# Approaches to Measuring Quality of the Wilderness Experience

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**Abstract**—Wilderness is a special place that provides opportunity for unique and profound experiences. An essential task for the maintenance of these recreational opportunities is the definition and monitoring of experience quality. Four approaches to the measurement of the wilderness experience have developed in over 30 years of research: satisfaction approaches (which focus on evaluation of onsite conditions), benefits-based approaches (focusing on psychological outcomes), experience-based approaches (describing cognitive states experienced in wilderness), and meanings-based approaches (documenting socially constructed meanings ascribed to the experience). Each approach has its strengths and weaknesses. Given that the wilderness experience is a multifaceted phenomenon, it is not surprising that no single method adequately serves the needs of managers trying to preserve the quality of the wilderness experience in the context of rising use density levels. However, a linear and direct relationship between use density conditions and experiential quality should not be assumed.

## Introduction

Attempts to define the quality of the wilderness experience have varied. Managers have struggled to define the unique qualities of the very opportunities they are charged to provide and protect. While impact upon, or loss of, ecological qualities has received a good deal of attention, and frequently initiates management agency response (Hammitt and Cole 1998), the loss of experiential quality seems less noticeable and less urgent. However, that Congress and the public in general directed managers to secure the opportunity for quality wilderness recreation is clear in the Wilderness Act of 1964 (PL 88-577, Sec. 2(a)) where it defines the National Wilderness Preservation System to be:

> …administered for the use and enjoyment of the American people in such a manner as will leave them unimpaired for future use and enjoyment as wilderness, and so as to provide for the protection of these areas, the preservation of their wilderness character, and for the gathering and dissemination of the information regarding their use and enjoyment as wilderness.

And while it is acknowledged that onsite recreation is only a portion of the American public's use and enjoyment of the National Wilderness Preservation System and that offsite benefits such as heritage, bequest, and option values deserve greater attention, it has been visitor use and user characteristics that have dominated wilderness researchers' attention (Roggenbuck and Lucas 1987; Cole 1996).

Wilderness legislation provides broad guidance for the types of visitor use that is to be fostered in wilderness areas. The most frequently cited is the Wilderness Act of 1964 (Sec. 2.(c)), which defines wilderness to be:

> ...protected and managed so as to preserve its natural conditions and which (1) generally appear to have been affected primarily by the forces of nature; (2) have outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) have at least five-thousand acres or are of sufficient size to make practicable their preservation; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

The so-called Eastern Wilderness Act of 1975 (PL 93-622, Sec. 2.(b)) further directs that wilderness areas be:

> ...managed to promote and perpetuate the wilderness character of the land and its specific values of solitude, physical and mental challenge, scientific study, inspiration, and primitive recreation for the benefit of all of the American people of present and future generations.

Both of these pieces of wilderness legislation speak of the need to secure the character of wilderness in the face of large-scale industrial development, expanding growth and settlement, and growing mechanization. Undoubtedly these threats have increased in the intervening decades and efforts to protect the quality of wilderness recreation are urgent indeed. Wilderness use is increasing (Cole 1996) and popular support and demand for the National Wilderness Preservation System continues. The language used by Congress implies that wilderness is a special place, offering unique recreational opportunities. Research into this area has suggested that wilderness does indeed provide rare experiences and outcomes (Kaplan and Kaplan 1989; Scherl 1990; Driver and others 1987). The challenge, then, for researchers and managers is to more clearly define the nature of the wilderness experience that produces these benefits. Elsewhere in this proceedings, Cole discusses some of the influences of levels of user densities on experience quality, and stresses the need for a better understanding of visitor experiences. In our paper we set out to provide a roadmap to more than three decades of inquiry into the nature of the wilderness experience. Throughout this period of time varying concepts or approaches to the composition of that experience have evolved, much of it reflecting changing perspectives of outdoor recreation research in general.

The earliest research in outdoor recreation tended to be descriptive in nature (Manning 1999). During this initial phase, researchers were primarily interested in the numbers

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of outdoor recreation participants, the activities in which they participated, and their basic socio-demographic makeup. Although this information provided a base line for use levels and the beginnings of an empirical foundation, the lack of a theoretical framework limited its contribution to our understanding of the recreation experience. In many ways, recreation research has been a search for the most effective framework for representing the value of quality recreation experiences and protecting that value through planning and management actions.

It was perhaps LaPage (1963) and Wagar (1964) who first called for a "logically consistent framework that will guide us towards quality recreation" (Wager 1966: 9). In doing so, they explicitly linked quality of the recreation experience with the numbers of people seeking that experience, thus initiating discussion of a recreational carrying capacity and its usefulness for effective recreation management. Lime (1976) and Hendee and others (1978), for example, described the possible application of a carrying capacity model for the planning and management of particular wilderness recreation resources. However, recent authors have questioned the application of carrying capacities to protected area planning and management (Borrie and others 1998). Thus, in many ways much recreation research has been a search for the most effective framework for identifying and protecting the experiential values of recreation given the numbers of visitors wishing to enjoy those values. This paper discusses four lines of research that attempt to measure the recreation experience: satisfaction approaches, benefits-based approaches, experience-based approaches, and meaning-based approaches.

