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ON PERCEPTIONS AND ACTIONS: PROBING THE RELATIONSHIP
BETWEEN WILDERNESS USE, RISK PERCEPTION,
AND PERSONALITY

By

DAVID M. FREIBAND

B.A., The Evergreen State College, 1979

Presented in partial fulfillment of the
requirements for the degree of

Master of Science

University of Montana

1988

Approved by



Chairman, Board of Examiners



Dean, Graduate School

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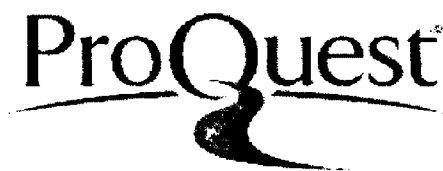


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On Perceptions and Actions: Probing the Relationship
Between Wilderness Use, Risk Perception, and Personality
(84 pp.)

Director: David Schuldberg



The relationships between people's personality characteristics, perceptions of activity risk, and their use of wilderness settings has been explored very little in the literature. This study sought to illuminate these relationships using a sample of thirty-three male University of Montana undergraduate students enrolled in an introductory experimental psychology course. During the winter and spring of 1985, these students completed a long form of the Personality Research Form (PRF) and the Wilderness Questionnaire (created by the researcher).

Results indicate that subjects collectively perceived various wilderness activities as differing in riskiness. However, there was only one significant correlation between how risky subjects perceived activities to be and their personality characteristics. Those subjects who, in comparison to others in the study, rated the wilderness activities included as more risky scored significantly higher on the PRF scale for Nurturance.

Those subjects who had engaged in more wilderness activity tended to view wilderness activities as less risky. They also received personality trait scores distinguishing them from those whom had participated in less wilderness activity. Those who had participated in more wilderness activity scored significantly higher than their counterparts on measures of Aggression, Autonomy, Sentience, and Understanding. They also scored significantly lower on measures of Affiliation, Harmavoidance, Nurturance, Social Recognition, and Succorance.

The results of this study make it clear that a significant relationship exists between level of wilderness activity, perceived risk, and personality traits. Whether this is a causal relationship has yet to be determined. Still, these findings could be useful for advising individuals about what kinds of wilderness activities might allow them to meet others with particular personality characteristics. Likewise, career counselors, occupational and recreation therapists, and wilderness planners could use such information for advising their clients about suitable careers and pasttimes.

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INTRODUCTION

Writers ranging from transcendentalist Henry David Thoreau to naturalist John Muir spoke of the joys and enrichment that their forays into the forests and mountains brought them. Partly through the eloquent enjoiners of such writers, this country established protected zones such as the national park system, wilderness areas, and backcountry areas. Many people enjoy exploring these settings, both through organized groups such as the National Outdoor Leadership School, Outward Bound, professionally run horse-packing trips, and through individually arranged journeys.

While many extoll the merits of such experiences for rejuvenation, character enhancement, and education, relatively little research has been conducted to understand the interplay between individuals' emotional health and the wilderness activities in which they engage. Greater insight into this area may allow us to recognize further therapeutic benefits of forays into wilderness.*

*The definition of wilderness adopted herein is that used by the Congress in the 1964 Wilderness Act: "an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain." (The Wilderness Act, 16 U.S.C. S1131 (c) (1984).

Background

Research in the area under investigation originates primarily within the fields of psychology and therapeutic recreation. Psychological inquiries concentrate on pretest-posttest studies of structured wilderness programs to determine their impact on participants. Results from these studies suggest that wilderness programs tend to increase participants' self-esteem, self-concept, and self-confidence (Clifford and Clifford, 1967; Stimson and Pederson, 1970; Slosky, 1973; Thorstenson & Heaps, 1973; Kaplan, 1974; Robbins, 1976; Greentree, 1977; Gaston, 1978; Lambert, Segger, Staley, Spencer, and Nelson, 1978; Kimball, 1979; Risk, 1979; Reid and Mathews, 1980.)

For instance, Kimball (1979) found that adjudicated juvenile participants who complete a Wilderness Experience program have a recidivism rate of 10% or 28% (depending on the definition of recidivism used) while the national rate is 40%. Moreover, he found that adults completing a Wilderness Experience program exhibited recidivism at a rate of 10-15% while the non-participant range was 40-60% during the first year of release. Subsequently (1979), using the Tennessee Self Concept Scale (T.S.C.S.) Kimball found significant positive changes in course participants (at the .01

level) on all scales. The scales included: self-concept, personal self, positive behavior, lower neurosis, and lower general maladjustment.

Partington (1977), Bartolotta (1979), and Hunter (1977) found that programs of a part-time nature based in familiar settings (community or institution) for delinquent youth resulted in either no change or a negative change in self-esteem. Furthermore, past research suggests that the intensity of a wilderness program (as measured by the amount of risk and physical exertion) influences the extent of impact on participants (Kelly and Baer, 1971).

Past studies of wilderness program intensity measure outcomes behaviorally. Rather than relying on a pretest-posttest format, they consider rates of recidivism among previously adjudicated youth. Kelly and Baer (1971) conducted a particularly interesting study on this topic. Utilizing four-week-long Outward Bound programs, they researched impacts on 120 15.5-17 year old boys. Sixty of the subjects served as controls, receiving standard treatment including institutionalization and/or parole. The other sixty were sent on sixty different Outward Bound trips run in Minnesota, Maine, and Colorado. The experimental and control groups were matched for age, IQ, race, religion, offense for which

committed, area of residence, and number of prior commitments to the Massachusetts Division of Youth Service. None of the subjects manifested severe psychopathology or had a history of violent assaults or sexual offenses.

While the origins and general philosophy of the three Outward Bound Schools were identical, the program emphases varied. The Minnesota course involved a 200 mile canoe expedition in the Quetico-Superior Wilderness Area, after twelve days of training in a main camp. The Maine program (Hurricane Island Outward Bound School) focussed on training in seamanship and navigation, and culminated with a five day ocean voyage in thirty-foot long whaleboats. While these programs relied on water transportation, the Colorado Outward Bound School emphasized mountain hiking, high altitude camping, rock climbing, and rapelling. As Kelly and Baer comment:

...The Colorado and Hurricane Island schools emphasize severe physical challenge, felt danger, and high excitement. On the other hand, these programs do not attempt to meet the needs of individual participants but require all boys to adapt to the standard of these schools. ...However, the Minnesota School, while stressing physical challenge, has a relatively low objective danger and excitement level. This program emphasizes concern for interpersonal relationships and stresses reflection and development of a spiritual attitude (1971:440).

Results of this study, as mentioned earlier,

rely on rates of recidivism. Recidivism is defined by the authors as "return to a juvenile institution or commitment to an adult institution for a new offense within one year after parole" (1971, p.438). Overall, 20% of the experimental group exhibited recidivism, as compared with 42% of the control group. However, rates of recidivism were not equally distributed among participants in the three Outward Bound Programs. Zero percent of the Colorado group evidenced recidivism while 11% of the Maine group and 42% of the Minnesota group did. The authors conclude that activities which stress sustained physical activity without periods of high excitement and real danger may not successfully reduce recidivism.

In a study structured somewhat similarly to the one just described, S. Cave (1979) came up with some differing conclusions. Rather than relying on recidivism as an outcome measure, he measured change via a personality inventory, as have several others (Kelly and Baer, 1979; Lambert, Segger, Staley, Spencer, and Nelson, 1978; and Young and Crandall, 1984). Utilizing the Minnesota Multiphasic Personality Inventory (MMPI, Hathaway and Mckinley, 1961) with the three matched groups of legal offenders, he examined pretest-posttest outcomes as related to three different experiences:

incarceration for diagnostic evaluation, a raft trip, and a high altitude mountaineering trip, all of which occurred for seventeen days.

The MMPI showed dramatic psychological changes in the mountaineering group, no significant change among the rafters, and no positive change among those incarcerated for evaluation. (The latter group drifted toward depression and paranoia to a statistically significant extent.) While the differences between the mountaineers and the rafters were attributed to the degree of stress each group experienced, unlike Kelly and Baer, Cave explained these differences not in terms of degree of excitement, but rather in terms of degree of exertion and the presence of real danger. Given that Kelly and Baer studied three groups who presumably underwent similar amounts of physical exertion, it seems that perceived risk is the pivotal factor in explaining the outcomes in the two studies described above.

Another use of personality inventories is in the evaluation of therapeutic recreation. B. Driver (1977), a recreation researcher for the U.S. Forest Service, utilized Jackson's (1967) Personality Research Form (PRF) to offer recreation managers additional insight into characteristics of their clientele. He pointed out that "managers' intuitions frequently differ from the users'

opinions about the recreational worth of facilities" (1977, p.169), as illustrated by several researchers (Lucas, 1964; Hendee and Harris, 1970; Peterson, 1971, 1974; Clark et al., 1971). His study suggests which personality characteristics correlate significantly with subjects engaging in each of six different activities, ranging from camping to swimming. Furthermore, he found significant correlations between personality traits and ten desired consequences ranging from "exploring nature" to "avoid excessive social regulation" for each of the six activities under consideration.

While Driver recognizes that his findings may not directly influence how recreation managers allocate their funding, he suggests that his results offer insights into recreation behavior and reinforce the importance of allowing people a multitude of recreational outlets based on their dispositions and preferences. Driver's research is of interest here because it suggests a method of examining the relationship between personality and wilderness use, without relying on a pretest-posttest format of a particular, structured experience, such as Outward Bound.

Implications of Prior Research

The studies just reviewed suggest that milieu,

duration, and intensity all influence how much significant personal change occurs via outdoor experiences.* More specifically, the findings suggest that those who participate in extended, highly challenging wilderness trips should tend to exhibit good social adjustment and positive self-image. However, the majority of these studies focus on maladjusted individuals. Furthermore, they use a structured experience as the "change agent," prompting questions about how much posttest self-measurements have been biased by the philosophical orientation of program coordinators rather than being reflective of wilderness experience impact per se. An additional concern with studies of maladjusted individuals is that this population could easily construe providing desirable answers as a way of avoiding aversive situations in the future, or of currying favor. Either motive could undermine the accuracy of the responses.

The majority of wilderness users are neither adjudicated offenders nor participants in structured programs. The question addressed by this thesis concerns how the frequency, duration, and intensity with which

*Intensity means the level of perceived risk, in this study. Risk, using the Random House College Dictionary Definition, is "exposure to the chance of injury or loss" (1973, p.1139).

members of the public participate in wilderness activities relate to their personality traits. If, indeed, there are significant correlations, then further research might delve into the nature of the interplay between participating in wilderness activity and personality. For instance, wilderness activities may foster the development of personality characteristics that this culture finds desirable or inhibit some that are seen as undesirable.

Recognizing this could be valuable in arguing for increases, decreases, or alterations in existing wilderness settings, and in determining who uses them. Robert A. Young and Rick Crandall attempted to test a hypothesis relevant to this notion in 1984, using Shostrom's (1974) self actualization scale (the "Personality Orientation Inventory") based on Abraham Maslow's (1968, 1970) research. These researchers hypothesized that wilderness users would be more self-actualized than non-users, and frequent users more so than occasional ones.

