AN APPLICATION OF BEHAVIORAL DECISION THEORY

TO

RECREATION SITE SELECTION

by

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(ABSTRACT)

The purpose of this research was to provide an understanding of past efforts to predict recreation choice behavior. Additionally, from this past research in recreation and in the fields of psychology and consumer behavior, a lexicographic semi-order model was selected and tested for applicability in approximating recreation site choices.

Testing this model required initial work in deciding upon physical, social, and managerial attributes of a recreation site which may be relevant to a choice decision. A framework was developed to analyze the multitude of studies dealing with recreation site attributes.

Using a microcomputer based data collection instrument in a laboratory situation, the lexicographic semi-order choice model was found to be successful in predicting the elimination of alternatives from a choice set. There was a negative relationship between the level of experience an individual had in backcountry use in the Southern Appalachians and

the specificity with which they perceived attributes of the resource. The lexicographic semi-order choice model appears to be a feasible format for developing microcomputer-based decision aids for backcountry recreation site selection.

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The final draft of this dissertation stands as evidence of the superb word-processor and organizational skills of . Thank you, , for being at that desk in .

Finally, I want to thank God for guiding me towards the above mentioned friends, for my marriage with , and the greatest gift of all, my son, .

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INTRODUCTION

In the Eastern United States many managers of U.S. Forest Service wilderness areas are reporting heavy and increasing levels of use (Roggenbuck and Watson 1981). While there is a general lack of systematic, reliable monitoring of impacts due to what these managers often term overuse, it is generally held that techniques to disperse users within an area or across areas could help reduce congestion, overuse, and perhaps physical impacts (Hendee et al. 1978, Roggenbuck and Watson 1981).

To say that all Forest Service wilderness areas in the East are overused would not be in agreement with managers' assessments. Indeed, there are several areas that cite very little use or use at such low levels that impact is negligible (Roggenbuck and Watson 1981). Differences in use levels of similarly managed alternative areas, for example all dispersed recreation alternatives within or near a particular national forest district, might possibly be attributed to

the public's ability to discriminate between areas. One might expect that people would discriminate between areas based upon their perception of the physical attributes of the individual areas, activity opportunities provided, the social attributes (e.g. number of likely encounters), distance to the specific site, cost of the visit in time and money, and social influence factors (e.g., the "in" place to go). Beaulieu and Schreyer (1982) have in fact recently suggested that the public principally discriminates between alternative sites in a particular region of the western U.S. based upon a very basic categorization scheme: landform (mountains, canyons); ecosystems (grasslands, forests); and activity (hiking areas, climbing areas).

Alternatives to visitation of a Forest Service wilderness area often exist in the vicinity of a Forest Service district. Within a given region one might possibly find National Park Service wilderness, Fish and Wildlife Service wilderness, some state managed wilderness (e.g., Tennessee Pocket Wilderness), some privately owned and managed wilderness (e.g., Grandfather Mountain in North Carolina), and many Forest Service, Park Service, and state managed backcountry opportunities. The question becomes: How do we encourage people looking for a primitive outdoor recreation experience to avoid the areas that are currently overused?

There appear to be many viable alternatives to such areas, many of which might better satisfy the needs of the visitors. They often are of similar landform, ecosystem type and offer similar recreation experience opportunities. They also often surpass the overused area in solitude opportunity.

An answer to the above question appears to lie in informing the user population of the alternatives in such a manner and at the point in time that would most influence their decision among alternatives. This information might divert some users to alternative wilderness areas or to alternatives to wilderness to relieve some pressure from overused areas and better meet the needs of all users (Lucas 1964, 1973; Lime 1970, 1971, 1976, 1977; Gilbert et al. 1972; Hendee and Lucas 1973; Lime and Stankey 1971; Lime and Lucas 1977; Hendee et al. 1978). Krumpe (1979 p. 10) states that "...information could advertise specific attributes of a wilderness to attract certain types of users, or it could identify the range of recreation opportunities in the surrounding area to divert some use away from the wilderness area."

Past efforts at using information to disperse use have been primarily site specific. The objective has been to spread use over an area, or away from a certain location

within an area, by giving information to visitors as they arrive at the site or by mailing it to them at an earlier date. These dispersion efforts have had some success in accomplishing this end (Brown and Hunt 1969; Schomaker 1975; Lucas 1981; Lime and Lucas 1977; Roggenbuck and Berrier 1981, 1982; Krumpe and Brown 1982). While this research has been somewhat successful, there is a noticeable lack of research and understanding of the reasons why people continue to visit overused wilderness areas when viable alternatives do exist (Hendee et al. 1978).

In several of the above referenced efforts to redistribute use within an area, informational messages were most effective for persons having little or no prior experience in the area (Lime and Lucas 1977, Krumpe 1979, Berrier 1980). Berrier (1980) attributes this difference in behavior to the fact that visitors with considerable previous experience in the area already were aware of the information which was conveyed. However, some believe that the amount of experience a person has in a particular activity may be linked to the perception of a recreation experience and the organization of information used to make choices in behavior (Schreyer 1983). If this is the case, experience in the activity by itself, irrespective of amount of experience in a particular area, may lead to different styles of processing

of information and, thus, different behavior. One primary difference in processing may be the specificity with which the visitor cognitively evaluates attributive information. If the specificity of the image of the recreation environment varies by experience of the visitor, informational messages to influence behavior of recreationists must vary accordingly in order to be effective.

Problem Statement

Often decisions are made to visit a particular geographic region without an actual decision concerning a specific activity site. This is evidenced by the number of visitors entering Forest Service visitor centers and district ranger offices daily to obtain information on primitive recreation opportunities in the immediate area. The problem which this dissertation addresses is how to present information to vi-

sitors in order to highlight alternatives to overused wilderness areas. With information in hand it is believed that recreationists may choose sites which meet their needs outside heavily used wilderness. The question which remains is one of what information to present and in what manner. The assumption must be made that there are viable alternatives to overused wilderness that are either not currently being considered in the decision process, are being considered but are being rejected possibly due to some processing of inaccurate information on the attributes of those alternative sites, or the information is being presented in such a tedious way that visitors are not effectively using this information in their decision making tasks.

The primary interest here is in paving the way for development of useful decision aids to be used in backcountry recreation site selection. These decision aids would most likely be used in a Forest Service district office or visitor center or in a corresponding contact point at other land management agencies. Currently, one would expect to find brochures and some verbal message from an attendant in a visitor center. The same written information is presented to all visitors regardless of reasons for visiting. In this case the visitor is required to search through the information for that which is most relevant to his or her decision concerning where exactly to visit.

An improvement upon the brochure presentation system within the Forest Service is the Recreation Opportunity Guide (ROG) (USDA, Forest Service, 1979). The ROG is a system that inventories National Forest recreation opportunities and presents the resulting information to the public. The specific intent of the ROG is not to redistribute use, but, rather, to increase the public's awareness of and participation in dispersed outdoor recreation activities on National Forest and adjoining corporate owned lands. It is believed, however, that increased public awareness of alternatives to heavily used wilderness will lead to a redistribution of use. The ROG, therefore, secondarily "...seeks to disperse recreationists through providing alternatives to well known and over used areas" (USDA, Forest Service, 1979 p. 4).

The ROG is intended to be available for the recreationist's use at the visitor center or for use by a receptionist in helping the recreationist decide upon a site for the chosen activity. The ROG on the Pisgah District of the Pisgah National Forest in North Carolina is divided into two loose leaf notebooks: 1)trails and 2)all other recreation resources on the district. Within the trails section of the ROG, names of trails are listed alphabetically. Various information is listed for each trail such as length, a mapped

location, access points, attractions and considerations, recommended season, amount of use received, difficulty, and change in elevation by distance.

The ROG for trails on the Pisgah district is indexed in four ways. Trails are listed by activity (e.g., hiking, skiing, horseback riding); by name (alphabetically); by length (in miles); and by area (planning unit within the district). Using this index one could eliminate some alternatives based upon area, length of trail, and activity interest. There remains the task, however, of searching through an alphabetical listing to obtain additional information on the remaining alternatives.

Microcomputer-visitor interaction systems potentially open new possibilities in construction and application of decision aids in this context. If a theoretically sound method of information presentation were provided, the individual could work interactively with the micro-computer to gain personally relevant information in an efficient manner.

Specific objectives of this study are as follows:

1. to identify, from the relevant literature, those attributes of an area which appear to be important in backcountry recreation site choice.

2. to determine if subjects can reliably indicate the order of importance of resource attributes to their site selection decision.
3. to determine if, in a simulated backcountry site selection situation, the choice of a subject can be predicted through application of the lexicographic semi-order choice model.
4. based upon determination of relevant attributes and test of the semi-order model, to determine the relative advantages and disadvantages of the ROG system as a decision aid for backcountry recreationists.
5. to determine if past experience in backcountry recreation is related to the specificity with which subjects perceive attribute categories and to their ranking of the importance of attributes in their site selection decisions.

THEORETICAL FOUNDATIONS

The theoretical foundation for this research is behavioral decision theory within the field of psychology. In this section behavioral decision theory will be explored from two major theoretical approaches: compensatory and noncompensatory models of choice. In the past, compensatory models of choice have been most commonly used to predict recreational behavior. Due to the popularity of this approach, some of the events leading to development and application of major compensatory models will be included here. The purpose is to point out the detailed, rigorous theory building which has been done in the development of currently applied compensatory approaches. There remains, however, an expressed lack of satisfaction with many such applications by researchers. Therefore, a review of published critiques of compensatory model applications will be reported, and an alternative approach will be explored.

Behavioral Decision Theory

People have long been interested in how people make decisions. Over the last twenty-five years several theories about the decision process have been formulated, operationalized, and tested. These models are most commonly referred to as compensatory and noncompensatory models of multi-attribute choice.

Compensatory Models

In compensatory models a positive evaluation in one dimension (attribute) may compensate for a poor evaluation in another dimension. Compensatory models are characterized by mathematically complicated, probabilistic formulations involving evaluation on each attribute based on importance to the decision maker (utility) and probability of a particular alternative having that attribute. The decision is predicted from the score achieved when scores for individual attributes are summed or averaged for all alternatives. Some ex-

amples of compensatory models include: policy capturing (Hammond et al. 1975), subjective expected utility (Edwards 1954), attribute adequacy (Brudus 1973, Gintert and Bass 1972), and expectancy theory (Vroom 1964, Lawler 1973, Ajzen and Fishbein 1969, 1973, Fishbein 1975).

Policy Capturing.

Policy capturing (Hammond et al. 1975) assumes that most judgments depend upon a mode of thought that is quasi-rational, that is, a synthesis of analytic and intuitive processes (Slovic et al. 1977). The elements of this quasi-rational thought are cues (attributes), their weights, and their functional relationships (linear and nonlinear) to both the environment and the judge's responses. Multiple regression analysis is used to derive equations representing the judge's cue utilization policy. The policy capture technique involves computing a linear model for each individual, combining individual models in a logical fashion to explore individual rater consistency and differences between individual rater strategies (weights), and then identifying homogeneous clusters of raters with similar policies (Propst 1979).

Subjective Expected Utility.

Edwards (1954) was interested in the application of economic theory to a psychological phenomenon, i.e. how people make decisions. According to Edwards, risky choices might be thought of as efforts to maximize expected utility. To estimate total expected utility one must combine, in a multiplicative manner, the utility expected of each possible outcome and its subjective probability of occurrence. The calculated products for all outcomes resulting from a particular choice should then be summed, with the resulting figure representing the total expected utility for that choice. Other terms which Edwards noted as being used similarly to subjective probabilities include: personal probability, psychological probability, and expectancies.

Attribute Adequacy.

One important aspect of the attribute adequacy model (Burdus 1973, Ginter and Bass 1972) is the incorporation of the establishment of optimal levels of attributes (Hansen 1976). Many compensatory models assume that the more of a desirable attribute which is present the more impact that attribute will have on the choice. Attribute adequacy, however, provides more "value" to those levels of some attributes which are not considered too little or too much.

Expectancy Theories Of Motivation.

Motivation theorists interest themselves with those processes which influence the arousal, strength, or direction of behavior (Arkes and Garske 1982). They have thus contributed substantially to a better understanding of how alternative behaviors are weighed one against the other, and a particular behavior chosen and pursued. Within human motivation theory most efforts have been concentrated along one of two basic approaches: 1)drive theory; or 2)expectancy theory (a compensatory approach).

Drive theory (Hull 1932, 1943) is based on the very basic premise that current choices can be explained through exami-

nation of the consequences of the individual's past choices (Cockrell 1981). Hull's drive theory is most closely related to the stimulus-response research of Pavlov and Thorndike, Cannon and other physiologists, and the behaviorism of Watson from the late 19th and early 20th century (Arkes and Garske 1982). Upon reviewing the works on stimulus-response reactions and supervising early experiments with his students using rats in a maze (Perin 1942, Williams 1938), Hull formulated a theory of learning and motivation in which motivation was seen to be biologically determined. Hull (1943) postulated that biological needs were the sole sources of motivation and considered reduction of those needs the definition of reinforcement.

Hull's stimulus-response approach emphasized the powerful influence that environmental stimuli have on observable response. He allowed little opportunity for consideration of individual differences. It was in the formulation of drive theory as a theory to explain motivation of all animals, including man, that Hull seemingly failed to recognize the potential for man to respond in other than a mechanistic manner to perceived stimuli.

Expectancy theory appears to have been a response to Hull's drive theory, originating during the same era (1930-1940). The driving forces behind expectancy theory

during this era were Lewin (1935) and Tolman (1932). These two researchers popularized a theory which was far more cognitive than the then dominant theory of Hull. They presented a model which more accurately reflected the human being's ability to collect information (perception and interpretation) and store it for easy recall in decision making. In their expectancy theory human beings were credited with the ability to evaluate probabilities of outcomes and estimate relative strengths of attractiveness of alternative outcomes. In essence Lewin and Tolman were placing a thinking human being between the stimulus and response elements of Hull's theory.

In 1935 Lewin presented his cognitive oriented theory of behavior in his book, A dynamic theory of personality. This book was a collection of originally independent articles. Lewin was a German psychologist and his works were primarily written in German. His articles were translated into English by D.K. Adams and K.E. Zener for publication. The term which Lewin used to describe the attractiveness of an outcome of a behavior was translated as "valence" at this time. "Force", he defined as representing the quantity of motivation to perform a particular behavior.

Expectancy theories of motivation were stimulated by Tolman's and Lewin's initial theory development. Tolman spoke

in general terms of a person considering behaviors for which a demand exists, as "holding an expectancy of a goal". Lewin went further to suggest that one might be able to predict the motivational force to perform a particular behavior if two specific terms were multiplied together: potency and valence. Potency, which Lewin defined as the capability of a particular behavior to produce a particular outcome, corresponds to Tolman's concept of expectancy.

The theories of motivation which combine such terms as expectancy and valence or potency and value multiplicatively have come to be known as expectancy x valence theories of motivation. While several theorists have worked within this expectancy x valence framework, there are often differences noted in exact terminology or definitions of terms. The most popular theorists (those most often included in summaries of expectancy x valence theories of motivation) will be briefly introduced, and an explanation of their terminology will be included before an overall summary or critique will be attempted.

Atkinson. In the late 1950's several reports of detailed testing and refinement of previously stated expectancy x valence theory emerged. Atkinson (1957) summarized re-

cent research by McClelland, Atkinson, Clark, and Lowell (1953) and Clark, Teevan, and Ricciuti (1956) in his effort to refine his own theory of achievement motivation. The work he cited was done primarily with young children and college students.

Atkinson was interested in predicting motivation to achieve. Like any motivation theory he felt that his theory must be able to account for the individual's selection of one path of action among a set of possible alternatives (Atkinson and Birch 1972). Atkinson's formulation appeared as the following:

Motivation=(Motive x Expectancy x Incentive)

Atkinson defined motives as relatively general and stable characteristics of the personality which have their origins in early childhood experience. Examples include achievement, affiliation, and power. These motives are names of classes of incentives which produce the same kind of experience of satisfaction. The incentive is the relative attractiveness (or unattractiveness) of a specific goal in a specific situation, that might be attained as a consequence of some act. Atkinson's definition of the term incentive is very similar to previous use of the term valence or value. Atkinson's addition of the term motive is apparently an effort to further state what determines valence. His theory

maintains that valence depends upon both motive strength and incentive value. Most expectancy x valence theories are notoriously vague about what determines valence (Lawler 1971).

Expectancy is the cognitive anticipation, usually aroused by cues in a situation, that performance of some act will be followed by a particular consequence. The strength of an expectancy can be represented as the subjective probability of the consequence, given the act (Atkinson 1957). This expectancy term is very much in line with other theorists' formulations. Put very simply, all expectancy theories of motivation state that the strength of a tendency to act in a certain way depends upon the strength of an expectancy that the act will be followed by a given consequence (or outcome) and upon the value of that consequence (or outcome) to the actor (Lawler 1971). Atkinson is saying that motivation can best be predicted by multiplying the expectancy term by a composite valence term which he defines as motive times incentive.

Vroom. Vroom's (1964) primary interest was motivation in the work environment. Vroom's formulation was the following:

$$\text{Force} = \Sigma(\text{Expectancy} \times \text{valence})$$

Vroom noted that the valence could range from -1 to +1. The outcome can be positive if a person prefers attaining it to not obtaining it; neutral if the person is indifferent to it; and negative if the person prefers not attaining it. The valence refers to an outcome's anticipated reward value rather than an outcome's actual reward value when obtained. Instrumentality is a component of valence in that if one outcome is expected to affect another outcome, the valence of the original outcome is influenced.

Expectancy is a momentary belief about the likelihood that a particular act will be followed by a particular outcome. Expectancy can range from 0 to +1. The multiplicative relationship which Atkinson and others have supported is emphasized by Vroom. The valence of each outcome is multiplied by the strength of the expectancy that the act will lead to the attainment of the outcome. The resulting products are then summed to provide the force for motivation to behave in a particular way. Note that if either one's expectancy or one's valence is equal to zero, no force exists for that particular outcome.

Lawler. Lawler (1971,1973), in the review of expectancy x valence theory, concentrated on Vroom's theory formula-

tion. Lawler noted that one area in which Vroom's theory (and all previous expectancy theorists) gets "muddy" is in the distinction between actions and outcomes. Actions, for example, are frequently described in terms of the particular outcome which they affect. Lawler (1971,1973) also criticized Vroom's, and other expectancy theorists', tendency to ignore the fact that trying to perform an act does not always lead to performing it.

Lawler's expectancy model (1971,1973) incorporated these criticisms and other developments in motivation theory since Vroom's formulation. Lawler's model is based upon four central points: 1)people have preferences among the various outcomes that are potentially available to them; 2)people have expectancies about the likelihood that an action (effort) on their part will lead to the intended behavior or performance; 3)people have expectancies (instrumentalities) about the likelihood that certain outcomes will follow their behavior; and 4)in any situation, the actions a person chooses to take are determined by the expectancies and the preferences that person has at the time.

The representation of the model which Lawler (1973) developed is the following:

$$\text{Motivation} = \Sigma(E \rightarrow P) \times \Sigma(P \rightarrow O)(V)$$

Where:

(E-->P) equals the expectancy an individual has that his effort will in fact lead to performance of the particular behavior (may range from 0 to 1).

(P-->O) equals the expectancy that the performance of the behavior will result in a particular outcome (may range from 0 to 1).

(V) equals the valence attached to the particular outcome (may range from -1 to +1).

In a discussion of the particular elements of the model, Lawler (1973) discusses some of the determinants of the (E-->P) expectancies. The single most important determinant is actually the objective situation, even though Lawler (1973) points out that a person's perception of the situation may not be accurate. Other determinants might include communication of other people's perceptions of the person's situation, learning-with more experience in a situation come more accurate (E-->P) expectancies, and personality factors, such as self-image.

Determinants of (P-->O) expectancies are very similar to (E-->P) expectancies. They also are strongly influenced by the actual situation, people's past experiences in similar situations and what other people say about the situation.

Additionally, attractiveness of the outcome and (E-->P) expectancies influence (P-->O) expectancies. Both types of expectancies are believed to be influenced greatly by people's personalities.

Rotter. Rotter (1966), Rotter et al. (1972), and Rotter and Hochreich (1975) in development of a social learning theory spoke of an underlying theory of motivation in which a person's locus of control was an extremely important factor in predicting behavior potential. A person who believes in his own (internal) control of rewards due to his performance may have higher (P-->O) expectancies than a person who believes more in external control of rewards.

The motivation theory which Rotter (1966) and Rotter and Hochreich (1975) worked within is presented in the following manner:

BP=f(expectancy and reinforcement value)

Rotter's interest in motivation theory was only as a basis for the social learning theory which he advanced extensively. Rotter merely stated that behavior potential (BP) is a function of expectancy and reinforcement value. Rotter never stipulated how these elements are combined. Despite this, Rotter is extensively referenced in Arkes and Garske

(1982) as suggesting that they be combined in an additive way. Elsewhere he is said to have supported a multiplicative combination. Rossman and Ulehla (1977), and others, have suggested a multiplicative combination of Rotter's expectancy and reinforcement value elements as possibly the appropriate relationship.

Ajzen and Fishbein. Ajzen and Fishbein (1969) were interested in the formation of attitudes as a determinant of behavior. These theorists also believed other determinants of behavior to include social norms, expected consequences of the behavior, situational variables, and personality characteristics. Except for the inclusion of social norms, Fishbein's (1967) model for predicting behavioral intentions utilizes very similar terms and combinations of terms as used in expectancy valence theories of motivation. Behavioral intentions are assumed to mediate overt behavior (Ajzen and Fishbein 1969).

According to the Fishbein model, behavioral intentions are a joint function of the attitude toward performing a particular behavior in a given situation and of the norms perceived to govern that behavior multiplied by the motivation to comply with those norms. In 1969 (Ajzen and Fishbein 1969) Fishbein's model appeared in the following form:

$$B \sim BI = (A\text{-}act)W0 + (NBp)W1 + \{(NBs)(MCs)\}W2$$

Where:

B=overt behavior

BI=behavioral intentions

A-act=attitude toward the behavior in a given situation

NBp=personal normative beliefs

NBs=social normative beliefs, i.e., perceived expectations of others

MCs=motivation to comply to social norms

W0,W1,W2=empirically determined weights

Situational variables and personality characteristics will influence the behavioral intentions only if they are related to A-act, to NBp, or to NBs(MCs), or if they influence the relative weights of the three components.

The attitude toward the act (A-act) is intended here to be a measurement of an individual's attitude toward performing a particular act in a given situation with respect to a

given object rather than his attitude toward the object or class of objects (Ajzen and Fishbein 1969). Attitude toward the act is conceptualized in terms of an expectancy x valence model (Ajzen and Fishbein 1973). Attitude toward the act, specifically, is conceived as the sum of the beliefs about the consequences of performing a given act multiplied by the evaluation of these consequences. Attitude towards the act can thus be represented in the following manner:

$$A\text{-}act=\sum_{i=1}^{n} Bi\ ai$$

Where:

Bi=belief about the consequences of performing act i

ai=evaluation of the consequences of performing act i

This conceptualization is very similar to those of expectancy x valence theories of motivation.

Fishbein (1973) later expanded the model to account for the existence of more than one relevant reference group. Also, the personal norm element was dropped.

$$B\text{-}BI=[A\text{-}act(0)]\ W0 + [\sum_{i=1}^{n} NBi(MCi)]\ W1$$

Fishbein (1973) gives support for the viewing of the normative belief component in terms of an expectancy x value model attributed to a given referent. He argues that the person's(P) normative beliefs are related to his perception of the referent's(o) attitude toward P's performing a given behavior (A-act(o)). A-act(o) should be a function of P's perception of O's beliefs about the consequences of P's performing the act and P's perception of O's evaluation of those consequences. Very similar to A-act, Ajzen and Fishbein (1973) present A-act(o) in the following manner:

$$\text{A-act(o)} = \sum_{i=1}^{n} Boi\ aoi$$

Where:

Boi=P's perception of O's beliefs that performing the act will lead to outcome i

aoi=P's perception of O's evaluation of outcome i

n=number of beliefs that P perceives O to hold

Problems With Expectancy x Valence Theory.

The above cited theorists contributed substantially to the development of expectancy x valence theory as it now exists. Applications have been made in many fields with varying success. However, expectancy x valence theory has been criticized for several recurring problems in application.

Sheridan (1973) pointed out that one implicit assumption of Vroom's model is that there is transitivity of the perceived valence for each alternative outcome (ie., valence A >= valence B, B >= C, thus A >= C). Luce and Suppes (1965) presented evidence that individual preferences often do not conform to this assumption (Sheridan 1973).

Locke (1975) made several comments on the application of expectancy x valence theory to personnel attitudes and motivation research in industrial areas. Locke perceived six problems involved in testing basic expectancy theory: 1) how to measure the various components; 2) which components to measure; 3) the need to include measures of role perception; 4) the need to specify both intrinsic and extrinsic outcomes ; 5) the need for relevant measures of performance; and 6) the problem of causality when interpreting the results of concurrent studies.

Locke expressed a concern over the ways valence has been measured in the past. Underlying expectancy theory is the ultimate hedonistic motive of maximization of pleasure and

minimization of pain. The course of action is chosen which is expected to lead to the greatest degree of pleasure or which will produce the smallest degree of pain. Quoting Vroom (1964 p. 56) "...the individual acts to maximize his 'valence' (expected satisfactions)." A theory based upon hedonism, however, asserts that men are powerless to resist the urges of their feelings and emotions.

In the actual measuring of valence, Locke stated that virtually none of the empirical studies designed to test expectancy theory have such measures of expected pleasure or expected satisfaction as an index of valence. Usually, subjects are asked to indicate their relative preferences for, or the relative desirability or importance of, various outcomes or actions. Direct hedonistic measures are avoided.

Another area in which expectancy theory appears insufficient is in consideration of differences between individuals in the accuracy and consistency with which they project the future. Such differences depend upon people's experience, knowledge, intelligence, and methods of thinking. One can know very little about how a person will act without information on what time span the individual is considering when making choices. Locke does not believe that expectancy theory addresses the subject.

Locke also suggested that individuals differ widely in the number and types of actions and consequences which they consider when making decisions. Differences in search habits and load capacity may be attributable to several factors. There may be differences in knowledge of the various possible alternatives and action outcomes, differences in methods of thinking, differences in persistence, self-confidence, and what the individual considers important. Expectancy theory does not adequately address these differences.

Another major criticism of expectancy theory, of a more cognitive nature, is the assumption that all motivation is conscious. The individual consciously calculates the expected pleasure and/or pain to be gained or avoided through alternative actions in order to reach a choice. Impulsive, expressive, neurotic, and habitual behavior are not considered as possible explanations for choices in expectancy theory.

The measurement problem which Locke addresses is basically what he calls a "ratio scale problem". "Formulae involved in the basic expectancy theory postulates assume the existence of ratio scales, since multiplication of valences and expectancies (and sometimes other factors) are involved." (Locke 1975 p.470). Locke, however, questions the ability of researchers to measure values or valences on a ratio or even a true interval scale.

Gabrenya and Biddle (1982) identified additional problems when they specifically worked to improve the Fishbein model. They began by stating two assumptions about a comprehensive theory of choice behavior: 1) such a theory must incorporate the broadest possible set of expectancies that may determine behavior, even though all types of expectancies may not determine behavior in all situations; and 2) for theoretical and operational reasons, these expectancies are best categorized into a limited number of subsets. These subsets should reflect theoretically meaningful clusters of expectancies that correspond to the behavioral determinants or "motives" with which social scientists are familiar. This would allow generalizations from theory and research on motivation to that concerning behavioral decision making.

Gabrenya and Biddle (1982) feel that the Fishbein model fails to meet both of these criteria. Their first criticism is that in its most recent form, the Fishbein model has omitted a set of expectancies that many social scientists deem important in understanding human behavior: personal norms. While present in the 1969 formulation, it is noticeably absent by 1973. Fishbein and Ajzen (1975) advocated removing the personal norm element from the model, though they have advanced little theory and less data supporting this recommendation (Gabrenya and Biddle 1982).

Their second criticism of the Fishbein model is that it apparently confounds two subsets of expectancies that are best treated separately. The commonly-used semantic differential responses to particular acts or outcomes do not allow expression of (a) the intrinsic pleasantness of performing a behavior and (b) the later consequences of having done so that originate in characteristics of the behavior itself. Gabrenya and Biddle (1982) coin the term "attitude expectancies" to refer to expectations about consequences that are experienced during performance of the behavior. The expectations about outcomes that follow the experience of behaving are referred to as "consequential or distant consequence expectancies".

In a test of their assumptions Gabrenya and Biddle (1982) found that subjects can and do discriminate between attitude, distant consequence, and social norm constructs of behavioral expectancies. Manipulation aimed at influencing the attitude and distant consequence expectancies succeeded in affecting the behavioral decisions of subjects in line with the evaluative tone of the information supplied.

Korman, Greenhaus, and Badin (1977 p. 176) believe that "...studies testing expectancy theory predictions have generated inconsistant results." They do not, however, take the position that the expectancy model is invalid, but rath-

er that the theory is useful under some conditions and not under others. The initial statements of expectancy theory referred to a within-subject decision model though the vast majority of research studies have employed an across-subjects design (Korman et al. 1977).

Finally, Troutman and Shanteau's (1976) work discredits, to an extent, any decision theory which suggests that people make decisions between alternative behaviors based upon a summation of attribute information. In their studies, they found that consumers' evaluations of pediatricians and of nondurable and durable goods indicated that they averaged attribute information. If this evidence is accepted, the value of most operationalizations of expectancy x valence theory is greatly diminished. According to Troutman and Shanteau, any time a theorist sums the expectancy x valence products for several outcomes of a particular behavior (or attributes of a particular product) he is providing an inadequate description of a consumer's psychological process.

Expectancy Theory In Dispersed Recreation.

Applications of expectancy theory in dispersed recreation have been justified on the basis of the clarity of the variables, expectancy theory's ahistorical approach to prediction, and its specific characterization of arousal states (Schomaker and Cockrell 1981). Driver and his colleagues have said that the four levels of recreation demand and the behavioral approach to recreation planning are founded in the expectancy x valence framework (Driver no date, Driver 1977a, Driver 1977b, Driver 1979, Driver and Brown 1975, Driver and Knopf 1977, Brown and Haas 1980, Haas 1979, Haas, Driver and Brown 1980). Within expectancy x valence theory they refer to Atkinson primarily and to applications by Ajzen and Fishbein. They cite Lawler's formulation as a goal for which they might strive in future research (Haas, Driver, and Brown 1980). That would be to actually predict motivation force. For the present, however, they appear to concentrate on determination of the relevant outcomes (in the past sometimes called preferred satisfying experiences or desired consequences) and the relative valence attached to these outcomes by various identifiable user groups (Driver 1977b, Brown and Haas 1980). Driver believes that these outcomes and their relative importance to various groups can be related to physical resources and activity opportunities preferred by these groups. This information could help es-

tablish objectives that call for the provision of these preferred opportunities and settings. This would substantially aid the overall planning and resource allocation process.