## Satisfaction Approaches

It is not surprising that "the principle measure of quality in outdoor recreation has traditionally been visitor satisfaction" (Manning 1999: 8). Visitors are the premier sources of information concerning the conditions of the recreational opportunity they experience, and their evaluations are an important sources of feedback for managers. However, reliance on satisfaction measures assume a number of characteristics of the visitor, including their ability to deliberately, accurately, and consistently perceive (and base evaluations upon) the conditions experienced.

Most satisfaction measures in outdoor recreation have been adapted from the expectancy-valence theory, with users considered to be rational decisionmakers that evaluate satisfaction as a comparison between desired and actual outcomes (Williams 1989). Outcomes that meet or exceed expectations result in high satisfaction while those experiences that fall short of expectations are considered less satisfying.

Initial hypotheses concerning satisfaction suggested that it was solely correlated to use levels. Alldredge's (1973) model proposed that increasing numbers of users would result in diminishing satisfaction for each individual user. In the case of wilderness, it was suggested that the first user in an area enjoyed the maximum satisfaction and additional users reduced this level of satisfaction. One survey of relevant research found little empirical evidence for this intuitive relationship between actual use density and satisfaction (Graefe and others 1984). These findings suggested that a multidimensional model of satisfaction that incorporates various setting and experience attributes might be more appropriate.

Thus, the ability of single measures of visitor satisfaction must be questioned. Single item measures assume the respondent's ability to cognitively combine all the various components and evaluations of a visit into a single opinion. Furthermore, since single item measures are a more generic-level evaluation, they are more prone to generic level influences such as mood, self-presentation concerns, and strategic responding. Finally, single item satisfaction measures, by their very nature, fail to filter out the influence of experience components such as the weather, group dynamics, and level of visitor preparation over which the manager has little, if any, control. This is understandable if the aim is to provide a single measure of satisfaction, but less directly informative of what is leading to that satisfaction. Single-item scales offer little in the way of accurate description of the recreation experience and the role that management plays in fostering and encouraging satisfying experiences. Thus, in recognition that satisfaction is a multidimensional construct, multiple-item scales began focusing on situational determinants of satisfaction (Graefe and Fedler 1986). One of the most prominent multidimensional approaches is the use of importance-performance scales, which is described below. However, no standardized sets of multidimensional measures of satisfaction have been developed or commonly adopted (Manning 1999).

### Importance-Performance Measures

One popular approach to multidimensional measurement of satisfaction is that of importance-performance (I-P) measures. This technique was developed in the field of marketing research as an approach to measure customer evaluations of service attributes and easily convey this information to managers (Martilla and James 1977). In application, customers are asked to report the importance they place on an attribute as well as their perception of the service provider's level of performance in delivering that attribute. Scores from all the respondents are then aggregated to find the mean importance and mean performance rating for each attribute measured. Thus, the link between expectations and evaluations is made explicit. That is, if visitors consider a particular attribute or condition to be particularly important to their visit, visitors are likely to expect those attributes or conditions to be satisfactorily present. Any discrepancy between expectations and outcomes will clearly represent their unmet motivations or expected satisfaction.

Particularly for managers, one of the desirable features of the I-P approach is its presentation of the data. The mean importance and mean performance scores are plotted on a two-dimensional grid to graphically illustrate customer satisfaction with the service provider. For example, attributes that receive high importance scores and high performance scores would fall into the "Keep up the Good Work" quadrant, indicating that managers are effectively providing a worthwhile service. On the other hand, high importance scores with low performance scores indicate that management is failing to devote enough attention to a valued attribute and should "Concentrate Here." This graphical depiction allows managers to easily identify the areas on which they should focus their efforts (fig. 1).

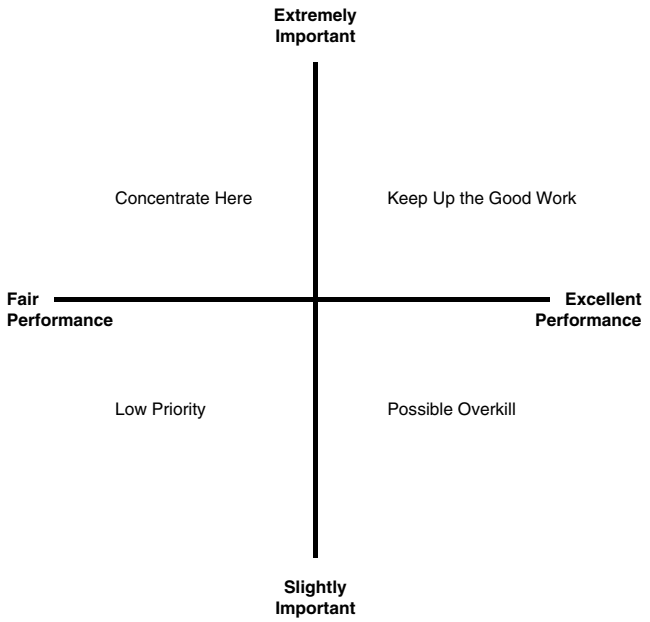


**Figure 1**—An example of an importance-performance grid.

Mengak and others (1986) found the I-P approach to be a valuable tool that makes use of easily obtained information to guide land management efforts. Clear guidance is given as to which facilities and conditions deserve attention given a mismatch between expectations and experience. It should be cautioned that respondents rather than reporting actual conditions were reporting perceived quality. The fact that visitors typically perceive the quality of national parks and wilderness areas as high suggests that results may be somewhat skewed and the range of variation not adequately captured by these measures. (It is not surprising that visitor evaluation of outdoor recreation experiences is high given the voluntary nature, the high emotional and financial commitment, and the social desirability typically associated with them).