Using data collected from a random sample of 503 adults in Illinois and 222 wilderness users, they found that wilderness users were more self-actualized than non-users. Moreover, potential users were more self-actualized than potential non-users. However, frequent

users were no more self-actualized than occasional wilderness users. These researchers also noted that individuals who were more wilderness preservation oriented tended to score higher in self-actualization than did their counterparts. Unfortunately, these authors' findings do not reveal which came first, the characteristics of self-actualization or the interest in wilderness preservation.

Their study leaves other major questions unanswered, too. One of these concerns intensity: "How are amount of activity participation (A.P.) and perception of wilderness activity riskiness (P.R.) related?" Another of these is: "How are personality characteristics correlated with the amount of A.P. individuals have engaged in?" The goal of this study is to address these and other questions.

HYPOTHESES*

As already indicated, what distinguishes this study from others is that it seeks to ascertain whether a significant relationship exists between the amount of wilderness experience individuals have, their perception of wilderness activity risk, and their personality traits. Rather than relying on a pretest-posttest format, where a structured wilderness experience could bias the instrument scorings (by inculcating philosophical and other values biases in subjects), this study used a correlational survey.

The approach taken to conducting this research examines several hypotheses:

- 1.) As a group, the subjects in the study will perceive the different wilderness activities on the questionnaire as differing in their levels of riskiness. Some wilderness activities on the questionnaire will be perceived as more risky, in general, than will others.
- 2.) A score can be calculated for each subject across all forty activities that assesses the degree to which the subject perceives activities as risky. We will abbreviate this "PRSK," for "Perceived Risk."
 - a.) The subjects themselves will also differ in the overall amount of risk they perceive across the wilderness activities. When subjects are divided into a group of high and a group of low risk perceivers (median split), the low risk perceivers will have engaged in a greater amount of wilderness activity than will the high risk perceivers.

*Several of the hypotheses are conjecture, since little prior research was available.

b.) These two groups will differ in personality traits. Those who tend to score activities as less risky will score lower in Abasement, Cognitive Structure, Harmavoidance, and Succorance; and higher in Autonomy, Change, and Social Recognition.

3.) Subjects will also differ in the amount of wilderness activity that they have engaged in. A score can be calculated that assesses the overall amount of wilderness activity engaged in by the subject (abbreviated DONACT). This score is related to a number of personality dimensions.

a.) When subjects are divided into a group of high and a group of low volume wilderness users (using a median split based on DONACT), these groups' perceptions of activity riskiness will vary significantly. As a group those who have engaged in more wilderness activity should tend to view wilderness activities as less risky.

b.) When subjects are divided into a group of high and low volume wilderness users (using a median split based on DONACT) the groups should differ in personality. More specifically, frequent wilderness users will score significantly higher on Affiliation, Achievement, Autonomy, Endurance, Sentience, and Understanding. Conversely, they will score lower on Abasement, Exhibition, Harmavoidance, Social Recognition, and Succorance.

c.) Overall, the significant personality differences between the high and low risk perceiving (PRSK) groups are expected to be less numerous than the personality differences between the high and low volume wilderness users (DONACT).

d.) Those subjects who engage in more activities that they view as risky will tend to have unique personality characteristics when contrasted with others.

4.) Subjects will tend to participate in clusters of activities that share common characteristics or themes.

- a.) Those people who engage in particular clusters of activities most frequently will tend to display greater amounts of some personality traits than will others.
- 5.) Subjects will rate clusters of activities as similarly risky in ways suggesting common themes.
- 6.) There will be a negative correlation between activity participation and risk perception and some significant correlations between each of these variables and personality characteristics.

Rationales for Hypotheses Involving Risk Perception and Activity Participation

Higher Activity Participation Linked to Low Perceived Risk (Hypothesis 3a):

Those who have had a greater amount of wilderness experience are likely to be more confident about participating in wilderness activities. As a result they are more likely to view wilderness activities as less risky. One underlying assumption in this assertion is that people will rate the riskiness of activities based on how risky they think it would be for themselves to engage in these activities. The more successful experiences one has had with activities, the less risky they will seem. (Were this not the case, it is doubtful that children would choose to ride bicycles after learning how!) Granted, there may be certain activities, for instance, being in close proximity to a bear, that

may be viewed as more risky by more experienced wilderness users, but such responses are expected to be the exception.

This relationship between high activity and low perceived risk could also be explained in terms of cognitive dissonance or self-attribution theory. From a cognitive dissonance perspective the reasoning might be:

"It's sort of risky. Should I go?"

"I'll go."

"It's not so risky."

The notion here is that belief change reduces dissonance between the action and perception. Within a self-attribution perspective (given subjects who view participating in risky activities as undesirable) the thought is:

"I did it, therefore it must not be risky."

Rationales for Hypotheses Involving Personality Scales*
(Elaborations on hypotheses #2(b) and #3(b) above.)

What follow are suppositions which elaborate on the hypotheses above having to do with personality characteristics. These are the author's suppositions, and explain why the outcomes predicted above seem probable.

*(See appendix for definitions of the personality traits referred to in this section).

1.) Low Perceived Risk, Low Trait Scores:

Abasement: The supposition is that those who perceive or claim to perceive the wilderness activities as less risky will also tend to exhibit less subservience and self-deprecation in their responses to PRF statements. The underlying assumption here is that those who see activities and phenomena in the environment as less risky are more likely to feel more confident or positively about themselves.

Cognitive Structure: Many of the activities listed in the Wilderness Questionnaire involve a degree of ambiguity and uncertainty. Those who view these activities as less risky should tend to be more comfortable with such ambiguity. If so, they will tend to score lower in cognitive structure, a measure of one's lack of tolerance for ambiguity and limited information in decision making.

Harmavoidance: While proving causality is not within the ken of correlational studies, it seems reasonable that those who perceive wilderness activities as less risky will tend to see many activities as less potentially harmful than would the high risk perceivers. Once they are seen as less harmful, subjects have less reason to avoid engaging in such activities.

Succorance: Feeling more secure and capable without the support of others (i.e., a low score on this scale) is consistent with perceiving wilderness activities as less risky. Both seem likely to involve an internal locus of security.

2.) Low Perceived Risk, High Trait Scores:

Autonomy: Those who tend to see wilderness activities as less risky are likely to feel more capable of taking care of themselves.

Social Recognition: It could be argued that social recognition should be irrelevant to how risky one perceives wilderness activities to be. However, those who see wilderness activities as less risky may be influenced by social recognition needs, since wilderness use often represents a peer group activity for these college students.

3.) Frequent Wilderness Users, High Trait Scores:

Affiliation: People who engage in more extensive wilderness activities tend to gain an enhanced appreciation for their reliance and dependence on others. This is part of what Outward Bound cultivates, and may help to explain why delinquents who graduated from their

program in the Kelly and Baer study were more successful in staying out of incarceration: they had become more competent at developing healthy relationships. Whereas less frequent wilderness users may also value affiliation, they are less prone to be as aware of their own mortality and also their dependency on others. (War veterans who are not wilderness users might be an exception to this statement.)

Achievement: Jackson begins his definition of achievement with, "aspires to accomplish difficult tasks." While many people may do this, it seems that engaging in wilderness activities consistently requires striving and purposefulness. Just the act of planning a trip into a setting where the activities to be engaged in have not been predefined means that participants are likely to be directed by an inner drive to have the type of experience that they desire. Therefore, it seems reasonable to hypothesize that this sub-population would stand out as high achievers.

Autonomy: The notion of freedom seems to characterize this trait. It seems likely that people who utilize wilderness settings more frequently are motivated by the desire for autonomy, for leaving the constraints of human communities and culture behind.

Endurance: Endurance is characterized by Jackson as involving perseverance and stamina. Carrying heavy loads up mountains, through snow, and during storms requires these qualities to a high degree. Thus, those who choose to participate in much wilderness activity should show a higher amount of endurance than the general population of less frequent wilderness users.

Sentience: Part of the allure of wilderness settings is the sensory experience they present. Not only do such settings draw people attracted to sensory awareness, they cultivate this awareness as well.

Understanding: This trait is described as including "inquiring, curious, investigative, probing, reflective, scrutinizing, and inquisitive" qualities (P.R.F. Manual, p.7). Since many people seem to use wilderness settings to reflect and explore, frequent users can be expected to score higher on this trait than do less frequent users.

4.) Frequent Wilderness Users, Low Trait Scores:

Abasement: While humility is a quality that many wilderness users cultivate, self-deprecation, self-belittling, surrendering, and subservience, all qualities associated with this trait as defined by Jackson, run

counter to the tenacity and persistence required for mastering adversity in wilderness settings. Therefore, frequent wilderness users can be expected to score significantly lower on this trait. (Those who score high on Abasement could face attrition through natural selection.)

Exhibition: With the possible exception of rock climbers, frequent wilderness users tend to be less concerned with attracting the notice of others than with noticing the larger context of which they are a part. Since wilderness settings are not particularly concerned with whether one lives or dies, it certainly does not help to satisfy desires to be the center of attention. Expecting lower than average scores on this trait seems reasonable for frequent wilderness users.

Harmavoidance: Avoiding risk is the antithesis of what frequent wilderness users do. In fact, it seems that many people value the risk-taking component of such experiences. Therefore, it seems likely that frequent users will score low on this trait.

Social Recognition: Wilderness activities frequently offer little human audience. Rather, they require that participants be sensitive to their own needs and motivations. Concern for what others think is

irrelevant except when one is member of a group (as is generally the case with winter camping, rapelling, rock climbing, and other activities generally thought of as high risk). While it could be argued that this enhances the appeal of wilderness to those who are most concerned about social recognition, the rebuttal-- that by the time someone is a more frequent wilderness user he or she has surmounted high needs for social recognition-- leads this researcher to postulate that frequent users will tend to have lower scores on this trait.

Succorance: Since people who feel insecure or helpless without frequent support from others enter an emotional desert as they leave humanity behind, this trait runs counter to the independence and adventuresomeness required of frequent wilderness users. Therefore, frequent users should score particularly low on this trait.

METHODOLOGY

Development of Questionnaire:

The Questionnaire was developed during the fall and winter of 1984-5. Through hour-long taped interviews with volunteers, the researcher clarified which questions were most salient for eliciting the type of information sought in this study. While these interviews were relaxed and open-ended, they focussed on outstanding events among interviewees' wilderness experiences. They were asked, for instance, to describe critical incidents: particularly difficult, joyous, frightening, or enlightening events. Furthermore, they were asked when and with whom they remembered having their first exposure to wilderness and if they had a "special place" they envision when thinking of wilderness. If so, they were asked to describe this place and to explain what made it special. Subsequently, a six page questionnaire was developed, which invited subjects to complete a Likert Scale rating of how risky they perceived a number of activities to be, a ranking of preferred reasons for using wilderness settings, and numerous short answer and short essay questions.

