not at all important	Somewhat important	Moderately important	Very important	Extremely important
Improved physical health	10.1	9.3	27.8	28.0	24.7
Strengthened relationships with my companions	12.5	11.3	25.5	27.0	23.7
Increased self-confidence	23.8	17.1	26.8	18.2	14.2
Reduced stress	6.5	5.4	13.3	28.8	45.9
Enhanced family relationships	9.9	7.1	19.7	29.5	33.7
Improved mental health	8.4	7.8	17.5	29.1	37.1
Spiritual growth	16.8	11.0	22.9	20.2	29.1
Increased appreciation of the area's cultural history	8.8	13.5	24.0	25.8	28.0
Greater connection with nature	5.2	5.6	17.2	28.8	43.1
Provides opportunity for solitude	6.6	7.4	18.4	27.4	40.3
Provides a challenge that tests my abilities	13.7	14.3	28.5	22.6	20.8
Provides a sense of adventure	6.6	9.2	23.3	31.6	29.3
Provides opportunities to meet people	36.1	26.4	22.6	9.0	6.0
Greater connection with wilderness	7.3	8.7	21.2	27.8	35.0
Increased sense of competence	18.3	17.6	31.4	18.6	14.1
Opportunity for life learning	3.1	5.8	17.8	32.2	41.2
Provides opportunities to view wildlife	5.9	8.6	25.3	29.4	30.8

FS RECREATIONISTS

qrs4_1-4_22 4. Please rate the quality of each of the following characteristics on a typical visit to your primary National Forest in Oregon or Washington.

Quality Attribute	Awful	Fair	Good	Very Good	Excellent	Not Applicable
Availability of drinking water	6.1	30.8	34.6	14.1	9.2	5.3
Compatibility of recreation use with the environment	2.1	20.0	42.4	24.8	9.6	1.1
Recreation areas free of human/animal waste	3.0	18.3	34.8	26.8	15.4	1.7
Condition of facilities	1.8	17.3	42.5	26.0	9.8	2.7
Recreation sites free of dangerous conditions	1.0	10.1	39.6	30.8	16.4	2.0
Accessibility for persons with disabilities or special needs	8.0	27.5	31.6	15.5	7.8	9.5
Risk of vandalism or theft to vehicles	8.2	31.9	33.1	15.6	8.5	2.7
Garbage disposal	5.2	20.4	43.3	19.5	8.9	2.7
Courteous and friendly staff	2.0	8.2	33.2	30.7	21.1	4.9
Views from recreation areas free of obstruction by buildings or development	1.0	9.2	35.2	30.1	22.8	1.7
Availability of multilingual services	7.4	19.9	29.3	7.0	4.7	31.7
Roadside signs and directions	2.3	14.1	41.3	26.6	14.2	1.4
Cleanliness of restrooms and toilets	4.4	25.4	39.5	19.0	9.0	2.8
Availability of parking spaces	2.5	17.6	43.9	22.5	11.5	2.0
Safety and security at recreation areas	2.0	18.7	45.9	21.5	9.3	2.7
Accessibility of uniformed Forest Service employees	5.4	33.6	36.9	13.8	6.2	4.1
Current and accurate on-site information	2.2	18.1	43.5	23.1	10.9	2.2
Assistance for people with special needs	8.3	26.4	37.8	10.8	5.5	17.2
Wildlife can be found to observe	2.1	22.2	37.9	22.4	13.8	1.6
Condition of roads and trails	1.7	14.2	44.7	27.8	10.9	.6
Clearly posted rules and regulations	1.3	10.8	40.5	28.2	18.3	.8
Litter-free environment	3.1	17.7	41.6	25.2	11.9	.6

qrs5_1-5_6 5. Overall, how would you rate the quality of each of the following on a typical visit to your primary National Forest in Oregon or Washington?

	Awful	Fair	Good	Very Good	Excellent	Not applicable/ Don't know
Sanitation and cleanliness	1.4	15.4	44.6	27.4	10.1	1.0
Safety and security	1.9	16.8	46.8	24.7	8.5	1.5
Condition of facilities	1.2	13.0	49.3	26.7	8.2	1.5
Responsiveness of staff	2.8	14.9	41.1	23.8	11.0	6.5
Natural environment	.8	5.7	32.6	31.7	28.6	.6
Information services	1.3	14.4	43.6	26.2	12.5	2.1

ALL

qa6 6. The Forest Service started charging fees at many places on the National Forests in Oregon and Washington in the last couple of years. Have you purchased a Northwest Forest Pass in Oregon or Washington?