Hollenhorst and Gardner (1994) have proposed a modification of importance-performance measures called the indicator performance estimate (IPE). They note that the relative nature of performance measures in the typical I-P model do not offer managers guidance for improving conditions nor are they necessarily comparable because each indicator is based on a different scale. For example, low performance levels on the indicator "number of parties of people seen each day" would not tell managers how many parties were actually encountered or the preferred encounter level. Also, the different scales of the indicators such as "number of fire rings per campsite" and "number of parties of people seen each day" would confound any efforts to compare the performance of these indicators.

To ameliorate these deficiencies, the IPE model reconceptualizes the performance dimension of the I-P model as the standardized difference between visitor standards and actual or perceived conditions. In the case of physical indicators, such as number of fire rings or percentage of vegetation loss, actual physical inventories were used to determine status of the indicators. To determine the status of social indicators, such as number of parties seen each day, respondents were asked to report their perceptions of current conditions. For each indicator ($i$), the indicator performance estimate ($IPE_i$) is calculated by comparing the mean preference ($p_i$) to the actual condition ($a_i$) dividing by the standard deviation of the preference rating ($sp_i$), for example,

$$IPE_i = (p_i - a_i)/sp_i$$

Each $IPE_I$ represents a standardized performance level that is comparable between various indicators and is plotted on an I-P grid similar to that shown previously.

This model has been applied to the Cranberry Wilderness in West Virginia (Hollenhorst and Gardner 1994) to better understand the monitoring of indicators within the Limits of Acceptable Change (LAC) process. The IPE method was suggested to allow managers to prioritize management actions based on the perceived importance of each indicator and the amount of deviation from standard for each indicator. This study found that four of the five indicators that fell into the "Concentrate Here" quadrant were related to social conditions and perceived crowding. It is interesting to note that although users felt that use level indicators were very important to their overall experience, they typically chose to hike and camp along the most highly used trails in the wilderness area. Although visitors typically prefer low use levels, it is unclear whether the departure from preferred conditions adversely affects experience quality.

Another recent approach to measuring visitor satisfaction is that of a "performance measures only" test (Absher 1998). In that study, visitors were asked to rate the performance of 22 indicators developed across three performance domains: facilities, services, and information. With visitors sampled across two National Forests, it is interesting to note that wilderness users, on average, reported higher performance levels for the U.S. Forest Service than front country users did. The three reasons offered to explain this difference illustrate the difficulty of interpreting these sorts of studies: (1) the Forest Service may be doing a good job of providing for wilderness users, (2) the Forest Service may be 'over-performing' by providing services and facilities beyond the expectations of wilderness users, and/or (3) wilderness users, who are generally more experienced, may have more crystallized perceptions of conditions and services.

## Strengths and Weaknesses

Although customer service measures were originally developed for use by private commercial service providers, there is justification for its application in the area of wilderness management. First, as taxpayers, wilderness users can be seen as "customers" that are paying for the "product" of the wilderness recreation experience. Second, because wilderness recreation users are an important part of the constituency that supports wilderness, it is advantageous to ensure that their needs are being met.

As a methodological concern, it should be pointed out that satisfaction measures are rarely reported at the individual visitor level and are therefore less informative of the quality of individual experiences. In most satisfaction or I-P studies the results are aggregated across visitor groups and averages are then used to guide management. Shafer (1969) first cautioned that the "average camper" does not exist, and that

recreation managers should strive to maintain a diversity of opportunities and experiences. The aggregated data may fail to adequately guide the broad range of conditions the visitors are seeking.

I-P approaches tend to focus on the facilities and setting conditions that can play an important role in determining both the type and quality of the recreation experience. However, it has been questioned whether it is valid to express settings as a collection of individual attributes (Schreyer and others 1985). Alternatively, settings could be viewed holistically, as "more than the sum of their parts." In which case, visitor satisfaction in respect to setting attributes does not equate to satisfaction with the recreation experience. Furthermore, considering the unique emotional and spiritual qualities of the wilderness recreation experience, customer service approaches would appear to be measuring only one component of the experience. However, it is that component that managers may perceive to be most under their control.

While this type of information can prove to be an efficient evaluation of management performance, it does offer little insight into the nature of the wilderness experience. Rather than measuring the quality of the experience we gain information on perceptions of quality of various setting attributes.