The initial 28 subjects were students in an introductory psychology course, and received experimental credits for participating. They offered many colorful

responses to the short answer and essay questions. However, these responses were not readily quantifiable or statistically analyzable, so two pages of these questions were dropped from the final Questionnaire format. In addition, other questions were restructured to eliminate ambiguity and biasing language.

Selection of Personality Measuring Instrument

The initial 28 subjects completed the California Personality Inventory (Gough, 1975) along with the Wilderness Questionnaire. However, criticisms of this test instrument in the literature (summarized below) prompted use of the Personality Research Form in the final questionnaire administration.

Malcolm D. Gunther says in his review of the C.P.I., "Reviews of the California Personality Inventory in the last three editions of the Mental Measurements Yearbook have been decidedly mixed" (1978, p.733). Indeed, as Gunther notes, this is glaringly apparent when one looks at the juxtaposition of Goldberg's and Walsh's reviews in the 1972 version. While Goldberg lauds the test for the validity of its nontest predictions, Walsh chastises it as "an almost comically typical product of criterion-oriented test construction.." which "...severely limits its generality and psychological meaningfulness" (1972,

p.96). H.J. Eysenck furthers Walsh's criticism by asserting that there is an absence of evidence to support the C.P.I.'s internal validity (1985, p.252-3). Furthermore, he raises the question why, in the lack of scientific evidence, Gough has not done a factor analysis on this test.

In sum, a careful examination of the CPI literature left this researcher with qualms about whether this personality instrument measures what it purports to measure. Several other personality instruments raised this same concern.

The Personality Research Form

With these validity issues as a major concern, the Personality Research Form became a viable option. Granted, as Robert Hogan notes, the PRF implies a somewhat limited view of personality. It does not, for instance, consider matters of conscience such as guilt and revenge (1978, p.1008). It does, however, demonstrate solid statistical validity and reliability. Moreover, when one reads the statements subsumed under a personality trait, they are clearly related to the trait. This personality instrument measures tendencies and dispositions using scales promulgated by Henry Murray (1938) and colleagues at Harvard University.

The P.R.F. consists of five forms. This study used Form AA, one of the two longest forms, containing 440 items. It measures 20 traits and contains two additional scales related to measures of test-taking attitudes and validity. The descriptions in Appendix 1 are taken verbatim from pages 6-7, Table 1, of the Personality Research Form Manual (Jackson, 1967).

Wilderness Questionnaire and PRF Administration

Data for this study was gathered by administering the wilderness Questionnaire developed in this research and Jackson's Personality Research Form (PRF) to a group of 18-33 year old University of Montana Introductory Psychology students during the spring of 1985. The Wilderness Questionnaire consists of four pages of questions concerning subjects' wilderness activities, sociocultural background, values, and aspirations. These questions discern how risky subjects view particular activities to be and how frequently they have engaged in these same activities. Towards these ends, the Questionnaire requests ratings and short answers. (See Appendix 2 for details.)

Sign up sheets limited subjects to males between the ages of 18 and 33. Because of the number of

subjects required for this study, it was necessary to offer several administrations. Each subject was given a stapled packet containing the Wilderness Questionnaire and a Personality Research Form response sheet. After reading the cover page of the packet, which described the goals and methods of this study and asked for the subject's consent to participate, subjects were asked to sign and date the bottom.

Next, subjects were read the following:

You will have as much time as you need to complete this packet. Please take time to answer all questions thoroughly, thoughtfully, and accurately. Should you need a break after completing the Wilderness Questionnaire, feel free to take one. However, please do not discuss the research packet with your fellow participants.

In order to complete the last page of your packet you will need to come up to the front desk and take one of the booklets you see here before me. It is self-explanatory. Please mark it using only a #2 pencil. As you can see, I have an assortment of them from which you can choose. Be sure to make a clear "X" in every box you select. Also, keep a careful eye on your place.

While I have asked for your name, address, and telephone number, this research is concerned with trends, rather than individuals. Therefore, your anonymity will be protected by the use of the subject number attached to your packet. Please answer all questions candidly, and confer with me if you have any concerns about this matter.

Does anyone have any questions at this time? If you want a pencil, please come up and get one. You may begin working on your packet now.

Statistical Analyses

This section lists the statistical methods used to test the hypotheses in this study. All results were calculated using the statistical package "BMDP." Nonparametric statistics were used in many cases because these make no assumptions about the homogeneity of variance, normal distribution of data points, scaling, or interval properties of the variables. For instance, they do not assume that the difference between, four and one on a rating scale is the same as that between four and seven (Howell, p.32). These statistical methods also offer a measure of central tendency that is not susceptible to inflation of the variance outliers. While nonparametric statistics are less powerful (making it more difficult to obtain significance) they were deemed the statistical paradigm of choice in this study.

A word is in order about the "Perceived Risk" (P.R.) and "Activity Participation" (A.P.) values utilized in this paper. Perceived Risk was calculated by summing up the Perceived Risk ratings each subject assigned to each of the forty Wilderness Questionnaire items. On the

basis of each individual's total across these items, scores for each subject were placed in the "High" or "Low" perceived risk category, by using a median split among subjects. The same procedure was followed for Activity Participation items. A.P. was calculated by summing up the Activity Participation ratings each subject assigned to each of the forty Wilderness Questionnaire items. Subjects' cumulative scores were then split into "More Done" or "Less Done" (activity engagement) categories. The values resulting from the median splits were then tested for significance (against the null hypothesis that they are equal) using the Mann-Whitney U. (See the descriptions below for a more details.)

- 1.) To test the hypothesis that activities differ in how risky they are perceived to be, means were computed for the riskiness ratings of each of the forty wilderness activities. An analysis of variance was conducted, and an honestly significant difference test was used to determine which differences between item means (mean levels of rated riskiness for each item) were significant [TABLE 1].
- 2.) The subjects were divided into two groups: the sixteen who, across all forty activities collectively, tended to perceive wilderness activities as more risky, and the seventeen who tended to perceive them collectively as less risky.
 - a.) The amount of wilderness activity engaged in by members of each group was examined across each of the forty

activities on the questionnaire. Rank sums (totalling 561 for each item) were used to standardize values. The rank sums were calculated by adding up the questionnaire activity and perceived risk items (1+2+3+...40) resulting in totals of 561 for each of these two groups. Significant disparities between the amount of activity participation for the low versus high risk perception groups are given by Kruskal-Wallis H significance levels. The rank sum values have no intrinsic meaning, (as is true throughout the results section) and are included only to show directionality [TABLE 2].

b.) Differences in the levels of each personality trait were also examined for the higher and lower risk perceiving groups, using the Kruskal-Wallis H [TABLE 3].

3.) The subjects were then divided into two groups based on the amount of wilderness activity in which they had engaged. The sixteen who had participated in the most wilderness activity were separated from the seventeen who had participated in less.

a.) These two groups were compared to determine the extent to which and the direction in which the amount of participation tended to color subjects' perception of activity riskiness. These differences were evaluated using the Kruskal-Wallis H [TABLE 4].

b.) These two groups were also compared with regard to specific personality characteristics. The Personality Research Form was used to expose the degree to which particular personality characteristics distinguished the more from the less frequent wilderness users [TABLE 5].

c.) A weighted sum of perceived risk times amount of activity engaged in was

computed across all forty activities. If "p"=perceived risk, and "d"=amount of activity done, then $(p_1 \times d_1) + (p_2 \times d_2) + \dots + (p_{40} \times d_{40}) =$ weighted score. This score, a frequency by valence measure, provides an index of the subjects' own views of their total amount of risky wilderness activity engaged in. This score was correlated with the twenty-two PRF scales for each individual to determine if those who participate in more activities that they view as risky show personality characteristics which distinguish them from others in the sample [TABLE 6].

- 4.) To determine if subjects participate in clusters of activities that share some common characteristics or themes, factor analysis was used [TABLE 7].
 - a.) It was hypothesized that subjects engaging in specific activity clusters will tend to display unique personality traits. A series of correlations of weighted factor scores with PRF personality traits were used to test this [TABLE 8].
- 5.) To test if subjects will rate clusters of activities as similarly risky in ways suggesting a common theme, a second factor analysis of perceived risk ratings was utilized [TABLE 9].
- 6.) Scores were calculated for each subject on amount of perceived risk, activity participation, and each of the personality characteristics. These scores were then correlated with one another. The significant correlations are reported here [Table 10].

RESULTS AND DISCUSSION

The findings of this study answer four major questions. In the process, each helps to shed light on the subsequent results. Therefore, we will explore these questions sequentially. The following subsections explain the tables at the end of the paper and interpret the implications of significant correlations. Some of this discussion is factual, while some is conjectural. All of it is directed towards providing a clearer sense of what the results may mean.

DISCUSSION OF TABLE 1*: ANALYSIS OF VARIANCE FOR WILDERNESS ACTIVITY PERCEIVED RISK

The first question of this paper is "Is there a distinct difference in how risky the wilderness activities covered in the questionnaire are perceived to be?" In order to answer this question, this study uses an analysis of variance for the forty wilderness activities in the survey. Using the honestly significant difference test, the critical range to demonstrate significant variability at the .01 level is 1.28. (The mean for each item in Table 1 is based on the ratings of all thirty-three subjects participating in the study.)

Insert Table 1 about here

*(Please refer to the tables at the end of this paper.)

Cell means for the perceived riskiness ratings (P.R.) range from a low of 1.6 in response to item 17: "Dayhiking for at least 6 hours," to a high of 5.5 in response to item 40: "Climbing an avalanche chute in winter." On the scale of one to seven, where one means "not at all risky," and seven means "extremely risky," this does indeed show significant variability in perceived riskiness.

DISCUSSION OF TABLE TWO: SPLIT HALF COMPARISON
OF WILDERNESS ACTIVITY PARTICIPATION BY AMOUNT
OF PERCEIVED ACTIVITY RISK

Table Two examines the differences between those seventeen subjects who gave the items on the Wilderness Questionnaire the highest overall scores on perceived riskiness (P.R.) versus the other sixteen subjects in terms of how much they engaged in particular wilderness activities. Once again, the method of measure used was the Kruskal-Wallis H test.

Insert Table 2 about here

As expected, for all but four items (#'s 10, 20, 21, 32), low risk perceivers engaged in more of the activity. However, the number of significant results in this table is five -- far fewer than in Table Four (See below). In each case, the group with the lower cumulative item risk

evaluation gave the item a significantly higher rank sum than did the high cumulative perceived risk group. This is consistent with the results in Table Four. Perhaps the most striking aspect of these results is how few significant ones there are. They indicate that there is some relationship between how risky subjects perceived W.A.'s to be and how much they participate in them, but the relationships are far less abundant and generally less significant than in Table Four. In each significant case, those who viewed the activity as less risky participated in it more.

DISCUSSION OF TABLE THREE: SPLIT HALF COMPARISONS
OF HIGH VERSUS LOW RISK PERCEIVERS
BY PERSONALITY VARIABLE

In Table Three only one of the personality traits, Nurturance, is significantly related to whether subjects viewed the items as more or less risky. The rank sums in Table Three indicate that those who perceived the overall risks of wilderness activities as higher, score significantly higher on this personality variable (at the .05 level). This suggests that personality traits are not strongly related to how risky subjects viewed the wilderness items in the Questionnaire as being. When scrutinized in tandem with Table Five, below, the results suggest that personality traits are more closely linked to how much subjects engaged in wilderness

activities than in how risky they perceived these activities as being. This outcome invokes the adage: you are what you do, not what you think.