Cockrell (1981) used the Fishbein model in a study of wild river recreationists' choice among river alternatives in the West. He characterized the Fishbein model of behavioral prediction as using an expectancy theory of attitude formation as a fundamental element in the prediction of behavior. He found that a river runner's intentions to participate in a river trip were not determined by the person's attitude toward the trip and his social norms about the trip. Once a person had decided upon going on a river trip there was only a "...low level of intention prediction among those..." chosing one river from a group of two or more for their river experience. Cockrell concluded that "...a noncompensatory model might have provided better prediction for these subjects..."

On the other hand, Manfredo (1979) conducted an empirical test of Fishbein's model in the recreation context and found the resultant formulations to be significantly predictive of measures of support for related management actions. Cockrell's (1981) critique of Manfredo's application, however, questions Manfredo's averaging over the products of beliefs and evaluations. Additionally, Manfredo elected not to test

the normative component of Fishbein's model. And, finally, Cockrell questioned Manfredo's equating of behavioral intentions and a person's support for management actions.

The fact remains that Manfredo's application of this expectancy formulation demonstrated some success. Cockrell's work, which included all components of the model and therefore appears to have been a more rigorous empirical examination of the model, demonstrated less predictive ability. The possibility apparently exists that the model is not a faulty one, but that it is very difficult to test in its full form in the backcountry recreation context.

An Alternative: Noncompensatory Models

The noncompensatory models of choice look for alternatives in a decision situation that are satisfactory on all attributes or a particular set of attributes. Alternatives are usually compared on an attribute by attribute basis, rather than by comparing an overall evaluative score as in the compensatory models. One attribute may not compensate for the lack of another in this type of decision model.

Rather, if the attribute is not present in sufficient quantity, the alternative is excluded from further consideration.

Simple Noncompensatory Models.

Several simple noncompensatory choice models exist which do not always lead to a final choice (Hansen 1976). Included in these are the conjunctive model and the disjunctive model. In both of these models it is assumed that a decision maker responds positively to an alternative if and only if it meets his needs on an established set of attributes. The conjunctive and disjunctive models differ only in the specification of the attributes to be considered in the process (Coombs 1964; Dawes 1963). The conjunctive model is based on the contention that the chosen alternative must meet the requirements for all attributes that could be used for comparison purposes, while the disjunctive model advocates the existence of a selected set of attributes which have been designated important by the decision maker. With both of these models it is feasible that all or several alternatives could be acceptable on the set of attributes con-

sidered. In this case there is no provision for final choice selection.

Lexicographic Semi-order Model.

A lexicographic model entails a finite ordering of elements (Fishburn 1974). Everything which is being placed in an ordered set has a logical place. A lexicographic order denotes an ordering based upon "first difference". An example of a lexicographic order is the alphabetical ordering of words in a dictionary, also called a lexicon. Consider the words "motorscooter" and "motorcycle". The "first difference" in these two words is immediately after the "r". This next letter, then, determines the relative position of these two words in an ordered set of words. "Motorcycle" would appear before "motorscooter".

Fishburn (1974) cites the example of sequential screening procedures which illustrates another common application of the lexicographic idea. Candidates or alternatives are first screened under a given criterion (a test or an interview) and separated into "reject" and "others". The "others" are then screened under a second criterion or test and

sorted into two groups. This process may continue through several more stages to enable a final decision. If sufficient differences do not exist to select a final choice, the last step may be a ranking of all candidates who survive to the last stage. Dividing into two categories each time indicates a lexicographic decision based on two-part partitioning (Fishburn 1974).

In application of the lexicographic concept, small differences are often disregarded to allow the model to be "workable" (Coombs 1964). An example might be a situation in which objects are being ordered on the basis of quantity of a given attribute, a very different situation than ordering words in a dictionary. No two objects are ever equal (Coombs 1964), and therefore all objects could theoretically be placed in a lexicographic order. However, if differences are small, that order may be a very difficult one to obtain. If, however, small differences are disregarded, or if the stimuli are partitioned into equivalence classes on each dimension, the model is much more workable.

The lexicographic concept has been applied to decision behavior. Most notably the lexicographic semi-order choice model (Coombs 1964, Fishburn 1974, Luce 1956, Tversky 1969) assumes an ordering of the relevant attributes a priori. This ordering is based on importance to the decision maker

when choosing between alternatives. In this model all alternatives are first compared along the most important evaluative dimension. The alternatives which are judged not satisfactory for this most important attribute are deleted from further consideration. This process continues with those attributes judged to be second, third, fourth, etc., important until only one acceptable alternative is left.

Notice use of the term "not satisfactory" in determination of which alternative to drop from further consideration. Fishburn (1974) has recognized that in many cases it is not possible to discover a feasible alternative that is "acceptable" or "best" on all criteria or wants. With a lexicographic order in mind, Georgescu-Roegen (1954 p. 518) asserts that "choice aims at satisfying the greatest number of wants starting with the most important and going down the hierarchy. Therefore, choice is determined by the least important want that could be reached." Georgescu-Roegen (1954) offers the example of someone purchasing a home due to the nice opportunity which exists on that site for construction of a birdhouse. Actually, other homes may have competed to such a degree with the chosen home that the potential site for constructing a birdhouse was the first attribute reached in the revealed order of importance ranking that the houses differed to a noticeable degree.

Fishburn (1974) refers to this process as "satisficing-plus". In this case one satisfices on as many of the most important criteria as possible. He then uses the next most important criteria (on which only one of the remaining alternatives is "satisfactory") to differentiate among the alternatives that are satisfactory on all preceding criteria.

This semi-order model is characterized by Luce (1956) as having a just noticeable difference structure imposed on a lexicographic ordering. The purpose of the semi-order factor is due to research findings mentioned earlier which indicate that preference for some values of some attributes is not always transitive (Tversky 1969). Those supporting a compensatory approach seem to think that values of other attributes might compensate for low values of an important factor. Semi-order lexicographic proponents, however, believe that several values of one attribute may not be "noticeably different". This allows apparent intransitivity and selection based on less important attributes, though the alternatives differ, but not to a noticeable degree, on a very important one.

Tversky (1969) used the lexicographic semi-order choice model to study intransitivities in preference. In a laboratory experiment he studied the decision process of subjects who were choosing college applicants that they thought

should be accepted. Subjects also were asked to indicate preference between simple gambles. Tversky found that the semi-order choice model predicted subject choice better than a model assuming weak stochastic transitivity (the most general probabilistic version of transitivity).

Tversky (1969) concludes that when faced with complex multidimensional alternatives, it is extremely difficult to utilize properly all of the available information. Instead, it appears that people may employ various approximation methods that enable them to process the relevant information in making a decision. The lexicographic semi-order model is one such an approximation (Tversky 1969).

The blind pursuit of choice could very well result in an absurdly suboptimal choice, as has been pointed out by several researchers (Tversky 1972, Fishburn 1974, Wright and Barbour 1977). Park (1978), in critique of the lexicographic semi-order model, points this out as a possible problem with a lexicographic model. Specifically, an alternative chosen using the lexicographic model may not provide the highest overall utility to the decision maker, assuming that choice models do in fact provide overall utility indices. Furthermore, the possibility of a suboptimal choice increases when there are many different alternatives, each possessing dimensions which are relatively similar in terms of importance (Park 1978).

Elimination-by-aspects Model.

The elimination-by-aspects model (Tversky 1972) is an expanded version of the lexicographic semi-order choice model. Hansen (1976) termed this model a probabilistic lexicographic model. In the elimination-by-aspects model each alternative is seen as a set of aspects. Aspects are considered in an order determined by a probability proportional to the perceived importance of the aspect. Alternatives are deleted which do not possess (or are not satisfactory on) the aspect being considered. And, again, as in the semi-order choice model, this process continues until only one alternative is left.

Whereas the semi-order choice model has an ordering of the relevant attributes which is specified a priori, the elimination-by-aspects model assumes no such prior ordering. In this case the choice process is inherently probabilistic. Tversky (1972), in justifying this probabilistic model, points out that people are often not sure which alternative they should select, nor do they always make the same choice under seemingly identical conditions. In order to account

for the observed inconsistency and the reported uncertainty, choice behavior must necessarily be viewed as a probabilistic process. Tversky (1972) does not offer the elimination-by-aspects model as a strategy which can be defended as a rational procedure of choice. The elimination-by-aspects model is primarily concerned with the probability of consideration of a particular attribute at a particular time in the decision sequence. It apparently does not preclude the semi-order choice model. It is simply an expansion of it in that the elimination-by-aspects model attempts to explain the order of consideration of individual aspects.

Tversky believes that there may be many contexts in which the lexicographic model provides a good approximation to much more complicated compensatory models. It could thus serve as a useful simplification procedure. The attractiveness of the lexicographic strategy to one studying decision choices arises from its relative simplicity. It is relatively "...easy to apply, it involves no numerical computations, and it is easy to explain and justify in terms of a priori ordering defined on aspects" (Tversky 1972 p. 298).

Decision Net Model.

In searching for applications of decision models in the recreation area, it is very difficult to find noncompensatory strategies of choice. One such example does exist in Krumpe (1979). Krumpe developed a decision aid, the Backcountry Trail Selector, based upon a decision net model of choice.

A decision net is used to present information in order to lead a decision maker through a series of choices to a final choice between alternatives. The decision net is usually depicted as a branching tree of successive decision steps. The decision nodes, or branches, represent the individual, smaller choices, where attributes of possible choices are considered. The branch taken at a node depends on whether or not the level of the attribute under consideration is satisfactory or unsatisfactory, or possibly present or absent.

Advantages of the decision net which Krumpe (1979) notes include: (1) it is intuitively simple such that people can articulate and generate their own net quite easily; (2) it is relatively stable over time; (3) it is indeed predictive of decisions; and (4) many parts of other decision models can be subsumed under the decision net model. Krumpe's decision was, therefore, that the decision net model is most appropriate to show how people process situational attribute information to reach a decision.

While Krumpe stated that the decision net model subsumes many parts of both leading compensatory and noncompensatory models of choice, it seems that a more accurate statement would be that decision net theory does not preclude them. As one progresses through a series of nodes in selection of a destination for a backcountry hike, it is still not clear whether levels of some attributes presented might not compensate for levels of other attributes which may or may not be mentioned in the decision net. It is also equally unclear whether there exists a simplifying noncompensatory approximation of such compensatory actions. Krumpe made no effort to use the Backcountry Trail Selector to predict use, but only to influence it in some manner.

A major problem with Krumpe's (1979) application of decision net theory to recreation site selection is the manner in which he generated the decision net utilized in his research. He states in his review of decision net theory that introspective methods or gaming and simulations should be used to build researcher-generated or user-generated discrimination nets. This is very different from the methods of data collection such as questionnaire scales and item ranking typically used in research on compensatory models. The Backcountry Trail Selector was, however, "...constructed based on the different combinations of attributes which

would be relevant to the decision process" (Krumpe 1979 p. 63). It was researcher-generated, not from an introspective exploration of actual decision making regarding backcountry trails, but rather from descriptions of the trails generated by managers and users. This information is assumed to describe the trail, but does not necessarily pertain to factors important to the actual decision process. Also, the manner in which the Backcountry Trail Selector presents information does not necessarily reflect the order, or manner in which, the information on these descriptive attributes are processed when making a recreation choice. While Krumpe's Backcountry Trail Selector seems to be a successful decision aid, it remains unclear how the information was utilized by the hikers and how information might be more validly generated for inclusion in such a decision aid.

Selection Of A Noncompensatory Decision Model For This Study

A large quantity of decision related research in recreation is based upon the compensatory approach of the expectancy x valence theory framework (Haas, Driver and Brown

1981, Haas 1979, Manfredo 1979). These researchers feel that decisions might best be predicted by combining information on attributes (specifically, information on the value of specific outcomes related to the attributes and probability of achievement of the specific outcomes) to derive an overall evaluative score for each alternative behavior (e.g. visits to alternative recreation sites) being considered. Applications of the Fishbein model also often include a normative component as a further determinant of behavioral intentions (Cockrell 1981). However, on the basis of their research, Cockrell (1981) and Krumpe (1979) believe that noncompensatory models may be better at predicting choice in the recreation context (for whatever reason) than previously tested compensatory models.

Tversky (1972 p. 298), one noncompensatory theorist, supports this belief by stating that the lexicographic noncompensatory model may be a "...good approximation to much more complicated compensatory models" and, in fact, may be "...a useful simplification procedure." The possibility evidently exists that the compensatory models are good predictors, but in this context a more simply operationalized approximation may provide better results than past efforts at a very complex task. Normative factors, weightings of importance of attributes, and calculations of value and expectancies are

not involved in a noncompensatory model, though it is expected that their effects are approximated in a simplified manner.

The lexicographic semi-order choice model may be just such an approximation. It is easy to apply, without complex mathematical computations, and is fairly easily understandable by both researchers and those who apply research findings.

Like many decision models which have been proposed in the fields of economics and psychology, there have been relatively few empirical studies of the lexicographic semi-order model of choice (Azumi 1981). Tversky (1972) pointed out that the primary reasons for the scarcity of such model testing are the difficulties involved in controlling the experiment appropriately and obtaining adequate estimates of choice probabilities.

Selection of the lexicographic semi-order choice model seems, however, justified on the basis of a series of smaller, individual research and theory building accomplishments. The evidence which exists in support of use of such a model deals with a subject's ability to make decisions from information presented in a sequential form (and even the tendency, in some cases, to seek and process information in that manner) and the relationship between subject-expressed pre-

ferences for attributes and choices made between alternatives.

Studies which have successfully presented information in a sequential manner to decision makers, or found the subject to use available information in this manner, are varied in purpose and discipline (Olshavsky 1979, Powell 1979, Crow, Olshavsky, and Summers 1980, Englander and Tyszka 1980, Herstein 1981, Lowery 1981, Busemeyer 1982). For example, Lowery (1981), in a survey of judges, documented that such a sequential decision process actually occurred in child custody decisions in divorce proceedings. In determination of the "best interest of a child" it was demonstrated that judges often develop a hierarchical order of factors to be considered and decided upon. Given multiple factors to be considered, judges would rely more heavily on some factors than on others. In this case the ordering of attributes in the lexicographic semi-order model on the basis of importance to the decision process was found to be a relevant aspect of the process of child custody decision making. Such a sequential decision process using hierarchical attributive information was also more typically found as task complexity increased. For example, Olshavsky (1979) found that subjects switched from a one stage compensatory strategy to a multi-stage strategy involving a noncompensatory

screening stage as the number of alternatives increased beyond an easily analyzed set.

In an analysis of voting decisions Herstein (1981) found that subjects do not typically search all of the data for all alternatives or express an overall evaluation of all alternatives. Information processing limits of the human mind lead, instead, to very simplified pre-decision information search behavior. In the selection of candidates, subjects most often compared alternatives on only a few items which they decided were most important. The favored candidate was chosen who rated best on this hierarchical set.

Crow, Olshavsky, and Summers (1980) found that industrial buyers frequently used a multi-stage decision process to select a final supplier. In a manner very similar to the lexicographic semi-order choice model, these buyers would eliminate "unworthy" candidates in a noncompensatory fashion.

One very important research effort of recent years in support of the semi- order model is that of Azumi (1981). Azumi investigated choice strategies which are used under uncertainty. His research subjects were to select hypothetical marriage partners from among 30 alternatives. Each subject was asked to evaluate each aspect of each alternative on an ordinal preference scale. The preference scale was divided into two regions for analysis: positive and ne-

gative. The positive and negative regions of a preference scale for a single aspect are essentially similar to the semi-order model's evaluation of attributes as acceptable or not acceptable. Azumi found that for each rejected alternative, more than one of its aspects were in the negative region. The tendency was to select an alternative for which all aspects were rated in the positive region. Similar to the lexicographic model, the subject "satisficed" on as many attributes as possible. Potter (1979) also found that similar "bounded rational satisficers" predominated in his study of consumer decisions regarding choice among alternative shopping centers. These studies taken together, while not specifically testing the lexicographic semi-order choice model, do present data which supports the concept of sequential information processing.

Park (1978) tested the lexicographic semi-order choice model in a laboratory experiment of graduate students' choices of automobiles. Park compared the predictive capability of the lexicographic semi-order model to that of a simple compensatory model. Park found the noncompensatory model to be as successful as the compensatory model in predicting first choice of subjects, though the noncompensatory approach was more simply operationalized and applied.

The noncompensatory approach, and the lexicographic semi-order model in particular, appears to be a viable alternative to previously used compensatory models in predicting recreationists' choices. A format of presentation demonstrated to approximate the actual decision process of visitors should be used. In the development of a decision aid for recreation site selection, the lexicographic semi-order model may approximate this decision process and would provide such a format for presentation of information. For these reasons it is the selected model for testing in this research.

Experience Of Users As A Mediating Variable Of Interest

There are many factors which might be viewed as mediating variables in recreation site selection (Schreyer and Roggenbuck 1981). For example, the distance to alternative sites might certainly affect site choice. Additionally, the cost of automobile fuel, availability of fuel, and the time involved in travel to and from site are factors which people likely consider in making decisions about any kind of trip.

These factors were not pertinent in this study. As previously stated, the results of this study should be directly applicable to decision aid development for use on a Forest Service district or any public agency visitor contact point. The principle restriction is that the subject must have decided upon a visit to the particular general area of the contact point, but still be interested in deciding upon a specific site or portion of the larger locale. For this reason items such as travel time and cost were parts of an earlier decision which committed the individual or group to pursuit of recreation activities in a natural environment.

There are additional mediating variables which are relevant to the decision of interest. For example, there are social factors which affect decisions. Influencing elements might include social group influences such as being aware that a particular site is the "in place to go" or going to a site as a result of a group decision. Few backcountry recreationists participate alone. These factors might be considered directly in an expectancy x valence approach to decision making, but will seemingly not be considered in the lexicographic semi-order approach. In fact, however, such factors are acknowledged though not directly measured and incorporated into prediction efforts. In application of the lexicographic model it is assumed that these factors influ-

ence site choice by affecting evaluations of area attributes and values of the various attributes.

Another mediating variable of great interest in the recreation field is the amount of experience an individual has in the activity or the area and how that might affect information processing for site selection (Schreyer et al. 1976, Neilson 1977, Schreyer and Nielson 1978, Bowley 1979, Vaske et al. 1980, Anderson 1981, Hammitt and McDonald 1982, Knopf and Lime In press). The amount of experience a person has had in a particular activity may be linked to the perception of a recreation experience, and the organization of information used to make choices in behavior (Schreyer 1983). Schreyer (1982) found that the specificity of the descriptions of outcomes for recreationists varied among recreationists with differing amounts of experience. In this case experienced recreationists were able to give more detailed statements concerning what they expected to encounter in an environment in order to obtain a given outcome.

The importance of experience to site selection will be explored in this study. Of principle interest is the specificity with which subjects categorize the values of the various attributes being considered. For example, can inexperienced hikers differentiate between the amount of satisfaction that would result from meeting 10 versus 20 other

hikers in a day? Or, how does their ability to differentiate between various levels of an attribute differ from that of more experienced hikers? Just as experienced river recreationists are able to give more detailed statements concerning what they expect to encounter (Schreyer 1982), experienced backcountry users will likely base decisions on more specifically categorized attributes of the resource. Additionally, experienced users will likely have more specific expectations about the resource and thus display differences in ranking of site attributes.

In previous explorations of experience use history, various combinations of experience information were utilized. For example, Schreyer (1982) used the number of times a respondent floated a study river. Hammitt and McDonald (1982) formed a composite variable combining the total number of years of experience in floating rivers, the frequency of floating per annum, the number of years experience on a study river, and the frequency per annum of floating on a study river. Through analysis of past research it appeared that three major dimensions of experience are being combined in one fashion or another to provide a composite index of a subject's experience use history. First of all, past researchers appeared to want to know, overall, how much experience an individual has in a given activity. This was nor-

mally asked in terms of how many times a person has participated in a given activity or at how many different places he/she has participated in the given activity. Secondly, experience information was often analyzed with regard to the amount of experience at a particular study location. Third, the frequency of participation per year in the activity has been of interest.

In studying the experience use history of those making decisions about backcountry recreation destinations, these three dimensions appeared to be as applicable as in the reviewed research. For an overall experience indicator, the total number of different areas in which the subject has backpacked should approximate the total number of times he/she has made decisions about where to go for such an activity. As a measure of specific area experience, the subject will be asked to indicate amount of backpacking experience in the Southern Appalachians. The third dimension is the frequency with which one participates in the activity. Specifically, how many times per year, on the average, does the subject go on backpacking trips? A person's participation history in backpacking may be short and he may have visited only a few areas, but he may currently backpack frequently. These three variables, (i.e. total number of different areas visited, experience in Southern Appalachian areas, and aver-

age annual participation) were used to compute this study's composite experience history variable.

Research Questions

Based upon a review of behavioral decision theory and selection of a potentially applicable noncompensatory model of choice, the following research questions relating to applicability of the lexicographic semi-order model to recreation choice and to experience as a mediating variable were formulated:

1. Can people reliably rank the relative importance of site attributes in their selection between alternative backcountry recreation sites?
2. In a simulated backcountry site selection situation, can the choice of a subject be accurately predicted through application of the lexicographic semi-order model?
3. Is the experience use history of a subject related in a positive manner to the specificity with which the subject perceives attribute categories?

4. Is study subjects' experience in backpacking related to attribute importance rankings?

DETERMINATION OF RELEVANT ATTRIBUTES

Environmental Perception And Cognition

Before application of the semi-order model, an effort was made to determine and evaluate the most relevant site attributes in choices of recreation areas to visit. While emphasis here is primarily on the process of decision making, the inclusion of relevant information will certainly lend credibility to study of the process. The environmental perception and cognition literature might be used as a basis for evaluating past efforts at determining attributes which are important to backcountry recreation experiences. Within environmental perception and cognition, spatial cognition, scenic quality, and possibly even hazards in the natural environment may be relevant topics of discussion. A principle review of environmental perception and cognition in rural

contexts has been compiled by Feimer (1983). The purpose of this chapter is to develop a list of attributes which might possibly be used in a test of the lexicographic semi-order choice model. In the event that the list is too long to be appropriate for testing of the model in a laboratory situation, the list will be reduced to include only those attributes potentially most relevant to the study population.

Spatial Cognition

There are two basic and complementary types of information that one must have for survival and everyday spatial behavior: the locations and the attributes of phenomena (Downs and Stea 1973). There are two components to locational information: distance and direction. Attributive information, telling what kinds of phenomena are out there, can be either descriptive or evaluative. Cognitive map research, within spatial cognition literature, deals with the assessment of a mixture of both locational and attributive information.

Spatial cognition can be defined as the process whereby individuals acquire, code, store, recall, and decode information concerning environmental attributes and their relative location (Downs and Stea 1973). Spatial cognition is very central to way-finding (Feimer 1983). Way-finding represents an important decision process whereby the individual tries to maximize satisfaction and convenience, while minimizing frustration and the possibilities of harm.

Some basic classes of important attributes have been suggested from research on cognitive maps in urban, or built, environments. Specifically, Lynch (1960), determined five constructs which can be used to delineate the structural elements of cognitive maps. These constructs are paths, edges, districts, nodes, and landmarks.

Paths.

Lynch defined paths as channels of movement, formally constructed or having arisen merely by usage. Feimer (1983) notes that path networks, in particular, seem to play an important role in promoting cognitive map development. The regularity of path systems appears to promote clear and ac-

curate cognitive maps. Two patterns which have been identified as promoting environmental comprehension are the rectangular grid path pattern and the concentric grid path pattern. While it is evident that neither of these is likely to be found in a backcountry area, or even necessarily desired, path patterns may still be a justifiable attribute group to consider. Some specific attributes of an area which might be related to path systems include the following: 1) number of trailheads, 2) number of trails, 3) number of miles of trail, 4) difficulty of the trails (e.g. steepness, loose rocks), 5) configuration of the trails (e.g. presence or absence of loop trails), 6) conditions of the trails (e.g. surface conditions or amount of vegetation in the trail), 7) complexity of the trail system, and 8) size of the area (as an indication of off-trail travel potential).

Edges.

Lynch (1960) defined edges as linear elements that form discontinuities in the individual's conception of the environment. Edges are boundaries that serve to define the extent of areas within the larger environment, and often form

barriers to traversal by ordinary travel. Possible corresponding elements of the natural environment include: 1) natural boundaries such as those of a watershed or a forest cover type and 2) management boundaries such as protective buffer zones.

Districts.

Districts are subsections of the larger environmental context that are distinguishable from one another. Some common, identifying characteristics exist throughout a district. The critical feature of a district, according to Feimer (1983), is that the identifying attributes provide discriminant cues, which implies that there is conformity or homogeneity within districts along with clear divergence across districts.

The most direct application of the district construct to backcountry attributes is that of ecosystems or landform. Beaulieu and Schreyer (1982) believe that discrimination between areas may depend greatly on such factors as these. For example, the existence of a larger spruce-fir forest in one area than in others may be a significant factor in dis-

crimination between a set of alternative areas. Additionally, one mountain or several mountains may also be a discrimination point for comparing alternative sites.

Nodes.

Nodes, according to Lynch (1960) are strategic places, limited in a real extent, which serve as focal points for travel. They are frequently end points or junctions of pathways, but may also be spots where there is a concentration or predominance of a given social or economic activity.

Natural hiking destinations may qualify as nodes. It is often very easy to pinpoint expected high impact areas in backcountry. If trails seem to enter from all sides and meet in the center or at a given landmark or vista, this area will be a natural congestion point. Wilderness hikers seem to like to feel that they are deep within the area, even if other campers surround them. And where else could one feel deeper in the area than at the junction of all major trails in the heart of the backcountry? If one goes away from this point on any trail, there is a feeling of exit, of moving toward the periphery. Possibly the presence

of nodes would make the trail system more comprehensible when viewing a map and thus attract use.

Landmarks.

Central to many backcountry areas, and often reflected in the name of the area, are visually distinct entities that serve as important reference points for judging relative location and distance. Landmarks which may exist in backcountry include mountain peaks and singularly distinct ecosystems (bogs, sods, streams, etc.). The possibility exists that more landmarks, or more clearly distinct landmarks, may lead to increased environmental understanding and thus a more pleasurable visit to natural areas. Another landmark of sort in Southern Appalachian mountain backcountry may be springs which supply drinking water for hikers. They are often vital in that they dictate camping areas, so far as comfort is concerned. They may serve as nodes as well, as actual destinations for the hike.

In Feimer's (1983) review, he concludes that path networks and functionally and perceptually distinct landmarks appear to be the most salient factors of cognitive maps in

the nonurban context. These factors which are most important to environmental comprehension and way-finding may also be factors desired in site selection.

Scenic Quality

From past efforts aimed at predicting scenic quality two major classes of predictors have emerged: 1) physical variables and 2) transactional variables (Feimer 1983). Some specific physical variables which appear to influence scenic quality include water (proportion of scene which is water, presence of a stream or lake), topographic relief and slope (presence of sharp mountains), man-made elements (which often detract from scenic quality), and the presence of vegetation.

Of much interest in investigation of backcountry visitation determinants are the transactional variables. Transactional variables characterize physical properties of the environment in terms of their human significance. Past research has indicated that the following transactional variables may be of importance to environmental comprehension: complexity, congruity, mystery, and spatial enclosure.

Quoting directly from Feimer (1983 p. 138), "complexity refers primarily to diversity in the number of perceptually distinct elements of a given landscape scene; the greater in number and more varied the elements of the landscape scene are, the more complex it is. Congruity reflects the degree of harmony evident in the interrelation of the elements of a given landscape scene; it embraces the concepts of fittingness and compatability which refer to the congruity of man-made and natural components of the landscape. Mystery conveys a sense of alluring uncertainty created by the promise of additional information upon further exploration. Spatial enclosure refers to the extent of surrounding enclosure, or conversely, openness, created by vertical topographic and vegetative elements."

Natural Hazards

Research in natural hazards suggests that individuals recognize significant threats to property, economic and social activities, and both mental and physical well being. Some of the dimensions of natural hazards which affect the extent

of impact on human populations include their areal extent, intensity of impact, length of duration, suddenness of onset and predictability of occurrence (Feimer 1983).

Presence of natural hazards may be of limited use in predicting behavior of backcountry hikers. Some possibilities which come to mind, however, are rock slides from abandoned mining operations, holes or tunnels from abandoned mines or wells, and perceived threat from large wildlife. One additional hazard attribute which can be considered natural only so far as man himself is considered a natural element of the environment, is vandalism and other acts of depreciative behavior. It seems possible that in order for recreationists to be able to make good decisions, some information on the likelihood of damage to one's vehicle while parked at the trailhead should be included in any description of the area. This threat to property may be a salient feature of one's cognitive image of alternative sites.

Recreation Research Dealing With Attributes

Past studies of relevant environmental attributes of backcountry recreation areas may now be examined from an environmental perception framework. The most extensive study of attributes falls within the research framework formulated and supported by Driver and his colleaques (Driver No date, Driver and Brown 1975, Driver 1977a,b, Driver and Knopf 1977, Driver 1979, Haas 1979, Roggenbuck and Dawson 1979, Brown and Haas 1980, Haas et al. 1980). The purpose here is to review the latest research studies which are part of Driver's ongoing research efforts. A brief review of Driver's hierarchy of recreation demand levels is first of all needed to understand why these attributes of the recreation environment are being studied.

Driver's Demand Level Hierarchy

Within a behavioral definition of recreation demand, Driver (1977a) notes two types of output from recreation ser-

vice delivery: 1) satisfying experiences realized and 2) personal and social benefits that result from these experiences. Driver stated that these two outputs were variables which he was attempting to quantify under the logic that research on user's "experience preferences" was needed to guide research on recreation benefits.

To deal with these two variables, the demand for specific satisfying recreation experiences and benefits was placed in a "total" recreation demand hierarchy consisting of four levels. The criteria guiding that hierarchical demand schema were: 1) the degree to which the user is consciously aware of each level of demand (level 1-greater awareness than level 4); and 2) the difficulty of quantifying each level (level 1-more scientifically quantifiable than level 4).

> Level 1: demands for a specific recreation activity.
>
> Level 2: demands for desired attributes of the physical setting, the social setting, and management actions that define a quality activity opportunity in the minds of the user.

Level 1 and 2 goods and services are demanded for the utility they are expected to provide. Level 3 and 4 demands define that utility.

> Level 3: demands for specific (and basic) satisfying experiences that are both expected and valued.
>
> Level 4: demands for the benefits that flow from the satisfying experiences, with benefits defined as enhanced subsequent performance or effective functioning after having participated.

In the past most recreation resource management decisions have focused on the goods and services demanded at levels 1 and 2. Driver, however, is interested in developing behavioral measures of value at levels 3 and 4 to help in field level decision making. Specifically, these field level decision makers need to be able to specify precisely what recreation services should be provided, and be able to measure degree of success in delivering planned services. Driver saw levels 3 and 4 as the primary dependent variables of interest in his research.