## Benefits-Based Approaches

An alternative to directly measuring visitor satisfaction is provided by the benefits approach, which is based on the foundations of Driver and Tocher (1970). The benefits approach differs from the satisfaction approach in three fundamental ways. First, instead of measuring visitor satisfaction with attributes, the benefits approach focuses on visitor satisfaction with the psychological outcomes of the recreation experience. Second, the benefits approach, as operationalized in the Recreation Opportunity Spectrum (ROS) framework, expands the notion of the setting for recreation experience to include physical, social and managerial conditions. Third, in acknowledging that management shouldn't focus on "the average camper who doesn't exist" (Shafer 1969), the benefits approach focuses on a diversity of recreation experience opportunities and less on mean evaluations.

Along with the development of ROS, much work was done to identify which components of the recreational experience are most important to participants. The recreation experience preference (REP) scales, developed through the combined work of Driver, Knopf, Brown, and Haas, identifies 16 domains that are considered to be important to the recreation experience (Driver and others 1985). These scales have been used to measure visitor preferences in a good number of wilderness areas, undesignated wilderness areas, and nonwilderness areas (Driver and others 1985). The results indicated that visitors to wilderness areas consistently chose "enjoy nature," "physical fitness," and "reduce tensions" as the three most important preference domains. It is also important to note that visitors to three nonwilderness areas studied rated different experience preference domains as most strongly adding to satisfaction. This is a key finding in that it adds support to the claim that wilderness users are in search of experiences that are unique from other outdoor recreation pursuits and provides some insight into the nature of the wilderness experience.

The benefits approach is still based on the expectancy-valence theory, in that satisfaction is defined as the extent to which actual psychological outcomes of the recreation experience compare to those desired. Accordingly, it is suggested that visitors are motivated to seek out particular activities in specific settings in order to receive specific psychological outcomes. It is this theoretical link between preferred experiences and recreation setting that have become both axiomatic but also problematic for recreation research.

For example, a study of wilderness recreationists in the Wind River Range of Wyoming examined this link between setting preferences and desired experiences (Manfredo and others 1983). The authors hypothesized that there exist definable segments of wilderness recreationists and that setting preferences and activity choices differ among these various user segments. The findings of this study showed limited support for the motivational model. Specifically, only a slight degree of correlation was found between preferences for activities and settings, and experience preferences. The differences between the defined user segments, while not large, were also found to be significant.

Furthermore, the ROS management framework assumes that similar groups of psychological outcomes are grouped into "bundles" that represent "experience opportunities" that can be arranged along a continuum generally ranging from the urban to the primitive. As mentioned above, it is assumed that visitors select the setting as the appropriate experience opportunity to realize specific psychological outcomes. Yuan and McEwan (1989) examined the relationship between visitor experience preferences and setting characteristics at four private and eight public campgrounds in western Kentucky. Results from this study showed little evidence of differences in mean experience preferences between the three ROS settings (rural, roaded, and semiprimitive-motorized). In other words, it did not appear that visitors were seeking out particular settings in order to satisfy desires for particular experiences. Thus, support for this key assumption of the benefits-based approach, as operationalized in the Recreation Opportunity Spectrum, is not as strong as it should be. REP scales, or other measures of expected benefits, would therefore appear to be insufficient descriptors of the significance of the recreation experience.

### Strengths and Weaknesses

Although research has failed to conclusively confirm the setting-experience preference relationship, managers have found the ROS to be a useful management framework. ROS has been useful in inventorying, classifying, allocating, and evaluating recreational resources (Haas and others 1979). Indeed, the ROS planning framework has been widely adopted by the USDA Forest Service and the USDI Bureau of Land Management (Driver and others 1987). The rationale for this approach is that while recreation managers may not be able to manage experiences per se, they can manage settings that provide opportunities for certain experiences (Driver and Brown 1978).

Furthermore, using ROS to describe and prescribe a diversity of recreation opportunities, and similarly using

REP scales to describe a variety of visitor motivations and visitor groups, have been important developments in recreation research. However, difficulties in establishing a consistent link between setting and recreation experience preferences indicate that this may not be an adequate representation of the recreation experience. It is also unclear how social conditions, such as use density, relate to the provision and attainment of recreation experience preferences. Perhaps, in the same way that it may be more appropriate to view settings holistically rather than as a collection of setting attributes, it may be more useful to envision experiences holistically rather than as a collection of psychological outcomes.

## Experience-Based Approaches

Another current line of recreation research focuses on the nature of the experience as it is experienced. This line of research has emerged from some of the most basic questions about leisure and recreation, such as: What is recreation? How is recreation different from other types of human engagement? What are the cognitive and psychological processes involved in recreation experiences? How do these processes shape our perceptions of the recreational experience? This approach more directly asks the visitor to describe their experience instead of asking them to evaluate components of the recreation setting. It assumes less cognitive processing on the respondent's behalf in that they are often questioned closer in time to the experience and they are not asked to explicitly link setting conditions with satisfaction. In doing so, it is argued that respondents more accurately report the wilderness experience as it unfolds and are less influenced by bias and assumed relationships (Borrie and others 1998). In addition, since the wilderness experience can change across the course of the visit (Borrie and Roggenbuck, in press), respondents are sometimes asked at multiple points in time for their description of the experience instead of having to collapse the entire experience into a single evaluation.