Insert Table 3 about here

DISCUSSION OF TABLE FOUR: SPLIT HALF COMPARISON
OF PERCEIVED ACTIVITY RISK BY MORE
VERSUS LESS WILDERNESS USE

Table Four displays the results of a split half comparison of the item riskiness ratings of people who scored high versus those who scored low on the amount of wilderness experiences engaged in using the Kruskal-Wallis H Test. These data allows us to compare the sixteen subjects who scored highest, in amount of wilderness use with the other seventeen subjects, on an item by item basis, looking at how risky each group collectively viewed each activity to be. Performing this analysis reveals which activities were perceived differently by the two groups and allows us to speculate about what characteristics these activities have in common.

Insert Table 4 about here

Consistent with convention, throughout this study single asterisks indicate significance at the .05 level. All of the double asterisked items showed significant

group differences at the .01 level. Based on the accompanying rank sums, this means that the seventeen less frequent activity participants (hereafter referred to as "less frequent A.P.'s") perceived all asterisked activities as significantly more risky than did the sixteen more frequent A.P.'s. It follows, therefore, that more frequent A.P. (activity participation) is consistently linked with lower perceived risk.

This is not to say, however, that frequent A.P.'s come to view everything that they do as less risky: note that both more and less frequent A.P.'s rated "Using hallucinogens while winter camping" at about the same level of riskiness. The same is true for the category: "Dayhiking for at least six hours." This could, of course, reflect that even the more frequent A.P.'s rarely use hallucinogens while winter camping.

Because of the interactional nature of the results in this study and the correlational methods employed, it is difficult to discuss cause and effect. Nonetheless, the results in this section suggest one of two conclusions. The first is that people who see wilderness activities (W.A.'s) as safer tend to do more of them. The second is that people who do more W.A.'s come to view those activities as less risky. Either way, these results do verify that more frequent use and lower

perceived risk correlate positively for the subjects under consideration.

DISCUSSION OF TABLE FIVE: SPLIT HALF COMPARISON OF PERSONALITY CHARACTERISTICS IN HIGH AND LOW LEVEL OF WILDERNESS ACTIVITY PARTICIPATION SUBJECTS

Several personality traits also reveal a significant difference between the less and more frequent A.P.'s. This suggests that personality characteristics are linked to the frequency and/or extent to which people engage in wilderness activities. Table Five shows which particular personality characteristics are linked to activity level, and to what extent the relationship is significant. Significance occurs when there is a distinct disparity between the rank sum scores in the "More Done" and the "Less Done" columns.

Insert Table 5 about here

Those who participated in wilderness activities (W.A.'s) more frequently obtained significantly lower scores for Affiliation, contrary to the hypothesis. However, this same group showed significantly higher scores on the scales of Autonomy and Understanding. Among results significant at the .05 level, those with more W.A. scored significantly higher on Aggression and Sentience, and significantly lower on Harmavoidance, Nurturance, Social Recognition, and Succorance. Whereas

the lower score for affiliation disconfirms the hypothesis made for this scale, the results for Autonomy, Sentience, Harmavoidance, Social Recognition, and Succorance support the hypotheses.

These results begin to give us a composite picture of how more frequent A.P.'s differ in personality from the rest of the subject pool. While they do not reveal which, if either, participation group scored extremely high or low relative to the general population, they do allow us to conjecture a description of how frequent A.P.'s differ from less frequent ones.

Personality Portrait of More Frequent Wilderness Users

Based on the P.R.F., the more frequent A.P.'s tend to be less inclined to socialize with friends and people in general, and to be slower to accept others. They tend to avoid restriction of any kind, but desire an understanding of many areas of knowledge, synthesizing ideas, and satisfying intellectual curiosity. They tend to be significantly more attuned to sensory awareness, seeing it as an important part of life. Yet, they tend not to be as concerned with what others think of them, or about being held in high esteem by acquaintances.

Predictably, frequent A.P.'s seek less sympathy,

love, protection, advice, or reassurance from others than do lower A.P.'s. They are also not inclined to give sympathy or support. They tend to enjoy arguing, combat, and exciting activities that could cause bodily harm more than less frequent A.P.'s do.

DISCUSSION OF TABLE SIX: CORRELATION OF WEIGHTED SCORES
(OVERALL PARTICIPATION TIMES PERCEIVED RISK
BY EACH PERSONALITY TRAIT)

Because of the design of this analysis, a high correlation occurs if subjects who view W.A.'s as risky participate in them frequently and score high on a personality variable. Reciprocally, low scores occur if subjects who view activities as low risk participate in them infrequently and score low on a personality variable relative to the other subjects. Two other types of subjects represent a middle group, and so are unaccounted for as far as significance is concerned. These are subjects who participate frequently, but view risk as low; and those who participate infrequently and view activity risk as high. (These two groups intermingle statistically.) Since this study suggests that these groups may predominate in our sample, this analysis may be of questionable usefulness.

Insert Table 6 about here

The results indicate that the two extreme groups previously mentioned (high A.P., high P.R.; and low A.P., low P.R.) do not reveal distinctive personality traits. While this tends to clash with expectation, these two groups are the least common of the four and so may have been represented inadequately to produce accurate results.

DISCUSSION OF TABLE SEVEN: FACTOR ANALYSIS OF ACTIVITIES THAT PARTICIPANTS TEND TO ENGAGE IN

Factor analysis of the W.A.'s in this study reveals that the first five factors explain 16.49% of the variance in the measure. Additionally, each factor beyond the fifth explains less than 2.6% of the variance in activity ratings. Therefore, attention will be focused on the initial five factors. Although these analyses can only be considered exploratory due to the small number of subjects involved, they provide interesting information about patterns of wilderness usage.

Insert Table 7 about here

Factor analysis answers the question: "Have people tended to engage in specific groups of activities?" These results suggest that such is indeed the case. Table Seven lists the activities with the highest correlations for each factor. All correlations of .47 or

greater are displayed, with a minimum of the four highest correlations per factor included.

Factor analysis reveals how the W.A.'s "hang together". It also invites speculation about what the common theme is that unites particular factors. For instance, Factor #1 W.A. items all involve resting/sleeping, and solitary experiences. Factor #2 focusses on hunting, perhaps metaphorically as well actually, i.e., hunting for shelter, as well as for food. (The expression, "back to basics," comes to mind.) Factor #3 revolves around winter activities. Factor #4 portrays intoxicating/exhilarating experiences including a loosening of controls over impulses (evidently with a strong emphasis on chemical inducements). Interestingly, Factor #4 shows negative loadings for activities requiring mental concentration and control. Factor #5 W.A.'s seem to focus on testing limits of competence and confidence with extensive physical activity in the context chosen.

Only one of the factors, #4, contains items with both negative as well as positive loadings. The items that load negatively on the factor do, indeed, seem at variance with the other items in the factor. For instance, it seems reasonable to presume that subjects who opt to use intoxicants while winter camping would not

camp alone: otherwise the likelihood of their being available for this study would be greatly diminished. Hunting while intoxicated seems like an equally suicidal and difficult combination. (Nonetheless, for those of us who might be out in the woods during hunting season, these negative correlations offer some reassurance, since hunting while intoxicated is often assumed to be relatively common.)

The A.P. factor analyses make intuitive sense, tending to reinforce the notion that people select W.A.'s based on particular interests. Moreover, these results suggest just what some of those interests or themes may be.

DISCUSSION OF TABLE EIGHT: PERSONALITY TRAITS
DISTINGUISHING SUBJECTS WHO ENGAGE
IN PARTICULAR WA FACTORS

This is a thought provoking table, for it probes even deeper into the personality traits that tend to unite subjects who score particularly high Table Seven A.P. factors.

Insert Table 8 about here

A. DFAC #1: PERSONALITY TRAIT ANALYSIS

Given that the word "alone" seems to characterize this factor, it seems fitting that the strongest personality trait correlation is with Autonomy (enjoyment

of being unattached, free, not tied to people, places, or obligations). Understanding (the desire to satisfy intellectual curiosity and to comprehend many areas of knowledge) has the second strongest correlation with DFAC 1. This fits with the experience of exploring one's surroundings while resting. Valuing sensory awareness (sentience) complements this picture, too. Yet, two of the significant results give greater pause for wonder.

The prevalence of higher scorers on Dominance, the attempt to control one's environment and to direct or influence other people, seems contradictory to DFAC 1's emphasis on solitude and reflection. However, one can speculate that such A.P. may offer a welcome respite from control, or that solitude offers more control of the immediate environment than is available in most human contexts. The other seemingly incongruous trait in this factor is Desirability: the tendency to describe one's self in desirable ways, whether consciously or unconsciously, accurately or inaccurately. To the extent that these subjects may be concerned about their role in society, as reflected in their tendency to score high on the Dominance trait, it may follow that they are concerned about what others think of them. Once again, this concern may provide an added incentive to seek out solitude as a vacation from social judgement.

Lastly, one negative correlation occurs for DFAC #1. This is with Harmavoidance, the desire to avoid risk of bodily harm and to maximize safety. It makes sense that the more people choose to engage in wilderness activities alone the less they are likely to exhibit concern about Harmavoidance.

B. DFAC #2 PERSONALITY TRAIT ANALYSIS

This factor reveals only one positive correlation. This is with Aggression, characterized as the enjoyment of combat and argument, with the possible willingness to hurt others and/or "get even." This definition evokes images of the hunter and the hunted, which the significant negative correlations with Harmavoidance and more particularly, Affiliation reinforce. (This last negative correlation suggests that high scorers in DFAC #2 do not accept people readily, make efforts to win and maintain friendships, or tend to enjoy being with people in general.)

C. DFAC #3: WINTER RECREATION

The strongest correlation for this factor is with Understanding. This would tend to suggest that participants do these W.A.'s with an eye towards comprehending unfamiliar aspects of their world. Once again, as was true with Factor #1, their interest in these activities may be linked to the opportunities they

provide for solitude and reflection. While this is merely speculation, the significant negative correlation with Affiliation tends to support this notion. As with Factor #1, these subjects value Sentience, which seems consistent with exploring a realm of the world that is unfamiliar and frequently unfriendly. Without a fair degree of Sentience in the winter, subjects would be far more prone to suffering from frostbite and other problems. Once again, it is impossible to know from these results whether subjects came to receive high scores on DFAC #3 after having a highly developed level of Sentience, or whether they developed this trait out of necessity, through trial and error experiences.

D. DFAC #4: EXHILARATION AND INTOXICATION

The results for this factor offer little to discuss. The one significant correlation is a negative one, with Harmavoidance. This supports the impression that subjects who participate in these activities enjoy excitement and do not seek to avoid the risk of bodily harm.