80.0% No

20.0% Yes

qa6a [If no, follow questions in column below]
below]

[If yes, follow questions in column

Which of the following reasons best describes why you did not buy a Northwest Forest Pass?	Where did you buy the Northwest Forest Pass?
2.4% a. The fees are too high	qa6b2 Did you know that you needed the pass before you got to the woods? 73.8% Yes 26.2% No
20.3% b. I did not know about the fees	qa6b3 Did you receive enough information when you bought your Northwest Forest Pass? 90.1% Yes 9.9% No
36.5% c. I do not visit the Forests enough to get my money's worth	qa6b4 Is there a particular National Forest that you would like to see your fee go to? 46.1% Yes 53.9% No
12.5% d. I do not support charging fees at any price	If yes, what Forest? _____ _____
28.3% Is there any other reason why you have not bought a Northwest Forest Pass? _____ _____ _____	

ALL

qa7_1 to 7_25 7. How acceptable would it be to charge fees for the following recreational activities in National Forests in Washington or Oregon?

	Completely Unacceptable					Completely Acceptable	No Opinion
	-2	-1	0	1	2	X	
Driving on Forest Service roads	51.4	14.7	16.3	6.7	10.3	.5	
Day hiking on trails	39.9	18.1	19.8	9.4	11.9	.7	
Day hiking off trails	43.8	14.0	17.4	9.0	14.8	1.0	
Backpacking	37.3	16.0	20.4	12.4	13.1	.9	
Camping at campgrounds with facilities	5.8	4.7	18.0	19.8	51.4	.4	
Camping at places with no facilities	33.2	16.8	26.5	10.5	12.5	.5	
RV camping	8.3	4.9	13.5	15.5	56.4	1.4	
Off-highway vehicle use	22.6	11.1	19.7	10.9	34.7	.9	
Picnicking at areas with picnic facilities	35.0	18.3	21.6	10.5	14.2	.3	
Picnicking at areas with no facilities	59.9	15.4	13.0	4.4	6.9	.4	
Horseback riding	26.2	12.8	23.4	12.5	23.4	1.6	
Mountain biking	28.2	13.1	19.9	11.7	25.7	1.4	
Climbing	34.2	14.7	20.7	11.2	17.6	1.5	
Rafting, canoeing, or kayaking	33.7	14.4	21.0	11.6	18.0	1.3	
Boat dock or boat ramp use	11.9	11.5	22.1	17.5	36.4	.8	
Hot springs use	20.7	12.1	25.3	15.4	24.7	1.8	
Visitor centers	36.6	13.7	19.4	9.7	20.2	.5	
Interpretive programs (such as campfire talks, or nature walks)	22.6	15.4	24.1	14.8	22.8	.4	
Collecting forest products (berries, fungi, firewood etc.)	25.9	12.9	20.1	13.0	27.2	.9	
Parking at trailheads	37.0	17.4	21.8	9.0	13.9	.8	
Parking anywhere on a National Forest	48.3	18.0	18.3	5.7	9.2	.6	

Swimming at areas with swimming facilities	19.6	14.1	27.7	14.0	23.9	.7
Swimming at areas with no facilities	58.8	16.0	13.9	4.0	6.7	.8
Stopping at scenic over-looks	77.3	7.9	4.9	3.5	6.1	.2
Recreating in federally designated wilderness areas	33.4	14.7	24.5	11.1	15.1	1.2

ALL

qa8a to z 8. Now I'd like to ask you some further questions about your opinions of the recreation fee program. How much do you agree or disagree with each of the following statements.