One of the foundations for this line of research is the theoretical work of Clawson and Knetsch (1966) who proposed that recreation is a multiphase experience. Their model of the experience includes five phases: anticipation, travel-to, onsite, travel-back, and recollection. They propose that various satisfactions can be achieved through each of these phases and that each phase is important in determining the overall satisfaction with a recreational experience. Although managers have traditionally focused on the onsite phase of the experience, Clawson and Knetsch indicate that by providing proper information managers can also influence the offsite phases of the experience. Noting the intuitive appeal and the lack of empirical tests of this model, Hammitt (1980) conducted a study of a university field trip to Mud Lake Bog in Michigan and found significant changes in mood across the five phases of the experience.

While the five-phase model of the recreation experience has been widely known (and to some degree widely accepted) for some time, only more recently have researchers begun to investigate the multiphasic nature of the *onsite* experience. In this way, cognitive and psychological states have been found to ebb and flow over the course of the onsite experience (Hull and others 1996). In a study of brief leisure experiences of university students in Italy, Hull (1996) found support for the dynamic and complex nature of the recreation experience. Over a 7-week period, participants were asked to report their moods (at 20-minute intervals) when engaging in any one of four leisure activities: walking in a natural setting, walking within a city center, sitting indoors with a panoramic window view, and sitting in a room with no windows. It was found that regardless of the activity participated, mood dimensions changed across time, thus confirming the dynamic nature of the experience.

Another study examined the experience patterns of day hikers in the White River National Forest bordering the Maroon Bells Wilderness Area, Colorado (Hull 1992). In this study, hikers were asked to respond to items measuring mood, satisfaction, and perceived scenic beauty at 12 predetermined points along the trail. Analysis of the experience patterns indicated that both mood and satisfaction varied over time. Much of this variation was explained by the perception of landscape beauty indicating that the natural setting is an important factor effecting both mood and satisfaction. However, the direction of causality is not clear. For instance, is it the perception of landscape beauty that influences mood, or is it mood that effects the perception of landscape beauty?

As the focus of recreation research efforts change towards a greater emphasis on the experience itself, the methods used have also had to change (Stewart and Hull 1996; Stewart 1998). In particular, the techniques of the Experience Sampling Method (ESM) have been investigated. For example, ESM techniques were used to examine the multiple aspects of the wilderness experience in the Okefenokee National Wildlife Refuge of southern Georgia (Borrie and Roggenbuck 1995). This method calls for participants to carry beepers throughout a recreation experience. At random times the beeper sounds, indicating that the respondent should complete a survey describing the content of the experience at that point in time.

In doing so, the wilderness experience was viewed as a multidimensional event. Not only does the experience change across time, but these changes can be observed across a number of dimensions. While some studies have focused on solitude as the dominant indicator of the wilderness experience, the Okefenokee study examined five other dimensions of the wilderness experience (primitiveness, humility, timelessness, oneness with nature, and a caring relationship with nature). Kaye (1999) has also called for the description of salient wilderness experience characteristics such as humility, mystery, sacredness, and restraint. Searching for defining wilderness experience characteristics is a natural extension of the work of Roggenbuck and associates who were searching for potential indicators of a quality wilderness experience (Williams and others 1992; Roggenbuck and others 1993).

Not only has there been effort to better dimensionalize and measure important and essential qualities of the wilderness experience, but attention has also turned to a broader range of factors, conditions, and modes of experience that may be influencing the experience the wilderness visitor gets. As Watson and Roggenbuck (1998) mention, in much wilderness research "we measure very little about the experience beyond crowding influences (encounters along trails or at campsites). In this case we believe there are other

aspects at least as important or more important than crowding, and the effects of management actions on these aspects of the experience should be monitored" (p. 269). One of the challenges facing researchers is to explicitly demonstrate the influence of wilderness conditions on the experiences received. Borrie and Roggenbuck (in press) and McIntyre (1998) both measured focus of attention at multiple points in the wilderness experience, mapping the influence of others in the group, activity being undertaken, and degree of focus on the environment. Similarly, Jones and others (2000) measured nine dimensions of the flow experience, including concentration on the task at hand, on a whitewater river in West Virginia. Extending analysis to include the influence of focus of attention upon the wilderness experience should yield a richer analysis of the person-environment transaction and of the internal dynamics of the wilderness experience itself (Roggenbuck and Driver 2000). The influence of setting conditions at specific times and places throughout the wilderness experience, and the interrelationship of the various dimensions, remains a promising path of investigation.