E. DFAC #5: LIMIT TESTING

This factor reveals three positive personality trait correlations with personality traits: Autonomy, Change, and Sentience. Since Autonomy involves breaking away

from restraints, restrictions, or confinement, the presence of high levels of this trait is consistent with the theme of limit testing, attempting to extend beyond personal boundaries. Change, reflecting the penchant for new and different experiences and the capacity to adapt readily to changes in the environment, seems to complement limit testing also. One component of Sentience, the third scale with a positive correlation with this factor, is maintaining an essentially hedonistic or aesthetic view of life. While merely speculation, this raises curiosity about the degree of self-indulgence manifest in subjects who participate in this cluster of activities. The significant negative correlation with Affiliation adds to this curiosity. The absence of a correlation with Achievement (the aspiration to accomplish difficult tasks and to work toward distant goals) while also puzzling, may be due to an emphasis within this trait scale on social achievement.

DISCUSSION OF TABLE NINE: FACTOR ANALYSIS OF PERCEIVED ACTIVITY RISK GROUPINGS

Factor analysis of the perceived risk of W.A.'s reveals that the top five factors explain 24.01% of the variance. In this case, a factor represents a cluster of W.A.'s that tended to receive the same riskiness ratings from the subjects. As with the factor analysis of A.P., only the first five factors are considered here. It may

be noted that each factor beyond the fifth explains less than 3.0% of the variance. As was true with Table Seven, Table Nine lists the activities with the highest loadings for each factor. All correlations of .47 or greater are displayed, with a minimum of the four highest correlations per factor included.

Insert Table 9 about here

Looking for a common theme that seems to link P.R. factors proved more difficult than it was for the factor analysis of A.P.. Nonetheless, the following labels seem to touch on core issues in each factor: PFAC #1 suggests risks associated with doing without, whether it be without warmth, sufficient shelter, or human companionship; PFAC #2 suggests risks associated with motion and/or travelling; PFAC #3 suggests risk of exposure to cold/winter; PFAC #4 suggests risk of falling or of being fallen upon; and PFAC #5 suggests risk from unpredictable, powerful forces (particularly bears).

DISCUSSION OF TABLE TEN: SIGNIFICANT KENDALL RANK
ORDER CORRELATION COEFFICIENTS FOR PERSONALITY
TRAITS AS RELATED TO LEVEL OF PERCEIVED RISK
AND ACTIVITY PARTICIPATION

These coefficients address the question "How are personality characteristics related to how people perceive or tend to engage in wilderness activities?"

That is to say, Kendall Rank Correlation Coefficients help to ascertain how much various personality traits are related to one another and to A.P. and P.R. among subjects.

Insert Table 10 about here

In order to obtain these correlations, subjects were placed in two of four groups. Each subject was placed in either the upper or lower half of subjects, based on cumulative A.P. points and on cumulative P.R. points. The negative correlation between A.P. and P.R. reveals that high AP subjects tend to be low PR, and vice versa. This also supports the hypothesis that increasing A.P. may be one way of reducing P.R., and implicitly, increasing confidence. However, any attempt at suggesting a causal relationship can not be substantiated by a correlational study. (It was not within the scope of this study to determine how such a reduction of P.R. generalizes beyond the wilderness setting either, an issue of external validity.) The absence of significant relationships between P.R. and the personality variables is noteworthy, too. It tends to support the hypothesis that A.P. is related to personality more than is P.R..

Based upon these results, more frequent A.P.'s can be characterized as more prone to seek freedom (lack of

restraints, obligations, or restrictions); to notice smells, sounds, sights, tastes, and the way things feel; and to want to understand many areas of knowledge. They are less likely to avoid risks of bodily harm, for they enjoy exciting activities. (The latter seems to imply physically exciting activities, in this case.)

CONCLUSION

The goal of this research is to arrive at a greater understanding of how three sets of variables interact. The relationship between perceived risk, wilderness use, and personality traits becomes clearer in this examination of the results of a series of statistical tests described herein. Statistically significant results suggest that relationships between these sets of variables occur at more than a chance level.

These results indicate that subjects:

- 1.) do view activities as differing in riskiness;
- 2.) can be categorized as high and low risk perceivers;
- 3.) can be categorized as high and low risk takers;
- 4.) do tend to participate in clusters of activities that share some common characteristics;
- 5.) exhibit some distinct differences in personality when evaluated by overall amount of wilderness activity participation;
- 6.) exhibit only little difference in personality when examined on the basis of overall level of riskiness they attributed to items on the Wilderness Questionnaire;
- 7.) results reported as number five and six above confirm the hypothesis that subjects' significant differences in personality are more related to the level of participation in activity than to the level of risk they perceive an activity to have;

- 8.) who engage in different clusters of wilderness activities tend to show differences in personality traits;
- 9.) rate clusters of activities as similarly risky;
- 10.) have distinct personality traits which correspond to perceived risk factors.

Limitations of this Study

This study, while worthwhile, has several limitations that the reader ought to be aware of. Most of these stem from practical considerations such as limited time and subject availability. Inherent in many of these limitations are suggestions for worthwhile future research.

Initially, this study was to include both male and female subjects of any age. However, since a dearth of subjects was available, the sample was restricted to males between the ages of eighteen and thirty-three. The choice of males in this age range was based on the preponderance of available prior research on young males. Since little (if any) research had been conducted on female juvenile delinquents in wilderness settings, results about females would have been of less comparative value.

A larger number of subjects would have allowed this

study to include a wider variety of statistical measures. It would also have strengthened the results. Not only did this study eliminate women; it also eliminated older and younger members of the populace, non-students, and individuals from other geographical locations. Broadening it to include any of these groups could reveal worthwhile information for other groups.

The selection of a personality scale also limited the scope of this study. First, it resulted in fixed parameters for evaluating personality, based on a trait factor model. Secondly, none of its measures directly addresses the notion of self-confidence/self-esteem. (However, this study compensates by taking advantage of the PRF's high reliability and validity when compared with other personality instruments.) One undertaking this study bypassed was a comparison of the mean male intercorrelational scores for PRF traits nationally with those among participants in this study. Moreover, the PRF was administered after the Wilderness Questionnaire, which may have biased subjects' responses. One means of compensating for such bias would have been to have one half of the subject pool complete the PRF first.

Conjectures

As was mentioned in the introduction, this study

(and therefore its results) are correlational in nature. The results reveal significant relationships between variables, but do not reveal causality using longitudinal methods. In order to make greater sense of these results it would be useful to try to establish causality. However, since this has yet to be done, the ensuing conjectures are broadly speculative.

Consistent with Driver's (1977) findings that people who participate in different forms of recreation exhibit distinct differences in personality, this study's analysis of participation factor clusters also reveals such differences. These results could be used in advising individuals about what types of wilderness activities might allow them to meet others with particular personality characteristics. The results also suggest which activities most probably suit a person, based on the choices others who have scored similarly on the test have made. (This is akin to how the Strong-Campbell Interest Inventory works.) Using this approach might allow people to bypass some of the trial and error involved in finding suitable wilderness activities for recreation and employment, and might further employers' abilities to screen applicants. (If further research bears out the findings herein, then it could prove useful to refine an interest/risk participation inventory for

recreational wilderness use.)

If personality is shaped by the types of A.P. engaged in, then some consideration should be given to which activities will complement and which will detract from an individual's capacity to function effectively outside of the wilderness. For instance, health professionals, such as psychologists, social workers, and nurses, may benefit from engaging in a cluster of activities that are associated with high understanding scores (such as factor 1). Explorers such as astronauts, research scientists, and journalists may benefit more from engaging in activities associated with Autonomy and Change (those in factor 5). Furthermore, individuals who are interested in cultivating particular personality qualities for non-professional reasons (such as less Harmavoidance or greater Autonomy for improved interpersonal relationships) could select W.A.'s accordingly.

The results of this study indicate that people who participate in wilderness activities more frequently, view such activities as less risky than do less frequent participants. This leaves unanswered the question of whether lower risk perception precedes or follows from wilderness activity participation. If the perception precedes the activity, then employers could use this

knowledge to determine whether or not individuals are well suited for various sorts of outdoor work. Likewise, career counselors and occupational and recreation therapists could use such information for advising their patients about suitable careers and pasttimes, as could wilderness planners.

If, on the other hand, lower risk perception grows out of participation, one implication is that as individuals become more familiar with wilderness activities they see them as safer. In conjunction with findings such as those of Kelly & Baer (1979) and Cave (1979) that report changes in personality related to wilderness activity intensity, lower risk perception implies that such activities may build confidence and stimulate a sense of mastery. This result bolsters arguments for the therapeutic potential of wilderness use. It suggests that benefits accrue even when the participants are not legal offenders, are not strictly involved in a specially structured wilderness course, and are not gaining their experiences over a short period of time (a month or less). This result also suggests that the change in risk perception may be enduring, rather than short term. When juxtaposing externally structured versus self-structured activities, the results of this study raise the question of which produces more

enduring change. This, too, is a topic worthy of further research.

If people with more A.P. view W.A.'s as less risky, then this also raises the question of how one's risk perception transfers beyond the wilderness setting. Further research is needed to determine if the same subjects who tend to view W.A.'s as less risky tend to view other activities as significantly less risky than do less frequent A.P.'s. The results of this inquiry will, however, still leave the question of whether perception precedes or follows from A.P. unanswered.

In order to determine the direction of causality (if any) between perception of risk and participation, a pre-test, post-test study needs to be conducted. From the pre-test sections subjects could be divided into groupings based on amount and variety of A.P.'s, and by how risky they view various activities to be. The post-test could follow two to six years later (or at intervals of a year). Subsequently, subjects could be classified according to their risk ratings relative to the kinds and extent of W.A. This same study could measure risk perceptions of non-wilderness activities to see if shifts of risk perception occur across all activities, or only relative to particular types.

If results indicate that risk perception correlates negatively with amount of A.P. across time (i.e., as one goes up the other goes down), then such results tend to support the notion that wilderness P.R. level changes are generalizable beyond the wilderness setting. A clearer definition is still needed of how lower P.R. is related to the concept of confidence. If one surmises that these two variables co-vary inversely, then further research could determine if W.A. stimulates psychological growth through its metaphorical characteristics.

Wilderness experience may have unrealized therapeutic potential for helping people to gain self-confidence. Moreover, by offering an environment that takes individuals beyond familiar daily routines, wilderness settings could allow people to respond to familiar kinds of situations (such as threat of physical harm or character defamation) in novel and constructive ways. As such, it could become an powerful vehicle for milieu therapy. It offers a broad gestalt: interpersonal contact, interspecies involvement, physical exertion, and time to experiment with and to begin to incorporate what one learns. Such generalizability has exciting implications as a way of allowing people to live more fulfilling lives.

