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The Conflict Between Hikers and Horse-users
in the Bob Marshall Wilderness Complex

by

Elvin D. Fitzhugh

B.S., University of Montana, 1983

Presented in Partial Fulfillment of the Requirements for the Degree of
Master of Science

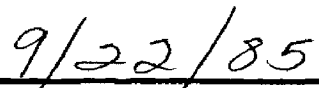
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Recreation Management

The Hiker and Horse-user Conflict in the Bob Marshall
Wilderness Complex (109 pp.)

Director: Stephen F. McCool

People recreate with the desire to achieve specific goals; goals are any preferred social, psychological or physical outcome of a behavior that provides incentive for that behavior. Certain activities in which recreationists choose to partake prohibit others from achieving their goals; hence, a conflict exists. Today, there is an ongoing conflict between hikers and horse-users. Although there are a multitude of reasons for this conflict, the causal factors activity style, resource specificity, mode of experience, and lifestyle tolerance represent its origin. Analysis of data from two previously conducted studies, a 1982 visitor trend study by the Intermountain Forest and Range Experiment Station, USDA, Missoula, Montana and a 1982 visitor satisfaction study by the University of Montana, Recreation Management Department was used to test hypotheses regarding conflict. The results demonstrate the conflict is asymmetrical in nature, with hikers having conflict with horse-users but not vice versa. Hikers experienced in the BMWC develop coping strategies to accommodate horse-users and therefore, experience little conflict with them. In addition, hikers at the focused end of the mode of experience continuum are more likely to experience conflict with horse-users than are hikers at the unfocused end. Future research needs and suggested management actions are also addressed.

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CHAPTER 1
INTRODUCTION

Problem Definition

When North America was discovered and settled, the pilgrims brought with them attitudes and philosophies that would forever influence the land and the civilization that would follow. America at the time was wilderness, a wilderness that had to be reshaped and tamed in order that basic food and shelter needs be met. In addition, the new land needed to be conquered because wilderness, after all, was a place where men and women were in an alien environment and the civilization that normally ordered and controlled their lives was absent (Nash 1982).

A multitude of minerals, coal, natural gas, virgin forests, abundant rivers and lakes, and a wide variety of wildlife were discovered throughout the raw untamed land, which at the time appeared to crave development and habitation. Inland cities abounded "as the settlement frontier moved inland to the west" stopping only at the Pacific Ocean (Hartshorn 1980). In an extremely short geological time span of less than 200 years, all but the most uninhabitable land in the United States was settled and/or developed at one time or another. People had finally brought forth the necessary controls needed to dominate the

natural environment, such that they were no longer aliens.

Even as the United States' wilderness was vanishing, inspired individuals from the nineteenth and twentieth centuries fought to preserve wilderness for their generations and for generations yet to come, i.e., Horace Greeley, George Catlin, Henry David Thoreau, John Muir, Aldo Leopold, and Robert Marshall (Nash 1982).

The world's first instance of large-scale wilderness preservation in the public interest occurred on March 1, 1872, when President Ulysses S. Grant signed an act designating over two million acres of northwestern Wyoming as Yellowstone National Park (Nash 1982). In 1924 (Gila National Forest), and in the 1964 Wilderness Act the United States pioneered the way for wilderness preservation (Hendee, Stankey, and Lucas 1978). In addition, many other areas have since been set aside as national recreation areas, wildlife reserves, public forests, national seashores, etc., for the benefit of both the public and the natural environment.

Throughout the United States' wildland recreation areas, recreationists from a multitude of backgrounds, strive to achieve certain desirable goals. Goals are "any preferred social, psychological or physical outcome of a behavior that provides incentive for that behavior" (Gramann

and Burdge 1981). What ever their goals may be, they are important and in most cases must be attained in order for a person to have a satisfactory experience.

Chubb and Chubb (1981) found "most people's goals are neither completely work oriented nor purely recreation oriented; generally their goals are a compromise between the desire to enjoy life and the practical demands of earning a living". However, in today's society many people "choose to relocate to favorable environments such as Colorado or the sun-belt states that facilitate the pursuit of outdoor recreation oriented lifestyles even if it means a loss of income or an abandonment of long standing social and cultural ties" (Chubb and Chubb 1981).

Today, a highly diverse group of people recreate in our wildland areas. Many bring radios, record players, televisions, and motorcycles, with the intent of playing games, having parties, participating in group activities, and meeting or visiting with new acquaintances (Clark, Hendee and Campbell 1971). Many campers "engage in car-camping, back packing, wilderness camping, or camping in association with another activity such as canoeing or fishing. These various styles of camping require differences in planning, preparation, and equipment and participants may have very different goals" (Baumgartner and Heberlein 1981). These activities provide recreationists a

means of attaining their goals. However, some deviate markedly from goals held by environmentally sensitive campers, goals such as: "an opportunity to isolate oneself, to experience the primitive attractions of the natural environment, and to escape the complexities of urban life" (Clark, Hendee, and Campbell 1971).