### Strengths and Weaknesses

Experience-based approaches have expanded our concept of the visitor experience. Rather than viewing experiences as mere responses to setting attributes, the research into the multiphasic nature of the wilderness experience indicates that participants are continually interpreting and incorporating various aspects of the experience. In other words, emotions and cognitive functions, such as mood and focus of attention, shift and change throughout the flow of the experience. Furthermore, as our attention has shifted closer to the experience itself, greater attention can be given to the qualities that define that experience. Not only does this turn to better conceptualization of the wilderness experience, the relationships between situations conditions and experience dimensions may become more apparent, as Stewart and Cole (1999) have demonstrated. Thus, three separate contributions have been a focus of experience-based approaches: first, mapping different phases of both the offsite and onsite wilderness experience; second, documenting the dimensions of the experience and the ebb and flow of those dimensions; and third, the inclusion of cognitive and affective attributes of the experience such as mood and focus of attention.

However, three managerial cautions emerge from these approaches. First, attention to the offsite phases of the experience may not only improve the quality of the onsite experience, but also produce satisfaction that extends beyond the spatial and temporal boundaries of a wilderness experience. Managing and preserving the quality of only the onsite experience may be insufficient to protect the meanings and influence of that experience. Second, attention to the multiple phases and dimensions of the onsite experience may suggest that many of the determinants of quality experiences are beyond the control of management. Third, it could be argued that even as we gain a greater understanding of the internal dynamics of the wilderness experience that wilderness managers may wish to be less prescriptive or controlling of those very dynamics. Perhaps an overly reductionistic approach to understanding and managing the wilderness experience robs the experience of some of its mystery, meaning, and profound significance.

## Meaning-Based Approaches

Unlike the previously discussed approaches, which focus on discrete recreational engagements, meanings-based approaches attempt to understand the wilderness experience in terms of the role that it plays in the broader context of the participant's life (Arnould and Price 1993). It has been suggested "that what people are actually seeking from their recreation experiences are stories which ultimately enrich their lives" (Patterson and others 1993: 449). That is to say, satisfaction is not the result of positive comparisons between desired and actual outcomes nor the actual multidimensional, multiphasic experience, but rather the extent to which the experience produced a fulfilling narrative that is consistent within the context of the participant's life. Thus, it may be that the visitor contributes more to the significance of the experience than the setting or manager ever does. This is not to lessen the importance of the experience, but rather to acknowledge the transaction that occurs between the participant and the environment when they visit the wilderness area. Neither is the transaction prescribed entirely by the setting, nor is it predictable given the visitor's motivations. Rather, the meaning and significance of the experience is constructed before, during, and after the experience and only has relevance within the overall condition and life-course history of the wilderness visitor. Meanings-based approaches have generally become apparent through the investigation of two closely related concepts, self-affirmation and sense of place.

### Self-Affirmation

Self-affirmation refers to a process through which individuals come to confirm aspects of their identity that they perceive as positive (Haggard and Williams 1992). Recreation and leisure are considered to be the ideal situations in which identities can be confirmed. As Kelly (1983) states, "There is something about the activity that produces the 'right' context for the working out of identities" (p. 97). Just as the lack of constraint inherent in leisure can facilitate self-affirmation, the unrestrictive nature of the wilderness experience can provide a context that is especially conducive to development of the self. "Wilderness affords the individual maximum opportunity to perform one's selected activities in order to create one's personal opportunity structure" (Schreyer and others 1987: 24). In this way, wilderness can be seen to play an important role in the development of the self-concept. It seems that in order for wilderness recreation participation to improve self-concept, it involve a long-term relationship and some sense of centrality to the participant's life (Schreyer and others 1987). Thus, for both leisure in general, and for wilderness recreation in particular, recreation experiences can be seen as more than just satisfaction with activity, experience, setting attributes, or fulfillment of unmet psychological needs and wants. Instead, recreation experiences are viewed as significant components of a person's identity, and perhaps relationship to place.

## Sense of Place

Sense of place refers to the meanings ascribed or endowed to a specific place, including the feelings and subjective perceptions an individual has to that place. It is suggested that participants develop a sense of place that becomes intertwined with their sense of self. Tuan (1977), for instance, described place as space with meaning constructed upon experience. In other words, the place becomes a part of the self and the self becomes part of the place. Williams and others (1992) note that "attachment is likely to be stronger among individuals who focus on the setting itself relative to other aspects of the recreational engagement" (p. 33). Moore and Graefe (1994), for example, studied the attachment to place of rail-trail users at three locations in Florida, Iowa, and California. This study demonstrated that, over time, recreationists did develop attachments to familiar trails. It also confirmed both functional and affective dimensions of place attachment.

Williams and others (1992) suggested that just as people can develop an attachment to, or dependence on, a particular place, they may also become attached to a certain *type* of place such as wilderness. This study, which included four wilderness areas (in Arkansas, Georgia, Montana, and Texas), found that place attachment was directly related to use history of a particular place while wilderness attachment was dependent on both experiences with a particular place and general wilderness experience. These findings suggest that long-term wilderness recreation participants create unique meanings for wilderness that may not be available in nonwilderness areas and that these meanings are a result of both specific place-based experiences and attachments, but also the development of attachment to the general concept and values of wilderness.