The variable entailed in level 3 is a satisfying experience. Driver defines the word experience as a "...well de-

fined or particular physiological, psychological, spiritual, or other response to a situation, event, or thing" (Driver 1977a p. 12). Driver feels that one's experiences can be classified from the general (such as the general experience of life) to the very specific (such as catching trophy fish, enjoying nature, and teaching friends or children). These specific satisfying experiences are associated with participation in a particular activity. Driver (1977a) believes that some specific experiences will be relatively more satisfying than others. For that reason, participants in a particular activity are expected to value some specific experiences more than others when deciding whether or not to participate in that activity.

Many factors are believed to influence the types of satisfaction or dissatisfaction that are experienced. Specific experiences may be highly dependent on the characteristics of the physical resources, facilities, or equipment. Others may be dependent on characteristics of managerial actions, while still others may depend very much upon characteristics of users such as personality traits, age, and sex. In allocation decisions, the goal is to allocate resources to their highest potential for providing opportunities for specific desired experiences and their consequent human benefit.

For accrued information to be managerially relevant, these "experiences" must relate to elements of the resource. Driver and his associates are working to form a link between level 2 demands and level 3 demands (i.e. physical, managerial, and social attributes to desired experiences). This is what led to previous work in which individual attributes were studied to determine the extent to which their presence contributed to subjects' satisfaction.

Haas (1979) and Roggenbuck and Dawson (1979) worked within the Driver framework to determine what attributes of the physical resource affect backcountry and wilderness hikers' experiences. Haas (1979) worked to identify physical resource attributes which are perceived as being important to having satisfying experiences in three study areas in Colorado. Haas defined resource attributes as any element or characteristic of an outdoor setting which adds to or detracts from a person's satisfying experience.

Haas (1979) stated that his interest was to relate demands for physical resource attributes of a recreation setting, as defined in level 2 demands, to satisfying experiences, the dependent variable as outlined in level 3 of the hierarchy of demands. Questionnaires were sent out to wilderness hikers who had been contacted at trailheads. Each questionnaire contained scaled questions designed to identify the resource attributes preferred by the individual.

Nine point modified Likert scales were used to evaluate the degree to which an item added to (+4) or detracted from (-4) their satisfaction (Table 1).

The factor which added most to satisfaction of these Colorado hikers was a series of water-related attributes. These included existence of natural lakes and ponds, waterfalls, isolated lakes, mountain springs, and cascading streams. Vegetation and attractive topography factors were second and third highest as an indication of adding to the satisfaction derived from a backcountry visit. Nuisance topography such as rock slides, boggy areas, and boulder fields, along with bad weather, were the greatest detractors of satisfaction.

The attributes included for consideration by the subjects were generated by the researcher. Haas (1979) cites principle sources as "brainstorming" with colleagues and a review of the literature. Haas does not cite any specific literature sources or what discipline previous research along these lines has followed. One does not know whether attributes used are generated from previous research in outdoor recreation or another field. The reason this is mentioned here is that even though Haas is able to generate some

Table 1. Physical resource attribute domains and items described by mean score and standard deviation (Haas 1979).

Physical Resource Attributes	Wilderness Study Areas: Weminuche (N=312) Mean[a]	S.D.	Rawah (N=211) Mean[a]	S.D.	Eagles Nest (N=258 Mean[a]	S.D.
1. Water related	3.3	0.9	3.2	1.0	3.2	1.1
cascading streams	3.3	0.9	3.0	1.1	3.0	1.0
meandering streams	--	--	3.3	0.9	3.3	1.0
mountain springs	3.2	1.0	3.0	1.0	2.9	1.3
isolated lakes	3.4	1.0	3.4	0.9	3.1	1.3
waterfalls	3.4	0.9	3.1	1.1	3.2	1.2
natural lakes and ponds	3.4	0.8	3.5	0.7	3.4	0.9
2. Vegetation	3.1	1.0	3.0	1.1	2.8	1.2
alpine meadows	3.2	1.0	3.3	1.0	2.9	1.2
wildflowers	3.4	0.8	3.2	1.0	3.2	1.0
evergreen forests	3.3	0.9	3.1	1.0	2.9	1.0
apline or tundra vegetation	2.9	1.2	2.3	1.2	2.5	1.3
numerous plant species	2.8	1.2	2.5	1.3	2.4	1.4
aspen groves	3.0	1.0	2.8	1.1	2.3	1.2
virgin forests	3.4	0.8	3.2	1.0	3.1	1.2
3. Attractive topography	3.0	1.3	2.7	1.3	2.3	1.4
steep hillsides	2.3	1.5	2.4	1.3	2.2	1.5
barren, rock peaks	3.0	1.3	2.8	1.1	2.7	1.3
unusually shaped rocks	2.6	1.3	2.2	1.4	2.0	1.5
rugged terrain	3.1	1.2	2.8	1.1	2.7	1.2
areas above timberline	3.2	1.0	3.0	1.2	2.4	1.3
lofty ridges	3.3	1.0	3.0	1.2	2.9	1.2
snowfields	--	--	2.7	1.3	2.0	1.5
evidence of glacial activity	--	--	2.4	1.4	1.9	1.5
gently rolling topography	--	--	--	--	2.0	1.5
rock pinnacles	2.9	1.1	--	--	--	--
deep gorges	3.0	1.6	--	--	--	--

[a]A nine-point response scale was used where 4 equalled most strongly added to satisfaction and -4 equalled most strongly detracted from satisfaction.

attributes which appear to be important to wilderness hikers, subjects were limited to evaluation of those attributes included on the list provided. There may be some attributes which were not included in the list which may be even more important or as important as those included.

Roggenbuck and Dawson (1979) performed a study similar to Haas's research in Shenandoah National Park in Virginia and three wilderness areas in North Carolina. In reporting the mean responses regarding the contributions which various factors made to the overall experience in the backcountry, wildlife presence appeared much more important than it did in the Colorado study (Table 2). The importance of view appeared very important, also, along with forest stands, stream related factors, and rugged topography. Intrusions, such as evidence of mining or logging activities, detracted most from the experience.

Table 2. Environmental feature preference scores of Linville Gorge, Shining Rock, Joyce Kilmer-Slickrock, and Shenandoah hikers (Roggenbuck and Dawson 1979).[1]

Scale	Linville Gorge				Shining Rock			
	N	Mean	Standard Deviation	Rank	N	Mean	Standard Deviation	Rank
1. Fish related	237	6.09	1.24	10	287	5.97	1.28	9
2. Rugged topography	240	7.18	0.88	5	280	6.87	1.01	7
3. Intrusions	235	1.65	1.44	14	281	2.13	1.76	14
4. Wildlife	233	7.83	1.10	1	281	7.85	1.05	1
5. Nuisance	238	4.83	1.73	12	286	4.74	1.70	12
6. Pioneer	238	5.37	1.36	11	286	5.48	1.29	11
7. Stream related	239	7.44	0.66	4	283	7.37	0.73	3
8. Vegetation	237	7.03	0.81	7	284	6.98	0.87	6
9. Reservoirs	241	3.28	2.17	13	287	3.26	2.17	13
10. Views	241	7.58	0.64	2	286	7.52	0.85	2
11. Wilderness	242	6.22	1.95	9	288	5.69	2.19	10
12. Meadow/forest	243	6.51	1.55	8	289	6.85	1.17	8
13. Natural lakes	238	7.13	1.02	6	286	7.02	1.13	5
14. Virgin forests	242	7.58	0.80	3	289	7.26	1.18	4

[1]Response format: 0 to 8 scale where: 0 = most strongly detracts from experience
4 = neither adds nor detracts
8 = most strongly adds

Table 2. Environmental feature preference scores of Linville Gorge, Shining Rock, Joyce Kilmer-Slickrock, and Shenandoah hikers (Roggenbuck & Dawson 1979)[1] (continued).

Scale	Joyce Kilmer-Slickrock				Shenandoah			
	N	Mean	Standard Deviation	Rank	N	Mean	Standard Deviation	Rank
1. Fish related	78	5.85	1.38	9	425	5.83	1.40	10
2. Rugged topography	80	6.99	0.87	8	413	6.77	1.01	8
3. Intrusions	78	1.73	1.54	14	345	2.67	1.69	14
4. Wildlife	80	7.88	1.06	1	396	7.81	1.03	1
5. Nuisance	80	4.50	1.84	12	417	4.43	1.80	12
6. Pioneer	78	5.51	1.38	11	422	5.94	1.14	9
7. Stream related	79	7.49	0.54	4	417	7.44	0.61	3
8. Vegetation	80	7.12	0.78	6	413	6.94	0.86	6
9. Reservoirs	78	3.37	2.30	13	428	4.21	2.13	13
10. Views	80	7.58	0.72	3	431	7.62	0.73	2
11. Wilderness	80	5.61	2.06	10	427	5.70	2.04	11
12. Meadow/forest	80	7.06	1.15	7	432	6.88	1.18	7
13. Natural lakes	79	7.25	1.16	5	427	7.39	0.77	4
14. Virgin forests	80	7.65	0.71	2	431	7.08	1.20	5

[1]Response format: 0 to 8 scale, where: 0 = most strongly detracts from experience
4 = neither adds or detracts
8 = most strongly adds

Some studies of attributes exist outside the Driver framework. For example, in a study of factors predictive of overall use of California wilderness and primitive areas McKillop (1975) found that the percentage of an area over 7,000 feet in elevation, administering agency, total acreage, the number of entry points on a per acre basis, road construction on adjacent national forests, and population within 100 miles were all important to a significant degree.

Selection Of Study Attributes

Working within an environmental perception and cognition framework, it is valuable to examine previous backcountry attribute findings. The goal is to more clearly understand why attributes previously found important might be important and to determine if additional factors should be included.

The review of spatial cognition literature suggested that area attributes which have to do with paths and landmarks may be important information when choosing among alternative areas. Virtually no evidence exists that pathways are important in previous findings of the backcountry research.

Information on pathways is a very detailed element of the ROG, however, indicating manager belief that it is very relevant to site selection. Also, McKillop (1975) found that the number of entry points in a trail system was predictive of use levels. For these reasons the following attributes will be included in this study of site selection: number of entry points, steepness of trail, miles of trail, and size of area.

From scenic quality research some of the transactional variables may be more applicable to pathway systems than the physical variables. Concepts such as complexity, congruity, and mystery may play important roles in preference of one path system over another. An all inclusive term, such as trail configuration, might incorporate the transactional variables to some extent. In this manner transactional variables, though on a somewhat different level than used in past research, could be included in the list of attributes without singling out any one variable from the group. Preference for alternative path system configurations (representations of actual systems) could be explored in this manner. Evidence of logging activity might possibly be a physical landscape quality variable and could also be explored.

There are several aspects of the backcountry attribute research that might be subsumed under a discussion of land-

marks. Within the water-related domain, and supported by spatial cognition (landmarks) research, landscape preference literature, and work by Haas (1979) and Roggenbuck and Dawson (1979), streams, springs, and lakes appear to be preferred environmental features. For these reasons the following items will be included in this research: number of springs, number of waterfalls, number of miles of pathway along streams, and availability of campsites along streams. Lakes are essentially nonexistent in the Southern Appalachians and will therefore not be included.

Additional landmarks might be found within the vegetation domain of past attribute research. In this case the importance of vegetation is supported through landscape preference findings. Specifically, within backcountry recreation, there exists evidence that the presence of meadows, the size of meadows present, proportion of virgin stands of timber, and proportion of vegetation which is coniferous affect preference for a given environment. Additional landmarks, related to the topography domain of past attribute research, might include existence of outcroppings; steep, rugged terrain; and vistas dependent upon such terrain. Inclusion of steep, rugged terrain is also supported somewhat by McKillop's (1975) finding of importance attached to proportion of area which is of high elevation. Permanent shelters might also be considered by many as landmarks in the wildlands.

Those elements of spatial cognition which Feimer (1983) does not believe to have been shown of particular importance in the rural context include edges, nodes, and districts. Edges and districts are covered somewhat, however, by inclusion of contrasting ecosystem types (coniferous stands within hardwood areas) as an attribute. Streams are also likely to provide edges as well as divide large areas into districts for enhanced environmental comprehension. The concept of nodes is taken into consideration in trail system structure. If one indicates a preference for complex trail systems, the number of nodes, or types of nodes (two trail vs. five trail junctions) may be one consideration.

Presence of abandoned mines, the extent of vandalism problem at trailheads, and presence of bears in a particular area are descriptors which a review of hazard research suggests may be relevant to backcountry site selection. For this reason these attributes will be included among a list of potential attributes to be used in a test of the study's decision model.

There remain several items from previous attribute research that do not fit into the environmental perception framework but do appear important to this study. One such item is the presence of wildlife, both small and large (Roggenbuck and Dawson 1979). Additionally, from Driver's demand level hierarchy, demand level 2 indicates not only a

demand for particular physical resource elements, but, also, preference for particular social and managerial factors. Manfredo (1979) explored user response to various management strategies. Managerial items which were liked as well as some which were disliked will be included this study. The reasoning behind this decision is that both may affect site selection. Important managerial considerations indicated by Manfredo's (1979) research to be possibly relevant to this study include: administering agency, land classification, assigning campsites, allowing camping at designated sites only, requiring permits, allowing campfires, and limiting group size. Social factors which appear relevant from Manfredo's work include: amount of use the area receives, number of people you are likely to encounter while hiking in the area, availability of isolated campsites, and evidence of man-made intrusions.

The list of attributes generated appeared too long for inclusion in a decision aid. It was assumed that due to the specific context in which application is intended (backcountry site selection), several of those attributes listed may not be relevant to the actual choice. It was therefore decided to pilot test these 33 attributes to determine which ones should be included for actual application of the decision model.

The following is a listing of attributes which were incorporated into the pilot test. It should be noted that all elements of the ROG are incorporated, and all listed attributes could be included in a ROG under the attractions and considerations heading.

From spatial cognition and landscape preference literature:

- Paths:
  - number of entry points
  - miles of trail
  - configuration of trail system
  - steepness of trail
  - size of area
- Landmarks:
  - Water:
    - number of springs
    - number of waterfalls
    - number of miles of pathway along streams
    - number of campsites near streams
  - Vegetation:
    - number of meadows
    - size of meadows
    - proportion of virgin stands of timber
    - proportion of vegetation which is coniferous
    - evidence of logging
  - Topographical:

existence of rock outcroppings

steep, rugged terrain

vistas

Structures:

permanent shelters

Hazards

presence of abandoned mines

vandalism at parking lots

bears

Items outside the environmental perception framework:

Wildlife

Social:

amount of use

number of people likely to encounter

availability of isolated campsites

evidence of man-made intrusions

Managerial:

administering agency

land classification

assigned campsites

camping at designated sites only

permits required to enter

allowance of campfires

limit of group size

METHODOLOGY

Pilot Study

A pilot study was conducted in order to obtain a workable number of attributes from the set generated from the literature review. The questionnaire used appears in Appendix A. The goal was to eliminate those items which were found to be least important to the site selection decision process. This was done by obtaining item importance values on a six point scale. Attributes were evaluated using the following scale: 5) extremely important consideration, 4) very important consideration, 3) moderately important consideration, 2) somewhat important consideration, 1) slightly important consideration, or 0) not at all important.

Pilot study subjects were selected from a subject pool within the School of Forestry and Wildlife Resources, Virgi-

nia Tech. Individuals included were undergraduate and graduate students and faculty and staff members who were backcountry users. The pilot test sample size was 37. This number is considered sufficient to assure scale stabilization (Green 1954). Subjects were asked to evaluate each of the 33 attributes listed in the previous section in terms of their importance to decisions to go to backcountry recreation areas.

The context for the pilot study was as follows: "You are making decisions about a site to visit once a decision has been made to visit the general area." This was to control for such mediating variables as travel cost,time, distance, and availability of transportation. An attempt was also made to replicate the context of ROG use as nearly as possible.

Pilot Study Results

Mean scores for individual items are listed in Table 3. To allow a decision task to be both manageable yet difficult enough to ensure some conflict,

Table 3. Importance evaluations of pilot study attributes.*

Attribute	Mean Score	Standard Deviation
Amount of use the area normally receives	4.216	0.712
Availability of isolated campsites	4.139	0.798
Whether or not campfires are allowed	4.108	0.966
Whether or not campsites are assigned	4.027	0.897
Presence of vistas or overlooks	3.946	0.941
Whether or not camping is allowed at designated sites only	3.919	1.090
Whether or not permits are required	3.757	1.383
Frequency of auto vandalism at trailheads	3.568	1.303
Number of springs in the area	3.432	1.345
Number of people you are likely to encounter	3.378	1.253
Miles of trail within the area	3.351	1.111
Size of area	3.324	1.001
Presence of bears in the area	3.297	1.151
Trail configuration	3.216	1.336
Abundance of wildlife in the area	3.216	1.109

Table 3. Importance evaluations of pilot study attributes. (continued).

Attribute	Mean Score	Standard Deviation
Presence of steep, rugged terrain	3.135	1.206
Evidence of mining activity	3.135	1.566
Availability of campsites near streams	3.111	1.116
Steepness of trails	3.000	1.054
Miles of trail along streams	2.946	1.129
Evidence of logging activity	2.865	1.294
Number of entry points to the area	2.811	1.287
Whether or not there are limits on group size	2.649	1.620
Number of waterfalls	2.568	1.237
Proportion of area in virgin timber	2.405	1.279
Land classification	2.135	1.417
Presence of rock outcroppings	2.081	1.382
Management agency	1.838	1.608
Evidence of forest fires	1.833	1.577
Number of meadows	1.784	1.397
Presence of shelters	1.722	1.427
Proportion of area which is coniferous vegetation	1.676	1.248
Size of meadows	1.162	1.143

*Evaluation was on a scale of 0 = not at all important to 5 = extremely important. The first 15 items were included in the actual study.

it was decided that the fifteen highest scoring items would be included in the actual experiment. It should be noted that in selecting a reduced number of area attributes, only the mean scores were examined. Covariation among items was not taken into consideration. For the goals of this research, discriminating between attributes is not expected to influence the predictive ability of the chosen model. For application by field managers, clustering of covarying variables may provide broader coverage for a reduced set of attributes. Interestingly, the fifteen items with the highest means represent a good mix of physical, social, and managerial factors. Physical attributes which were found to be important were 1) the presence of vistas or overlooks; 2) trail configuration; 3) size of the area; 4) the number of miles of trail in the area; 5) presence of bears in the area; 6) abundance of wildlife in the area; and 7) number of springs in the area. Social factors included 1) the number of people one is likely to encounter along the trails in the area; 2) the availability of isolated campsites; 3) the total amount of use the area normally receives; and 4) the frequency of auto vandalism at trailheads. Managerial factors included 1) whether or not camping is allowed at designated sites only; 2) whether campsites are assigned; 3) whether or not campfires are allowed; and 4) whether or not permits are required to enter the area.

While the subject sample size was small, and not randomly selected, it is interesting to note which items were indicated to be most important. While the ROG includes the number of miles of trail an area has as an indexing variable, it ranked 11th in overall importance. Some of the items rating higher than trail mileage in importance in the pilot test may be better for indexing a ROG than currently used items.

Study Subjects

The desired methodology for this study was a laboratory exercise in which subjects interacted with a microcomputer for data collection. This entailed getting the microcomputer to the subjects or the subjects to the microcomputer. The latter option was chosen for this study, though in the future data collection potential exists through placing programmed microcomputers in visitor centers or ranger stations to function as both decision aid media and data collection instruments.

Overnight backpackers, as one of the most common user groups of backcountry, were selected for analysis in this study. The purpose was not to examine the decision process of all types of backcountry users, but rather to select a user group for which the set of relevant attributes would be applicable. The attributes decided upon were taken primarily from hiker studies. In a test of the decision model it is imperative that attributes used are relevant to the study population. In this way the predictive capability of the model can be tested. If successful with this one most common user group, the model may also be applicable for other groups using attributes relevant to them.

Subjects were enlisted through several channels. Sources included Virginia Tech Psychology Department undergraduate students, members of the Virginia Tech Outing Club, participants in the Wilderness Education Association leadership training course at Virginia Tech, faculty and students in the School of Forestry and Wildlife Resources at Virginia Tech, and members of the general public who had backpacked or were planning a backpacking trip. All potential subjects were made aware of the study, and received a general introduction on its purpose through a flier which was distributed through various channels (Appendix B). This flier briefly explained the purpose of the study, the need for subjects,

and the time commitment involved for those willing to participate. Interested individuals were instructed to arrange a one hour appointment by telephoning the School of Forestry and Wildlife Resources. Only two undergraduate psychology students received any reward for participating. This reward was in the form of one extra credit point on their final class score.

Sample Size Determination

In a test of the study's decision model it was desirable to use resources and time available to probe in detail the decisions of a small number of subjects, rather than use a large sample. Through use of a microcomputer, collection of data from only one subject at a time in an isolated computer laboratory, and personalized orientation and instruction by the researcher, the quality of the data should far exceed that of large sampling schemes in which subjects fill out questionnaires at home with unknown distractions and influences. In the early stages of this type of exploratory research, it is essential to guard against extraneous influ-

ences on the experiment. It is essential to stay close to the data. Working with a small sample size is one way to do this (Isaac and Michael 1977). Some limitations to the external validity of this study, however, can be attributed to the small sample size.

At the outset of this research the required sample size was unknown. In order to determine sample size a priori, the population variance for all dependent variables of importance would have to be known or estimated. Since this was impossible, it was decided to monitor variance in a major dependent variable, "specificity of categorization", as sample size increased. The goal was to observe at what point sample variance appeared to stabilize. When the sample variance, as an estimate of population variance, stabilized, then it was believed that an acceptable sample size had been obtained.

For determining sample size, six experience variables were used as the independent variables. The six items used were: 1) total years backpacking experience; 2) average number of backpacking trips taken per year; 3) total number of backcountry areas visited; 4) total years backpacking experience in the Southern Appalachians; 5) average number of backpacking trips taken per year in the Southern Appalachians; and 6) total number of backpacking areas visited in the Southern Appalachians.

Each independent variable was coded into two groups representing a low experience group and a high experience group. The basis for division was the median response on each experience factor. Groups were divided as close to the median as possible. The two groups for "total years backpacking experience" were: 1) eight or fewer years and 2) over eight years. For "average number of backpacking trips taken per year" high experience subjects were those with experience frequency over once per year. Low experience subjects were those participating one or fewer times per year. High experience subjects for "total number of backcountry areas visited" visited more than five areas. Those visiting five areas or fewer were considered low experienced. Within the Southern Appalachian experience variables, "total years experience" was coded into: 1) four or fewer years and 2) over four years. For "average number of trips per year" the groups were: 1) one or less; and 2) more than one trip. For the last experience item, "total number of different areas", the groups were: 1) two or less; and 2) more than two areas.

The dependent variable, "specificity of categorization", was operationalized by counting the total number of categories each subject indicated over all attributes in the microcomputer exercise. A single category was defined as one or more adjacent levels of an attribute receiving the same

evaluation on the satisfaction scale. It was reasoned that if a subject receives the same level of satisfaction from encountering more than one level of an attribute, that subject is not discriminating between those levels and thus those levels comprise one category. The range in number of categories for the 15 attributes in the study was from 43 to 67 with a mean of 57.1. The possible range was from 15 categories to 92. For further clarification of how specificity of categorization was determined, please see Evaluation of Categories of Attributes beginning on page 114.

Variances for the dependent variable across the six independent variables are reported in tables 4 and 5. The variances for the two groups (high and low experience) were expected to stabilize with increasing sample size, and in fact an interesting pattern emerged.

Table 4. Variance in number of attribute categories by different backpacking experience levels in the Southern Appalachians for increasing sample size.

Number of Subjects	Variance					
	Number of Years		Number of Trips Per Year		Number of Areas	
	Low[1]	High[2]	Low[3]	High[4]	Low[5]	High[6]
5	.33	8.00	7.33	0.00	12.50	1.00
10	25.81	4.33	6.29	31.00	9.90	36.67
15	23.83	6.70	8.28	27.70	13.28	27.50
20	30.63	13.98	16.39	20.41	21.84	27.27
25	24.21	33.07	13.92	33.96	16.43	46.03
30	23.08	27.72	15.90	29.72	16.24	42.10
35	21.67	30.95	15.95	28.49	15.59	42.24
40	22.90	42.21	15.95	34.11	15.59	48.03
45	22.90	42.39	16.50	33.45	15.59	47.50
50	21.91	40.15	16.19	32.73	15.67	44.67

1. Four or fewer years.
2. Over four years.
3. One or less trips per year.
4. More than one trip per year.
5. Two or less areas.
6. More than two areas.

Table 5. Variance of number of attribute categories by different experience levels of backpacking anywhere for increasing sample size.

Number of Subjects	Variance					
	Number of Years		Number of Trips Per Year		Number of Areas	
	Low[1]	High[2]	Low[3]	High[4]	Low[5]	High[6]
5	2.00	8.33	.33	8.00	.50	7.00
10	24.57	8.33	3.30	22.30	27.30	8.30
15	20.53	14.80	3.30	24.49	21.90	8.94
20	22.40	26.18	18.81	25.41	22.84	23.54
25	20.22	34.44	16.70	31.64	15.54	40.26
30	18.69	29.63	17.47	28.82	14.27	35.50
35	19.78	28.68	16.09	30.82	14.60	35.16
40	33.36	34.36	16.09	38.52	26.67	38.26
45	32.39	36.20	17.76	38.23	25.63	41.29
50	30.00	34.71	17.29	36.50	23.48	39.22

1. Eight or fewer years.
2. Over eight years.
3. One or fewer trips per year.
4. Over one trip per year.
5. Five or fewer areas.
6. More than five areas.

Figures 1 through 6 indicate that by the time sample size reached 50, variation in the low experience groups was quite stable across most tests. This fact offers evidence that at least for this subgroup increased sample size would not be extremely beneficial. For the high experience groups variation stabilized to some extent, though not as much as for the low experience groups.