	Strongly Disagree				Strongly Agree	No Opinion
There are times and places where a fee to use National Forests is okay, even if that fee is more than I personally would pay.	18.0	10.7	27.1	16.6	27.4	.3
If someone can't afford to pay the fee, they shouldn't use the National Forest.	60.2	14.8	11.2	4.2	9.2	.3
There is nothing wrong with charging fees to recreate on National Forests.	21.7	14.2	26.3	12.8	24.7	.5
I am willing to pay a little extra on my fee to help cover the cost for people who can't afford it.	25.7	11.4	22.2	16.8	23.6	.4
People should be able to recreate on National Forests even if they can't afford to pay the fee.	11.4	7.7	17.0	13.7	49.6	.5
Corporations should be allowed to sponsor recreation sites or facilities on National Forests with few or no restrictions	43.4	14.7	18.5	7.5	14.7	1.2
I can't afford to pay a fee to recreate on National Forests.	52.9	12.5	16.4	5.9	11.4	.9
I get less satisfaction from recreating on National Forests if I pay a fee to use an area.	44.0	15.3	18.4	6.9	14.2	1.1
Charging fees on National Forests will lead to over-commercialization.	37.3	18.5	18.9	8.3	15.7	1.2
Charging fees on National Forests will make it so that only the rich can use the best areas.	35.2	17.3	18.2	10.5	18.4	.4
Charging fees helps the Forest Service do a better job at protecting the land while providing recreational opportunities.	12.8	6.8	20.9	20.1	39.0	.4
It is okay for the Forest Service to accept donations from corporations, but corporations should not be recognized as sponsors.	16.6	9.3	18.4	16.0	38.4	1.3
I am willing to pay fees but I don't think that I should have to.	24.9	16.8	25.3	11.6	20.9	.5
It is ok for the Forest Service to allow the sale of refreshments and souvenirs at Visitor Centers.	7.6	4.4	17.8	22.3	47.5	.4
Corporations should be allowed to donate money for recreation sites or facilities on National Forests with minimal recognition, but some acknowledgement.	10.8	5.9	22.9	22.7	37.2	.5
I understand the reasons behind the fee program.	9.5	6.0	16.4	21.3	46.2	.6
Overall, I approve of the Northwest Forest Pass program.	15.4	8.3	21.9	18.7	31.5	4.1
Fees should be used to make up for declining agency budgets.	24.1	12.7	22.0	15.9	23.7	1.6
Fees are inappropriate because they may exclude some visitors from the National Forest.	22.8	19.2	23.2	12.3	22.2	.4
I don't trust the FS to spend my fee dollars wisely.	36.1	20.7	19.1	8.3	14.8	1.0
The Forest Service shares my values.	12.4	12.2	32.3	20.6	20.3	2.3
The Forest Service has goals that are different from mine.	22.7	20.1	27.7	11.7	14.8	3.1
Fees should only be charged where facilities are provided, such as picnic areas and trailheads.	18.9	15.9	22.4	21.4	21.1	.4

Trails require a significant investment to maintain and should be included in the fee program.	13.9	10.5	25.7	22.3	26.9	.7
Recreation fees are unfair to people with lower incomes.	17.2	18.6	23.4	17.1	23.2	.6
I can think of some circumstances where it is ok to charge fees at Visitor Centers.	19.2	10.9	24.1	19.9	25.0	.8
[Interviewer: if the response to the above item is agree or strongly agree, ask subject to describe the conditions that would make them willing to pay a fee at a Visitor Center; record verbatim as much as possible]						

qa9 9. In your opinion, what is the proper balance between taxes and user fees for generating operating funds for public forest areas?

Entirely from taxes	Mostly from taxes	Equally from taxes and user fees	Mostly from user fees	Entirely from user fees	Don't know
9.4	28.4	42.5	11.4	5.6	2.6

qa10_1 to 10_4 10. Suppose the National Forest did not have enough money or staff to adequately maintain a particular recreation site. Please tell us how much you support or oppose the following options.

	Strongly Oppose				Strongly Support	No Opinion
a. Impose a fee for people to use the site.	15.7	8.7	30.4	20.1	24.2	.9
b. Allow private corporations to sponsor the site.	17.5	9.7	23.0	20.6	28.7	.6
c. Keep the site open but allow it to deteriorate.	56.7	19.7	12.4	4.9	5.9	.4
d. Close the site for recreational use.	47.5	17.6	18.3	7.0	8.9	.7

10a. Of the above options, what would be your first choice? _____

10b. Do you have any other suggestions for how to maintain a recreation site if the government does not have enough funds to operate the site?

qa11a to f 11. Please tell us how much you support or oppose the following management policies.

	Strongly Oppose				Strongly Support	No Opinion
Set aside some areas of National Forests where no fees are charged.	6.9	3.1	14.1	17.6	57.9	.5
Make one day a month free.	14.1	5.3	12.8	15.4	52.0	.4
Do not charge fees for the use of National forest lands, except for activities like camping at developed sites.	11.2	10.0	23.7	19.1	35.7	.2
Offer an annual pass that works for all recreation sites (Forest Service, National Park Service, State Parks, etc.).	7.9	4.6	15.1	21.2	50.6	.6
Give low income visitors a free annual pass	19.8	18.6	23.6	10.9	26.8	.4
Give people a free pass after they have volunteered and worked at the site.	5.9	2.6	10.5	22.4	58.5	.2

qa12 12. The Forest Service is working with other agencies such as State Parks and the National Park Service to develop an annual recreation pass for use at recreation sites in Oregon and Washington. This

pass would cover entrance to day use sites and facilities, but would not include additional services such as overnight camping fees.