TABLES

TABLE ONE

ANALYSIS OF VARIANCE BETWEEN QUESTIONNAIRE
ITEMS FOR PERCEIVED ACTIVITY RISK

QUEST. ITEM	MEAN	STAN. DEV.
1	2.67	.99
2	3.52	1.25
3	5.12	1.41
4	5.30	1.29
5	4.18	1.40
6	3.45	1.35
7	1.82	.95
8	2.94	1.62
9	2.67	1.34
10	3.52	1.62
11	1.61	1.12
12	1.73	1.15
13	1.94	1.25
14	4.55	1.80
15	4.70	2.04
16	1.82	1.31
17	1.58	1.15
18	3.24	1.56
19	2.48	1.52
20	5.24	1.87
21	2.45	1.46
22	3.21	1.65
23	3.55	1.66
24	3.36	1.85
25	3.48	1.44
26	3.67	1.43
27	4.15	2.12
28	3.30	1.49
29	3.82	1.51
30	3.67	1.34
31	2.73	1.53
32	2.82	1.55
33	4.09	1.42
34	3.48	1.20
35	3.39	1.85
36	2.58	1.17
37	2.52	1.35
38	4.39	1.80
39	3.12	1.71
40	5.48	1.39

[$f(39,1209)=22.57, p \leq .001$]

($p \leq .05$, ** $p \leq .01$ --See Discussion Section
for Elaboration.)

Out of the forty items examined, distribution on the seven point scale was as follows:

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>
<u>Not</u>	<u>Slightly</u>	<u>Somewhat</u>	<u>Moderately</u>	<u>Quite</u>	<u>Very</u>	<u>Extremely</u>
<u>Risky</u>	<u>Risky</u>	<u>Risky</u>	<u>Risky</u>	<u>Risky</u>	<u>Risky</u>	<u>Risky</u>
<6>	<9>	<15>	<6>	<4>	<0>	

Thus, six items fell between one and two on the scale; nine items fell between two and three on the scale, and so forth. With a critical range (Tukey's Honestly Significant Difference Test at .01) of 1.28, we can conclude that items located more than two clusters away from each other on the scale above exhibit significant differences.

TABLE TWO

SPLIT HALF COMPARISON: AMOUNT ACTIVITY DONE
FOR EACH ITEM BY HIGH AND LOW PERCEIVED RISK SUBJECTS
 (Anova w/Rank Sums, Chi Sq. Dist. w/1 df./item)

ITEM NUMBER	S. THINK LOW RISK	S. THINK HIGH RISK	KRUSKAL-WALLIS H	T
1	319.5	241.5	1.26	.262
2	291.5	269.5	0.01	.918
3	339	222	4.93	.026*
4	324	237	0.03	.872
5	324	237	2.06	.151
6	337	224	3.49	.061
7	305.5	255.5	0.40	.526
8	321	240	1.39	.239
9	329	232	2.38	.123
10	266	295	0.76	.382
11	298	263	0.42	.515
12	315.5	245.5	1.15	.284
13	314.5	246.5	1.09	.296
14	296	265	0.16	.686
15	285	276	0.03	.859
16	332.5	228.5	3.54	.060
17	330.5	230.5	3.64	.057
18	330	231	2.51	.113
19	313.5	247.5	1.39	.239
20	278.5	282.5	0.28	.597
21	269	292	0.55	.458
22	354	207	5.86	.016*
23	323	238	1.67	.196
24	318.5	242.5	1.41	.236
25	289	272	0.00	1.000
26	320	241	1.32	.251
27	317.5	243.5	1.42	.233
28	328	233	2.30	.130
29	318.5	242.5	1.41	.236
30	318.5	242.5	1.17	.279
31	361.5	199.5	7.27	.007**
32	380	181	11.12	.001**
33	284.5	276.5	0.03	.857
34	339	222	3.51	.016
35	363.5	197.5	7.43	.006**
36	317.5	243.5	1.16	.281
37	278	283	0.19	.664
38	323.5	237.5	1.65	.199
39	314	247	0.86	.353
40	318	243	1.78	.183

TABLE TWO-A

SUMMARY: AMOUNT OF ACTIVITY PARTICIPATION AS A FUNCTION
OF PERCEIVED RISK
 (Ordered By From Greatest to Least Significance)

<u>ITEM</u>		
<u>#:</u>	<u>ACTIVITY</u>	<u>T</u>
32.)	Camping outside in a tent in snow.	.001
35.)	Camping out without a flashlight or candles.	.006
31.)	Building a snowcave.	.007
22.)	Hiking without a bell in grizzly country.	.016
3.)	Ice climbing on a glacier or frozen waterfall.	.026

(Note: Differences are in the hypothesized direction in all cases, with Low Risk Perceivers engaging in more of the activity.)

TABLE THREE

SPLIT HALF COMPARISON: PRF PERSONALITY VARIABLES IN HIGH AND
LOW PERCEIVED ACTIVITY RISK SUBJECTS
 (Anova w/Rank Sums)

ITEM NUMBER	S. THINK LOW RISK	S. THINK HIGH RISK	KRUSKAL- WALLIS H	T
ABASEMENT	295.5	265.5	0.06	.813
ACHIEVEMENT	323.5	237.5	1.56	.212
AFFILIATION	258	303	1.28	.258
AGGRESSION	304.5	256.5	0.31	.575
AUTONOMY	320.5	240.5	1.30	.254
CHANGE	339.5	221.5	3.35	.067
COG. STRUCTURE	293	268	0.02	.885
DEFENDENCE	260.5	300.5	1.06	.302
DOMINANCE	297	264	0.08	.772
ENDURANCE	304.5	256.5	0.31	.575
EXHIBITION	272	289	0.38	.539
HARMAVOIDANCE	252	309	1.80	.180
IMPULSIVITY	269.5	291.5	0.50	.481
NURTURANCE	228	333	4.88	.027*
ORDER	292.5	268.5	0.02	.899
PLAY	262	299	0.96	.328
SENTIENCE	319	242	1.21	.271
SOCIAL RECOG.	272	289	0.38	.537
SUCCORANCE	277	284	0.19	.664
UNDERSTANDING	328.5	232.5	2.06	.151
INFREQUENCY	282.5	378.5	0.08	.783
DESIRABILITY	314.5	246.5	0.86	.354

TABLE FOUR

SPLIT HALF COMPARISON OF PERCEIVED ACTIVITY RISK
IN HIGH AND LOW AMOUNT DONE SUBJECTS
 (Rank Sums, 2 Tail ANOVA)

ITEM #	<DONE	>DONE	KRUSKAL-WALLIS H (Anova)	T
1	348	213	4.99	.026*
2	310	251	0.60	.437
3	342	219	3.91	.048*
4	375.5	185.5	10.83	.001**
5	365.5	195.5	8.04	.005**
6	361	200	7.09	.008**
7	317.5	243.5	1.23	.268
8	365.5	195.5	7.93	.005**
9	323	238	1.65	.200
10	325.5	235.5	1.80	.179
11	316	245	1.24	.265
12	292	269	0.01	.903
13	326.5	234.5	2.12	.159
14	313	248	0.77	.381
15	310	251	0.60	.437
16	292	269	0.01	.905
17	303	258	0.35	.553
18	335.5	225.5	3.02	.082
19	313.5	247.5	0.84	.361
20	306	255	0.41	.521
21	354	207	5.90	.015*
22	392	169	14.43	.000**
23	343	218	3.95	.047*
24	333	228	2.60	.107
25	355	206	5.91	.015*
26	329.5	231.5	2.23	.135
27	319.5	241.5	1.24	.266
28	333	228	2.63	.105
29	372	189	9.52	.002**
30	360.5	200.5	6.97	.008**
31	360	201	6.86	.009**
32	372.5	188.5	9.84	.002**
33	323.5	237.5	1.61	.205
34	363	198	7.55	.006**
35	366	195	7.98	.005**
36	374.5	186.5	10.77	.001**
37	378	183	11.16	.001**
38	381.5	179.5	11.49	.001**
39	386.5	174.5	12.80	.000**
40	317	244	1.09	.297

TABLE FOUR-A

SUMMARY: SIGNIFICANT SPLIT HALF COMPARISONS
(Ordered From Greatest To Least Significance)

Quest. Item #:	<u>ACTIVITY</u>	T
39.)	Sleeping alone in the Woods without a tent.	.000
22.)	Hiking without a bell in grizzly country.	.000
36.)	Descending a steep trail with a heavy pack.	.001
37.)	Hiking and camping out alone for two or more nights.	.001
38.)	Crossing a ridge in a thunderstorm.	.001
4.)	Lead climbing on a vertical face or crack.	.001
29.)	Camping out alone in the woods in the winter.	.002
32.)	Camping outside in a tent in snow.	.002
35.)	Camping out without a flashlight or candles.	.005
8.)	Observing a rattler from less than twelve feet away.	.005
5.)	Rock climbing top-roped.	.005
34.)	Camping on a mountain peak.	.006
30.)	Ascending a trail via footholds and handholds	.008
6.)	Rapelling down a cliff.	.008
31.)	Building a snowcave.	.009
21.)	Hiking/camping out alone overnight.	.015
25.)	Glissading down a snowfield.	.015
1.)	Climbing a mountain on skis or snowshoes.	.026
23.)	Hiking without a map or compass.	.047
3.)	Ice climbing on a glacier or frozen waterfall.	.048

(Note: Subjects who engaged in less activity tended to rate all of these activities as more risky.)

TABLE FIVE

SPLIT HALF COMPARISON: PERSONALITY CHARACTERISTICS OF HIGH
VERSUS LOW AMOUNT OF ACTIVITY DONE SUBJECTS
 (Rank Sums)

TRAIT	<DONE	>DONE	KRUSKAL- WALLIS H	T
ABASEMENT	329.5	231.5	2.18	.139
ACHIEVEMENT	259.5	301.5	1.14	.285
AFFILIATION	361	200	6.91	.009**
AGGRESSION	233.5	327.5	4.03	.045*
AUTONOMY	169	392	18.88	.000**
CHANGE	268.5	292.5	0.55	.457
COG. STRUCTURE	305.5	255.5	0.36	.551
DEFENDENCE	278	283	0.16	.691
DOMINANCE	246.5	314.5	2.36	.124
ENDURANCE	253.5	307.5	1.65	.199
EXHIBITION	317.5	243.5	1.06	.303
HARMAVOIDANCE	354.5	206.5	5.63	.018*
IMPULSIVITY	337	224	3.01	.083
NURTURANCE	345.5	215.5	4.19	.041*
ORDER	314	247	0.82	.366
PLAY	282.5	278.5	0.06	.814
SENTIENCE	228	333	5.00	.025*
SOCIAL RECOGNIT.	357.5	203.5	6.18	.013*
SUCCORANCE	359.5	201.5	6.53	.011*
UNDERSTANDING	213	348	7.62	.006*
INFREQUENCY	262	299	1.31	.253
DESIRABILITY	250	311	2.01	.256

TABLE FIVE-A

SUMMARY: SIGNIFICANT SPLIT HALF COMPARISONS OF PERSONALITY
VARIABLES IN HIGH AND LOW AMOUNT OF PARTICIPATION SUBJECTS
 (Ordered From Greatest to Least Significance)

<u>PERSONALITY VARIABLE</u>	<u>T</u>
AUTONOMY	.000
UNDERSTANDING	.006
AFFILIATION	.009
SUCCORANCE	.011
SOCIAL RECOGNITION	.013
HARMAVOIDANCE	.018
SENTIENCE	.025
NURTURANCE	.041
AGGRESSION	.045

TABLE SIX

ACTIVITY PARTICIPATION X PERCEIVED RISK
WITH EACH PERSONALITY TRAIT
 (Correlation of Weighted Scores)

<u>PERSONALITY</u> <u>TRAIT</u>	<u>CORRELATION</u> <u>COEFFICIENT</u>
Abasement -----	-.246
Achievement -----	-.116
Affiliation -----	-.183
Aggression -----	.331
Autonomy -----	.096
Change -----	.067
Cognitive Structure -----	-.102
Defendence -----	.194
Dominance -----	.288
Endurance -----	.063
Exhibition -----	.051
Harm Avoidance -----	-.110
Impulsivity -----	.035
Nurturance -----	.286
Organization -----	-.111
Play -----	.288
Sentience -----	.213
Social Recognition -----	.016
Succorance -----	.055
Understanding -----	.200
Infrequency -----	.239
Desireability -----	-.069

(Results indicate no significant correlations.)