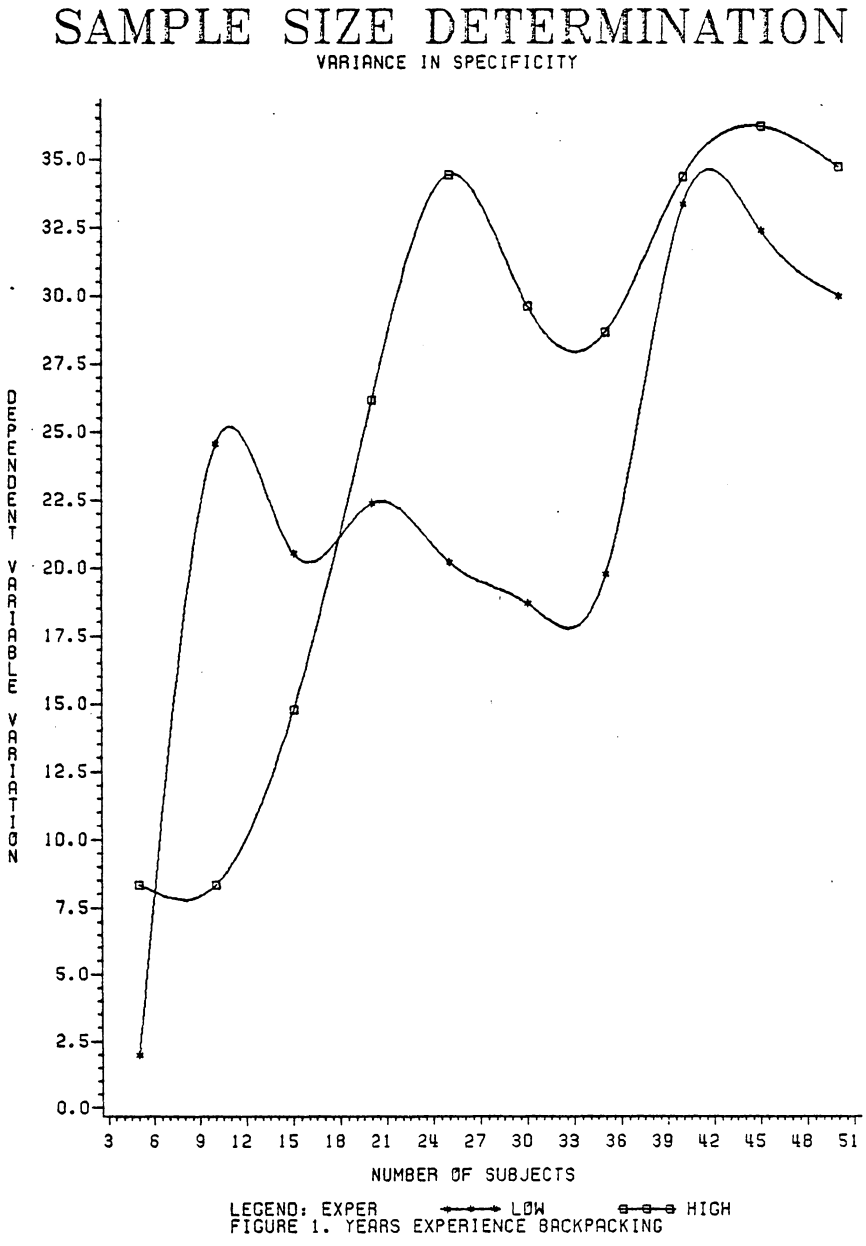

FIGURE 1. YEARS EXPERIENCE BACKPACKING

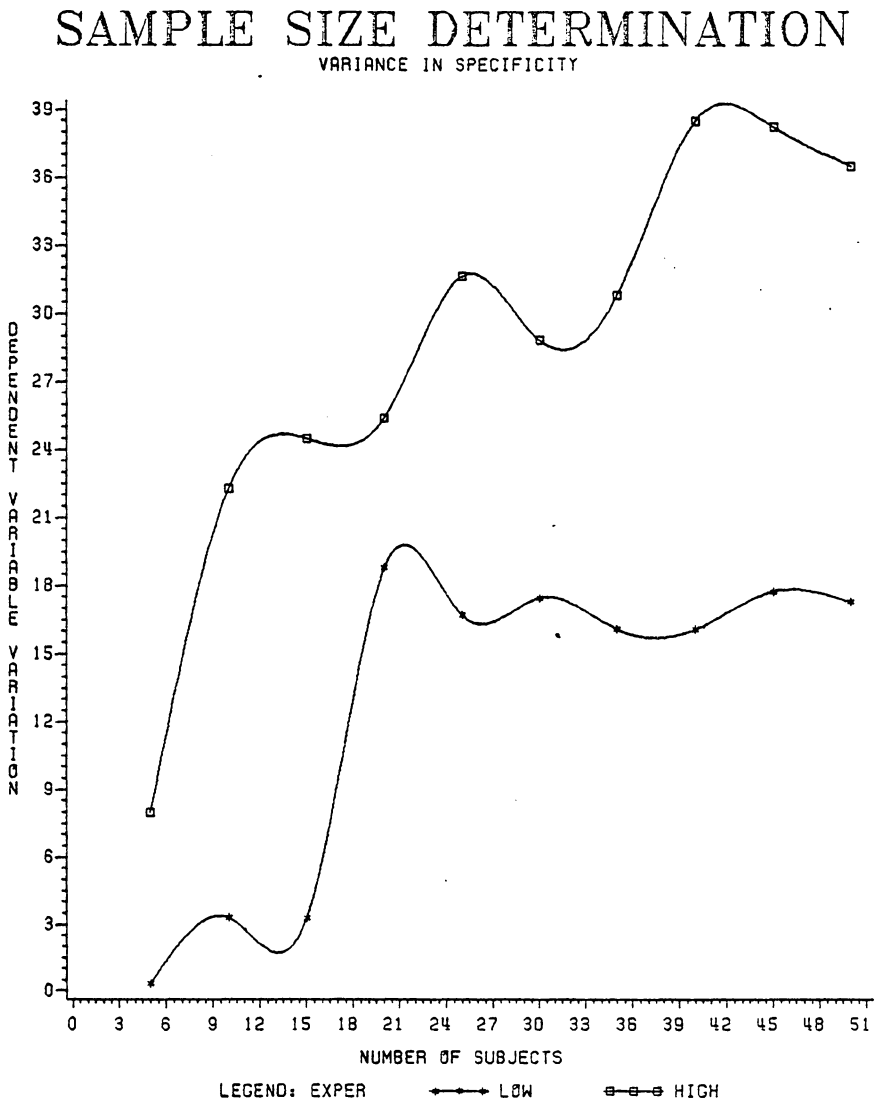

FIGURE 2. NUMBER TRIPS PER YEAR

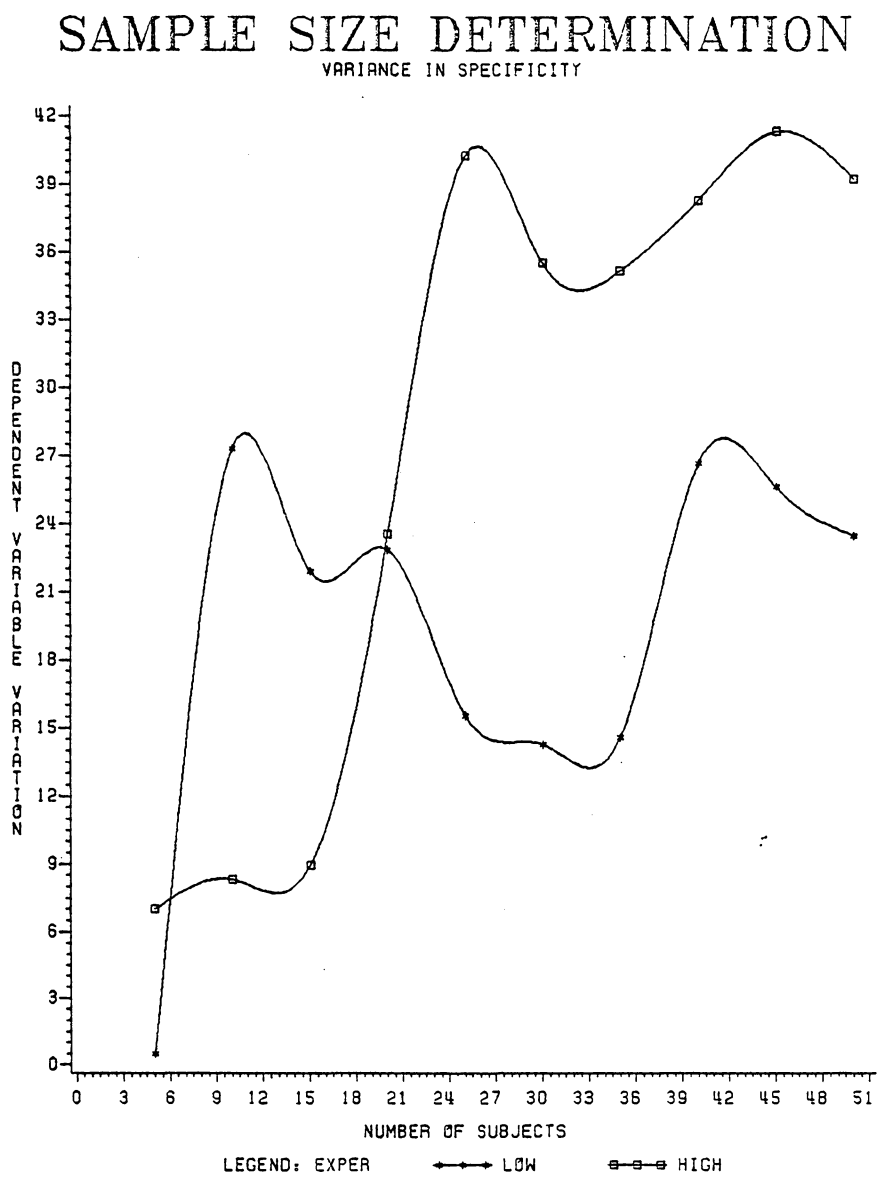

FIGURE 3. NUMBER AREAS VISITED

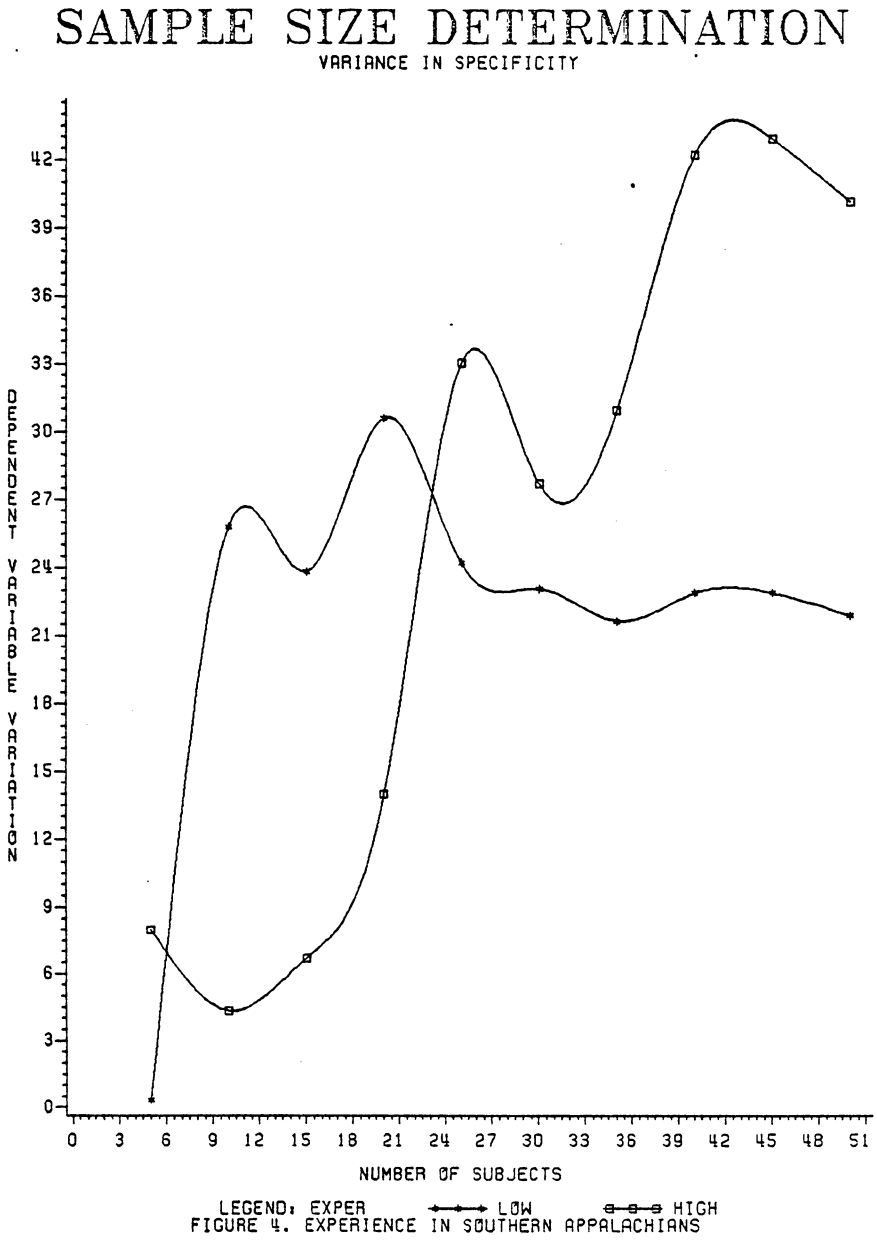

FIGURE 4. EXPERIENCE IN SOUTHERN APPALACHIANS

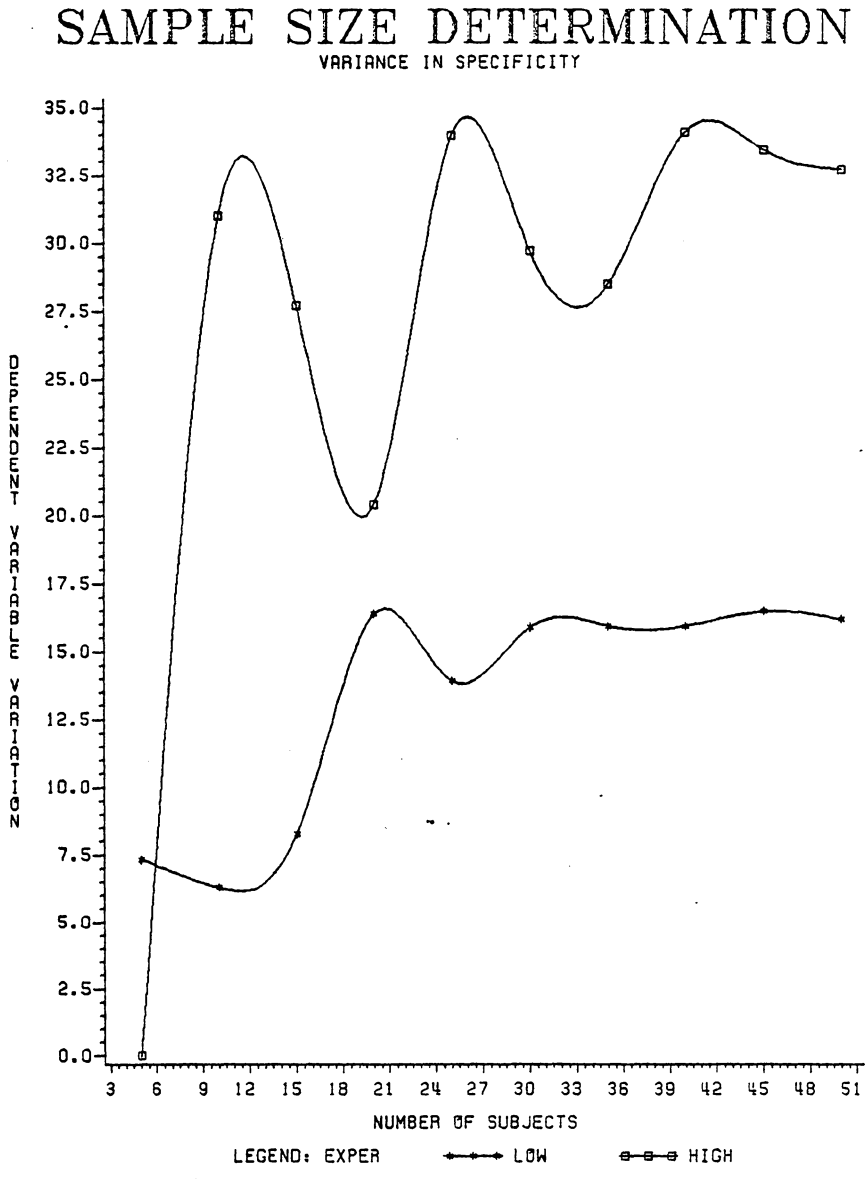

FIGURE 5. TRIPS/YEAR IN SOUTHERN APPALACHIANS

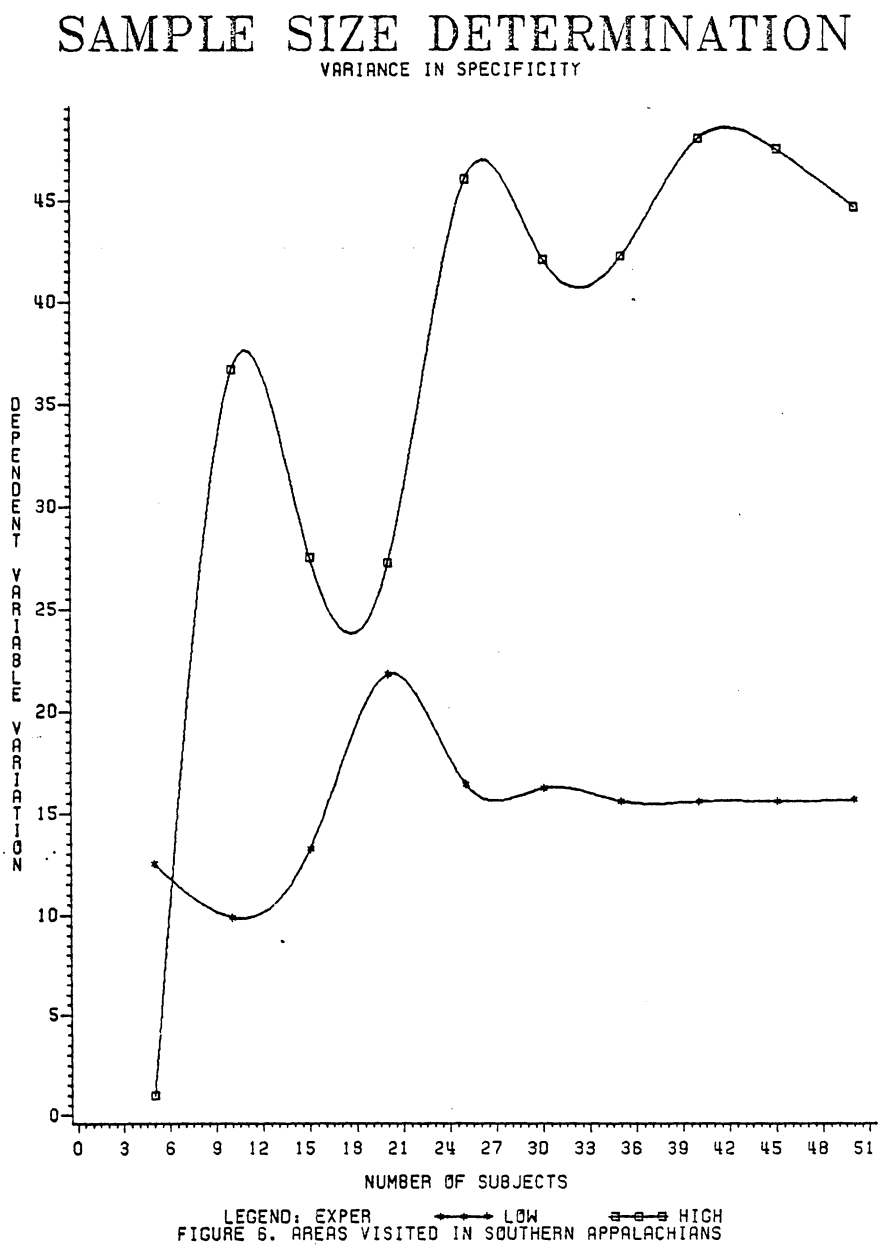

FIGURE 6. AREAS VISITED IN SOUTHERN APPALACHIANS

Also, the variance for the high experience groups was higher in all six cases. It appears that increased experience leads to greater individualization on the part of backcountry hikers in their perception of the environment. Their specificity of categorization varies much more than for less experienced users. In fact, if sufficient numbers were accumulated, the high experience group might actually contain many subgroups, each with its own perceptual abilities. For the purposes of this study the stabilization of the low experience group variation was taken as an indication of adequate sample size. Given this, data collection ceased when the sample size reached 50.

Data Collection Instruments

In an introduction to the study, subjects were informed of the study's purpose. As previously stated, the purpose was to explore how people decide on backpacking or hiking sites within a given area, district, or administrative unit. Since wilderness and alternatives to wilderness are the focal points of application for this research, attention of

the subject was directed to backcountry recreation. Backcountry was defined as: recreation areas located away from developed campgrounds, roads, and buildings. The subjects were informed at the beginning of the study of the three sections of the exercise. They were first asked to indicate a first, second, and third choice from among 15 hypothetical alternative areas. Second, they were to evaluate a set of descriptor variables (attributes) which may be important to them in deciding among areas. And, third, they were asked to indicate preference for various values of the evaluated descriptor variables.

Data collection for Task 1 was accomplished through the use of a written exercise (Appendix C), and for Tasks 2 and 3 through the use of a microcomputer based questionnaire (Appendix D). In Task 1, information on 15 attributes of 15 hypothetical backcountry areas was presented to study subjects using a matrix format. The matrix format was selected because it is similar to the way information about area attributes is often presented in existing national forest and district maps. Also, with this format, neither a compensatory nor noncompensatory process of selection is precluded or suggested. The subject can look at all of the information presented in order to search for compensatory factors, or a choice might be made on the basis of one or two of the most important attributes.

In Task 1 subjects were asked to select among the 15 hypothetical backcountry areas a first, second, and third choice as a place to visit (Appendix C). The purpose of the choice task was to provide a criterion variable on which to evaluate the predictive ability of the lexicographic semi-order choice model. The 15 hypothetical areas were assigned numbers rather than names to avoid preference effects due to the attractiveness of the name. The 15 attributes listed for each area where those found to be most relevant for the participants in the pilot study reported earlier. A random order of presentation of attribute information was used, with the order generated by a microcomputer program. Actual values for the attributes were determined with concern for assuring some conflict. The goal was to not make any one area so attractive that every subject would choose it. Also, the area descriptions were different enough for a choice to emerge. The range of time for arriving at a decision in this section was from five to forty-five minutes.

Microcomputers have been previously demonstrated to provide several advantages as an aid in processing data from social surveys (Marsinko 1982). When used in coding data obtained through conventional telephone, questionnaire, or interview surveys, Marsinko (1982) found a relatively short training time for operators, low data error rates, low cost,

and no special computer or clerical skills required of the operators. Marsinko (1982) believes that with recent advances in memory size, software, and data input hardware, microcomputers will become increasingly popular in social survey work.

One way which microcomputers can also aid in social survey data processing is to serve as the data collection medium. If placed in high traffic areas, such as Forest Service visitor centers, libraries, shopping malls, and public media events, certain social phenomena could be surveyed without the use of conventional questionnaires involving traditional data coding logistics. Use of a microcomputer in this context is especially attractive in situations where representative sampling is not so much a concern as just obtaining an in depth probe of a particular psychological or sociological phenomenon.

In this particular study the microcomputer was used to explore individual decision processes. In the future, data collection of a more general nature could be conducted very efficiently through the use of microcomputers in visitor centers or other locations which backcountry hikers frequent (e.g. permit stations, backcountry supply stores, and special interest group conferences). Well error-trapped interactive programs with original information displays and sim-

ple response formats could be enjoyable for the user, require practically no caretaking, and provide data recorded in a format conducive to transmittal and analysis on a large computer.

The microcomputer used for data collection in this study was an Apple II plus. The Apple II plus utilized had 64k memory with an 80 column, upper and lower case Videx board. The 80 column screen width with upper and lower case characters greatly enhanced text readability and allowed display of more instructions on a single screen. This asset allowed the subject to read over the instructions more than once without having to return to previous displays.

In Tasks 2 and 3 a question/response format was utilized to determine importance rankings for attributes, meaningful categories perceived by each subject for attributes, and evaluations of values of attributes (Appendix D). Approximate time for the microcomputer part of this research exercise ranged from 30 minutes to one hour.

In Task 2, the importance rankings for attributes were established for each individual. This was done, first of all, by displaying on the video screen all fifteen of the study attributes in random order. The subject was instructed to place the letter of the most important attribute next to the number 1 and the letter of the second most important

attributed next to the number 2, etc.. Importance was defined as how important information on these attributes would be to your decision on which area to choose. After completion, the subject then had the opportunity to change the rankings. In order to test the reliability of this ranking procedure, relative importance of the attributes was established in another manner. This time each of the 15 attributes was presented individually on the video monitor. Along with the attribute appeared a response scale. The subject was instructed to indicate how important information on that particular attribute would be to an area choice decision. The response scale ranged from 0 (not at all important) to 5 (extremely important).

For Task 3 the subject was instructed to do two things. First of all, for each attribute the subject indicated the amount of satisfaction that would be received from encountering various levels of the attribute. For example, using a scale of 0 (maximum dissatisfaction) to 6 (maximum satisfaction) each subject indicated satisfaction expected from encountering various levels of wildlife. The values used were: 1) no wildlife likely to be seen; 2) one or two species of wildlife likely to be seen; 3) three to five species of wildlife likely to be seen; 4) six to ten species of wildlife likely to be seen; 5) eleven to twenty species of

wildlife likely to be seen; and 6) twenty-one to thirty species of wildlife likely to be seen. (The levels of the other 14 attributes are contained in Appendix D.) This information was later used in determining specificity of categorization.

The second part of Task 3 was to indicate whether each of these encounter levels was acceptable, unacceptable, or preferred. This was done by the subject responding with a 0 for unacceptable, 1 for acceptable, or 2 for preferred when each attribute was displayed on the video monitor. This information was used in the lexicographic semi-order choice model to eliminate alternatives (those rated unacceptable on an important attribute) or to differentiate among acceptable alternatives (those alternatives which are acceptable on all attributes).

Measurement

Ordering Of Attributes.

Each subject was presented with a listing of the 15 attributes deemed relevant from the pilot study, and instructed to rank the items in terms of importance to choosing among alternative sites. Additionally, the importance of each attribute was evaluated using a descriptive 6-point Likert scale. A rating of "0" indicated that the presence or absence of that attribute was not at all important to the subject's decision. A rating of "5" indicated that the presence or absence of that attribute was an extremely important consideration in the subject's decision. The intermediate points, "1" to "4", indicate varying, increasing levels of importance. The second measure of the importance of attributes permitted a reliability check on the rank ordering.

Evaluation Of Categories Of Attributes.

The specificity of each subject's categories for all attributes was then determined. To obtain this information the subject was asked to indicate the degree of satisfaction that would be obtained from each of a range of values for each attribute using a seven-point interval scale. On this

scale "0" represents maximum dissatisfaction and "6" represents maximum satisfaction. Mervis and Rosch (1981, p.89) state "A category exists whenever two distinguishable objects or events are treated equivalently." In this case when the distinguishable events of encountering various levels of a given attribute are treated equivalently, a single category exists. If two or more adjacent values are indicated as providing the same degree of satisfaction, they are treated as one category. For example, the values evaluated for "number of people you are likely to encounter during a day of hiking" were 0, 1-5, 6-10, 11-20, 21-30, 31-40, 41-50, 51-75, 76-100, and over 100 people per day. Each value was evaluated on the 7-point satisfaction scale described above. If the subject indicated that encountering 0 and 1-5 per day both provided maximum satisfaction (by entering a response of 6), these two values of this attribute were considered as one category. The total number of categories indicated in this manner across all fifteen attributes provided the index to specificity of categorization for that individual. The higher the number, the more specific the individual's categorization scheme.

After a review of decision theory literature, satisfaction was chosen to be used as the basis for defining categories. In past tests of semi-order models, differentiation

between categories was based upon the amount of satisfaction expected from various levels of an attribute. While future research might test other methods of category definition, it was decided to accept satisfaction in this research effort as part of the model as previously established. In recreation research, particularly, some doubt has been cast on the ability of the recreationist to accurately state how much satisfaction might be received from various elements of the physical or social environment.

Each subject was next asked to indicate a preference for the values of the attributes in the following manner: "2", category which is most desirable; "1", categories which are acceptable; or "0", categories which are definitely unacceptable. Minimum threshholds of acceptance were established for those attributes with at least one value rated "0". Indications of preference of values were obtained for attributes containing a "2" designation. This information permits the elimination of alternatives in a sequential application of the lexicographic semi-order model, and permits the prediction of a final choice.

To determine the model's predicted choice for each subject, the researcher proceeded through the attributes one at a time - starting with each subject's most important attribute. On that attribute, all alternatives which exhibit

unacceptable values are eliminated. This process continued with the second, third, etc., most important attribute until only one alternative remained. That one alternative was the predicted choice.

It was possible that after going through all 15 attributes, more than one of the 15 alternative areas would still remain. For some subjects, more than one area might meet the acceptable values on all 15 attributes. When this happened, the model called for the examination of the preferred value categories of alternatives. The alternative which possessed the preferred value category of the highest ranked attribute, for which no other alternative possessed the preferred category, was the predicted choice (see Figure 7).

The success of the lexicographic semi-order model was determined by comparing its predicted choice with the choice made by subjects using the matrix-formatted information sheet of Task 1 of the experiment (see Appendix C).

	PROCEDURE		PREDICTED CHOICE
Step 1:	Eliminate all alternatives which do not possess an acceptable level of the most important attribute. Does only one alternative remain?	-----	Yes
	No		
Step 2:	Of the remaining alternatives, eliminate all which do not possess an acceptable level of the second most important attribute. Does only one alternative remain?	-----	Yes
	No		
Step 3:	Proceed through the list of attributes in decreasing order of importance, eliminating alternatives as in Steps 1 and 2. Does only one alternative remain after consideration of any one attribute?	-----	Yes
	No		
Step 4:	Eliminate all remaining alternatives which do not possess the preferred value of the most important attribute. Does only one alternative remain?	-----	Yes
	No		
Step 5:	Eliminate all alternatives which do not possess the preferred value of the second most important attribute. Does only one alternative remain?	-----	Yes
	No		
Step 6:	Proceed through the list of attributes in decreasing order of importance, eliminating alternatives as in Steps 4 and 5 until a final choice can be predicted.		

Figure 7. Flow chart of the lexicographic semi-order choice model.

RESULTS

Description

Experience Use History

Study subjects possessed a range of experience levels (Table 6). The number of years backpacking for the 50 subjects ranged from zero to sixteen. The mean number of years since the first backpacking trip was 8.74.

Table 6. Backcountry experience of study participants.

Variable	Range	Mean	Median	Mode
Years experience anywhere	0-16	8.74	8.50	5
Average number of trips/year	0-10	2.52	2.115	2
Number of different areas visited	0-25	7.00	5.875	6
Years experience in the Southern Appalachians	0-15	5.22	4.722	<1
Average number of trips/year in the Southern Appalachians	0-6	1.72	1.50	<1
Number of different areas visisted in the Southern Appalachians	0-20	3.46	2.50	2

For the time since the first backpacking trip in the Southern Appalachians the range was from zero years to 15 years, with a mean of 5.22 years. The average number of trips per year anywhere and in the Southern Appalachians was 2.52 and 1.72, respectively. The total number of different areas in which subjects had backpacked demonstrated the same trend as the other experience variables. The mean was over twice as high for total areas (7.00) as for areas in the Southern Appalachians alone (3.46).

Choices

Each subject was asked to indicate a first, second, and third choice in the simulated decision situation. From the total of 15 alternatives, eight different areas were designated as most desirable by at least one subject. The most popular area, 644, was selected as first choice for a backpacking trip 25 times, as second choice 9 times, and third choice 5 times. Area 512 was selected as first choice in 12 cases, second choice in 13 cases, and third choice 6 times. Only 3 areas were not selected by anyone as either a first, second, or third choice (Table 7).

Table 7. Frequency of choice for hypothetical study areas by study participants.

Area	1st Choice	2nd Choice	3rd Choice
644	25	9	5
512	12	13	6
439	4	5	8
703	3	4	3
827	2	1	5
457	2	1	2
321	1	7	6
562	1	5	3
356	0	4	2
886	0	1	2
421	0	0	2
532	0	0	6
763	0	0	0
465	0	0	0
633	0	0	0

Attributes

Of the 15 physical, social, and managerial attributes included in the study, two social factors appeared to be most important in selection of a backcountry recreation destination. The two attributes which were indicated as most important in the study were "number of people you are likely to encounter" and "availability of isolated campsites" (Table 8). In the ranking procedure "number of people you are likely to encounter" was ranked as most important in 30% of the cases (15 subjects) and as second most important in 24% of the cases (12 subjects). "Availability of isolated campsites" was ranked first in 9 cases, second in 12 cases, and third in 22 cases. In the alternative evaluation of importance of the attributes, "number of people you are likely to encounter" and "availability of isolated campsites" again were found to be most important. The mean score for "availability of isolated campsites" was 4.24, for "number of people you are likely to encounter" it was 4.10 (0=not at all important, 6=extremely important).

Table 8. Study participants' ratings of importance for study attributes.

Attribute	Rank			Importance evaluation*
	Mean	Median	Mode	Mean
Number of people you are likely to encounter	3.60	2.33	1	4.10
Availability of isolated campsites	3.64	2.86	2	4.24
Amount of use the area normally receives	6.06	5.80	6	3.52
Number of springs in the area	6.66	6.50	3	3.34
Whether or not campfires are allowed in the area	7.08	6.83	3	3.48
Presence of vistas or overlooks	7.66	8.00	4	3.08
Frequency of auto vandalism at trailheads	7.68	6.50	4	3.48
Whether or not campsites are assigned	7.92	8.00	5	3.52
Abundance of wildlife in the area	8.82	9.30	13	2.26
Whether or not camping is allowed at designated sites only	8.88	9.00	9	3.16
Miles of trail in the area	9.02	9.50	13	2.84
Size of the area (in acres)	9.30	10.17	15	2.50
Trail configuration	10.42	10.75	12	2.40
Whether or not permits are required to enter	11.02	12.17	15	2.06
Whether or not there are bears in the area	12.36	13.21	14	1.74

*A six-point response scale was used where 0 equalled "not at all important" and 5 equalled "extremely important".

How attributes were utilized in the decision process was also of interest. Park (1978) discriminated between attributes based upon whether they had minimum threshhold levels of acceptance or not. Rejection Inducing Dimensions (RID's), according to Park, have minimum criteria which must be met in order to be considered in the final decision process. Krumpe and McLaughlin (1982) preferred to call these "constraining factors" in the recreation decision context. If an area does not meet these minimum established criterion, the individual is constrained from choosing that area as a destination point.

On the other hand, attributes that do not have minimum levels for acceptance were called Relative Preference Dimensions (RPD's) by Park and "facilitating factors" by Krumpe and McLaughlin. While not actually eliminating areas from consideration on the basis of such attributes, they can determine selection from among two or more areas for which minimum levels on an ordered set of RID's are met.

Four social attributes were indicated to be rejection inducing by at least 98% (49/50) of the study subjects (Table 9). These were: 1)availability of isolated campsites; 2)amount of use the area normally receives; 3)number of people you are likely to encounter; and 4)frequency of auto vandalism. This list very nearly replicates the initial listings of the most important attributes

Table 9. Rejection inducing vs. relative preference attributes.

Attribute	Number of subjects indicating it to be: Rejection inducing n	%	Relative preference n	%
Number of people you are likely to encounter	50	100	0	0
Availability of isolated campsites	49	98	1	2
Amount of use the area normally receives	49	98	1	2
Number of springs in the area	41	82	9	18
Whether or not campfires are allowed in the area	19	39	31	62
Presence of vistas or overlooks	28	56	22	44
Frequency of auto vandalism at trailheads	49	98	1	2
Whether or not campsites are assigned in the area	27	54	23	46
Abundance of wildlife in the area	40	80	10	20
Whether or not camping is allowed at designated sites only	13	26	37	74
Miles of trail within the area	40	80	10	20
Size of the area (in acres)	26	52	24	48
Trail configuration	1	2	49	98
Whether or not permits are required to enter	3	6	47	94
Whether or not there are bears in the area	39	78	11	22

as indicated by the study subjects (Table 8). The implication appears to be that receiving information on these four social attributes of alternative backcountry areas is very important to decision makers.