## Strengths and Weaknesses

If we accept that the goal of wilderness recreation management is to provide quality wilderness experiences, then the meanings that people associate with those experiences may be one of the best measures of that quality. In the context of these approaches, "quality is better understood as the extent to which a recreation engagement succeeds as an expression of one's self" (Williams 1989: 433). If we are to more fully understand the relationship between the visitor and the wilderness environment as Williams and Patterson (1999) argue, we need better efforts at identifying those wilderness and landscape meanings. Outside of such documentation of subjective and symbolic meaning, the assessment of the quality of the wilderness experience may be superficial or reductionistic at best.

While meanings-based approaches may offer important insights into the values that people hold for wilderness and recreation in general, this kind of knowledge has yet to be widely accepted. Current planning frameworks and paradigms call for knowledge that is prescriptive and predictive. Within such a framework, meanings-based information is of limited value. It could be suggested that meanings-based information is most useful in identifying emergent issues that are then best examined in detail with rigorous, quantitative research. Given less of an emphasis on generalizability, meanings-based approaches instead prioritize higher levels of validity for the information gathered. Meanings-based research cannot give us prescriptive directions, but perhaps having more valid information is better than having exact, yet less valid, information. Certainly, the strengths of the meanings-based approach complements those of other approaches and the application of more than one approach to any situation (as Watson and Roggenbuck 1998 describe for Juniper Prairie Wilderness in Florida) can yield greater insight into the experience provided than a single approach.

# Conclusion

This paper has summarized four broad lines of current recreation research in an attempt to provide an overview of measurement of the wilderness recreation experience. While each approach can offer useful information, each is best suited to answer particular kinds of questions. With this in mind, however, it becomes clear that certain approaches, although providing useful information to managers, do not begin to unearth the nature of the wilderness recreation experience.

The customer service measures seem to be especially appropriate for front country recreational areas. Their focus on facilities and service provision is most suited to situations of intensive site and infrastructure management. However, this approach may not be as effective in the context of wilderness. For example, what are the "services" provided in wilderness? Even more to the point is the question of what customer service measures tell us about the wilderness recreation experience. In other words, can customer service measures help us to define the qualities of recreation experiences that are unique to wilderness? We believe that they cannot. Instead, they distill a multifaceted and unique experience to a very small subset of its parts. Furthermore, they reduce the visitor into a consumer or consumptive role that equally seems at odds with the notion and symbolism of the wilderness experience.

The benefits approach comes one step closer to describing the nature of the wilderness experience. By conceptualizing recreation as experience rather than activity, it recognizes the dynamic nature of recreational engagement. This approach also recognizes that people may choose to participate in certain activities in certain settings for a variety of different reasons. In particular, the ROS has proven to be particularly useful to managers in terms of allocation and inventory of a diverse array of recreation resources. However, research into the personal benefits of wilderness recreation have not been able to conclusively identify those benefits that are wilderness dependent (Driver and others 1987). If confirming evidence were found, then it would be reasonable to conclude that the wilderness experience can be characterized by an aggregate of certain motivations, however such confirmation continues to elude.

Experience-based approaches have explored the dimensions of various emotional and cognitive states within the context of wilderness. This research has shown that evaluation of the experience does not necessarily follow a rational/logical expectancy-valence model. Recreationists' conceptions of quality and satisfaction may be so subjective and individual-dependent that they defy prediction. The fact that the quality of the experience may be more dependent on mood or functioning of the social group than on setting attributes indicates that managers may have little control over the

psychological outcomes of recreation participation. While these are important insights into the dynamics of the wilderness experience, these aspects of human experience are not necessarily exclusive to wilderness. Thus, experience-based approaches that focus on aspects such as mood and degree of social interaction offer less guidance for managers in the provision of quality experiences. However, the potential for development of indicators and standards based upon other measurable dimensions of the experience that are more wilderness-dependent holds much promise.

The meanings-based approaches also seems well suited for capturing the unique elements of the wilderness experiences. The complexity that is assumed in these approaches reflects the idea that wilderness experiences are special merely because they occur in wilderness. As people carry with them their socially constructed meanings of wilderness, the entire experience is viewed through a lens that has been shaped by the same ideas and philosophies that lead to the creation of the National Wilderness Preservation System in the first place. This is not to say that other approaches cannot offer important information about managing wilderness, but rather that meanings-based approaches look more specifically at the nature and quality of the experience. Understanding the multiple meanings that people have for wilderness can help us to identify the activities, benefits, and experiences that managers should aim to provide. However, the development of quality indicators for those meanings provides one of the most challenging tasks for recreation researchers.

## Wilderness Experiences and Managing Use Density

There is a clear need for knowledge of the wilderness experience when managers consider implementing use limits. It is quite possible that by implementing a use limit policy, perhaps as a move to influence crowding densities, that important qualities of the wilderness experience are altered in the process. Without thorough identification and documentation of those qualities, managers may be less aware of the compromises and tradeoffs they are making. Cole and Hammitt (2000) argue, for instance, that management of wilderness is faced with two such choices: to either emphasize wildness of conditions or to emphasize naturalness, and the choice between wildness and solitude. It is hoped that the explicit identification and prioritization of dimensions of the wilderness experience, and the subsequent development of indicators and standards to match those qualities, that managers will be better able to monitor the improvement or deterioration in recreation opportunities. Wilderness research can help not only with both the identification of dimensions of the wilderness experience and with the development of indicators and standards to help protect those qualities, but also with an examination of the impacts of management actions on the same dimensions.