TABLE SEVEN

FACTOR ANALYSIS OF ACTIVITY PARTICIPATION GROUPINGS

Factor #1:	
	<u>ACTIVITY: Alone/At Rest</u>
	<u>CORR.</u>
1.) Sleeping alone in the woods in a tent.	.83
2.) Hiking/camping out alone overnight.	.82
3.) Hiking/camping out alone for more than two nights.	.61
4.) Allowing a spider to walk over you.	.60
5.) Camping out without a flashlight or candles.	.51
6.) Camping out alone in the woods in winter.	.49
Factor #2:	
	<u>ACTIVITY: Extremes/Chancy Hunting</u>
	<u>CORR.</u>
1.) Hunting a bear with a bow.	.83
2.) Hunting a deer with a bow.	.81
3.) Crossing a ridge in a thunderstorm.	.76
4.) Hunting a bear with a rifle.	.52
5.) Building a snow cave.	.49
Factor #3:	
	<u>ACTIVITY: Winter</u>
	<u>CORR.</u>
1.) Sleeping in a snow cave.	.80
2.) Ice climbing on a glacier or frozen waterfall.	.75
3.) Telemarking down an undeveloped slope.	.71
4.) Building a snow cave.	.63
5.) Camping outside in a tent in snow.	.49
Factor #4: <u>POSITIVE CORRELATIONS</u>	
	<u>ACTIVITY: Intoxication/Exhilaration</u>
	<u>CORR.</u>
1.) Using hallucinogens while winter camping.	.89
2.) Using hallucinogens while summer camping.	.86
3.) Glissading down a snowfield.	.35
4.) Getting drunk while winter camping.	.29
Factor #4: <u>NEGATIVE CORRELATIONS</u>	
	<u>ACTIVITY: Focussed Concentration</u>
	<u>CORR.</u>
1.) Hunting deer with a rifle.	-.69
2.) Hunting bear with a rifle.	-.38
3.) Hunting deer with a bow.	-.30
4.) Camping out alone in the woods in winter.	-.26
Factor #5:	
	<u>ACTIVITY: Testing Limits</u>
	<u>CORR.</u>
1.) Rock climbing top-roped.	.87
2.) Rapelling down a cliff.	.78
3.) Backpacking two or more days away from civilization.	.59
4.) Camping out without a flashlight or candles.	.38

TABLE SEVEN-A

VARIANCE EXPLAINED BY ACTIVITY CLUSTERS
THAT PARTICIPANTS TEND TO ENGAGE IN

<u>FACTOR #:</u>	<u>% of Variance Explained</u>
1	3.66
2	3.64
3	3.44
4	3.11
5	<u>2.64</u>
TOTAL	16.49

TABLE EIGHT

SUMMARY OF SIGNIFICANT CORRELATIONS AMONG
PERSONALITY TRAITS DISTINGUISHING FIVE DACT FACTORS
(COPAIR CORR. MATRIX: PEARSON R)

<u>PERSONALITY</u> <u>TRAIT:</u>	<u>DFAC 1</u> (ALONE/ AT REST)	<u>DFAC 2</u> (HUNT)	<u>DFAC 3</u> (WINTER)	<u>DFAC 4</u> (INTOX./ EXHIL.)	<u>DFAC 5</u> (LIMIT TESTING)
AFFILIATION	.....	-.422	-.358	.....	-.369
AGGRESSION	.....	.446	.....	.....	.....
AUTONOMY	.455	.....	.422	.....	.567
CHANGE	.....	.....	.....	.....	.527
DOMINANCE	.373	.....	.....	.....	.....
HARMAVOIDANCE	-.459	-.368	.....	-.518	.....
SENTIENCE	.376	.....	.447	.....	.369
UNDERSTANDING	.436	.....	.569	.....	.....

(Note: Desireability, a PRF scale which measures the extent to which one describes one's self in favorable terms whether accurately or inaccurately, consciously or unconsciously, correlated .362 with DFAC 1.)

TABLE NINE*

FACTOR ANALYSIS OF PERCEIVED ACTIVITY RISK
(Sorted Rotated Factor Loadings: Five Most Salient Groupings.)

Factor #1:

<u>ACTIVITY: Doing Without/Taking A Chance</u>	<u>CORR.</u>
1.) Sleeping alone in the woods without a tent.	.78
2.) Camping on a mountain peak.	.78
3.) Camping out without a flashlight or candles	.76
4.) Camping outside in a tent in snow.	.75
5.) Hiking and camping out alone for two or more nights.	.73
6.) Camping out alone in the woods in the winter.	.73
7.) Hiking without a bell in grizzly country.	.62
8.) Glissading down a snowfield.	.62
9.) Building a snow cave.	.57
10.) Hiking without a map or compass.	.50
11.) Crossing a ridge in a thunderstorm.	.49
12.) Climbing an avalanche chute in winter.	.49

Factor #2:

<u>ACTIVITY: Hiking/Camping/Hunting</u>	<u>CORR.</u>
1.) Dayhiking for at least six hours.	.96
2.) Backpacking and camping out overnight.	.95
3.) Backpacking two or more days away from civilization.	.88
4.) Hunting deer with a bow.	.84
5.) Hunting deer with a rifle.	.80
6.) Hiking/camping out alone overnight.	.77
7.) Off trail hiking through the woods.	.70
8.) Sleeping in a snow cave.	.55

Factor #3:

<u>ACTIVITY: Cold/Wintery Action</u>	<u>CORR.</u>
1.) Telemarking down an undeveloped slope.	.79
2.) Climbing a mountain on skis or snowshoes.	.71
3.) Jumping off a cliff into a chilly swimming hole.	.71
4.) Crossing a glacier.	.65
5.) Climbing a peak in 250' or less visibility.	.61
6.) Getting drunk while winter camping.	.60

Factor #4:

<u>ACTIVITY: Rope, Rock, Snow, & Ice</u>	<u>CORR.</u>
1.) Rapelling down a cliff.	.74
2.) Ice climbing on a glacier or frozen waterfall.	.72
3.) Rock Climbing top-roped.	.70
4.) Lead climbing on a vertical face or crack.	.68
5.) Building a snow cave.	.64

*The factors in this table are ordered from greatest to least variance explained. Collectively they explain 24.01% of the variance. Each factor explains at least 3.09% of the variance.

Factor #5:

<u>ACTIVITY: Bears/Immediate Risk</u>	<u>CORR.</u>
1.) Hunting a bear with a bow.	.76
2.) Watching a grizzly from less than 300 yards off.	.72
3.) Hunting a bear with a rifle.	.68
4.) Climbing an avalanche chute in the winter.	.48

TABLE NINE-A
VARIANCE EXPLAINED BY PERCEIVED ACTIVITY
RISK CLUSTERS

<u>FACTOR #:</u>	<u>% of Variance Explained</u>
1	6.93
2	5.88
3	4.34
4	3.81
5	3.09
TOTAL	24.01

TABLE TEN*

SIGNIFICANT CORRELATION COEFFICIENTS FOR PERSONALITY
VARIABLES, PERCEIVED RISK, AND ACTIVITY PARTICIPATION

	<u>PERCEIVED RISK</u>	<u>ACTIVITY DONE</u>
PERCEIVED RISK	1.00	
ACTIVITY DONE	-.42*	1.00
AUTONOMY	-.26	.42*
HARMAVOIDANCE	.31	-.36*
SENTIENCE	-.16	.35*
UNDERSTANDING	-.14	.37*

*(Significance at the .05 level= any value of +.35 or greater, or -.35 or less. Significance at the .01 level= any value of +.44 or greater or -.44 or less.)

APPENDICES

APPENDIX ONE: DESCRIPTION OF HIGH SCORERS ON THE PERSONALITY RESEARCH FORM

<u>SCALE</u>	<u>DESCRIPTION OF HIGH SCORER</u>
Abasement	Shows a high degree of humility; accepts blame and criticism even when not deserved; exposes himself to situations where he is in an inferior position; tends to be self-effacing.
Achievement	Aspires to accomplish difficult tasks; maintains high standards and is willing to work toward distant goals; responds positively to competition; willing to put forth effort to attain excellence.
Affiliation	Enjoys being with friends and people in general; accepts people readily; makes efforts to win friendships and maintain associations with people.
Aggression	Enjoys combat and argument; easily annoyed; sometimes willing to hurt people to get his way; may seek to "get even" with people whom he perceives as having harmed him.
Autonomy	Tries to break away from restraints, confinement, or restrictions of any kind; enjoys being unattached, free, not tied to people, places, or obligations; may be rebellious when faced with restraints.
Change	Likes new and different experiences; dislikes routine and avoids it; may readily change opinions or values in different circumstances; adapts readily to changes in environment.
Cognitive Structure	Does not like ambiguity or uncertainty in information; wants all questions answered completely; desires to make decisions based upon definite knowledge, rather than upon guesses or probabilities.

SCALEDESCRIPTION OF HIGH SCORER

Defence	Readily suspects that people mean him harm or are against him; ready to defend himself at all times; takes offense easily; does not accept criticism readily.
Dominance	Attempts to control his environment, and to influence or direct other people; expresses opinions forcefully; enjoys the role of leader and may assume it spontaneously.
Endurance	Willing to work long hours; doesn't give up quickly on a problem; persevering, even in the face of great difficulty; patient and unrelenting in his work habits.
Exhibition	Wants to be the center of attention; enjoys having an audience; engages in behavior which wins the notice of others; may enjoy being dramatic or witty.
Harm-avoidance	Does not enjoy exciting activities, especially if danger is involved; avoids risk of bodily harm; seeks to maximize personal safety.
Impulsivity	Tends to act on the "spur of the moment" and without deliberation; gives vent readily to feelings and wishes; speaks freely; may be volatile in emotional expression.
Nurturance	Gives sympathy and comfort; assists others whenever possible; interested in caring for children, the disabled, or the infirm; offers a "helping hand" to those in need; readily performs favors for others.
Order	Concerned with keeping personal effects and surroundings neat and organized; dislikes clutter, confusion, lack of organization; interested in developing methods for keeping materials methodically organized.
Play	Does many things "just for fun;" spends a good deal of time participating in games, sports, social activities, and other amusements; enjoys jokes and funny stories; maintains a light-hearted, easy-going attitude toward life.