It is also interesting to note that "whether or not permits are required to enter" was rejection inducing for only 6% (3/50) of the study subjects. Those researchers and managers who claim permit systems are not major detractors from a recreation experience are at least somewhat supported here. Only three out of 50 subjects would not consider a permit system acceptable. Congruent with this finding was the low importance (14th rank out of 15) given to receiving information on whether or not permit systems exist for areas being considered for a backcountry visit (Table 8).

Addressing Research Questions

Research Question 1: Can people reliably rank the relative importance of site attributes in their selection of alternative backcountry recreation sites?

Finding 1: Using an alternate forms test for reliability, it was found that study subjects could reliably rank the relative importance of site attributes in their selection of alternative backcountry recreation areas.

The first test performed was one of reliability; specifically, how replicable was the ranking procedure is at a given point in time. If the lexicographic semi-order decision model proves to be a desirable foundation on which to construct a microcomputer based decision aid, high reliability in ranking attributes according to their importance to decisions is a must. If a person is not able to make these comparative judgments, a decision aid which requires these judgments as its initial step would be of little value.

The test for reliability was one of alternative forms replicability. Subjects were asked to rank all 15 study attributes in the microcomputer exercise (Appendix D). This ranking was based on how important it would be for him/her to receive information about that attribute when deciding where to backpack. In section B of the microcomputer exercise (Appendix D) the subject was asked to indicate the level of importance for each attribute individually. The indi-

cation of level of importance was from a scale of values with "0" representing "not at all important" and "5" representing "extremely important".

The reliability of the ranking procedure was demonstrated through nonparametric correlation analysis (Spearman correlation coefficient). When the rank position (1=highest, 15=lowest) was correlated with the evaluative response (0=not at all important, 5=extremely important) for each individual attribute across all subjects, the result was a significant relationship in every case (Table 10). The highest correlation in this check for reliability was -.8255. The lowest was -.3964.

Research Question 2: In a simulated backcountry site selection situation, can the choice of a subject be accurately predicted through application of the lexicographic semi-order model?

Finding 2: In a simulated backcountry site selection situation, the first choice of a subject was predicted successfully in 54% of the cases. In 86% of the cases, use of the lexicographic semi-order model successfully predicted reduction of the 15 alternatives to a set of 5, one of which was the subject's first choice.

Table 10. Reliability test for attribute ranking.*

Attribute	Correlation**	Sign. Level**
Number of people you are likely to encounter	-0.7755	.001
Abundance of wildlife in the area	-0.8255	.001
Presence of vistas or overlooks	-0.7845	.001
Number of springs in the area	-0.7684	.001
Whether or not campsites are assigned	-0.5110	.001
Size of the area (in acres)	-0.7708	.001
Whether or not permits are required to enter	-0.4430	.001
Whether or not camping is allowed at designated sites only	-0.3964	.002
Trail configuration	-0.5434	.001
Frequency of auto vandalism at trailheads	-0.8252	.001
Whether or not there are bears in the area	-0.6100	.001
Miles of trail within the area	-0.6747	.001
Whether or not campfires are allowed in the area	-0.7037	.001
Availability of isolated campsites	-0.4905	.001
Amount of use the area normally receives	-0.7274	.001

*Comparison of attribute importance ranking scores with attribute importance evaluations.

**Spearman rank-order correlation.

In 27 (54%) of the 50 cases, information collected through the microcomputer exercise allowed prediction of the subject's first choice. Following the semi-order model procedure, the subject's highest ranked attribute was examined first as a means for elimination of alternatives. For this highest ranked attribute, the subject's responses were analyzed to determine those values which he/she indicated as unacceptable. This threshhold level of this most important attribute provided a basis for elimination of any of the hypothetical alternatives considered in the choice task which did not meet this minimum criterion. This process was repeated with the second, third, etc., most important attributes until all alternatives but one were eliminated. This final alternative was the predicted choice.

If all 15 attributes were examined in this manner and more than one alternative area remained, the prediction process resorted to the preference indication also made by the subject during the microcomputer exercise. In this section the subject designated the value of each attribute which he/she would prefer to encounter. From the remaining alternatives the predicted choice was the one that possessed the preferred value of the highest ranked attribute. If more than one alternative possessed the preferred value on the highest ranked attribute, these alternatives would be con-

sidered on the next highest ranked attribute, and so on, until a choice could be predicted. For only 2 subjects could no clear "winner" be predicted.

The predicted success of this noncomensatory model is difficult to compare directly with past tests of compensatory approaches in the recreation context. In one of the most recent applications of the Fishbein model, however, Cockrell (1981) reported nonsignificant R-squares in five of six regression equations used for prediction of river choices. Elements of the regression equations included attitudes and norms about various alternative rivers. The lack of significant R-squares was interpreted by Cockrell to be an indication of little predictive success. He concluded that a river runner's intentions to participate in a river trip were not determined by the person's attitudes toward the trip and his perception of associated social norms.

A review of the literature failed to reveal any reported noncompensatory tests in the recreation context. When compared to the few applications found in other fields (i.e. Park, 1978) the predictive success of this application appears quite good. Park (1978) had only 43% success in correctly predicting the first choice for 25 of 58 study subjects.

While the lexicographic semi-order model had some success in predicting final choices, the model's ability to predict elimination of alternatives is even more noteworthy. In 72% of the cases, use of the model in the prediction process allowed elimination of 12 of the 15 alternatives, leaving a set of three alternatives, one of which was the subject's first choice. This figure jumped to 86% for deriving a set of 5 areas which contain the subject's first choice.

Another demonstration of the success of the semi-order model in eliminating alternatives from the choice set is found by examining how many areas were eliminated based upon minimum acceptable values of only the three most important attributes. Out of 50 subjects there were 4 (8%) in which the subject's first choice had been eliminated after examining the three most important attributes. For those in which the top choice remained, the size of the remaining set of choice alternatives varied from 2 to 11. The average, however, was 6.3. So, for 46 (92%) of the subjects in this study, an average of almost 9 (8.7) of the fifteen alternatives were eliminated based upon evaluation on only three attributes. This would leave for the visitor a set of only 6 (on the average) alternatives to have to process specific information about in a choice situation. And this for only having to indicate his/her three most important factors and the minimum acceptable levels of each.

It should be noted that the area selected as the first choice by the subject in Task 1 and which served as the criterion measure for evaluating the predictive capability of the lexicographic semi-order choice model may not have been the individual's "best" choice. Recall that Task 1 was a written exercise that required the subject to name a first, second, and third choice among 15 hypothetical backcountry areas. Information on 15 attributes for each of 15 areas was presented to the subject in tabular, matrix form. This task, designed as it was to assure some conflict in decision-making, may have been so difficult that the "best" decision was not made. If this occurred, then the predictive capability of the model is likely underestimated. The predictive capability may have been better had fewer areas, fewer attributes, or a different method of presenting the attribute information been used as the criterion measure.

On the other hand, there is also the possibility that the situation in which the data was collected may have produced very reliable selection of a "best" choice. Instructions were communicated orally to the individuals by the researcher, only one subject at a time was processed, and the subject was aware that the general goal of the study was to find out how people make decisions about where to go on recreation visits. A subject making a decision in this con-

text may attempt to very carefully process every item of information available. The processing in this context may, in fact, be more complete than in a real situation without oral instructions and knowledge of the purpose to which responses were being applied.

Research Question 3: Is the experience use history of a subject related in a positive manner to the specificity with which the subject perceives attribute categories?

Finding 3: The experience use history variable is related in a negative manner to the specificity with which a subject perceives attribute categories.

The composite experience use history variable was formulated through contingency table construction. Due to the sample size and the need for adequate cell sizes, two variables were included in the composite index of experience. Care was taken to select two variables which incorporated the three dimensions included in past experience use history research.

Total number of areas visited anywhere was intended to be a good index regarding familiarity with alternative sites and exposure to differing conditions. High scores on this factor should indicate high experience in evaluating alternatives and choosing destination sites. For analysis purposes high experience on this factor was defined as over 5 areas visited (n=28). Low experience individuals were those who had visited 5 or fewer areas (n=22).

"Average number of trips taken per year in the Southern Appalachians" was intended to tap more specific use experience. The attributes used in the study were pilot tested in the Southern Appalachian region, and concern existed about specific topography related evaluations of attributes which might be peculiar to users of Southern Appalachian backcountry. Average number of trips taken per year in the study region was also broken down into high and low groups. Subjects reporting one or fewer trips per year were considered low use (n=25). Those reporting more than one trip per year (n=25) were considered in the high use group.

The initial step was to code the two experience factors used into categorical variables. For the purposes of this study it was decided to code these two factors into low and high categories, thus constructing a two-dimension, two elements per dimension, matrix for analysis purposes. The com-

posite variable formed had four categories. 1) low use annually in the Southern Appalachians and low number of areas visited; 2) low use annually in the Southern Appalachians and high number of areas visited; 3) high use annually in the Southern Appalachians and low number of areas visited; and 4) high use annually in the Southern Appalachians and high number of areas visited. For cell frequencies see Table 11.

With four categories of experience use history, an attempt was made to explain the variation in the specificity of categorization variable. Using oneway analysis of variance it was found that a significant portion of the variance of the number of categories was explained by changes in the experience use history variable (Table 12). For the group low in total experience and low in annual frequency of participation in the Southern Appalachians, the mean number of categories was 58.6. For group 2, which included those individuals with high total experience levels but low annual frequency of participation in the Southern Appalachians, the mean number of categories was also high at 61.3. For Groups 3 and 4, which were both high in annual frequency of participation in the Southern Appalachians but low (Group 3) and high (Group 4) in total experience, the means were lower at 53.8 and 54.6 respectively.

Table 11. Breakdown of study participants on the basis of experience use history.

Total number of areas visited anywhere	Average number of trips taken per year in the Southern Appalachians: Low[1]	Average number of trips taken per year in the Southern Appalachians: High[2]
Low[3]	Group 1 n = 13 (26%)	Group 3 n = 9 (18%)
High[4]	Group 2 n = 12 (24%)	Group 4 n = 16 (32%)

1. One or fewer trips per year.
2. More than one trip per year.
3. Eight or fewer areas.
4. More than eight areas.

Table 12. Mean number of categories over all attributes by experience use history.

Total number of areas visited anywhere	Average number of trips taken per year in the Southern Appalachians: Low	Average number of trips taken per year in the Southern Appalachians: High
Low	Group 1 58.6 (n = 13)	Group 3 53.8 (n = 9)
High	Group 2 61.3 (n = 12)	Group 4 54,6 (n = 16)

1. These four categories of the experience use history variable explain a significant portion of the variance in number of categories (Oneway analysis of variance F=5.905, 3 d.f., p<.01).

2. Using LSD procedure, multiple range test (.05), Groups 1 and 3 are different, Groups 1 and 4 are difference, Groups 2 and 3 are different, and Groups 2 and 4 are different. Groups 1 and 2 are not different and Groups 3 and 4 are not different.

This explanation of variance was in the opposite direction than anticipated. Total number of areas visited apparently did not affect specificity of categorization. The frequency with which one backpacks in the Southern Appalachians, however, made a significant difference in the number of categories indicated across all attributes. The more frequent the experience, the less specificity with which the attribute categories were defined (i.e. fewer categories).

Other experience factors such as total years experience anywhere and total years experience in the Southern Appalachians, average number of trips taken anywhere during a year, and total number of areas visited in the Southern Appalachians were included with the two experience factors selected for experience use history analysis in n-way analysis of variance computations. None of these four factors explained a significant portion of the variance in specificity of categorization, and there were no interaction effects.

Research Question 4: Is study subjects' experience in backpacking related to attribute importance rankings?

Finding 4: Inexperienced subjects rated information on allowance of campfires and presence of bears as significantly more important than did experienced groups. Information on vistas and overlooks was ranked less important by the inexperienced group.

Each individual attribute ranking was examined for each group of the experience use history variables as defined above (see Table 11). Interest was in the variation in mean rank score based upon the frequency with which the subject backpacks in the Southern Appalachians and the total number of areas within which he/she has backpacked. It was found that mean ranking scores for only three of the attributes varied significantly by experience use history (Table 13). These were: 1) presence of vistas or overlooks; 2) whether or not there are bears in the area; and 3) whether or not campfires are allowed in the area.

Table 13. Breakdown of study participants' rankings of attributes by experience use history.

Attribute	Mean rank score Group 1	Group 2	Group 3	Group 4	Significance K-W*
Number of people likely to encounter	3.38	3.00	4.44	3.75	.522
Abundance of wildlife in the area	7.92	10.00	8.89	8.63	.408
Presence of vistas or overlooks	10.31	6.00	9.00	6.00	.007
Number of springs in the area	6.69	7.17	6.89	6.13	.869
Whether or not campsites are assigned	6.85	8.17	7.44	8.88	.470
Size of the area (in acres)	10.54	7.09	9.89	9.63	.222
Whether or not permits are required to enter	10.54	11.92	10.33	11.13	.705
Whether or not camping is allowed at designated sites only	8.23	9.67	8.33	9.13	.600
Trail configuration	11.38	10.42	8.89	10.50	.262
Frequency of auto vandalism at trailheads	8.46	8.67	8.78	8.69	.196
Whether or not there are bears in the area	10.38	13.17	14.33	12.25	.006
Miles of trail within the area	11.00	6.92	9.22	8.88	.144
Whether or not campfires are allowed in the area	5.15	8.75	5.44	8.31	.041
Availability of isolated campsites	3.23	4.25	4.56	4.13	.327
Amount of use the area normally receives	5.92	5.33	5.56	7.00	.562

*Kruskal-Wallis one way layout anlaysis of variance (chi-square estimation, corrected for ties).

For "vistas or overlooks", the only differences were between Groups 1 and 2, which differ only in total amount of experience, and between Groups 1 and 4, which differ in both total experience and in annual frequency of participation in the Southern Appalachians. Group 1 was the least experienced group, and they ranked information on the presence of overlooks as less important than two of the three more experienced groups. For "presence of bears in the area" the least experienced group rated information on this attribute significantly more important than did the other three groups. Groups 3 and 4, which differ only in the total number of areas visited, also differed in the importance which they placed on receiving information about the presence of bears. Group 4, whose members have visited more areas, ranked "presence of bears" as more important than did Group 3. In contrast to rankings of "vistas or overlooks", the inexperienced group ranked "campfire" information as more important than did more experienced groups 2 and 4.

DISCUSSION

Summary

The primary research problem was the need for efficient transfer of information to wilderness and backcountry users to better meet their needs and solve existing management problems. Justification for this research lies in the lack of a theoretically based decision aid which would assist a recreationist in matching his opportunity desires with the recreation resources.

From a review of behavioral decision theory within the discipline of psychology, a theoretical foundation was selected to guide the development of the desired decision aid. The objective of this research thus became to test the applicability of the lexicographic semi-order decision model in the backcountry site selection context. If this model

could be demonstrated to be an acceptable approximation of this particular decision process, the characteristics of the semi-order model are such that a decision aid could easily be developed and used in a microcomputer interactive format. The advantage of such a decision aid is that it would be adaptable to each individual's stated desires, and it could result in more efficient information processing and choice selection.

The chosen decision model provided the format to present information. It did not, however, detail what information should be provided. Thus, the first data collection exercise was a pilot study to determine a workable set of backcountry area attributes which would be relevant for a test of the applicability of the study's decision model.

The list of attributes used in the pilot study resulted from a review of relevant literature. Many potentially important physical parameters of backcountry areas were suggested from research in spatial cognition, scenic quality, and natural hazards, all within the field of environmental perception. From past recreation research, which had dealt with attributes of the recreation setting, some additional descriptors were discovered. These additional attributes primarily included social and managerial elements of backcountry recreation areas.

In a pilot test, this list of attributes was reduced to a set of 15 for the actual test of the lexicographic semi-order choice model. Physical attributes considered important were: 1) the presence of vistas or overlooks; 2) trail configuration; 3) size of the area; 4) the number of miles of trail in the area; 5) whether or not there are bears in the area; 6) the abundance of wildlife in the area; and 7) number of springs which are in the area. Social factors considered important included: 1) the number of people one is likely to encounter along the trails in the area; 2) the availability of isolated campsites; 3) the total amount of use the area normally receives; and 4) the frequency of auto vandalism at trailheads. Managerial factors included: 1) whether or not camping is allowed at designated sites only; 2) whether or not campsites are assigned; 3) whether or not campfires are allowed; and 4) whether or not permits are required to enter an area.

A decision aid application of the model required users to attach a level of importance to each attribute. This was done by ranking of the attributes in order of importance to the subject's decision. In a test of the reliability of this ranking procedure, it was found that subjects could reliably rank all attributes at a given time.

Of the fifteen attributes used in the study, two social factors proved to be most important to the decision process. These two attributes were "number of people likely to encounter" and "availability of isolated campsites".

In a test of the predictive capabilities of the lexicographic semi-order choice model, 54% of the subjects' first choices were accurately predicted. Possibly of more importance, in 72% of the cases use of the model accurately predicted elimination of 12 of the 15 alternatives, leaving a set of three alternatives, one of which was the subject's first choice. For elimination of alternatives to a set of five, the success of the model increased to 86%.

Concerning experience use history, it appears that those backcountry and wilderness users who backpacked less frequently in the Southern Appalachians more specifically defined categories of attributes of backcountry areas. There appeared to be no difference in the specificity of categorization based upon any of the other experience factors investigated in this study.

Those subjects who go backpacking more than once per year in the Southern Appalachians were expected to indicate a more specific categorization scheme than less frequent users. Just the opposite was true, however. This finding may suggest that those most intensely involved with backcountry

recreation destination decisions are possibly more knowledgable about characteristics of Southern Appalachian backcountry and the range of outcomes which broad categories of these attributes can provide. For instance, it is conceivable that these experienced users realize that the solitude levels which they desire are available over a very broad range of use levels due to the peculiarity of the Southern Appalachian topography and dense vegetation.

The composite experience use history variable explained very little of differences in ranking of attributes according to importance. In only three cases were there significant differences. Information on whether or not campfires are allowed was ranked somewhat more important by lower experience users. This importance could be as a result of more familiarity with less primitive camping in which campfires are almost always allowed and seemingly encouraged by placement of firerings, or it could be attributable to lack of backpacking equipment such as stoves.

Whether or not there are bears in the area was also ranked more important by lower experience users. One can merely speculate as to why. More experienced backcountry users are probably more knowledgeable of the levels of risk involved with varying levels of bears present, and are also more knowledgable of the true encounter level one might an-

ticipate while hiking in the Southern Appalachians. Inexperienced hikers also probably know little about avoiding and responding to bear threats, making the presence of bears a more important area attribute.

Receiving information on the presence of vistas or overlooks was rated significantly less important by inexperienced hikers. These subjects, some of whom had made no previous trips into Southern Appalachian backcountry, may not have known the relative scarcity and attractiveness of vistas in this typically densely forested region.

Management and Research Implications

Lexicographic Semi-Order Model.

The findings of this study indicate that the lexicographic semi-order choice model does not approximate the backcountry site selection decision process closely enough to select a final choice for all users. What was found, however, is that a decision aid based upon this model may be able

to assist a recreationist in reduction of the alternative set to a cognitively manageable number. If such an aid can provide the user with a viable alternative set containing three to five alternatives, this would appear to provide a great service to the user and justify development and use of such a decision aid.

One possible immediate application of these findings would be to develop a microcomputer decision aid based upon the lexicographic semi-order model for use on a Forest Service District to supplement current information and education efforts. This decision aid could improve information dissemination programs while it collected some very useful information for the manager. Information which could be recorded would include what attributes of a backcountry area current vistors desire, which attributes are constraining in that they must meet minimum thresholds for acceptance, what these threshold levels are, and finally, given this information, what specific areas do decision aid users decide upon to visit.

Further research possibilities along these lines would include the opportunity to compare the site chosen from the decision aid exercise to the actual site visited. This data could be collected observationally and would be a desirable follow-up to test the practical usefulness of such a deci-

sion aid. Another research possibility would be the opportunity to manipulate data considered in the decision process in order to test for resultant changes in choice behavior. Both of these suggestions arise from the need to demonstrate that recreationists can and will use such a decision aid, and that the content and manner of presentation of the information produces enough confidence that the chosen area is actually visited.

The results of testing the lexicographic semi-order choice model in this context provided a basis for critique of the Recreation Opportunity Guide as a decision aid. First of all, from the results of the study it appears that visitors desire information about expected social encounter levels of alternative areas when deciding where to go. Reporting of this information to those who consider it very important might possibly serve to channel use away from areas of heavy physical and social impact. Currently the ROG provides this information, not as an indexing item, but imbedded within a written description of each alternative area in the broadest possible categories (i.e. light, medium, and heavy use levels). More precise use information might result from randomly sampling users and asking about the levels of use which they encountered. Use of the wilderness travel simulation model (Lucas and Shechter 1977) in combi-

nation with an interactive microcomputer decision aid may provide a means of selecting the best time of departure and place of entry to meet a recreationists' needs. If use levels are a salient attribute, any approximation of encounter levels that a decision maker will likely experience improves the chances of selection of an acceptable site.

An obvious criticism of the ROG is the lack of adaptability to the individual. The lack of desirability of a few fixed indexing items is reinforced by the examination of the variations in the ranking of study attributes. Many different attributes and areas were indicated as top choices by study participants. It therefore seems erroneous to assume that miles of trail, name of area, and planning unit location are even relevant attributes for every user of the ROG. The ROG is also based upon the assumption that these indexing factors are rejection inducing dimensions for all individuals, when, in fact, they most likely are not. For example, an individual might go to Hell Hole Bay even though the name may not be attractive, if maximum acceptable social encounter levels are not exceeded. The alternative which remains for the individual user of ROG is to leaf through every page to search out a destination. This is exactly the type of overwhelming information presentation which any decision aid should be trying to ease.

The decision net format used by Krumpe (1979) might be critiqued in the same manner. A decision aid based upon the lexicographic semi-order choice model would work, basically, along his same lines as his decision net. After each decision about an individual attribute, one or more alternative would be eliminated from consideration. The difference, however, is in the adaptability of the computer based decision aid. Using this method, the decisionmaker is able to consider the attributes in an order which is relevant to him/her. Krumpe's decision net method assumed that everyone considered the same attribute to be most important, second most important, and so on to the least important attribute.

Experience Use History

Regarding experience use history, it is not clear how the findings of this study might be applied to decision aid development. The reverse findings to those anticipated raises the need for further research. Further investigation is needed on whether and how experienced and inexperienced hikers differ regarding specificity of perception of the environment, how experience level might be confounded with dif-

ferences in topography and vegetation between eastern and western backcountry, and how adapting the specificity of information given to various experience level groups affects processing of information and the final decision outcome.

Conclusions

A decision aid based upon the principles of the lexicographic semi-order model offers several advantages over methods currently used. Such a decision aid is readily adapted to the microcomputer and could be easily located in a visitor center, ranger station, shopping mall, local library (programs possibly available for check-out), or local backcountry supply stores to more efficiently transfer information and promote more informed decision making. The response format would best be one involving a touch sensitive screen and a large, easily readable video monitor. The aid could culminate in display of information about the final choice set or it could point to handout information on the choice set.

The primary purpose of such a decision aid would be to assist the user in defining a cognitively manageable alternative set for his/her consideration for a backcountry recreation visit. The user could proceed through the exercise as far as desired. If the beginning set of alternatives were as many as 50, the user could work with the decision aid and eliminate as many as desired. Some people may feel confident that they could choose an area from a set of 10, others may want to reduce the set to as low as two or three before seeking more detailed information to choose a destination. When the user feels that a manageable set of alternatives has been derived, a complete profile of the remaining areas can be displayed on the microcomputer or through brochures to allow selection of a final choice.

Development of such a decision aid and incorporation into a visitor information system could provide an agency with opportunity for some valuable information collection as well as some visitor use manipulation. For information collection, when individuals proceed through the decision aid, records could be kept of what the most important attributes tend to be. Also recordable would be the contents of the final choice set. This information could be very valuable to future planning efforts on a U.S. Forest Service national forest or district. If we know what attributes are impor-

tant to people and what levels they consider acceptable, plans for development of new areas, or possibly "remodelling" of some underutilized (or overutilized) areas, could allow managers to distribute use in a more planned, light-handed manner. This information could inform the manager what physical, social, or managerial factors can be credited with the overuse or underuse of particular management areas.

The reverse result for the third research questions is a puzzling one. It appears that those subjects with an extended experience use history have a less specific catgorization scheme when evaluating attributes of Southern Appalachian backcountry. As the question was originally formulated, based upon Shreyer's (1983) work with river recreationists in western states, more experieced individuals should be able to more precisely define the psychological outcomes which they seek from a recreation outing. If they can more precisely define psychological outcomes, they may also be able to more precisely define the physical, managerial, and social attributes which lead to those psychological outcomes. For some reason this was not the case with this sample of Southern Appalachian backpackers.

The three primary differences between this study and Schreyer's (1983) are method of measurement of specificity, study activity, and geographic location. Schreyer estab-

lished specificity by analyzing his subjects' responses to an open-ended question about the psychological outcomes they were seeking on river trips. He then classified his respondents on the basis of how specifically they stated their desired outcomes. The possibility exists that Schreyer's findings regarding specificity of expected outcomes are peculiar to river recreationists, to recreationists in the West, or to the method which he used to measure specificity. Schreyer (1983 p. 20) states that "experience use history has direct linkage to the cognitive systems used by individuals to interpret information from the recreation environment." In fact, he may be over-generalizing the results of river recreation studies in this statement. For backpackers, experience use history may or may not have direct linkage to the cognitive systems used to interpret information from the recreation environment.

The possibility also exists that backpackers in the Southern Appalachians backcountry have a unique categorization scheme related to experience use history. There are various physical and social characteristics of Southern Appalachian backcountry which may account for this difference from relationships in other regions. Steep terrain, thick underbrush, relatively small areas, proximity to large urban populations and heavy use may lead to very different expec-

tations of visitors dependent upon amount of experience in such an environment. It is even feasible that more experienced visitors more precisely define the level of each attribute which they desire and expect to encounter and all other levels are defined very broadly. In this case it would appear as though these individuals have a broad categorization scheme throughout.

The relationship between specificity of perception of the environment and experience use history may be very important to decision aid development. The possibility exists that information provided in a decision aid may be too specific or too general for efficient use by a decision maker. Results of this study indicate that there may be such differences in categorization which are related to experience in the activity in the region. Future research is needed to substantiate this relationship and explore ways in which this aspect of information processing can be incorporated into effective decision aid development.

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Appendix A

RESOURCE ATTRIBUTE IMPORTANCE IN BACKCOUNTRY RECREATION

A pilot study

This pilot study is part of a larger research effort to determine how people like you choose among recreation areas to visit. We would like you to evaluate the importance of several attributes of backcountry recreation areas. Backcountry recreation areas are areas without roads, buildings, or developed campgrounds which are appropriate for such primitive recreation activities as backpacking. The context in which you are to consider these attributes is the following:

You are at a Forest Service visitor center in the Appalachian Mountain Region of the United States. You had previously decided to visit the general area of this visitor center but did not know exactly where to go for a backpacking trip of one or more days. Please indicate how important information on each of the following area descriptors (attributes) would be to your selection of a place to backpack. Do so by circling one of the numbers (0 thru 5) on the scales immediately following each of the attributes listed. Please remember that you are indicating how important information on this attribute would be to you in your decision on where to go. Do not evaluate how good or bad the presence of the attribute is, but rather, how important it is for you to have information about the attribute.

1. Number of entry points to an area.

Not at all Slightly Somewhat Moderately Very Extremely
important important important important important important
----0----------1----------2----------3----------4----------5-----

2. Miles of trail within an area.

Not at all Slightly Somewhat Moderately Very Extremely
important important important important important important
----0----------1----------2----------3----------4----------5-----

3. Configuration of the trail system(loop trails, trail intersections, etc.).

Not at all Slightly Somewhat Moderately Very Extremely
important important important important important important
----0----------1----------2----------3----------4----------5-----

4. Steepness of trails.

Not at all Slightly Somewhat Moderately Very Extremely
important important important important important important
----0----------1----------2----------3----------4----------5-----

5. Number of springs within the area.

Not at all Slightly Somewhat Moderately Very Extremely
important important important important important important
----0----------1----------2----------3----------4----------5-----

6. Number of waterfalls within the area.

Not at all Slightly Somewhat Moderately Very Extremely
important important important important important important
----0----------1----------2----------3----------4----------5-----

7. Number of miles of trail along streams.

Not at all Slightly Somewhat Moderately Very Extremely
important important important important important important
----0----------1----------2----------3----------4----------5-----

8. Number of meadows within the area.

Not at all Slightly Somewhat Moderately Very Extremely
important important important important important important
----0----------1----------2----------3----------4----------5-----

9. Size of meadows in the area.

Not at all Slightly Somewhat Moderately Very Extremely
important important important important important important
----0----------1----------2----------3----------4----------5-----

10. Proportion of area in virgin stands of timber.

Not at all Slightly Somewhat Moderately Very Extremely
important important important important important important
----0----------1----------2----------3----------4----------5-----

11. Proportion of coniferous vegetation within the area.

Not at all Slightly Somewhat Moderately Very Extremely
important important important important important important
----0----------1----------2----------3----------4----------5-----

12. Presence of rock outcroppings in the area.

Not at all Slightly Somewhat Moderately Very Extremely
important important important important important important
----0----------1----------2----------3----------4----------5-----

13. Presence of steep, rugged terrain within the area.

Not at all Slightly Somewhat Moderately Very Extremely
important important important important important important
----0----------1----------2----------3----------4----------5-----

14. Presence of vistas or overlooks within the area.

Not at all Slightly Somewhat Moderately Very Extremely
important important important important important important
----0----------1----------2----------3----------4----------5-----

15. Evidence of mining activities within the area.

Not at all Slightly Somewhat Moderately Very Extremely
important important important important important important
----0----------1----------2----------3----------4----------5-----

16. Frequency of auto vandalism at parking lots for the area.

Not at all Slightly Somewhat Moderately Very Extremely
important important important important important important
----0----------1----------2----------3----------4----------5-----

17. Presence of bears in the area.

Not at all Slightly Somewhat Moderately Very Extremely
important important important important important important
----0----------1----------2----------3----------4----------5-----

18. Abundance of wildlife in the area.

Not at all Slightly Somewhat Moderately Very Extremely
important important important important important important
----0----------1----------2----------3----------4----------5-----

19. Amount of use the area normally receives.

Not at all Slightly Somewhat Moderately Very Extremely
important important important important important important
----0----------1----------2----------3----------4----------5-----

20. size of an area (number of acres).