Depending on the price, how likely would you be to purchase such a pass?

- 23.0% Very likely
- 42.5% Somewhat likely
- 19.3% Unlikely
- 15.1% Would not consider at all

[If answer is unlikely or would not consider] Why wouldn't you purchase this type of pass?

Would you pay [\$50 \$75 \$100 \$150– randomly assigned] for this type of pass? Yes No

qa12d What is the maximum amount you would be willing to pay for this type of annual pass? \$64.81

qa12e What do you think is the appropriate price to charge for such a pass? \$51.94

qa12f Would you prefer this type of pass be available for:

All recreation sites in either Oregon or Washington 20.3%
All recreation sites in both Oregon and Washington 79.7%

qa13_1-13_10 13. Which of the following purchasing methods would you consider for buying a Northwest Forest Pass?

Method of Purchase	Would not consider	Might consider	Would definitely consider
a. Order the pass by mail from the Forest Service	16.2	41.7	42.0
b. Buy the pass over the internet	39.8	24.2	36.0
c. Call a 1-800 number	17.1	37.9	45.0
d. Purchase the pass at a Forest Service office	12.2	25.7	62.1
e. Purchase at the recreation site	11.6	26.4	62.0
f. Buy the pass at a convenience store	41.2	26.4	32.4
g. Buy the pass at an outdoor shop	21.8	33.9	44.3
h. Buy the pass at a "sno-park" vendor	37.8	29.3	32.9
i. Buy the pass at a grocery store	43.6	25.4	31.0
j. Buy the pass at a fishing or hunting license vendor	14.3	30.7	55.0

Of the above methods of purchase, what would be your top two preferences for buying a Northwest Forest Pass?

First choice _____ Second choice _____

qa14_1 to 14_10 14. How acceptable is it for the Forest Service to spend revenue from the fee program for the following services and facilities on National Forest recreation sites? [Circle one answer for each item]

	Completely Unacceptable				Completely Acceptable	No Opinion
Maintain the quality of the natural environment	4.6	2.0	11.7	14.0	67.3	.5
Maintain restrooms	3.3	1.9	13.7	18.8	62.0	.3
Improve security	6.9	8.3	28.4	18.8	37.0	.6
Maintain trails	4.1	3.3	20.8	23.8	47.8	.2
Provide recreation information	5.4	7.9	31.7	20.7	34.0	.3
Provide assistance to insure access to recreation opportunities for persons with disabilities	4.5	5.3	19.7	20.2	49.7	.5
Provide more recreation staff	11.1	13.5	32.6	17.4	24.6	.9
Develop additional facilities, such as more trails and trailheads	12.6	10.9	26.5	19.7	29.9	.5
Provide environmental education programs	9.8	12.1	27.1	19.2	31.2	.5
Increase amenities at existing facilities such as showers or electricity	15.5	16.7	27.6	16.2	23.3	.7

Please let us know your priorities for spending your fees. Rank your top three priorities in order of importance to you with 1 being highest priority:

1-3	Priority
	Cleaner toilets
	More toilets
	Trail maintenance
	More trails
	Improving safety and security
	More/better signage
	More ranger presence
	Maps and information
	Fixing resource problems

qa15 16. Have you ever contacted anyone for information about National Forests in Oregon and Washington?

57.3% No 42.7% Yes

If yes, whom did you contact?

qa15a2 How did you contact them?

1.4% letter 45.6% phone 38.9% personal visit 7.5% Internet
6.6% other [please specify]

What type of information did you receive?

qa15c Was the information you received adequate in helping you plan your forest visit to your satisfaction?

93.7% Yes 6.3% No

qa16a1-10 17. Are you interested in any of the following types of information about the National Forests of Oregon and Washington?

[Interviewer: First read list of information types and ask whether or not respondent is interested in each type of information. Then ask where they would like to get information only for those types of information they are interested in.]