Hendee, Stankey, and Lucas (1978) found recreational use in wilderness has increased faster than most other kinds of outdoor recreation, and that wilderness visitation is unevenly distributed, being concentrated along trails at popular places. In addition,

"it is likely that much of the current pressure on wilderness stems from persons simply seeking a chance to hike or get away from the highly civilized world for a short time. The failure to provide opportunities for people with these desires probably leads or almost forces many of them to wilderness, where they conflict with persons whose primary objective is more closely related to the objectives for which wilderness is managed"

(Stankey, Lucas, and Lime 1974). This, coupled with a 33 percent decrease in total national forest trail mileage since 1945, has contributed to the growing pressures on an already scarce resource (Lucas and Rinehart 1976)

Goals and/or activities are incompatible if the achievement of one's goals are prevented by someone else's actions. As recreationists strive to reach their goals, many choose activities that inhibit others from realizing

theirs. Hence, any physical, social or psychological obstruction arising within or between participants and their recreation goals, may lead to a conflict between recreationists (Lindsay 1980). Among the more conflict prone activities are hiking, hunting, fishing, snowmobiling, trailbiking, and motorboating. In addition, recreationists often regard different activities as appropriate or inappropriate; the inappropriate activities can be viewed as obstructing one's goal attainment (White and Schreyer 1981).

Today, there is an ongoing conflict between horse-users and hikers in the Bob Marshall Wilderness Complex in western Montana. The conflict is aggravated by both activities' growing popularity with the American populace. Since 1970 hiker use has more than doubled and horse use has increased 20 percent, for a total visitor increase greater than 60 percent for the area (Lucas 1984).

This influx brought many visitors desiring satisfactory experiences in the outdoors. At times, their experiences were hindered by different user-types, specifically, horse-users by hikers and vice versa. Stankey (1973) found hikers were not likely to agree that hiking and riding horseback were appropriate modes of travel within wilderness; whereas, horse-users felt both modes were appropriate. Horse-users generally were not concerned about

meeting hikers on the trail. However, hikers' satisfaction was impaired by muddied trails, manure on trails, and by being forced off trails when meeting horses (Stankey 1973).

"Satisfaction declines with use; and the degree of satisfaction is affected by the type of use" (Stankey 1973). Stankey also noted: "differences in the degree of satisfaction indicate how the strong purist differs in his attitude toward use compared to the 'average' visitor" (Stankey 1973). Hence, the horse-user and hiker conflict tends to be asymmetrical, with its intensity amplified as the recreationist falls toward the purist end of the novice-purist continuum.

Problem Statement

The purpose of this paper is to investigate the conflict between horse-users and hikers. First, conflict between two interdependent parties must be defined. Jacob and Schreyer (1980) define conflict as goal interference attributed to another's behavior. Another, more encompassing definition is "an expressed struggle between at least two interdependent parties who perceive incompatible goals, scarce rewards, and interference from the other party in achieving their goals" (Hocker and Wilmot 1985).

An expressed struggle between two parties can fall anywhere along the continuum, from being so slight that it is hardly noticed, to that of an extremely violent outrage. Adelman, Heberlein, and Bonnicksen (1982) found recreationists often send false or slight messages to the conflicting party, such that the receiving party is seemingly unaware of the conflict. In instances such as this, the conflict may be asymmetrical until both parties recognize the expressed struggle.

In order for conflict to occur the parties must be interdependent to some degree, with their perceptions of the interdependence affecting the choices they make (Hocker and Wilmot 1985). The degree of interdependence for horse-users and hikers is likely to be greatest when both use the same resource. Conflict also occurs when two or more parties perceive scarce rewards (extrinsic or intrinsic), or interference by someone else in attaining their rewards. Many recreationists perceive wilderness as an experience, whereas, others may view it merely as an activity setting; thus, setting the stage for a conflict (Stankey 1973; Adelman, Heberlein, and Bonnicksen 1982 and Knopp and Tyger 1973). Jackson and Wong (1982), found conflicting recreationists' differences are at times "symptomatic of deep seated recreational preferences such that both user types are seeking quite different kinds of experiences ...".

At times, one or both parties perceive the other's goals as incompatible with their own. An interesting connotation is that their goals may be the same. However, the means they use to attain their goals are different, and are the true source of the conflict (Gramann and Burdge 1981). Finally, "conflict occurs when these conditions are present and when the parties interfere with one another's goal attainment" (Hocker and Wilmot 1985).