Not at all Slightly Somewhat Moderately Very Extremely
important important important important important important
----0----------1----------2----------3----------4----------5-----

21. Evidence of logging activities within the area.

Not at all Slightly Somewhat Moderately Very Extremely
important important important important important important
----0----------1----------2----------3----------4----------5-----

22. The agency responsible for management of the area.

Not at all Slightly Somewhat Moderately Very Extremely
important important important important important important
----0----------1----------2----------3----------4----------5-----

23. The land classification of the area (e.g., wilderness, back-country, wilderness study area).

Not at all Slightly Somewhat Moderately Very Extremely
important important important important important important
----0----------1----------2----------3----------4----------5-----

24. Whether or not campers are required to camp at designated sites only.

Not at all Slightly Somewhat Moderately Very Extremely
important important important important important important
----0----------1----------2----------3----------4----------5-----

25. Whether or not permits are required to enter.

Not at all important | Slightly important | Somewhat important | Moderately important | Very important | Extremely important

----0----------1----------2----------3----------4----------5-----

26. Whether or not campfires are allowed.

Not at all important | Slightly important | Somewhat important | Moderately important | Very important | Extremely important

----0----------1----------2----------3----------4----------5-----

27. Whether or not there is a limit on group size.

Not at all important | Slightly important | Somewhat important | Moderately important | Very important | Extremely important

----0----------1----------2----------3----------4----------5-----

28. Whether or not campsites are assigned.

Not at all important | Slightly important | Somewhat important | Moderately important | Very important | Extremely important

----0----------1----------2----------3----------4----------5-----

29. Availability of campsites away from other campers.

Not at all Slightly Somewhat Moderately Very Extremely
important important important important important important
----0----------1----------2----------3----------4----------5-----

30. Availability of shelters (three-sided wooden structures).

Not at all Slightly Somewhat Moderately Very Extremely
important important important important important important
----0----------1----------2----------3----------4----------5-----

31. Evidence of forest fires within the area.

Not at all Slightly Somewhat Moderately Very Extremely
important important important important important important
----0----------1----------2----------3----------4----------5-----

32. Availability of campsites near streams.

Not at all Slightly Somewhat Moderately Very Extremely
important important important important important important
----0----------1----------2----------3----------4----------5-----

33. Number of people you are likely to meet along trails.

Not at all important | Slightly important | Somewhat important | Moderately important | Very important | Extremely important

----0----------1----------2----------3----------4----------5-----

34. Are there any other factors which you can think of that you might consider in this decision situation? Please list.

Thank you for participating in this pilot study.

Appendix B

BACKPACKERS

&

POTENTIAL BACKPACKERS

Do you backpack, or do you plan to take your first backpacking trip this year?????

If the answer is yes.....You may have a very important role to play in backcountry and wilderness recreation research in the Southern Appalachians.

As part of my Ph.D. program, in cooperation with the U.S. Forest Service, I am currently conducting research regarding how people choose between alternative areas for backcountry recreation trips in this region. Agencies which manage backcountry and wilderness areas in this region are very interested in knowing what information to provide to the backpacking population and how to present this information. These agencies have a sincere desire to help people find areas that best meet their needs.

If you are interested in participating in this research project, your time commitment would be less than one hour. We would make an appointment for you on campus, VPI. While your time commitment would be a small one, the benefits could be substantial to all members of the backpacking community.

Your interaction with a micro-computer in data collection may prove to be a very fun as well as thought provoking exercise as today's high technology resources are utilized to probe with you your decisions about primitive recreation resources.

I do hope you will take time to participate in this research. The time commitment is small, the exercise is enjoyable, and you will have the opportunity to contribute to a worthwhile effort to solve a management problem faced by your public land managers. You will also receive a summarized report of this research effort if you desire.

Please call Alan Watson (_____) between 8 a.m. and 5 p.m. to make a daytime or evening appointment right away. Hikers of all experience levels are needed to provide useful results.

Appendix C

BACKCOUNTRY RECREATION RESEARCH

Section A.

This is a study about how forest recreationists make decisions about where to go on backpacking trips. The first task which you have is a fairly short one. Please estimate the following (enter 0 in any that do not apply):

1) Total number of years since your first backpacking trip._____

2) Average number of backpacking trips you have taken per year since then._____

3) Total number of different backcountry areas in which you have backpacked._____

4) Total number of years since your first backpacking trip in the mountains of southeastern United States (Southern Appalachians)._____

5) Average number of backpacking trips you have taken per year in the Southern Appalachians._____

6) Total number of different Southern Appalachian backcountry areas in which you have backpacked._____

Section B.

For the purposes of this exercise, please imagine that you have entered a Forest Service ranger station in the Southern Appalachian Mountain Region of the United States. You had previously decided that you wanted to backpack in this general area on a trip of one or more nights, but you were unaware of specific opportunities which exist in the vicinity. You are in need of information on alternatives which exist nearby.

On the following page is a tabular set of information about 15 backcountry areas in the immediate vicinity. From this set of information you are asked to choose one area which you would prefer for a recreation stay of one or more days. Please indicate your second and third choices as well.

Please study the information presented until you are satisfied that you can truly identify your first, second, and third choices. It is very important to the outcome of this research that you make a sincere effort to express your true preference in this section.

AREAS

	763	321	457	827	532	886	421	356	439	562	465	633	512	703	644
Number of miles of trail between springs (*=no springs)	3	3	7	7	10	4	10	*	5	20	4	12	6	1	13
Probability of finding an isolated campsite	0%	75%	25%	85%	35%	95%	99%	65%	65%	90%	0%	20%	95%	25%	99%
Miles of trail in the area	18	26	36	43	57	4	10	88	95	110	72	10	84	92	40
Permits required to enter the area	Yes	No	No	No	Yes	No	Yes	Yes	No	No	Yes	No	No	No	No
Campfires allowed in the area	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	No	Yes
Number of wildlife species you would likely see in the area	2	2	6	5	1	22	30	11	8	3	23	4	29	13	9
Number of people who enter each trailhead per day	100+	35	17	11	5	51	62	17	12	2	76	26	27	11	4
Trail configuration (see page 3 for explanation)	1	2	3	1	3	2	1	2	1	2	1	2	3	3	2
Number of people likely to encounter per day	85	45	21	13	3	32	40	16	3	4	100+	50	30	7	0
Campsites assigned in the area	No	No	No	No	No	No	Yes	No	No	Yes	No	Yes	No	No	No
Number of bears seen in the area during last visitor season	3	None	1	4	8	17	6	4	1	None	3	5	1	1	10
Size of area, in acres	1,750	8,500	12000	6,000	9,800	1,100	950	3,750	4,000	16000	4,400	4,500	15000	13000	32000
Camping at **designated** sites only in the area	No	No	Yes	Yes	No	No	Yes	No	No	Yes	No	Yes	No	Yes	No
Number of overlooks along trails in the area	3	9	13	None	1	1	9	12	None	1	2	29	11	4	9
Probability of vandalism to your vehicle parked at the trailhead	8%	15%	25%	33%	45%	51%	0%	5%	2%	25%	40%	50%	25%	8%	5%

First choice_____ Second choice_____ Third choice_____

Trail configuration

The trail systems of backcountry recreation areas in the Southern Appalachians can often be described as one of three basic patterns, or configurations.

1) *The first configuration might be described as the spokes of a wheel design. There may be a trail which runs along the periphery of the area with trails running to the center. These trails running to the center may all meet in the vicinity of a site of special interest to most visitors.*

2) *The second configuration might be described as having two or more major trails dividing the area with smaller more lightly used spur trails at intervals along the main trails. The main trails divide the backcountry area into subareas served by a major trail. There may be no way to cross into some of the subareas from one of the major trails.*

3) *The third and last configuration will also have two or more major trails dividing the backcountry into subareas. In this case, however, branches of the main trails may intersect. These connecting trails may provide opportunities to cross over into more than one subarea.*