		Type of Information	If interested, where: [check each applicable column]									
Interested	Not Interested		Outdoor/ Sporting Goods Stores	Newspapers	Books & Magazines	Brochures	Trailhead Signs	Ranger Or Volunteer	Visitor Center/ Ranger Station	The Internet	Audio or video tapes	Recreation clubs or organizations
66.0	34.1	Map of location of trails and features	53.8	22.4	42.4	53.5	53.4	56.2	76.8	57.4	10.8	23.7
56.0	43.9	Rules and regulations for the area	46.8	21.7	33.3	51.3	52.3	58.3	77.5	49.6	11.5	21.6
44.5	55.4	Tips on hiking and camping	49.6	25.3	44.7	53.2	47.6	55.7	72.0	53.1	12.3	25.6
59.4	40.5	Types of plants and animals in the area	35.0	22.7	52.8	53.8	48.1	55.0	74.6	49.3	15.8	21.8
46.8	53.1	Hunting or fishing in the area	70.1	25.5	38.1	47.9	40.4	54.4	68.6	43.9	12.9	24.1
39.1	60.8	Trail safety	39.0	23.0	40.2	45.8	52.6	59.1	74.7	42.3	15.1	22.9
48.8	51.1	Forest history	25.9	23.6	52.2	49.3	43.7	54.7	73.8	46.1	18.7	20.7
54.9	45.0	General forest and park information	37.4	24.3	41.6	49.5	44.0	53.1	74.1	48.7	12.2	19.2
35.3	64.6	Low impact camping	45.3	22.7	43.7	44.4	39.7	51.7	70.9	45.1	15.0	24.7
36.4	63.5	Volunteer opportunities	29.0	30.8	30.7	41.8	33.7	55.2	76.1	50.2	12.0	31.2

17a. Where would you most likely go to obtain each of the following types of information about the National Forests in Oregon and Washington? [Check applicable boxes in above table]

17b. What kinds of information would you like to see provided on-site at recreation areas within the National Forests?

Finally, please tell us a little about yourself.

qa17 ALL 18. What is your age? 46.13 years

qa18 ALL 19. Including yourself and your dependents, how many people live in your household?
Number of people: 2.66

qa19 ALL 20. Do you have children under six years old living with you? No 81.8 Yes 18.1

qa20 ALL 21. Do you have children between 6 and 18 years old living with you? No 62.9 Yes 37.0

qa21 ALL 22. Which of the following best describes your occupation in the past year?

5.1	Full time student	1.2	Part time student
54.1	Employed full time	6.5	Employed part time
1.0	Unemployed	19.6	Retired
6.0	Homemaker/Caregiver	6.3	Other _____

qa22 ALL 23. Which racial group(s) do you identify with? Check all that apply.

2.7 African American/Black	5.9 American Indian/ Alaska Native
3.2 Asian American	89.1 White
2.1 Native Hawaiian or other Pacific Islander	4.7 Other (please specify): _____

qa23 ALL 24. Are you Hispanic or Latino(a)? 96.3 No 3.7 Yes

qa24 ALL 25. Which of the following reflects your total household income before taxes, for the last year?

7.4 Under \$10,000	17.6 \$50,001-70,000	2.5 \$110,001-130,000	1.7 Over \$170,000
26.0 \$10,001-30,000	8.8 \$70,001-90,000	1.3 \$130,001-150,000	
29.3 \$30,001-50,000	4.4 \$90,001-110,000	.9 \$150,001-170,000	

qa25 ALL 26. What is the highest level of schooling you have completed?

1.2	Less than 9 th grade	8.8	Associates degree
6.0	9 th grade to 12 th grade, no diploma	18.9	Bachelor's degree
26.2	High school graduate	13.5	Graduate or professional degree
23.8	Some college, no degree		

qa26a ALL 27. Does anyone in your household have a disability? 17.1 Yes 82.9 No

qa26c If yes, What type of disability? _____
Does the disability hamper your ability to recreate in National Forests in Oregon or Washington?

59.8 Yes 40.2 No

qa26d Is there some accommodation or assistance we could offer that would be helpful to you or anyone in your household

to improve your recreational experience? 27.0 Yes 73.0 No

If yes, please tell us what that is. _____

ALL 28. What is your zip code? _____

Q28b. What type of area best describes the location of your permanent residence?
Urban, Suburban, or Rural?

q31 ALL 29. Interviewer: record gender of respondent. 57.1% Male 42.9% Female

Thank You for Your Participation in This Study!

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BIOGRAPHICAL SKETCH

Sarah H. Farmer was born and raised in Tampa, Florida, by her parents, Don and Katherine, and with her younger brother, Joseph. She graduated high school with honors in 1997 and attended the University of Florida in Gainesville, Florida. She graduated from the University of Florida, also with honors, in December 2001 with a Bachelor of Science in Recreational Studies degree from the Department of Recreation, Parks, and Tourism, within the College of Health and Human Performance. She decided to continue her education within this department with the goal of receiving her master's degree. Sarah worked with Dr. Robert C. Burns on numerous projects in Florida, Oregon, and Washington for over two years. These projects included various research studies conducted for the USDA Forest Service with regard to visitor use, customer satisfaction, and an investigation of fee programs for the National Forests in Oregon and Washington.