In contemplating the link between maintenance of the quality of recreation experiences in wilderness and the use of management tools such as limits on the numbers and distribution of visitors, there are two particular relationships research should help clearly demonstrate:

1. A clear link between use density conditions and experiential quality.
2. A clear link between implementation of use limits and experiential quality.

In the absence of such documented relationships, implementation of use limit policies may have a range of untoward consequences without necessarily improving the recreational experience in wilderness.

One of the comments made in discussing the strengths and weaknesses of satisfaction approaches to measuring the quality of the wilderness experience was that they tended only to measure visitor perceptions of the quality of various setting attributes. This evaluation of conditions is only one factor that influences the evaluations that visitors make of their experience in wilderness. Other determinants might include the influence of personal characteristics such as mood, the influence of others within the visitor's group, and the influence of the activities that the visitor undertakes in wilderness. That is, the evaluation of the wilderness experience may have less to do with site conditions and more to do with the self, with others in your group, and with the physical challenges and tasks of the visit. Further, it could be expected that the evaluation of the experience quality will itself influence the evaluation of conditions encountered (fig. 2). We suggest, therefore, that when bringing research findings to management decisions that care be taken to represent the specific domains that have been measured and the relationships that have been shown or assumed. The link between evaluation of use density and experiential quality may not be as simple or influential as assumed.

The second link that research information can help with is the relationship between use limits and experiential quality. It is sometimes assumed that high levels of visitor use leads to a decrease in experiential quality. And yet, in some circumstances, visitors do not seem to change their behavior in response to this supposed decline in the quality of the visitor experience. We might expect, for instance, that fewer visitors would return to a wilderness they found to have high levels of use. However, changing the location of their visit is not the only behavior that visitors can employ to cope with a mismatch between expectations and conditions. Visitors may, for instance, alter their expectations or they may tolerate the mismatch given the significance of other aspects of the experience. In which case, use limits designed to lower levels of use density may not be loudly welcomed by those visitors the policy is supposed to serve.

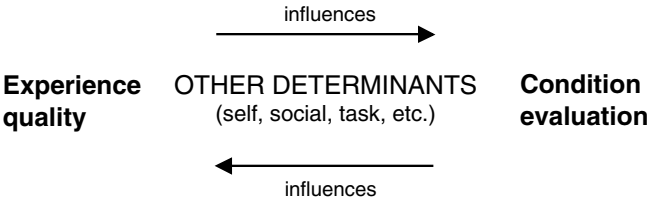


**Figure 2**—The inter-relationship of experience quality and condition evaluation.

Based on some research in Yellowstone National Park (Davenport 1999) a four-stage model may help explain why visitors are not necessarily supportive of management actions such as the implementation of use limit policies. Each stage represents a test or filter through which proposed management actions need to successfully pass:

1. Is there sufficient evidence of an impact that justifies management action?
2. Is there a causal link between visitor behavior and the impact that justifies management actions that directly impact visitors?
3. Is the proposed management action the *best* way to solve the impact?
4. Can the proposed management action be successfully and fully implemented?

Considering each of these questions in turn, use limits may not be the best approach to maintaining the quality of the wilderness. At the first instance, the visitors may not perceive there to be a problem needing management intervention. That is, in their perception and evaluation of use density levels, visitors may not be as concerned as managers might assume them to be. Furthermore, depending on how the wilderness experience is conceptualized, use density levels may not be a significant influence on the quality of the experience. This flows into the second question, in that there may not be a simple and direct relationship between use levels and experiential quality. There may be other temporal, spatial, and behavioral components of visitor use that impacts experiential quality that use limit approaches do not address. Thus, as illustrated by the third question, use limits may not be effective at ameliorating the impacts of use density. Indeed, there may be other, more significant, causes of a decline in experiential quality. However, managers do implement use limit policies in the hope they help maintain visitor experience quality. Lastly, as Borrie and others (1998) have suggested, the management agency must have the authority, support, and resources to successfully administer a use limit policy. Given a tradition of free and unfettered access to their wilderness lands, the American public may not be entirely willing to grant the management agencies active support and endorsement of use limit approaches. Logistically, too, it may be difficult to implement such an approach with dispersed patterns of use typically associated with wilderness areas.

Finally, then, it becomes apparent that not just one of the four approaches to documenting the wilderness recreation experience will completely meet the informational needs of wilderness managers. A satisfaction/importance-performance approach may be useful for the measurement of perceptions of onsite conditions and their influence on subsequent evaluation of those conditions. The benefits-, experience-, and meanings-based approaches may be most useful in defining qualities of the wilderness experience and for documenting the link between experiential quality and the impact of proposed or recently implemented management actions. Given that the wilderness experience is a complex and emergent phenomenon, it is not surprising that multiple approaches are needed to best serve the needs of wilderness managers as they act to preserve the quality of these profound and important recreational experiences.

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