Appendix D

```
10  CLEAR
100  PRINT  CHR$ (12)
110  PRINT "Recreation Decisions": PRINT
117  PRINT "You are going to be asked a series of questions about deciding on a recreation  site for a visit.  In most cases y
     ou will be asked to respond to a question ap- pearing on the screen before you.": PRINT
119  PRINT "How you should respond will be explained to you before starting each section.   Also, a reminder will often appear
      at the bottom of the screen.  Your response"
120  PRINT "will normally be a single letter or number, nothing very complicated.": PRINT
121  PRINT "Once you have typed the single letter or number in response to the question,     view the screen to make sure it sa
     ys what you desire to enter.  You then must   press the key labelled <RETURN> to enter your response and move on"
123  PRINT "to the next question.": PRINT
125  PRINT "If you spot an error before pressing return, use the left arrow on the right    side of the keyboard to backup and
      type over what existed previously."
127  PRINT : PRINT : PRINT "If an error is entered which is detectable by the computer the screen will be   cleared and the qu
     estion will appear again.  Please examine your response beforepressing return."
129  HTAB 24: PRINT "Please press return to continue."
131  VTAB 24: HTAB 40: INPUT "";A1$: PRINT  CHR$ (12)
140  PRINT "This is a study which is intended to explore recreation area choice decisions.  This exercise will explore your ev
     aluations of the various attributes, and"
141  PRINT "values of attributes, of backcountry recreation areas which were used in your   decision in the paper and pencil e
     xercise you just completed.": PRINT : PRINT
170  PRINT "For the purposes of this study backcountry recreation areas are areas without   roads, buildings, or developed cam
     pgrounds which are appropriate for primitive  recreation (e.g. backpacking).": PRINT : PRINT
210  HTAB 24: PRINT "Please press return to continue."
220  VTAB 24: HTAB 40: INPUT "";A1$: PRINT  CHR$ (12)
310  PRINT "Before proceeding with the study it is desirable to establish a near-real       situation where such information m
     ay be of interest to you and your involvement would be expected.": PRINT : PRINT
340  PRINT "For the remainder of this exercise please imagine yourself at a Forest Service  visitor center in the Southern App
     alachian Mountain Region of the United States.": PRINT : PRINT
370  PRINT "You had previously decided to visit the general area of this visitor center, butyou did not know exactly where to
     go for a backpacking trip of one or more days.": PRINT : PRINT
400  PRINT "Such a situation is intended to preclude such decision considerations as        distance from home to the vicinity
      of the backcountry recreation area, cost to  travel that distance, and availability of transportation.": PRINT
430  PRINT "In the situation created for this study decisions concerning these factors wouldhave been made previously.": PRINT

450  PRINT "                        Please press return to continue."
460  VTAB 24: HTAB 40: INPUT "";A1$
470  PRINT  CHR$ (12)
480  PRINT "Remember, you are already in the immediate vicinity of several backcountry      recreation areas.  You are merely
     seeking information to help you decide which  of these specific areas to visit."
490  VTAB 12: PRINT "             Please press return to begin this study."
500  VTAB 13: HTAB 40: INPUT "";A1$
505  PRINT  CHR$ (12)
520  PRINT
530  PRINT "A.  Rankings of Attributes."
540  PRINT
545  PRINT
550  PRINT "In section A you will be asked to rank several attributes of backcountry recrea-tion areas.  Please rank them acco
     rding to how important information on these   attributes would be to your decision on which area to choose."
560  PRINT
565  PRINT
570  PRINT "Instructions on how to indicate your rankings will appear on the screen when theattributes are displayed."
575  PRINT
578  PRINT
580  PRINT "Please press return to view the attributes and to begin Section A."
```

```
590 VTAB 22: HTAB 40: INPUT "";A1$
600 PRINT  CHR$ (12)
610 PRINT "Rankings      Attributes"
620 PRINT " 1.           A.  Number of people you are likely to encounter."
630 PRINT " 2.           B.  Abundance of wildlife in the area."
640 PRINT " 3.           C.  Presence of vistas or overlooks."
650 PRINT " 4.           D.  Number of springs in the area."
660 PRINT " 5.           E.  Whether or not campsites are assigned."
670 PRINT " 6.           F.  Size of the area (number of acres)."
680 PRINT " 7.           G.  Whether or not permits are required to enter."
690 PRINT " 8.           H.  Whether or not camping is allowed at designated sites only."
700 PRINT " 9.           I.  Trail configuration (path system pattern)."
710 PRINT "10.           J.  Frequency of auto vandalism at trailheads."
720 PRINT "11.           K.  Whether or not there are bears in the area."
730 PRINT "12.           L.  Miles of trail within the area."
740 PRINT "13.           M.  Whether or not campfires are allowed in the area."
750 PRINT "14.           N.  Availability of isolated campsites."
760 PRINT "15.           O.  Amount of use the area normally receives."
764 PRINT
765 PRINT "Place the letter of the most important attribute next to the number 1 and the   letter of the second most importan
    t attribute next to the number 2, etc.  Pleaseuse all 15 letters once."
766 PRINT "Enter the letter and press return."
775 VTAB 3: HTAB 5: INPUT "";A6$
776 GOSUB 13000
780 VTAB 4: HTAB 5: INPUT "";A7$
781 GOSUB 13020
785 VTAB 5: HTAB 5: INPUT "";A8$
786 GOSUB 13040
790 VTAB 6: HTAB 5: INPUT "";A9$
791 GOSUB 13060
795 VTAB 7: HTAB 5: INPUT "";B1$
796 GOSUB 13080
800 VTAB 8: HTAB 5: INPUT "";B2$
801 GOSUB 13100
805 VTAB 9: HTAB 5: INPUT "";B3$
806 GOSUB 13120
810 VTAB 10: HTAB 5: INPUT "";B4$
811 GOSUB 13140
815 VTAB 11: HTAB 5: INPUT "";B5$
816 GOSUB 13160
820 VTAB 12: HTAB 5: INPUT "";B6$
821 GOSUB 13180
825 VTAB 13: HTAB 5: INPUT "";B7$
826 GOSUB 13200
830 VTAB 14: HTAB 5: INPUT "";B8$
831 GOSUB 13220
835 VTAB 15: HTAB 5: INPUT "";B9$
836 GOSUB 13240
840 VTAB 16: HTAB 5: INPUT "";C1$
841 GOSUB 13260
845 VTAB 17: HTAB 5: INPUT "";C2$
846 VTAB 19: PRINT "*****If you are ready to proceed to the next section please press return.****": PRINT "*****If you have e
    rrors above or would like to do this ranking once more, please press Y and return.****"
847 VTAB 22: PRINT "Please enter Y and return or just return": VTAB 23: HTAB 40: INPUT "";A1$
848 IF A1$ THEN  GOTO 600
```

```
850  PRINT  CHR$ (12)
855  PRINT "B.  Evaluations of attributes."
860  PRINT
870  PRINT "In section B you are asked to indicate how important information on each of     several area descriptors would be
     to your selection of a place for a backcountryrecreation trip."
880  PRINT
890  PRINT
900  PRINT "The descriptors to be evaluated are the same as in section A, but the method of evaluation is somewhat different."

910  PRINT
920  PRINT
930  PRINT "Please press return to view instructions and the first descriptor which you are to evaluate."
940  PRINT
950  VTAB 18: HTAB 40: INPUT "";A1$
960  PRINT  CHR$ (12)
1000  VTAB 4: HTAB 20: PRINT "A.  Abundance of wildlife in the area."
1010  GOSUB 12000
1020  VTAB 24: HTAB 40: INPUT "";C4: IF C4 > 5 GOTO 960
1025  PRINT  CHR$ (12)
1030  VTAB 4: HTAB 20: PRINT "B.  Availability of isolated campsites."
1040  GOSUB 12000
1050  VTAB 24: HTAB 40: INPUT "";C5: IF C5 > 5 GOTO 1025
1060  PRINT  CHR$ (12)
1070  VTAB 4: HTAB 18: PRINT "C.  Amount of use the area normally receives."
1080  GOSUB 12000
1090  VTAB 24: HTAB 40: INPUT "";C6: IF C6 > 5 GOTO 1060
1100  PRINT  CHR$ (12)
1110  VTAB 4: HTAB 20: PRINT "D.  Size of the area (number of acres)."
1120  GOSUB 12000
1130  VTAB 24: HTAB 40: INPUT "";C7: IF C7 > 5 GOTO 1100
1140  PRINT  CHR$ (12)
1150  VTAB 4: HTAB 23: PRINT "E.  Number of springs in the area."
1160  GOSUB 12000
1170  VTAB 24: HTAB 40: INPUT "";C8: IF C8 > 5 GOTO 1140
1180  PRINT  CHR$ (12)
1190  VTAB 4: HTAB 16: PRINT "F.  Number of people you are likely to encounter."
1200  GOSUB 12000
1210  VTAB 24: HTAB 40: INPUT "";C9: IF C9 > 5 GOTO 1180
1220  PRINT  CHR$ (12)
1230  VTAB 4: HTAB 23: PRINT "G.  Presence of bears in the area."
1240  GOSUB 12000
1250  VTAB 24: HTAB 40: INPUT "";D1: IF D1 > 5 GOTO 1220
1260  PRINT  CHR$ (12)
1270  VTAB 4: HTAB 22: PRINT "H.  Presence of vistas or overlooks."
1280  GOSUB 12000
1290  VTAB 24: HTAB 40: INPUT "";D2: IF D2 > 5 GOTO 1260
1300  PRINT  CHR$ (12)
1310  VTAB 4: HTAB 16: PRINT "I.  Whether or not permits are required to enter."
1320  GOSUB 12000: VTAB 24: HTAB 40: INPUT "";D3: IF D3 > 5 GOTO 1300
1325  PRINT  CHR$ (12)
1330  VTAB 4: HTAB 28: PRINT "J.  Trail configuration."
1340  GOSUB 12000: VTAB 24: HTAB 40: INPUT "";D4: IF D4 > 5 GOTO 1325
1345  PRINT  CHR$ (12)
1350  VTAB 4: HTAB 9: PRINT "K.  Whether or not camping is allowed at designated sites only."
1360  GOSUB 12000: VTAB 24: HTAB 40: INPUT "";D5: IF D5 > 5 GOTO 1345
1365  PRINT  CHR$ (12)
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1370  VTAB 4: HTAB 23: PRINT "L.  Miles of trail within the area."
1380  GOSUB 12000: VTAB 24: HTAB 40: INPUT "";D6: IF D6 > 5 GOTO 1365
1385  PRINT  CHR$ (12)
1390  VTAB 4: HTAB 20: PRINT "M.  Whether or not campsites are assigned."
1400  GOSUB 12000: VTAB 24: HTAB 40: INPUT "";D7: IF D7 > 5 GOTO 1385
1405  PRINT  CHR$ (12)
1410  VTAB 4: HTAB 17: PRINT "N. Frequency of auto vandalism at trailheads."
1420  GOSUB 12000: VTAB 24: HTAB 40: INPUT "";D8: IF D8 > 5 GOTO 1405
1425  PRINT  CHR$ (12)
1430  VTAB 4: HTAB 20: PRINT "O.  Whether or not campfires are allowed."
1440  GOSUB 12000: VTAB 24: HTAB 40: INPUT "";D9: IF D9 > 5 GOTO 1425
1441  PRINT  CHR$ (12): VTAB 12: PRINT "Please wait one moment while your responses are recorded and Section C is loaded into
    computer memory."
1445  PRINT  CHR$ (4);"PR#7": PRINT  CHR$ (15)
1446  PRINT A6$,A7$,A8$,A9$,B1$,B2$,B3$,B4$,B5$,B6$,B7$,B8$,B9$,C1$,C2$,C4,C5,C6,C7,C8,C9,D1,D2,D3,D4,D5,D6,D7,D8,D9
1450  PRINT  CHR$ (4);"PR#3" CHR$ (13) CHR$ (4);"RUN JUBAL"
12000  VTAB 12: PRINT "     0            1            2            3            4            5"
12010  VTAB 13: PRINT "     |------------|------------|------------|------------|------------|"
12020  VTAB 14: PRINT "  Not at all    Slightly      Somewhat     Moderately       Very      Extremely"
12030  VTAB 15: PRINT "  important     important     important     important     important     important"
12040  PRINT : PRINT : PRINT : PRINT "    How important is it to you to receive information on this attribute?"
12041  PRINT "Please enter the number which best reflects your answer and press return."
12050  RETURN
13000  IF A6$ = "A" GOTO 16000
13001  IF A6$ = "B" GOTO 16002
13002  IF A6$ = "C" GOTO 16004
13003  IF A6$ = "D" GOTO 16006
13004  IF A6$ = "E" GOTO 16008
13005  IF A6$ = "F" GOTO 16010
13006  IF A6$ = "G" GOTO 16012
13007  IF A6$ = "H" GOTO 16014
13008  IF A6$ = "I" GOTO 16016
13009  IF A6$ = "J" GOTO 16018
13010  IF A6$ = "K" GOTO 16020
13011  IF A6$ = "L" GOTO 16022
13012  IF A6$ = "M" GOTO 16024
13013  IF A6$ = "N" GOTO 16026
13014  IF A6$ = "O" GOTO 16028
13020  IF A7$ = "A" GOTO 16000
13021  IF A7$ = "B" GOTO 16002
13022  IF A7$ = "C" GOTO 16004
13023  IF A7$ = "D" GOTO 16006
13024  IF A7$ = "E" GOTO 16008
13025  IF A7$ = "F" GOTO 16010
13026  IF A7$ = "G" GOTO 16012
13027  IF A7$ = "H" GOTO 16014
13028  IF A7$ = "I" GOTO 16016
13029  IF A7$ = "J" GOTO 16018
13030  IF A7$ = "K" GOTO 16020
13031  IF A7$ = "L" GOTO 16022
13032  IF A7$ = "M" GOTO 16024
13033  IF A7$ = "N" GOTO 16026
13034  IF A7$ = "O" GOTO 16028
13040  IF A8$ = "A" GOTO 16000
13041  IF A8$ = "B" GOTO 16002
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13042  IF A8$ = "C" GOTO 16004
13043  IF A8$ = "D" GOTO 16006
13044  IF A8$ = "E" GOTO 16008
13045  IF A8$ = "F" GOTO 16010
13046  IF A8$ = "G" GOTO 16012
13047  IF A8$ = "H" GOTO 16014
13048  IF A8$ = "I" GOTO 16016
13049  IF A8$ = "J" GOTO 16018
13050  IF A8$ = "K" GOTO 16020
13051  IF A8$ = "L" GOTO 16022
13052  IF A8$ = "M" GOTO 16024
13053  IF A8$ = "N" GOTO 16026
13054  IF A8$ = "O" GOTO 16028
13060  IF A9$ = "A" GOTO 16000
13061  IF A9$ = "B" GOTO 16002
13062  IF A9$ = "C" GOTO 16004
13063  IF A9$ = "D" GOTO 16006
13064  IF A9$ = "E" GOTO 16008
13065  IF A9$ = "F" GOTO 16010
13066  IF A9$ = "G" GOTO 16012
13067  IF A9$ = "H" GOTO 16014
13068  IF A9$ = "I" GOTO 16016
13069  IF A9$ = "J" GOTO 16018
13070  IF A9$ = "K" GOTO 16020
13071  IF A9$ = "L" GOTO 16022
13072  IF A9$ = "M" GOTO 16024
13073  IF A9$ = "N" GOTO 16026
13074  IF A9$ = "O" GOTO 16028
13080  IF B1$ = "A" GOTO 16000
13081  IF B1$ = "B" GOTO 16002
13082  IF B1$ = "C" GOTO 16004
13083  IF B1$ = "D" GOTO 16006
13084  IF B1$ = "E" GOTO 16008
13085  IF B1$ = "F" GOTO 16010
13086  IF B1$ = "G" GOTO 16012
13087  IF B1$ = "H" GOTO 16014
13088  IF B1$ = "I" GOTO 16016
13089  IF B1$ = "J" GOTO 16018
13090  IF B1$ = "K" GOTO 16020
13091  IF B1$ = "L" GOTO 16022
13092  IF B1$ = "M" GOTO 16024
13093  IF B1$ = "N" GOTO 16026
13094  IF B1$ = "O" GOTO 16028
13100  IF B2$ = "A" GOTO 16000
13101  IF B2$ = "B" GOTO 16002
13102  IF B2$ = "C" GOTO 16004
13103  IF B2$ = "D" GOTO 16006
13104  IF B2$ = "E" GOTO 16008
13105  IF B2$ = "F" GOTO 16010
13106  IF B2$ = "G" GOTO 16012
13107  IF B2$ = "H" GOTO 16014
13108  IF B2$ = "I" GOTO 16016
13110  IF B2$ = "J" GOTO 16018
13111  IF B2$ = "K" GOTO 16020
13112  IF B2$ = "L" GOTO 16022
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13187  IF B6$ = "H" GOTO 16014
13188  IF B6$ = "I" GOTO 16016
13189  IF B6$ = "J" GOTO 16018
13190  IF B6$ = "K" GOTO 16020
13191  IF B6$ = "L" GOTO 16022
13192  IF B6$ = "M" GOTO 16024
13193  IF B6$ = "N" GOTO 16026
13194  IF B6$ = "O" GOTO 16028
13200  IF B7$ = "A" GOTO 16000
13201  IF B7$ = "B" GOTO 16002
13202  IF B7$ = "C" GOTO 16004
13203  IF B7$ = "D" GOTO 16006
13204  IF B7$ = "E" GOTO 16008
13205  IF B7$ = "F" GOTO 16010
13206  IF B7$ = "G" GOTO 16012
13207  IF B7$ = "H" GOTO 16014
13208  IF B7$ = "I" GOTO 16016
13209  IF B7$ = "J" GOTO 16018
13210  IF B7$ = "K" GOTO 16020
13211  IF B7$ = "L" GOTO 16022
13212  IF B7$ = "M" GOTO 16024
13213  IF B7$ = "N" GOTO 16026
13214  IF B7$ = "O" GOTO 16028
13220  IF B8$ = "A" GOTO 16000
13221  IF B8$ = "B" GOTO 16002
13222  IF B8$ = "C" GOTO 16004
13223  IF B8$ = "D" GOTO 16006
13224  IF B8$ = "E" GOTO 16008
13225  IF B8$ = "F" GOTO 16010
13226  IF B8$ = "G" GOTO 16012
13227  IF B8$ = "H" GOTO 16014
13228  IF B8$ = "I" GOTO 16016
13229  IF B8$ = "J" GOTO 16018
13230  IF B8$ = "K" GOTO 16020
13231  IF B8$ = "L" GOTO 16022
13232  IF B8$ = "M" GOTO 16024
13233  IF B8$ = "N" GOTO 16026
13234  IF B8$ = "O" GOTO 16028
13240  IF B9$ = "A" GOTO 16000
13241  IF B9$ = "B" GOTO 16002
13242  IF B9$ = "C" GOTO 16004
13243  IF B9$ = "D" GOTO 16006
13244  IF B9$ = "E" GOTO 16008
13245  IF B9$ = "F" GOTO 16010
13246  IF B9$ = "G" GOTO 16012
13247  IF B9$ = "H" GOTO 16014
13248  IF B9$ = "I" GOTO 16016
13249  IF B9$ = "J" GOTO 16018
13250  IF B9$ = "K" GOTO 16020
13251  IF B9$ = "L" GOTO 16022
13252  IF B9$ = "M" GOTO 16024
13253  IF B9$ = "N" GOTO 16026
13254  IF B9$ = "O" GOTO 16028
13260  IF C1$ = "A" GOTO 16000
13261  IF C1$ = "B" GOTO 16002
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13113  IF B2$ = "M" GOTO 16024
13114  IF B2$ = "N" GOTO 16026
13115  IF B2$ = "O" GOTO 16028
13120  IF B3$ = "A" GOTO 16000
13121  IF B3$ = "B" GOTO 16002
13122  IF B3$ = "C" GOTO 16004
13123  IF B3$ = "D" GOTO 16006
13124  IF B3$ = "E" GOTO 16008
13125  IF B3$ = "F" GOTO 16010
13126  IF B3$ = "G" GOTO 16012
13127  IF B3$ = "H" GOTO 16014
13128  IF B3$ = "I" GOTO 16016
13129  IF B3$ = "J" GOTO 16018
13130  IF B3$ = "K" GOTO 16020
13131  IF B3$ = "L" GOTO 16022
13132  IF B3$ = "M" GOTO 16024
13133  IF B3$ = "N" GOTO 16026
13134  IF B3$ = "O" GOTO 16028
13140  IF B4$ = "A" GOTO 16000
13141  IF B4$ = "B" GOTO 16002
13142  IF B4$ = "C" GOTO 16004
13143  IF B4$ = "D" GOTO 16006
13144  IF B4$ = "E" GOTO 16008
13145  IF B4$ = "F" GOTO 16010
13146  IF B4$ = "G" GOTO 16012
13147  IF B4$ = "H" GOTO 16014
13148  IF B4$ = "I" GOTO 16016
13149  IF B4$ = "J" GOTO 16018
13150  IF B4$ = "K" GOTO 16020
13151  IF B4$ = "L" GOTO 16022
13152  IF B4$ = "M" GOTO 16024
13153  IF B4$ = "N" GOTO 16026
13154  IF B4$ = "O" GOTO 16028
13160  IF B5$ = "A" GOTO 16000
13161  IF B5$ = "B" GOTO 16002
13162  IF B5$ = "C" GOTO 16004
13163  IF B5$ = "D" GOTO 16006
13164  IF B5$ = "E" GOTO 16008
13165  IF B5$ = "F" GOTO 16010
13166  IF B5$ = "G" GOTO 16012
13167  IF B5$ = "H" GOTO 16014
13168  IF B5$ = "I" GOTO 16016
13169  IF B5$ = "J" GOTO 16018
13170  IF B5$ = "K" GOTO 16020
13171  IF B5$ = "L" GOTO 16022
13172  IF B5$ = "M" GOTO 16024
13173  IF B5$ = "N" GOTO 16026
13174  IF B5$ = "O" GOTO 16028
13180  IF B6$ = "A" GOTO 16000
13181  IF B6$ = "B" GOTO 16002
13182  IF B6$ = "C" GOTO 16004
13183  IF B6$ = "D" GOTO 16006
13184  IF B6$ = "E" GOTO 16008
13185  IF B6$ = "F" GOTO 16010
13186  IF B6$ = "G" GOTO 16012
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13262  IF C1$ = "C" GOTO 16004
13263  IF C1$ = "D" GOTO 16006
13264  IF C1$ = "E" GOTO 16008
13265  IF C1$ = "F" GOTO 16010
13266  IF C1$ = "G" GOTO 16012
13267  IF C1$ = "H" GOTO 16014
13268  IF C1$ = "I" GOTO 16016
13269  IF C1$ = "J" GOTO 16018
13270  IF C1$ = "K" GOTO 16020
13271  IF C1$ = "L" GOTO 16022
13272  IF C1$ = "M" GOTO 16024
13273  IF C1$ = "N" GOTO 16026
13274  IF C1$ = "O" GOTO 16028
16000  VTAB 3: HTAB 7: PRINT  CHR$ (29)
16001  RETURN
16002  VTAB 4: HTAB 7: PRINT  CHR$ (29)
16003  RETURN
16004  VTAB 5: HTAB 7: PRINT  CHR$ (29)
16005  RETURN
16006  VTAB 6: HTAB 7: PRINT  CHR$ (29)
16007  RETURN
16008  VTAB 7: HTAB 7: PRINT  CHR$ (29)
16009  RETURN
16010  VTAB 8: HTAB 7: PRINT  CHR$ (29)
16011  RETURN
16012  VTAB 9: HTAB 7: PRINT  CHR$ (29)
16013  RETURN
16014  VTAB 10: HTAB 7: PRINT  CHR$ (29)
16015  RETURN
16016  VTAB 11: HTAB 7: PRINT  CHR$ (29)
16017  RETURN
16018  VTAB 12: HTAB 7: PRINT  CHR$ (29)
16019  RETURN
16020  VTAB 13: HTAB 7: PRINT  CHR$ (29)
16021  RETURN
16022  VTAB 14: HTAB 7: PRINT  CHR$ (29)
16023  RETURN
16024  VTAB 15: HTAB 7: PRINT  CHR$ (29)
16025  RETURN
16026  VTAB 16: HTAB 7: PRINT  CHR$ (29)
16027  RETURN
16028  VTAB 17: HTAB 7: PRINT  CHR$ (29)
16029  RETURN
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10 CLEAR : PRINT CHR$ (26)"0"
1450 PRINT "C. Evaluation of categories of attributes.": PRINT : PRINT
1460 PRINT "In this section (the last section) you will be asked to indicate how much sat- isfaction you would likely experi
     ence if a given value of an attribute were encountered.": PRINT : PRINT
1470 PRINT "If you will press return now you will begin the last section. The instructions will appear at the bottom of the
     screen on how to indicate your response.": PRINT : PRINT
1480 PRINT "                              Please press return."
1490 VTAB 16: HTAB 40: INPUT "";A1$
1500 PRINT CHR$ (12)
1505 PRINT "Abundance of wildlife."
1510 PRINT : PRINT " 1. No wildlife likely to be seen.": GOSUB 15000
1520 VTAB 23: HTAB 40: INPUT "";E2: IF E2 > 6 GOTO 1500
1525 PRINT CHR$ (12)
1530 PRINT "2. One or two species of wildlife will be seen.": GOSUB 15000
1540 VTAB 23: HTAB 40: INPUT "";E3: IF E3 > 6 GOTO 1525
1545 PRINT CHR$ (12)
1550 PRINT "3. Three to five (3-5) species of wildlife will be seen.": GOSUB 15000
1560 VTAB 23: HTAB 40: INPUT "";E4: IF E4 > 6 GOTO 1545
1565 PRINT CHR$ (12)
1570 PRINT "4. Six to ten (6-10) species of wildlife will be seen.": GOSUB 15000
1580 VTAB 23: HTAB 40: INPUT "";E5: IF E5 > 6 GOTO 1565
1585 PRINT CHR$ (12)
1590 PRINT "5. Eleven to twenty (11-20) species of wildlife will be seen.": GOSUB 15000
1600 VTAB 23: HTAB 40: INPUT "";E6: IF E6 > 6 GOTO 1585
1605 PRINT CHR$ (12)
1610 PRINT "6. Twenty-one to thirty (21-30) species of wildlife will be seen.": GOSUB 15000
1620 VTAB 23: HTAB 40: INPUT "";E7: IF E7 > 6 GOTO 1605
1625 PRINT CHR$ (12)
1630 PRINT "7. More than thirty ()30) species of wildlife will be seen.": GOSUB 15000
1640 VTAB 23: HTAB 40: INPUT "";E8: IF E8 > 6 GOTO 1625
1642 PRINT CHR$ (12)
1645 PRINT "Now let's look at the presence of wildlife in another way. Please indicate whether each of the categories yo
     u just evaluated are unacceptable, acceptable, or preferred.": PRINT
1650 PRINT "Do so by placing a 0 next to a category to indicate unacceptable, 1 for acceptable, or a 2 to indicate th
     e preferred category for that attribute.": PRINT "Enter the number (0,1, or 2) and press return."
1660 VTAB 10: HTAB 8: PRINT "1. No wildlife will be seen."
1670 VTAB 12: HTAB 8: PRINT "2. One or two species of wildlife will be seen."
1680 VTAB 14: HTAB 8: PRINT "3. Three to five species of wildlife will be seen."
1690 VTAB 16: HTAB 8: PRINT "4. Six to ten species of wildlife will be seen."
1700 VTAB 18: HTAB 8: PRINT "5. Eleven to twenty species of wildlife will be seen."
1710 VTAB 20: HTAB 8: PRINT "6. Twenty-one to thirty species of wildlife will be seen."
1715 VTAB 22: HTAB 8: PRINT "7. Over thirty species of wildlife will be seen."
1720 VTAB 24: HTAB 4: PRINT "-------------0=unacceptable 1=acceptable 2=preferred-------------"
1730 VTAB 9: PRINT "1.": VTAB 9: HTAB 4: INPUT "";E1: IF E1 > 2 GOTO 1642
1740 VTAB 11: PRINT "2.": VTAB 11: HTAB 4: INPUT "";E9: IF E9 > 2 GOTO 1642
1750 VTAB 13: PRINT "3.": VTAB 13: HTAB 4: INPUT "";F1: IF F1 > 2 GOTO 1642
1760 VTAB 15: PRINT "4.": VTAB 15: HTAB 4: INPUT "";F2: IF F2 > 2 GOTO 1642
1770 VTAB 17: PRINT "5.": VTAB 17: HTAB 4: INPUT "";F3: IF F3 > 2 GOTO 1642
1780 VTAB 19: PRINT "6.": VTAB 19: HTAB 4: INPUT "";F4: IF F4 > 2 GOTO 1642
1790 VTAB 21: PRINT "7.": VTAB 21: HTAB 4: INPUT "";F5: IF F5 > 2 GOTO 1642
1795 PRINT CHR$ (12)
1800 PRINT "Please continue to evaluate the categories of the rest of the attributes under consideration here. For each att
     ribute you will be asked to indicate the amountof satisfaction the various categories would provide you."
1802 PRINT
1810 PRINT "Additionally, you will be asked to indicate whether each category is acceptable,unacceptable, or the preferred va
     lue for that given attribute.": PRINT : PRINT : PRINT
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1820  VTAB 18: HTAB 20: PRINT "Press return to continue this exercise.": VTAB 19: HTAB 40: INPUT "";A1$
1825  PRINT  CHR$ (12)
1830  PRINT "Availability of isolated campsites (those campsites from which no other campers can be seen).": PRINT : PRINT
1840  PRINT "1. Zero (0) probability that your campsite will be an isolated one.": GOSUB 15000
1850  VTAB 23: HTAB 40: INPUT "";F6: IF F6 > 6 GOTO 1825
1855  PRINT  CHR$ (12)
1860  PRINT "2. 1-10% probability that your campsite will be an isolated one.": GOSUB 15000
1870  VTAB 23: HTAB 40: INPUT "";F7: IF F7 > 6 GOTO 1855
1875  PRINT  CHR$ (12)
1880  PRINT "3. 11-20% probability that your campsite will be an isolated one.": GOSUB 15000
1890  VTAB 23: HTAB 40: INPUT "";F8: IF F8 > 6 GOTO 1875
1895  PRINT  CHR$ (12)
1900  PRINT "4. 21-30% probability that your campsite will be an isolated one.": GOSUB 15000
1910  VTAB 23: HTAB 40: INPUT "";F9: IF F9 > 6 GOTO 1895
1915  PRINT  CHR$ (12)
1916  PRINT "5. 31-40% probability that your campsite will be an isolated one.": GOSUB 15000
1917  VTAB 23: HTAB 40: INPUT "";W7: IF W7 > 6 GOTO 1915
1918  PRINT  CHR$ (12)
1920  PRINT "6. 41-50% probability that your campsite will be an isolated one.": GOSUB 15000
1930  VTAB 23: HTAB 40: INPUT "";G1: IF G1 > 6 GOTO 1917
1935  PRINT  CHR$ (12)
1940  PRINT "7. 51-60% probability that your campsite will be an isolated one.": GOSUB 15000
1950  VTAB 23: HTAB 40: INPUT "";G2: IF G2 > 6 GOTO 1935
1955  PRINT  CHR$ (12)
1960  PRINT "8. 61-70% probability that your campsite will be an isolated one.": GOSUB 15000
1970  VTAB 23: HTAB 40: INPUT "";G3: IF G3 > 6 GOTO 1955
1975  PRINT  CHR$ (12)
1980  PRINT "9. 71-80% probability that your campsite will be an isolated one.": GOSUB 15000
1990  VTAB 23: HTAB 40: INPUT "";G4: IF G4 > 6 GOTO 1975
1995  PRINT  CHR$ (12)
2000  PRINT "10. 81-90% probability that your campsite will be an isolated one.": GOSUB 15000
2010  VTAB 23: HTAB 40: INPUT "";G5: IF G5 > 6 GOTO 1995
2015  PRINT  CHR$ (12)
2020  PRINT "11. 91-100% probability that your campsite will be an isolated one.": GOSUB 15000
2030  VTAB 23: HTAB 40: INPUT "";G6: IF G6 > 6 GOTO 2015
2035  PRINT  CHR$ (12)
2040  PRINT "Now please indicate whether each of the categories you just evaluated is unacceptable (0), acceptable (1), or pre
      ferred (2)."
2050  VTAB 6: HTAB 8: PRINT "1. Zero (0) chance that your campsite will be isolated."
2060  VTAB 7: HTAB 8: PRINT "2. 1-10% probability that your campsite will be isolated."
2070  VTAB 8: HTAB 8: PRINT "3. 11-20% probability that your campsite will be isolated."
2080  VTAB 9: HTAB 8: PRINT "4. 21-30% probability that your campsite will be isolated."
2090  VTAB 10: HTAB 8: PRINT "5. 31-40% probability that your campsite will be isolated."
2100  VTAB 11: HTAB 8: PRINT "6. 41-50% probability that your campsite will be isolated."
2110  VTAB 12: HTAB 8: PRINT "7. 51-60% probability that your campsite will be isolated."
2120  VTAB 13: HTAB 8: PRINT "8. 61-70% probability that your campsite will be isolated."
2130  VTAB 14: HTAB 8: PRINT "9. 71-80% probability that your campsite will be isolated."
2140  VTAB 15: HTAB 8: PRINT "10. 81-90% probability that your campsite will be isolated."
2145  VTAB 16: HTAB 8: PRINT "11. 91-100% probability that your campsite will be isolated."
2150  VTAB 24: HTAB 4: PRINT "-------------0=unacceptable 1=acceptable 2=preferred-------------"
2160  VTAB 5: PRINT "1.": VTAB 5: HTAB 4: INPUT "";G7: IF G7 > 2 GOTO 2035
2170  VTAB 6: PRINT "2.": VTAB 6: HTAB 4: INPUT "";G8: IF G8 > 2 GOTO 2035
2180  VTAB 7: PRINT "3.": VTAB 7: HTAB 4: INPUT "";G9: IF G9 > 2 GOTO 2035
2190  VTAB 8: PRINT "4.": VTAB 8: HTAB 4: INPUT "";H1: IF H1 > 2 GOTO 2035
2200  VTAB 9: PRINT "5.": VTAB 9: HTAB 4: INPUT "";H2: IF H2 > 2 GOTO 2035
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2210  VTAB 10: PRINT "6.": VTAB 10: HTAB 4: INPUT "";H3: IF H3 > 2 GOTO 2035
2220  VTAB 11: PRINT "7.": VTAB 11: HTAB 4: INPUT "";H4: IF H4 > 2 GOTO 2035
2230  VTAB 12: PRINT "8.": VTAB 12: HTAB 4: INPUT "";H5: IF H5 > 2 GOTO 2035
2240  VTAB 13: PRINT "9.": VTAB 13: HTAB 4: INPUT "";H6: IF H6 > 2 GOTO 2035
2250  VTAB 14: PRINT "10.": VTAB 14: HTAB 4: INPUT "";H7: IF H7 > 2 GOTO 2035
2253  VTAB 15: PRINT "11.": VTAB 15: HTAB 4: INPUT "";H8: IF H8 > 2 GOTO 2035
2255  PRINT  CHR$ (12)
2260  PRINT "Amount of use the area normally receives (average number of people entering     through each trailhead each day).
     ": PRINT : PRINT
2270  PRINT "1. Zero to five (0-5) people enter per day.": GOSUB 15000
2280  VTAB 23: HTAB 40: INPUT "";X1: IF X1 > 6 GOTO 2255
2285  PRINT  CHR$ (12)
2290  PRINT "2. Six to twelve (6-12) people enter per day.": GOSUB 15000
2300  VTAB 23: HTAB 40: INPUT "";X2: IF X2 > 6 GOTO 2285
2305  PRINT  CHR$ (12)
2310  PRINT "3. Thirteen to twenty (13-20) people enter per day.": GOSUB 15000
2320  VTAB 23: HTAB 40: INPUT "";X3: IF X3 > 6 GOTO 2305
2325  PRINT  CHR$ (12)
2330  PRINT "4. Twenty-one to fifty (21-50) people enter per day.": GOSUB 15000
2340  VTAB 23: HTAB 40: INPUT "";X4: IF X4 > 6 GOTO 2325
2345  PRINT  CHR$ (12)
2350  PRINT "5. Fifty-one to seventy-five (51-75) people enter per day.": GOSUB 15000
2360  VTAB 23: HTAB 40: INPUT "";X5: IF X5 > 6 GOTO 2345
2365  PRINT  CHR$ (12)
2370  PRINT "6. Seventy-six to one hundred (76-100) people enter per day.": GOSUB 15000
2380  VTAB 23: HTAB 40: INPUT "";X6: IF X6 > 6 GOTO 2365
2385  PRINT  CHR$ (12)
2390  PRINT "7. Over 100 ()100) people enter per day.": GOSUB 15000
2400  VTAB 23: HTAB 40: INPUT "";X7: IF X7 > 6 GOTO 2385
2403  PRINT  CHR$ (12)
2405  PRINT "Now please indicate whether each of the categories you just evaluated is unacceptable (0), acceptable (1), or pre
     ferred (2)."
2410  VTAB 5: HTAB 8: PRINT "1. 0-5 people enter per day."
2420  VTAB 7: HTAB 8: PRINT "2. 6-12 people enter per day."
2440  VTAB 9: HTAB 8: PRINT "3. 13-20 people enter per day."
2450  VTAB 11: HTAB 8: PRINT "4. 21-50 people enter per day."
2460  VTAB 13: HTAB 8: PRINT "5. 51-75 people enter per day."
2470  VTAB 15: HTAB 8: PRINT "6. 76-100 people enter per day."
2480  VTAB 17: HTAB 8: PRINT "7. Over 100 people enter per day."
2490  VTAB 24: HTAB 4: PRINT "----------0=unacceptable 1=acceptable 2=preferred----------"
2500  VTAB 4: PRINT "1.": VTAB 4: HTAB 4: INPUT "";X8: IF X8 > 2 GOTO 2403
2510  VTAB 6: PRINT "2.": VTAB 6: HTAB 4: INPUT "";X9: IF X9 > 2 GOTO 2403
2520  VTAB 8: PRINT "3.": VTAB 8: HTAB 4: INPUT "";H9: IF H9 > 2 GOTO 2403
2530  VTAB 10: PRINT "4.": VTAB 10: HTAB 4: INPUT "";I1: IF I1 > 2 GOTO 2403
2540  VTAB 12: PRINT "5.": VTAB 12: HTAB 4: INPUT "";I2: IF I2 > 2 GOTO 2403
2550  VTAB 14: PRINT "6.": VTAB 14: HTAB 4: INPUT "";I3: IF I3 > 2 GOTO 2403
2560  VTAB 16: PRINT "7.": VTAB 16: HTAB 4: INPUT "";I4: IF I4 > 2 GOTO 2403
2563  PRINT  CHR$ (12)
2565  PRINT "Size of the area (number of acres).": PRINT : PRINT
2570  PRINT "1. Less than one thousand((1,000) acres.": GOSUB 15000
2575  VTAB 23: HTAB 40: INPUT "";I5: IF I5 > 6 GOTO 2563
2577  PRINT  CHR$ (12)
2580  PRINT "2. 1,000-3,000 acres.": GOSUB 15000
2590  VTAB 23: HTAB 40: INPUT "";I6: IF I6 > 6 GOTO 2577
2595  PRINT  CHR$ (12)
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2600  PRINT "3. 3,001-5,000 acres.": GOSUB 15000
2610  VTAB 23: HTAB 40: INPUT "";I7: IF I7 > 6 GOTO 2595
2615  PRINT  CHR$ (12)
2620  PRINT "4. 5,000-7,500 acres.": GOSUB 15000
2630  VTAB 23: HTAB 40: INPUT "";I8: IF I8 > 6 GOTO 2615
2635  PRINT  CHR$ (12)
2640  PRINT "5. 7,501-10,000 acres.": GOSUB 15000
2650  VTAB 23: HTAB 40: INPUT "";I9: IF I9 > 6 GOTO 2635
2655  PRINT  CHR$ (12)
2660  PRINT "6. 10,001-15,000 acres.": GOSUB 15000
2670  VTAB 23: HTAB 40: INPUT "";J1: IF J1 > 6 GOTO 2655
2675  PRINT  CHR$ (12)
2680  PRINT "7. 15,001-20,000 acres.": GOSUB 15000
2690  VTAB 23: HTAB 40: INPUT "";J2: IF J2 > 6 GOTO 2675 .
2695  PRINT  CHR$ (12)
2700  PRINT "8. 20,001-25,000 acres.": GOSUB 15000
2710  VTAB 23: HTAB 40: INPUT "";J3: IF J3 > 6 GOTO 2695
2715  PRINT  CHR$ (12)
2720  PRINT "9. 25,001-30,000 acres.": GOSUB 15000
2730  VTAB 23: HTAB 40: INPUT "";J4: IF J4 > 6 GOTO 2715
2735  PRINT  CHR$ (12)
2750  PRINT "10. 30,001-40,000 acres.": GOSUB 15000
2770  VTAB 23: HTAB 40: INPUT "";J5: IF J5 > 6 GOTO 2735
2775  PRINT  CHR$ (12)
2780  PRINT "11. 40,001-50,000 acres.": GOSUB 15000
2790  VTAB 23: HTAB 40: INPUT "";J6: IF J6 > 6 GOTO 2775
2795  PRINT  CHR$ (12)
2800  PRINT "12. Greater than 50,000 acres.": GOSUB 15000
2810  VTAB 23: HTAB 40: INPUT "";J7: IF J7 > 6 GOTO 2795
2815  PRINT  CHR$ (12)