Since most of the previously mentioned elements must be present for a conflict to exist, it would be beneficial to determine if there are other predominant factors involved in this conflict. Thus, the problem investigated here may be stated as: what are the other major factors, and to what extent do they influence recreationists in the context of the horse-user and hiker conflict?

Objective

Researchers and resource managers have to some degree neglected the causal factors that foster conflicts between outdoor recreationists. In doing so, they have merely touched the conflicts' extremities, thus, leaving conflicts that may never be managed productively. The purpose of this study is to examine the conflict's causal factors: activity style, resource specificity, mode of experience, and lifestyle tolerance. This will provide managers some

understanding about the factors underlying the conflict and will aid in the productive management of this, and other outdoor recreation conflicts.

CHAPTER 2

CONCEPTUAL FRAMEWORK

In order to systematically examine the behavioral dynamics and origins of the conflict between hikers and horse-users, one must turn to the causal factors underlying the conflict. Jacob and Schreyer (1980) derived four major classes of factors that produce conflicts in wildland recreation. These factors, where one alone or any combination of two or more is sufficient to cause a conflict, are: 1) activity style, 2) resource specificity, 3) mode of experience, and 4) lifestyle tolerance.

Activity Style

Activity style involves attaching personal meanings to the set of behaviors that constitute a recreational activity. Here the personal meanings, not the recreational activity are the source of conflict. Contrasting personal meanings come to light within activity style through intensity of participation, status, and range of experience and definitions of quality.

Intensity of participation: Personal involvement in outdoor recreation varies for all recreationists. For some, the activity is the focus of leisure or even the central life interest, a critical source of rewards outside of work

(Jacob and Schreyer 1980). These people tend to substantiate their identity and satisfactions with the activity. For others, the commitment to an activity is much less and possibly at the periphery of their leisure. Baumgartner and Heberlein (1981) feel that if more general factors such as, being outdoors or enjoying nature are rated as very important to the experience, the number of activities that can offer the chance to obtain these parts of the experience is likely to be relatively large. Thus, if circumstances interfere with their desire to participate in an activity they simply select a different activity. Therefore, the more intense the participation, the greater the likelihood a social interaction with less intense participants will result in conflict (Jacob and Schreyer 1980).

Status: Attaining high status based on equipment and expertise is a valuable goal held by some recreationists, yet may not be recognized as anything but crass by others. The status conscious participant depends on visible demonstrations of skill and/or equipment, holding the spectator as an external reaffirmation of the activity's value, and in affect their position in the status hierarchy. Horseback riding increases steadily with income...and is obviously more expensive than hiking as hiking requires only boots and a pack (Lucas 1971). The non-status conscious

participants may have the same caliber equipment and expertise as the status conscious, yet maintain the activity as a private affair, seeking only intrinsic rewards while not attempting to prove anything to anyone except themselves. Hence, conflict may occur when the non-status conscious participant interacts with and does not acknowledge the status conscious person's level in the status hierarchy.

Range of Experience and Definitions of Quality:

Various definitions of a quality experience exist for any activity. Novice or occasional participants possess few experiences on which to base their judgment, thus, they tend to generalize experiences with the affect that almost any outcome is satisfactory (Schreyer 1976 as cited in Jacob and Schreyer 1980). Experienced participants tend to apply specific standards to experiences in order to evaluate them (Jacob and Schreyer 1980). Because these participants are more sensitive to the behaviors of others in, as well as outside their activity, they are more prone to conflict than the novice or occasional participant. Therefore, conflict is most likely to occur as the specificity of what constitutes a quality experience is more refined. This provides insight for the following hypotheses:

- H 1) When experienced hikers or horse-users come into contact with one another, the likelihood of a conflict increases.

- H 2) As hikers contact horse-user impacts the asymmetrical conflict intensifies.

Resource Specificity

Resource specificity is "the importance an individual attaches to the use of a particular recreation resource" (Jacob and Schreyer 1980). The importance individuals place on a given recreation resource for the attainment of their leisure varies with: 1) a person's range of experience which affects their evaluation of a resource's physical attributes as common or unique, 2) a person's sense of possession, and 3) the resource's connotations of status.

Evaluation of a Resource's Physical Attributes: People who are familiar with or live close to a specific resource may visualize it as common and thus, visit it simply for convenience. However, others who are less familiar with the area may visit it because of its unique qualities. At any rate, "whether tourist or local, the appreciative visitor is sensitive to behaviors indicating a lack of respect for this uncommon recreation place ..." (Jacob and Schreyer 1980). Hence, conflict occurs when visitors who view the resource as unique, confront or interact with those who perceive the area as common.