SCALE

DESCRIPTION OF HIGH SCORER

Sentience	Notices smells, sounds, sights, tastes, and the way things feel; remembers these sensations and believes that they are an important part of life; is sensitive to many forms of experience; may maintain an essentially hedonistic or aesthetic view of life.
Social Recognition	Desires to be held in high esteem by acquaintances; concerned about reputation and what other people think of him; works for approval and recognition of others.
Succorance	Frequently seeks the sympathy, protection, love, advice, and reassurance of other people; may feel insecure or helpless without such support; confides difficulties readily to a receptive person.
Under- standing	Wants to understand many areas of knowledge; values synthesis of ideas, verifiable generalization, logical thought, particularly when directed at satisfying intellectual curiosity.
Desirability	Describes self in terms judged as desirable; consciously or unconsciously, accurately or inaccurately, presents favorable picture of self in responses to personality statements.
Infrequency	Responds in implausible or pseudo-random manner, possibly due to carelessness, poor comprehension, passive non-compliance, confusion or gross deviation.

Donald N. Jackson, who created this instrument, subsumes the 20 traits into six categories. The line within a category divides opposing scales. Subjects tend to score high on traits on one side of the line and low on those on the other side.

A. Measures of Impulse Expression and Control

Impulsivity
Change

Harmavoidance
Order
Cognitive Structure

B. Measures of Orientation Toward Work and Play

Achievement
Endurance

Play

C. Measures of Orientation Toward Direction From Other People

Succorance

Autonomy

D. Measures of Intellectual and Aesthetic Orientation

Understanding
Sentience

E. Measures of Degree of Ascendency

Dominance

Abasement

F. Measures of Degree and Quality of Interpersonal Orientation

Affiliation
Nurturance
Exhibition
Social Recognition

Aggression
Defence

Number _____ Age _____ Gender M F Major _____

Years of College _____ Hometown _____ Time in Msla _____

Please answer the following questions as completely and accurately as you can.

1.) The Random House College Dictionary defines risk as "exposure to the chance of injury or loss" (1973:1139). Such loss may take a physical, psychological, or social form. Please rate the following activities according to how risky you view each of them as being.

1	2	3	4	5	6	7
Not at all	Slightly	Somewhat	Moderately	Quite	Very	Extremely
Risky	Risky	Risky	Risky	Risky	Risky	Risky

- 1. Climbing a mountain on skis or snowshoes....._____
- 2. Telemarking down an undeveloped slope....._____
- 3. Ice climbing on a glacier or frozen waterfall....._____
- 4. Lead climbing on a vertical face or crack....._____
- 5. Rock climbing top-roped....._____
- 6. Rapelling down a cliff....._____
- 7. Allowing a spider to walk over you....._____
- 8. Observing a rattler from less than twelve feet away....._____
- 9. Hunting bear with a rifle....._____
- 10. Watching a grizzly in the wilds from less than 300 yards....._____
- 11. Backpacking and camping out overnight....._____
- 12. Hunting deer with a bow....._____
- 13. Backpacking two or more days away from civilization....._____
- 14. Hunting bear with a bow....._____
- 15. Using hallucinogens* while summer camping....._____
- 16. Hunting deer with a rifle....._____
- 17. Dayhiking for at least six hours....._____
- 18. Walking across a fast-moving river on a log....._____

*Original specifies: "psilocybin, LSD, peyote, etc."

1	2	3	4	5	6	7
Not at all Risky	Slightly Risky	Somewhat Risky	Moderately Risky	Quite Risky	Very Risky	Extremely Risky

- 19. Off trail hiking through the woods.....----
- 20. Using hallucinogens while winter camping.....----
- 21. Hiking/camping out alone overnight.....----
- 22. Hiking without a bell in grizzly country.....----
- 23. Hiking without a map or compass.....----
- 24. Sleeping in a snowcave.....----
- 25. Glissading down a snowfield.....----
- 26. Crossing a glacier.....----
- 27. Getting drunk while winter camping.....----
- 28. Jumping off a cliff into a chilly swimming hole.....----
- 29. Camping out alone in the woods in the winter.....----
- 30. Ascending a trail via footholds and handholds.....----
- 31. Building a snowcave.....----
- 32. Camping outside in a tent in snow.....----
- 33. Climbing a peak in 250' or less visibility.....----
- 34. Camping on a mountain peak.....----
- 35. Camping out without a flashlight or candles.....----
- 36. Descending a steep trail with a heavy pack.....----
- 37. Hiking and camping out alone for two or more nights.....----
- 38. Crossing a ridge in a thunderstorm.....----
- 39. Sleeping alone in the woods without a tent.....----
- 40. Climbing an avalanche chute in the winter.....----

2.) People explore the wilderness in many areas of the country. Where have you done most of your travelling/exploring in the mountains/woods?

- | | |
|----------------------------------|----------------------------------|
| _____a.) Montana | _____e.) Olympic Peninsula |
| _____b.) Rockies outside Montana | _____f.) New England/Adirondacks |
| _____c.) The Cascade Mountains | _____g.) Appalachian Mts. |
| _____d.) The Sierras | _____h.) Other _____ |
| | Outside New England |

3.) Many people have idols, heroes, mentors, or other people that they particularly admire. The people listed below are recognized for their achievements and/or for their wisdom. While you may not idolize any of them, please select which three you admire the most, based on some characteristic(s) they share.

- | | |
|---------------------------|-----------------------------|
| _____a.) Jean Kirkpatrick | _____n.) Jane Goodall |
| _____b.) John F. Kennedy | _____o.) William O. Douglas |
| _____c.) Indira Gandhi | _____p.) Bernard Goetz |
| _____d.) Ronald Reagan | _____q.) Jerry Falwell |
| _____e.) Sandy Koufax | _____r.) Clara Barton |
| _____f.) Peggy Fleming | _____s.) Paul Revere |
| _____g.) Charles Lindberg | _____t.) Martin Luther King |
| _____h.) Amelia Earhart | _____u.) Chief Seattle |
| _____i.) Aldo Leopold | _____v.) John Muir |
| _____j.) Gertrude Stein | _____w.) Jack London |
| _____k.) H.D. Thoreau | _____x.) Edward Abbey |
| _____l.) Jane Fonda | _____y.) Other _____ |
| _____m.) Mohandas Gandhi | |

-What do you admire about the people you've selected?

4.) The fourth question pertains to outdoor activities you may have done. Please indicate below how many times you have ever done each of the following.

ACTIVITY	# OF TIMES YOU HAVE DONE THIS					
	0	1	2	3-5	6-8	>8
Camping out without a flashlight or candles....	0	1	2	3-5	6-8	>8
Climbing an avalanche chute in the winter.....	0	1	2	3-5	6-8	>8
Walking across a fast-moving river on a log....	0	1	2	3-5	6-8	>8
Day-hiking for a least six hours.....	0	1	2	3-5	6-8	>8
Jumping off a cliff into a chilly swimming hole	0	1	2	3-5	6-8	>8
Hunting bear with a rifle.....	0	1	2	3-5	6-8	>8
Hunting bear with a bow.....	0	1	2	3-5	6-8	>8
Hunting deer with a rifle.....	0	1	2	3-5	6-8	>8
Hunting deer with a bow.....	0	1	2	3-5	6-8	>8
Backpacking & camping overnight.....	0	1	2	3-5	6-8	>8
Backpacking 2+ days from civilization.....	0	1	2	3-5	6-8	>8
Watching a wild grizzly from less than 300 yds.	0	1	2	3-5	6-8	>8
Observing a rattler from less than 12 feet away	0	1	2	3-5	6-8	>8
Allowing a spider to walk over you.....	0	1	2	3-5	6-8	>8
Rapelling down a cliff.....	0	1	2	3-5	6-8	>8
Rock climbing top-roped.....	0	1	2	3-5	6-8	>8
Lead climbing on vertical face or crack.....	0	1	2	3-5	6-8	>8
Ice climbing on a glacier or frozen waterfall..	0	1	2	3-5	6-8	>8
Telemarking down an indeveloped slope.....	0	1	2	3-5	6-8	>8
Climbing a mtn. on skis/snowshoes.....	0	1	2	3-5	6-8	>8
Sleeping in a snowcave.....	0	1	2	3-5	6-8	>8
Camping out alone in the woods in winter.....	0	1	2	3-5	6-8	>8
Sleeping alone in the woods without a tent....	0	1	2	3-5	6-8	>8
Building a snowcave.....	0	1	2	3-5	6-8	>8
Camping outside in a tent in snow.....	0	1	2	3-5	6-8	>8
Ascending a "trail" via footholds and handholds	0	1	2	3-5	6-8	>8
Hiking/camping out alone overnight.....	0	1	2	3-5	6-8	>8
Hiking/camping out alone for two or more nights	0	1	2	3-5	6-8	>8
Off trail hiking through the woods.....	0	1	2	3-5	6-8	>8
Hiking without map or compass.....	0	1	2	3-5	6-8	>8
Hiking without a bell in grizzly country.....	0	1	2	3-5	6-8	>8
Crossing a ridge in a thunderstorm.....	0	1	2	3-5	6-8	>8
Climbing a peak in 250' or less visibility....	0	1	2	3-5	6-8	>8
Camping on a mountain peak.....	0	1	2	3-5	6-8	>8
Glissading down a snowfield.....	0	1	2	3-5	6-8	>8
Crossing a glacier.....	0	1	2	3-5	6-8	>8
Descending a steep trail with a heavy pack....	0	1	2	3-5	6-8	>8
Using hallucinogens while summer camping.....	0	1	2	3-5	6-8	>8
Using hallucinogens while winter camping.....	0	1	2	3-5	6-8	>8
Getting drunk while winter camping.....	0	1	2	3-5	6-8	>8

5.) What kind of religious orientation did your family have while you were growing up?

- | | | |
|-------------------|-----------------|-------------------|
| ___a.) Catholic | ___e.) Mormon | ___i.) Hindu |
| ___b.) Protestant | ___f.) Jewish | ___j.) Unitarian |
| ___c.) Baptist | ___g.) Muslim | ___k.) Agnostic |
| ___d.) Quaker | ___h.) Buddhist | ___l.) Atheist |
| | | ___m.) Other_____ |

6.) What is your religious orientation now?

7.) How long has your longest non-motorized wilderness trip been? When? Where?

8.) What are your two favorite reasons for going to the mountains /woods?

9.) Who lived in your household while you were growing up? How many older and younger brothers and sisters did you have?

10.) What were your parents' occupations while you were growing up?

11.) People often have vivid recollections about their experiences in the mountains/woods. Please describe one of your most memorable experiences and what made it special. (You may use the back side of this sheet if you need more space.)

Thank you for taking the time to complete this questionnaire. Your contribution will help to make this study worthwhile. If you wish to make any further comments please do so on the back side of this page.

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