2817  GOSUB 11000
2819  PRINT  CHR$ (12)
2820  PRINT "Number of springs in the area (how often you would expect to find a spring along the trail system within the area
      ).": PRINT : PRINT
2830  PRINT "1. One spring every 1-5 miles.": GOSUB 15000
2840  VTAB 23: HTAB 40: INPUT "";J8: IF J8 > 6 GOTO 2819
2845  PRINT  CHR$ (12)
2850  PRINT "2. One spring every 6-10 miles.": GOSUB 15000
2860  VTAB 23: HTAB 40: INPUT "";J9: IF J9 > 6 GOTO 2845
2865  PRINT  CHR$ (12)
2870  PRINT "3. One spring every 11-15 miles.": GOSUB 15000
2880  VTAB 23: HTAB 40: INPUT "";K1: IF K1 > 6 GOTO 2865
2885  PRINT  CHR$ (12)
2890  PRINT "4. One spring every 16-20 miles.": GOSUB 15000
2900  VTAB 23: HTAB 40: INPUT "";K2: IF K2 > 6 GOTO 2885
2905  PRINT  CHR$ (12)
2910  PRINT "5. No springs along the trails.": GOSUB 15000
2920  VTAB 23: HTAB 40: INPUT "";K3: IF K3 > 6 GOTO 2905
2925  PRINT  CHR$ (12)
2930  PRINT "Now please indicate whether each of the categories you just evaluated is unacceptable (0), acceptable (1), or pre
      ferred (2)."
2940  VTAB 6: HTAB 8: PRINT "1. One spring every 1-5 miles."
2950  VTAB 8: HTAB 8: PRINT "2. One spring every 6-10 miles."
2960  VTAB 10: HTAB 8: PRINT "3. One spring every 11-15 miles."
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2970  VTAB 12: HTAB 8: PRINT "4. One spring every 16-20 miles."
2980  VTAB 14: HTAB 8: PRINT "5. No springs along the trails."
2990  VTAB 24: HTAB 4: PRINT "-------------0=unacceptable 1=acceptable 2=preferred-------------"
3000  VTAB 5: PRINT "1.": VTAB 5: HTAB 4: INPUT "";K4: IF K4 > 2 GOTO 2925
3010  VTAB 7: PRINT "2.": VTAB 7: HTAB 4: INPUT "";K5: IF K5 > 2 GOTO 2925
3020  VTAB 9: PRINT "3.": VTAB 9: HTAB 4: INPUT "";K6: IF K6 > 2 GOTO 2925
3030  VTAB 11: PRINT "4.": VTAB 11: HTAB 4: INPUT "";K7: IF K7 > 2 GOTO 2925
3040  VTAB 13: PRINT "5.": VTAB 13: HTAB 4: INPUT "";K8: IF K8 > 2 GOTO 2925
3041  PRINT  CHR$ (12): VTAB 12: PRINT "JUST A SECOND, PLEASE, LET ME RECORD SOME OF THIS GOOD INFORMATION.": PRINT  CHR$ (4);
      "PR#7": PRINT  CHR$ (15)
3042  PRINT E2,E3,E4,E5,E6,E7,E8,E1,E9,F1,F2,F3,F4,F5,F6,F7,F8,F9,W7,G1,G2,G3,G4,G5,G6,G7,G8,G9,H1,H2,H3,H4,H5,H6,H7,H8
3043  PRINT X1,X2,X3,X4,X5,X6,X7,X8,X9,H9,I1,I2,I3,I4,I5,I6,I7,I8,I9,J1,J2,J3,J4,J5,J6,J7,Y9,Z1,Z2,Z3,Z4,Z5,Z6,Z7,Z8,Z9,Z0,W8,
      J8,J9,K1,K2,K3,K4,K5,K6,K7,K8
3044  PRINT  CHR$ (4);"PR#3" CHR$ (13)
3045  CLEAR : PRINT  CHR$ (26)"0"
3046  PRINT  CHR$ (12)
3050  PRINT "Number of people you are likely to encounter during a day of hiking.": PRINT : PRINT
3060  PRINT "1. Zero (0) people per day.": GOSUB 15000
3070  VTAB 23: HTAB 40: INPUT "";K9: IF K9 > 6 GOTO 3045
3075  PRINT  CHR$ (12)
3080  PRINT "2. One to five (1-5) people per day.": GOSUB 15000
3090  VTAB 23: HTAB 40: INPUT "";L1: IF L1 > 6 GOTO 3075
3095  PRINT  CHR$ (12)
3100  PRINT "3. Six to ten (6-10) people per day.": GOSUB 15000
3110  VTAB 23: HTAB 40: INPUT "";L2: IF L2 > 6 GOTO 3095
3115  PRINT  CHR$ (12)
3120  PRINT "4. Eleven to twenty (11-20) people per day.": GOSUB 15000
3130  VTAB 23: HTAB 40: INPUT "";L3: IF L3 > 6 GOTO 3115
3135  PRINT  CHR$ (12)
3140  PRINT "5. Twenty-one to thirty (21-30) people per day.": GOSUB'15000
3150  VTAB 23: HTAB 40: INPUT "";L4: IF L4 > 6 GOTO 3135
3155  PRINT  CHR$ (12)
3160  PRINT "6. Thirty-one to forty (31-40) people per day.": GOSUB 15000
3170  VTAB 23: HTAB 40: INPUT "";L5: IF L5 > 6 GOTO 3155
3175  PRINT  CHR$ (12)
3180  PRINT "7. Forty-one to fifty (41-50) people per day.": GOSUB 15000
3190  VTAB 23: HTAB 40: INPUT "";L6: IF L6 > 6 GOTO 3175
3195  PRINT  CHR$ (12)
3200  PRINT "8. Fifty-one to seventy-five (51-75) people per day.": GOSUB 15000
3210  VTAB 23: HTAB 40: INPUT "";L7: IF L7 > 6 GOTO 3195
3215  PRINT  CHR$ (12)
3220  PRINT "9. Seventy-six to 100 (76-100) people per day.": GOSUB 15000
3230  VTAB 23: HTAB 40: INPUT "";L8: IF L8 > 6 GOTO 3215
3235  PRINT  CHR$ (12)
3240  PRINT "10. Over one hundred (>100) people per day.": GOSUB 15000
3250  VTAB 23: HTAB 40: INPUT "";L9: IF L9 > 6 GOTO 3235
3255  PRINT  CHR$ (12)
3260  PRINT "Now please indicate whether each of the categories you just evaluated is unacceptable (0), acceptable (1), or pre
      ferred (2)."
3270  VTAB 6: HTAB 8: PRINT "1. Zero people per day."
3280  VTAB 7: HTAB 8: PRINT "2. 1-5 people per day."
3290  VTAB 8: HTAB 8: PRINT "3. 6-10 people per day."
3300  VTAB 9: HTAB 8: PRINT "4. 11-20 people per day."
3310  VTAB 10: HTAB 8: PRINT "5. 21-30 people per day."
3320  VTAB 11: HTAB 8: PRINT "6. 31-40 people per day."
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3330 VTAB 12: HTAB 8: PRINT "7. 41-50 people per day."
3340 VTAB 13: HTAB 8: PRINT "8. 51-75 people per day."
3350 VTAB 14: HTAB 8: PRINT "9. 76-100 people per day."
3360 VTAB 15: HTAB 8: PRINT "10. Over 100 people per day."
3370 VTAB 24: HTAB 4: PRINT "--------------0=unacceptable 1=acceptable 2=preferred--------------"
3380 VTAB 5: PRINT "1.": VTAB 5: HTAB 4: INPUT "";M1: IF M1 > 2 GOTO 3255
3390 VTAB 6: PRINT "2.": VTAB 6: HTAB 4: INPUT "";M2: IF M2 > 2 GOTO 3255
3400 VTAB 7: PRINT "3.": VTAB 7: HTAB 4: INPUT "";M3: IF M3 > 2 GOTO 3255
3410 VTAB 8: PRINT "4.": VTAB 8: HTAB 4: INPUT "";M4: IF M4 > 2 GOTO 3255
3420 VTAB 9: PRINT "5.": VTAB 9: HTAB 4: INPUT "";M5: IF M5 > 2 GOTO 3255
3430 VTAB 10: PRINT "6.": VTAB 10: HTAB 4: INPUT "";M6: IF M6 > 2 GOTO 3255
3440 VTAB 11: PRINT "7.": VTAB 11: HTAB 4: INPUT "";M7: IF M7 > 2 GOTO 3255
3450 VTAB 12: PRINT "8.": VTAB 12: HTAB 4: INPUT "";M8: IF M8 > 2 GOTO 3255
3460 VTAB 13: PRINT "9.": VTAB 13: HTAB 4: INPUT "";M9: IF M9 > 2 GOTO 3255
3470 VTAB 14: PRINT "10.": VTAB 14: HTAB 4: INPUT "";N1: IF N1 > 2 GOTO 3255
3472 PRINT  CHR$ (12)
3475 PRINT "Number of bears sighted in the area during last use season.": PRINT : PRINT
3480 PRINT "1. No bears seen last year.": GOSUB 15000
3485 VTAB 23: HTAB 40: INPUT "";N2: IF N2 > 6 GOTO 3472
3487 PRINT  CHR$ (12)
3490 PRINT "2. One to five (1-5) bears seen last year.": GOSUB 15000
3495 VTAB 23: HTAB 40: INPUT "";N3: IF N3 > 6 GOTO 3487
3497 PRINT  CHR$ (12)
3500 PRINT "3. Six to ten (6-10) bears seen last year.": GOSUB 15000
3505 VTAB 23: HTAB 40: INPUT "";N4: IF N4 > 6 GOTO 3497
3507 PRINT  CHR$ (12)
3510 PRINT "4. Eleven to twenty (11-20) bears seen last year.": GOSUB 15000
3515 VTAB 23: HTAB 40: INPUT "";N5: IF N5 > 6 GOTO 3507
3517 PRINT  CHR$ (12)
3520 PRINT "5. Twenty-one to thirty (21-30) bears seen last year.": GOSUB 15000
3525 VTAB 23: HTAB 40: INPUT "";N6: IF N6 > 6 GOTO 3517
3527 PRINT  CHR$ (12)
3530 PRINT "6. Thirty-one to forty (31-40) bears seen last year.": GOSUB 15000
3540 VTAB 23: HTAB 40: INPUT "";N7: IF N7 > 6 GOTO 3527
3545 PRINT  CHR$ (12)
3550 PRINT "7. Forty-one to fifty (41-50) bears seen last year.": GOSUB 15000
3555 VTAB 23: HTAB 40: INPUT "";N8: IF N8 > 6 GOTO 3545
3556 PRINT  CHR$ (12)
3557 PRINT "8. Over fifty (>50) bears seen last year.": GOSUB 15000
3560 VTAB 23: HTAB 40: INPUT "";N9: IF N9 > 6 GOTO 3556
3563 PRINT  CHR$ (12)
3565 PRINT "Now please indicate whether each of the categories you just evaluated is unacceptable (0), acceptable (1), or pre
    ferred (2)."
3570 VTAB 4: HTAB 8: PRINT "1. No bears seen last year."
3575 VTAB 6: HTAB 8: PRINT "2. 1-5 bears seen last year."
3580 VTAB 8: HTAB 8: PRINT "3. 6-10 bears seen last year."
3585 VTAB 10: HTAB 8: PRINT "4. 11-20 bears seen last year."
3590 VTAB 12: HTAB 8: PRINT "5. 21-30 bears seen last year."
3595 VTAB 14: HTAB 8: PRINT "6. 31-40 bears seen last year."
3600 VTAB 16: HTAB 8: PRINT "7. 41-50 bears seen last year."
3605 VTAB 18: HTAB 8: PRINT "8. Over 50 bears seen last year."
3610 VTAB 24: HTAB 4: PRINT "--------------0=unacceptable 1=acceptable 2=preferred--------------"
3615 VTAB 3: PRINT "1.": VTAB 3: HTAB 4: INPUT "";O1: IF O1 > 2 GOTO 3563
3620 VTAB 5: PRINT "2.": VTAB 5: HTAB 4: INPUT "";O2: IF O2 > 2 GOTO 3563
3625 VTAB 7: PRINT "3.": VTAB 7: HTAB 4: INPUT "";O3: IF O3 > 2 GOTO 3563
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3630  VTAB 9: PRINT "4.": VTAB 9: HTAB 4: INPUT "";Q4: IF Q4 > 2 GOTO 3563
3635  VTAB 11: PRINT "5.": VTAB 11: HTAB 4: INPUT "";Q5: IF Q5 > 2 GOTO 3563
3640  VTAB 13: PRINT "6.": VTAB 13: HTAB 4: INPUT "";Q6: IF Q6 > 2 GOTO 3563
3645  VTAB 15: PRINT "7.": VTAB 15: HTAB 4: INPUT "";Q7: IF Q7 > 2 GOTO 3563
3650  VTAB 17: PRINT "8.": VTAB 17: HTAB 4: INPUT "";Q9: IF Q9 > 2 GOTO 3563
3653  PRINT  CHR$ (12)
3655  PRINT "Presence of vistas or overlooks (total number in the area that are of interest  to most visitors).": PRINT : PRINT

3660  PRINT "1. Zero (0) overlooks of interest.": GOSUB 15000
3665  VTAB 23: HTAB 40: INPUT "";P1: IF P1 > 6 GOTO 3653
3667  PRINT  CHR$ (12)
3670  PRINT "2. One to two (1-2) overlooks of interest.": GOSUB 15000
3675  VTAB 23: HTAB 40: INPUT "";P2: IF P2 > 6 GOTO 3667
3677  PRINT  CHR$ (12)
3680  PRINT "3. Three to five (3-5) overlooks of interest.": GOSUB 15000
3685  VTAB 23: HTAB 40: INPUT "";P3: IF P3 > 6 GOTO 3677
3687  PRINT  CHR$ (12)
3690  PRINT "4. Six to ten (6-10) overlooks of interest.": GOSUB 15000
3695  VTAB 23: HTAB 40: INPUT "";P4: IF P4 > 6 GOTO 3687
3697  PRINT  CHR$ (12)
3700  PRINT "5. Eleven to twenty (11-20) overlooks of interest.": GOSUB 15000
3705  VTAB 23: HTAB 40: INPUT "";P5: IF P5 > 6 GOTO 3697
3707  PRINT  CHR$ (12)
3710  PRINT "6. Twenty-one to thirty (21-30) overlooks of interest.": GOSUB 15000
3715  VTAB 23: HTAB 40: INPUT "";P6: IF P6 > 6 GOTO 3707
3717  PRINT  CHR$ (12)
3720  PRINT "7. Over thirty ()30) overlooks of interest.": GOSUB 15000
3725  VTAB 23: HTAB 40: INPUT "";P7: IF P7 > 6 GOTO 3717
3727  PRINT  CHR$ (12)
3730  PRINT "Now please indicate whether each of the categories you just evaluated is unacceptable (0), acceptable (1), or pre
      ferred (2)."
3735  VTAB 4: HTAB 8: PRINT "1. Zero (0) overlooks of interest."
3740  VTAB 6: HTAB 8: PRINT "2. 1-2 overlooks of interest."
3745  VTAB 8: HTAB 8: PRINT "3. 3-5 overlooks of interest."
3750  VTAB 10: HTAB 8: PRINT "4. 6-10 overlooks of interest."
3755  VTAB 12: HTAB 8: PRINT "5. 11-20 overlooks of interest."
3760  VTAB 14: HTAB 8: PRINT "6.  21-30 overlooks of interest."
3765  VTAB 16: HTAB 8: PRINT "7. Over 30 overlooks of interest."
3770  VTAB 24: HTAB 4: PRINT "--------------0=unacceptable 1=acceptable 2=preferred--------------"
3775  VTAB 3: PRINT "1.": VTAB 3: HTAB 4: INPUT "";P8: IF P8 > 2 GOTO 3727
3780  VTAB 5: PRINT "2.": VTAB 5: HTAB 4: INPUT "";P9: IF P9 > 2 GOTO 3727
3785  VTAB 7: PRINT "3.": VTAB 7: HTAB 4: INPUT "";Q1: IF Q1 > 2 GOTO 3727
3790  VTAB 9: PRINT "4.": VTAB 9: HTAB 4: INPUT "";Q2: IF Q2 > 2 GOTO 3727
3795  VTAB 11: PRINT "5.": VTAB 11: HTAB 4: INPUT "";Q3: IF Q3 > 2 GOTO 3727
3800  VTAB 13: PRINT "6.": VTAB 13: HTAB 4: INPUT "";Q4: IF Q4 > 2 GOTO 3727
3805  VTAB 15: PRINT "7.": VTAB 15: HTAB 4: INPUT "";Q5: IF Q5 > 2 GOTO 3727
3807  PRINT  CHR$ (12)
3810  PRINT "Whether or not permits are required to enter.": PRINT : PRINT
3815  PRINT " 1. Yes, permits are required to enter.": GOSUB 15000
3820  VTAB 23: HTAB 40: INPUT "";Q6: IF Q6 > 6 GOTO 3807
3823  PRINT  CHR$ (12)
3825  PRINT "2. No, permits are not required to enter.": GOSUB 15000
3830  VTAB 23: HTAB 40: INPUT "";Q7: IF Q7 > 6 GOTO 3823
3833  PRINT  CHR$ (12)
3835  PRINT "Now please indicate whether each of the two categories you just evaluated is unacceptable (0), acceptable (1), or
      preferred (2)."
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3840 VTAB 10: HTAB 8: PRINT "1. Yes, permits are required to enter."
3845 VTAB 12: HTAB 8: PRINT "2. No, permits are not required to enter."
3850 VTAB 24: HTAB 4: PRINT "-------------0=unacceptable 1=acceptable 2=preferred-------------"
3855 VTAB 9: PRINT "1.": VTAB 9: HTAB 4: INPUT "";Q8: IF Q8 > 2 GOTO 3833
3860 VTAB 11: PRINT "2.": VTAB 11: HTAB 4: INPUT "";Q9: IF Q9 > 2 GOTO 3833
3861 PRINT  CHR$ (12): VTAB 12: PRINT "AGAIN, LET ME RECORD THIS INFORMATION, PLEASE.": PRINT  CHR$ (4)"PR#7": PRINT  CHR$ (1
     5)
3862 PRINT K9,L1,L2,L3,L4,L5,L6,L7,L8,L9,M1,M2,M3,M4,M5,M6,M7,M8,M9,N1,N2,N3,N4,N5,N6,N7,N8,N9,O1,O2,O3,O4,O5,O6,O7,O9,P1,P2,
     P3,P4,P5,P6,P7,P8,P9,Q1,Q2,Q3,Q4,Q5,Q6,Q7,Q8,Q9
3863 PRINT  CHR$ (4);"PR#3" CHR$ (13): CLEAR : PRINT  CHR$ (26)"0"
3864 PRINT  CHR$ (12)
3865 PRINT "The next attribute which you are going to evaluate is trail configuration.  I  will describe each of three gener
     al types of trail designs for you plus show youa representative sketch of each.": PRINT : PRINT
3870 PRINT "For each of the three types of trail systems you will be asked to indicate the  degree of satisfaction you would
     receive upon encountering that configuration.": PRINT : PRINT
3875 PRINT "1. The first trail configuration you will evaluate is one which might be encoun-tered in the Southern Appalachian
      Mountains. There may be a trail which runs a- long the periphery of the area with trails running to the center."
3880 PRINT : PRINT : PRINT "These trails running to the center may all meet in the vicinity of a site of  special interest
     to most visitors.  This configuration is very much like a wheelwith the spokes of the wheel leading to this site."
3882 PRINT : PRINT
3885 PRINT "Before evaluating this configuration you can look at a sketch of it by pressing return.  After viewing the sketch
      please press return again to see the scale forevaluation."
3890 VTAB 24: HTAB 40: INPUT "";A1$
3895 GOSUB 20000
3900 HPLOT 140,10 TO 140,20 TO 130,30 TO 130,40 TO 120,50 TO 120,60 TO 110,70 TO 110,80
3905 HPLOT 150,130 TO 150,100 TO 140,100 TO 130,90 TO 120,80 TO 110,80 TO 100,80 TO 90,70 TO 80,60 TO 70,50 TO 70,40 TO 70,30

3910 HPLOT 10,130 TO 20,120 TO 30,110 TO 40,100 TO 50,90 TO 60,90 TO 70,90 TO 70,80 TO 80,80 TO 100,80
3920 INPUT "";A1$: PRINT  CHR$ (12)
3925 TEXT : PRINT  CHR$ (12)
3930 PRINT "Please evaluate this trail configuration on the following scale.": GOSUB 15000
3935 VTAB 23: HTAB 40: INPUT "";R1: IF R1 > 6 GOTO 3925
3937 PRINT  CHR$ (12)
3940 PRINT "2. The second type of trail configuration you are to evaluate might also be en- countered in the Southern Appalac
     hian region. ": PRINT : PRINT
3945 PRINT "This trail system might be described as having two or more major trails dividing the area with smaller more light
     ly used spur trails at intervals along the main trails.": PRINT : PRINT
3950 PRINT "The main trails divide the backcountry area into sub-areas served by a major  trail. To view a schematic repres
     entation of such a trail system press return.": PRINT : PRINT
3955 PRINT "When you are ready to evaluate this system please press return again for instructions."
3960 VTAB 23: HTAB 40: INPUT "";A1$: GOSUB 20000
3965 HPLOT 50,50 TO 80,50 TO 100,60 TO 120,50 TO 170,50 TO 180,60 TO 190,50
3970 HPLOT 80,50 TO 90,40: HPLOT 120,50 TO 140,60: HPLOT 160,50 TO 160,40
3975 HPLOT 10,100 TO 40,110 TO 70,110 TO 80,100 TO 100,100 TO 120,110 TO 160,110 TO 170,100 TO 190,100: HPLOT 40,110 TO 50,12
     0: HPLOT 80,100 TO 80,80: HPLOT 120,110 TO 130,100: HPLOT 170,100 TO 180,80
3977 INPUT "";A1$: PRINT  CHR$ (12)
3980 TEXT : PRINT  CHR$ (12): PRINT "Please evaluate this trail system on the following scale:": GOSUB 15000
3985 VTAB 23: HTAB 40: INPUT "";R2: IF R2 > 6 GOTO 3980
3987 PRINT  CHR$ (12)
3990 PRINT "3. The third and last trail configuration which you might expect to encounter in the Southern Appalachian region
     will also have two or more major trails divid- ing the backcountry area into sub-areas.": PRINT : PRINT
3995 PRINT "In this case, however, branches of the main trails may intersect.  These connecting trails may provide opportunit
     y to cross over into more than one sub-area.": PRINT : PRINT
4000 PRINT "To view a sketch of such a trail system press return.  When you are ready to  evaluate such a system press retu
     rn again for instructions."
4005 VTAB 23: HTAB 40: INPUT "";A1$: GOSUB 20000
4010 HPLOT 50,50 TO 80,50 TO 100,60 TO 120,50 TO 170,50 TO 180,60 TO 190,50: HPLOT 80,50 TO 90,40: HPLOT 120,50 TO 140,60: HPLOT
     160,50 TO 160,40
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4015 HPLOT 10,100 TO 40,110 TO 70,110 TO 80,100 TO 100,100 TO 120,110 TO 160,110 TO 170,100 TO 190,100: HPLOT 40,110 TO 50,12
     0: HPLOT 80,100 TO 80,80: HPLOT 120,110 TO 130,100: HPLOT 170,100 TO 180,80
4020 HPLOT 100,100 TO 110,80 TO 100,60: HPLOT 180,80 TO 180,60
4023 INPUT "";A1$: PRINT  CHR$ (12)
4025 TEXT : PRINT  CHR$ (12)
4030 PRINT "Please evaluate this trail configuration on the following scale.": GOSUB 15000
4035 VTAB 23: HTAB 40: INPUT "";R3: IF R3 > 6 GOTO 4025
4037 PRINT  CHR$ (12)
4038 GOSUB 11200
4039 PRINT  CHR$ (12)
4040 PRINT "Whether or not camping is allowed at designated sites only.": PRINT : PRINT
4045 PRINT "1. Yes, camping at designated sites only.": GOSUB 15000
4050 VTAB 23: HTAB 40: INPUT "";R4: IF R4 > 6 GOTO 4037
4053 PRINT  CHR$ (12)
4055 PRINT "2. No, you are not required to camp at designated sites only.": GOSUB 15000
4060 VTAB 23: HTAB 40: INPUT "";R5: IF R5 > 6 GOTO 4053
4063 PRINT  CHR$ (12)
4065 PRINT "Now please indicate whether each of these two categories you just evaluated is unacceptable (0), acceptable (1),
     or preferred (2)."
4070 VTAB 6: HTAB 8: PRINT "1. Yes, camping at designated sites only."
4075 VTAB 8: HTAB 8: PRINT "2. No, you are not required to camp at designated sites only."
4076 VTAB 24: HTAB 4: PRINT "-------------0=unacceptable 1=acceptable 2=preferred-------------"
4080 VTAB 5: PRINT "1.": VTAB 5: HTAB 4: INPUT "";R6: IF R6 > 2 GOTO 4063
4085 VTAB 7: PRINT "2.": VTAB 7: HTAB 4: INPUT "";R7: IF R7 > 2 GOTO 4063
4087 PRINT  CHR$ (12)
4090 PRINT "Miles of trail within the area.": PRINT : PRINT
4095 PRINT "1. One to five (1-5) miles of trail within the area.": GOSUB 15000
4100 VTAB 23: HTAB 40: INPUT "";R8: IF R8 > 6 GOTO 4087
4103 PRINT  CHR$ (12)
4105 PRINT "2. Six to ten (6-10) miles of trail within the area.": GOSUB 15000
4110 VTAB 23: HTAB 40: INPUT "";R9: IF R9 > 6 GOTO 4103
4113 PRINT  CHR$ (12)
4115 PRINT "3. Eleven to twenty (11-20) miles of trail within the area.": GOSUB 15000
4120 VTAB 23: HTAB 40: INPUT "";S1: IF S1 > 6 GOTO 4113
4123 PRINT  CHR$ (12)
4125 PRINT "4. Twenty-one to thirty (21-30) miles of trail within the area.": GOSUB 15000: VTAB 23: HTAB 40: INPUT "";S2: IF
     S2 > 6 GOTO 4123
4127 PRINT  CHR$ (12)
4130 PRINT "5. Thirty-one to forty (31-40) miles of trail within the area.": GOSUB 15000: VTAB 23: HTAB 40: INPUT "";S3: IF S
     3 > 6 GOTO 4127
4133 PRINT  CHR$ (12)
4135 PRINT "6. Forty-one to fifty (41-50) miles of trail within the area.": GOSUB 15000: VTAB 23: HTAB 40: INPUT "";S4: IF S4
      > 6 GOTO 4133
4137 PRINT  CHR$ (12)
4140 PRINT "7. Fifty-one to seventy-five (51-75) miles of trail within the area.": GOSUB 15000: VTAB 23: HTAB 40: INPUT "";S5
     : IF S5 > 6 GOTO 4137
4143 PRINT  CHR$ (12)
4145 PRINT "8. Seventy-six to one hundred (76-100) miles of trail within the area.": GOSUB 15000: VTAB 23: HTAB 40: INPUT "";
     S6: IF S6 > 6 GOTO 4143
4147 PRINT  CHR$ (12)
4150 PRINT "9. Over 100 (>100) miles of trail within the area.": GOSUB 15000: VTAB 23: HTAB 40: INPUT "";S7: IF S7 > 6 GOTO 4
     147
4153 PRINT  CHR$ (12)
4155 PRINT "Now please indicate whether each of the categories you just evaluated is unacceptable (0), acceptable (1), or pre
     ferred (2)."
4160 VTAB 4: HTAB 8: PRINT "1. 1-5 miles of trail within the area."
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4165 VTAB 6: HTAB 8: PRINT "2. 6-10 miles of trail within the area.": VTAB 8: HTAB 8: PRINT "3. 11-20 miles of trail within t
     he area.": VTAB 10: HTAB 8: PRINT "4. 21-30 miles of trail within the area."
4170 VTAB 12: HTAB 8: PRINT "5. 31-40 miles of trail within the area.": VTAB 14: HTAB 8: PRINT "6. 41-50 miles of trail withi
     n the area.": VTAB 16: HTAB 8: PRINT "7. 51-75 miles of trail within the area."
4175 VTAB 18: HTAB 8: PRINT "8. 76-100 miles of trail within the area.": VTAB 20: HTAB 8: PRINT "9. Over 100 miles of trail w
     ithin the area."
4180 VTAB 24: HTAB 4: PRINT "-------------0=unacceptable 1=acceptable 2=preferred-------------"
4185 VTAB 3: PRINT "1.": VTAB 3: HTAB 4: INPUT "";S8: IF S8 > 2 GOTO 4153
4186 VTAB 5: PRINT "2.": VTAB 5: HTAB 4: INPUT "";S9: IF S9 > 2 GOTO 4153
4187 VTAB 7: PRINT "3.": VTAB 7: HTAB 4: INPUT "";T1: IF T1 > 2 GOTO 4153
4190 VTAB 9: PRINT "4.": VTAB 9: HTAB 4: INPUT "";T2: IF T2 > 2 GOTO 4153
4191 VTAB 11: PRINT "5.": VTAB 11: HTAB 4: INPUT "";T3: IF T3 > 2 GOTO 4153
4195 VTAB 13: PRINT "6.": VTAB 13: HTAB 4: INPUT "";T4: IF T4 > 2 GOTO 4153
4200 VTAB 15: PRINT "7.": VTAB 15: HTAB 4: INPUT "";T5: IF T5 > 2 GOTO 4153
4205 VTAB 17: PRINT "8.": VTAB 17: HTAB 4: INPUT "";T6: IF T6 > 2 GOTO 4153
4210 VTAB 19: PRINT "9.": VTAB 19: HTAB 4: INPUT "";T7: IF T7 > 2 GOTO 4153
4213 PRINT  CHR$ (12)
4215 PRINT "Whether or not campsites are assigned.": PRINT : PRINT
4220 PRINT "1. Yes, campsites are assigned.": GOSUB 15000: VTAB 23: HTAB 40: INPUT "";T8: IF T8 > 6 GOTO 4213
4221 PRINT  CHR$ (12)
4223 PRINT "2. No, campsites are not assigned.": GOSUB 15000: VTAB 23: HTAB 40: INPUT "";T9: IF T9 > 6 GOTO 4221
4224 PRINT  CHR$ (12)
4225 PRINT "Now please indicate whether each of the categories you just evaluated is unacceptable (0), acceptable (1), or pre
     ferred (2)."
4230 VTAB 8: HTAB 8: PRINT "1. Yes, campsites are assigned.": VTAB 10: HTAB 8: PRINT "2. No, campsites are not assigned.": VTAB
     23: HTAB 4: PRINT "-------------0=unacceptable 1=acceptable 2=preferred-------------"
4235 VTAB 8: PRINT "1.": VTAB 8: HTAB 4: INPUT "";U1: IF U1 > 2 GOTO 4224
4240 VTAB 10: PRINT "2.": VTAB 10: HTAB 4: INPUT "";U2: IF U2 > 2 GOTO 4224
4243 PRINT  CHR$ (12)
4245 PRINT "Probability that your vehicle will be vandalized while parked at the trailhead.": PRINT : PRINT
4250 PRINT "1. Zero (0) chance of your vehicle being vandalized.": GOSUB 15000: VTAB 23: HTAB 40: INPUT "";U3: IF U3 > 6 GOTO
     4243
4253 PRINT  CHR$ (12)
4255 PRINT "2. One to two percent (1-2%) chance of your vehicle being vandalized at the     trailhead.": GOSUB 15000: VTAB 23
     : HTAB 40: INPUT "";U4: IF U4 > 6 GOTO 4253
4257 PRINT  CHR$ (12)
4260 PRINT "3. Three to five percent (3-5%) chance of your vehicle being vandalized at the  trailhead.": GOSUB 15000: VTAB 23
     : HTAB 40: INPUT "";U5: IF U5 > 6 GOTO 4257
4263 PRINT  CHR$ (12)
4265 PRINT "4. Six to ten percent (6-10%) chance of your vehicle being vandalized at the    trailhead.": GOSUB 15000: VTAB 23
     : HTAB 40: INPUT "";U6: IF U6 > 6 GOTO 4263
4267 PRINT  CHR$ (12)
4270 PRINT "5. Eleven to twenty percent (11-20%) chance of your vehicle being vandalized at the trailhead.": GOSUB 15000: VTAB
     23: HTAB 40: INPUT "";U7: IF U7 > 6 GOTO 4267
4273 PRINT  CHR$ (12)
4275 PRINT "6. Twenty-one to thirty percent (21-30%) chance of your vehicle being vandalized at the trailhead.": GOSUB 15000:
      VTAB 23: HTAB 40: INPUT "";U8: IF U8 > 6 GOTO 4273
4277 PRINT  CHR$ (12)
4280 PRINT "7. Thirty-one to forty percent (31-40%) chance of your vehicle being vandalized at the trailhead.": GOSUB 15000: VTAB
     23: HTAB 40: INPUT "";U9: IF U9 > 6 GOTO 4277
4283 PRINT  CHR$ (12)
4285 PRINT "8. Forty-one to fifty percent (41-50%) chance of your vehicle being vandalized  at the trailhead.": GOSUB 15000: VTAB
     23: HTAB 40: INPUT "";V1: IF V1 > 6 GOTO 4283
4287 PRINT  CHR$ (12)
4290 PRINT "9. Over fifty percent (50%) chance of your vehicle being vandalized at the      trailhead.": GOSUB 15000: VTAB 23
     : HTAB 40: INPUT "";V2: IF V2 > 6 GOTO 4287
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4293  PRINT  CHR$ (12)
4295  PRINT "Now please indicate whether each of the categories you just evaluated is unacceptable (0), acceptable (1), or pre
      ferred (2)."
4300  VTAB 8: HTAB 8: PRINT "1. Zero chance of your vehicle being  vandalized at the trailhead."
4305  VTAB 9: HTAB 8: PRINT "2. 1-2% chance of your vehicle being vandalized at the trailhead."
4310  VTAB 10: HTAB 8: PRINT "3. 3-5% chance of your vehicle being vandlized at the trailhead."
4315  VTAB 11: HTAB 8: PRINT "4. 6-10% chance of your vehicle being vandalized at the trailhead."
4320  VTAB 12: HTAB 8: PRINT "5. 11-20% chance of your vehicle being vandalized at the trailhead."
4325  VTAB 13: HTAB 8: PRINT "6. 21-30% chance of your vehicle being vandalized at the trailhead."
4330  VTAB 14: HTAB 8: PRINT "7. 31-40% chance of your vehicle being vandalized at the trailhead."
4335  VTAB 15: HTAB 8: PRINT "8. 41-50% chance of your vehicle being vandalized at the trailhead."
4340  VTAB 16: HTAB 8: PRINT "9. Over 50% chance of your vehicle being vandalized at the trailhead."
4345  VTAB 23: HTAB 4: PRINT "-------------0=unacceptable 1=acceptable 2=preferred-------------"
4350  VTAB 8: PRINT "1.": VTAB 8: HTAB 4: INPUT "";V3: IF V3 > 2 GOTO 4293
4355  VTAB 9: PRINT "2.": VTAB 9: HTAB 4: INPUT "";V4: IF V4 > 2 GOTO 4293
4360  VTAB 10: PRINT "3.": VTAB 10: HTAB 4: INPUT "";V5: IF V5 > 2 GOTO 4293
4365  VTAB 11: PRINT "4.": VTAB 11: HTAB 4: INPUT "";V6: IF V6 > 2 GOTO 4293
4370  VTAB 12: PRINT "5.": VTAB 12: HTAB 4: INPUT "";V7: IF V7 > 2 GOTO 4293
4375  VTAB 13: PRINT "6.": VTAB 13: HTAB 4: INPUT "";V8: IF V8 > 2 GOTO 4293
4380  VTAB 14: PRINT "7.": VTAB 14: HTAB 4: INPUT "";V9: IF V9 > 2 GOTO 4293
4385  VTAB 15: PRINT "8.": VTAB 15: HTAB 4: INPUT "";W1: IF W1 > 2 GOTO 4293
4390  VTAB 16: PRINT "9.": VTAB 16: HTAB 4: INPUT "";W2: IF W2 > 2 GOTO 4293
4393  PRINT  CHR$ (12)
4395  PRINT "Whether or not campfires are allowed.": PRINT : PRINT
4400  PRINT "1. Yes, campfires are allowed.": GOSUB 15000: VTAB 23: HTAB 40: INPUT "";W3: IF W3 > 6 GOTO 4393
4403  PRINT  CHR$ (12)
4405  PRINT "2. No, campfires are not allowed.": GOSUB 15000: VTAB 23: HTAB 40: INPUT "";W4: IF W4 > 6 GOTO 4403
4407  PRINT  CHR$ (12)
4410  PRINT "Now please indicate whether each of the two categories you just evaluated is unacceptable (0), acceptable (1), or
      preferred (2)."
4415  VTAB 8: HTAB 8: PRINT "1. Yes, campfires are allowed.": VTAB 10: HTAB 8: PRINT "2. No, campfires are not allowed.": VTAB
      23: HTAB 4: PRINT "-------------0=unacceptable 1=acceptable 2=preferred-------------"
4420  VTAB 8: PRINT "1.": VTAB 8: HTAB 4: INPUT "";W5: IF W5 > 2 GOTO 4407
4422  VTAB 10: PRINT "2.": VTAB 10: HTAB 4: INPUT "";W6: IF W6 > 2 GOTO 4407
4423  PRINT  CHR$ (12)
4425  VTAB 12: HTAB 20: PRINT "Thank you for participating in this study."
4430  PR# 7
4431  PRINT  CHR$ (15)
4520  PRINT R1,R2,R3,Y1,Y2,Y3
4525  PRINT R4,R5,R6,R7,R8,R9,S1,S2,S3,S4,S5,S6,S7,S8,S9,T1,T2,T3,T4,T5,T6,T7,T8,T9,U1,U2,U3,U4,U5,U6,U7,U8,U9,V1,V2,V3,V4,V5,
      V6,V7,V8,V9
4530  PRINT W1,W2,W3,W4,W5,W6
9000  END
11000  PRINT "Now please indicate whether each of the categories you just evaluated is unacceptable (0), acceptable (1), or pr
      eferred (2)."
11010  VTAB 6: HTAB 8: PRINT "1. Less than 1,000 acres."
11015  VTAB 7: HTAB 8: PRINT "2. 1,000-3,000 acres."
11020  VTAB 8: HTAB 8: PRINT "3. 3,001-5,000 acres."
11025  VTAB 9: HTAB 8: PRINT "4. 5,001-7,500 acres."
11030  VTAB 10: HTAB 8: PRINT "5. 7,501-10,000 acres."
11035  VTAB 11: HTAB 8: PRINT "6. 10,001-15,000 acres."
11040  VTAB 12: HTAB 8: PRINT "7. 15.001-20,000 acres."
11045  VTAB 13: HTAB 8: PRINT "8. 20,001-25,000 acres."
11050  VTAB 14: HTAB 8: PRINT "9. 25,001-30,000 acres."
11055  VTAB 15: HTAB 8: PRINT "10. 30,001-40,000 acres."
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11060  VTAB 16: HTAB 8: PRINT "11. 40,001-50,000 acres."
11062  VTAB 17: HTAB 8: PRINT "12. Over 50,000 acres."
11065  VTAB 24: HTAB 4: PRINT "--------------0=unacceptable 1=acceptable 2=preferred--------------"
11070  VTAB 5: PRINT "1.": VTAB 5: HTAB 4: INPUT "";Y9: IF Y9 > 2 GOTO 2815
11075  VTAB 6: PRINT "2.": VTAB 6: HTAB 4: INPUT "";Z1: IF Z1 > 2 GOTO 2815
11080  VTAB 7: PRINT "3.": VTAB 7: HTAB 4: INPUT "";Z2: IF Z2 > 2 GOTO 2815
11085  VTAB 8: PRINT "4.": VTAB 8: HTAB 4: INPUT "";Z3: IF Z3 > 2 GOTO 2815
11090  VTAB 9: PRINT "5.": VTAB 9: HTAB 4: INPUT "";Z4: IF Z4 > 2 GOTO 2815
11095  VTAB 10: PRINT "6.": VTAB 10: HTAB 4: INPUT "";Z5: IF Z5 > 2 GOTO 2815
11100  VTAB 11: PRINT "7.": VTAB 11: HTAB 4: INPUT "";Z6: IF Z6 > 2 GOTO 2815
11105  VTAB 12: PRINT "8.": VTAB 12: HTAB 4: INPUT "";Z7: IF Z7 > 2 GOTO 2815
11110  VTAB 13: PRINT "9.": VTAB 13: HTAB 4: INPUT "";Z8: IF Z8 > 2 GOTO 2815
11115  VTAB 14: PRINT "10.": VTAB 14: HTAB 4: INPUT "";Z9: IF Z9 > 2 GOTO 2815
11120  VTAB 15: PRINT "11.": VTAB 15: HTAB 4: INPUT "";Z0: IF Z0 > 2 GOTO 2815
11122  VTAB 16: PRINT "12.": VTAB 16: HTAB 4: INPUT "";W8: IF W8 > 2 GOTO 2815
11125  RETURN
11200  PRINT "Please indicate whether each of these three trail configurations is unacceptable (0), acceptable (1), or preferr
     ed (2)."
11205  VTAB 8: HTAB 8: PRINT "1. Spokes of a wheel, a trail along the periphery with trails running    inward to a common poin
     t of interest."
11210  VTAB 11: HTAB 8: PRINT "2. Two or more major trails dividing the area with smaller more lightly  used spur trails at in
     tervals along the main trails. No opportunity to cross    over between major trails."
11215  VTAB 14: HTAB 8: PRINT "3. Two or more major trails dividing the backcountry area with spur      trails which may inter
     sect, providing opportunity to cross over into more than  one sub-area."
11220  VTAB 24: HTAB 4: PRINT "--------------0=unacceptable 1=acceptable 2=preferred--------------"
11225  VTAB 7: PRINT "1.": VTAB 7: HTAB 4: INPUT "";Y1: IF Y1 > 2 GOTO 4037
11230  VTAB 10: PRINT "2.": VTAB 10: HTAB 4: INPUT "";Y2: IF Y2 > 2 GOTO 4037
11235  VTAB 13: PRINT "3.": VTAB 13: HTAB 4: INPUT "";Y3: IF Y3 > 2 GOTO 4037
11240  RETURN
15000  VTAB 8: PRINT "     0          1          2          3          4          5          6
15010  VTAB 9: PRINT "     |----------|----------|----------|----------|----------|----------|
15020  VTAB 10: PRINT "  Maximum   Provides   Provides    Neutral   Provides   Provides    Maximum"
15030  VTAB 11: PRINT "  dissat.   somewhat    slight                slight    somewhat  satisfaction"
15040  VTAB 12: PRINT "              more      dissat.            satisfaction   more"
15050  VTAB 13: PRINT "             dissat.                                   satisfaction"
15060  VTAB 20: PRINT "Please indicate the amount of satisfaction you would expect to receive if you   encountered the given l
     evel of this attribute."
15070  PRINT "Do so by pressing the number which best indicates your response.  Press return."
15080  RETURN
20000  HGR
20010  HPLOT 140,10 TO 150,20 TO 160,20 TO 170,30 TO 180,40 TO 190,50 TO 190,120 TO 180,120 TO 170,120 TO 170,130 TO 120,130 TO
     110,130 TO 100,130 TO 90,130
20020  HPLOT  TO 80,140 TO 50,140 TO 40,130 TO 10,130 TO 10,90 TO 70,30 TO 80,30 TO 80,20 TO 130,20 TO 140,10
20030  RETURN
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