Sense of possession: A person well acquainted with a recreation place has well defined expectations about the variety and type of experiences to be found there (Jacob and Schreyer 1980). These people know and abide by the standards of appropriate behavior for the specific resource. They have also acquired a sense of belonging encompassing memories and traditions over years of visitation. For instance, Loy Robinson, Vice President of the Flathead Backcountry Horsemen, put it this way;

"our primary use area is the Bob Marshall Wilderness Area ... this area of steep rugged mountain ranges dividing rather broad open valleys has traditionally been horse-use country. Many outfitters and guides operate here in the summer and fall months during hunting, and there has always been extremely heavy horse use We believe that continued horse-use in harmony with the capacity of our public lands is in the best interest of the majority of Americans",

as quoted by Ittner, Potter, Agee, and Anschell (1979).

Inevitably these visitors feel an "earned right" in input on how the resource should be used and managed. Driver and Bassett (1975) found these recreationists felt "outsiders", those unfamiliar with the place are not qualified to say how the resource should be used, nor should they be allowed to take over "their" places (1975). Conflict occurs when recreationists with possessive attitudes interact with "outsiders" who are perceived as disrupting the accepted norms and traditional uses of the resource, hence the hypothesis:

- H 3) Conflict occurs when hikers with possessive attitudes interact with "outsiders", i.e., those perceived as disrupting the accepted norms and traditional uses of the resource.

Status: Knowledge may be the basis for a status hierarchy among users of a recreation place (Jacob and Schreyer 1980). High status is associated with an area's history, secrets, and the special recreational opportunities it holds. The elite are able to maintain their high status by withholding information from others. Conflict occurs when the elite are forced to give up information regarding the resource to a visitor, perceived by them as lower status and who symbolizes a devaluation of their once exclusive relationship with the resource (Jacob and Schreyer 1980).

Mode of Experience

The mode of experience is the continuum of visitor's techniques of experiencing the environment ranging from focused to unfocused. The unfocused mode is an experience of simple observations consisting of the general overall lay of the land, minus any particulars. Here recreationists may have scenery viewing or merely moving as a recreational goal (Jacob and Schreyer 1980). Lucas (1980) found horse-users favored higher standard trails more often than hikers in the Jewel Basin Hiking Area and the Bob Marshall Wilderness Area. Higher standard trails would permit horse-users to

move quickly and easily through the area. At the other end of the continuum lies the focused mode, here the recreationist is more likely to focus on a specific entity and examine it rigorously. Jacob and Schreyer (1980) say focusing depends upon complex input of sensory details associated with the recreation place resulting in intolerance of those stimuli which threaten this perceptual process. As these recreationists increase their environmental focus they place more stringent limitations on acceptable stimuli and become increasingly intolerant of external distracting stimuli. Conflict is most likely to occur when a recreationist on the focused end of the continuum interacts with another who recreates toward the unfocused end. The conflict is aggravated as the spread between the focused and unfocused intensifies. Hence, the following hypotheses are produced.

- H 4) Conflict occurs when hikers at the focused end of the continuum interact with horse-users.
- H 5) Overnight hikers are more susceptible to conflict with horse-users than day hikers are.

Lifestyle Tolerance

Tolerance for lifestyle diversity is the tendency of recreationists to accept or reject lifestyles different from their own. Most recreationists choose a recreational activity that reaffirms their basic values and one in which

others of similar beliefs, values, and goals belong to. Devall and Harry (1981) found that recreationists form clusters of technologically similar activity groups and they identify with other recreationists participating in other activities at the same technological level. To avoid an overdose of social contact, people simplify life's complexities by relating to other people as categories; however, they may vary the rigidity with which they apply these categories (Lauer and Handel 1977 as cited in Jacob and Schreyer 1980). Recreationists may establish in-groups or out-groups based on perceived lifestyle differences or similarities including inferred activity styles and resource specificities. In addition "inferences about another's mode of experience may lead to value-laden evaluations ..." (Jacob and Schreyer 1980). Whenever a recreationist is stereotyped, implied lifestyle qualities and values are affixed them. This was also the case as Adelman, Heberlein, and Bonnicksen (1982), and White and Schreyer (1981), found recreationists relied on images of activities and participant behaviors instead of facts when rating an activity as appropriate or inappropriate.

Outdoor recreationists sort themselves into three groups. First, there are the unobtrusive recreations, whose participants find several other recreations objectionable. Secondly, there are the physically obtrusive recreations, in

which the participants find many recreations unobtrusive. Finally, there is a rather mixed group of recreations in which the participants find a few other activities objectionable or inoffensive (Devall and Harry 1981). Hikers may feel they are unobtrusive recreationists and horse-users are obtrusive; hence, setting the stage for the conflict between the two. At any rate, this will provide some insight into the conflict as it exists between hikers and horse-users and vice versa.

CHAPTER 3

METHODS

Analysis on two previously conducted visitor studies from the Bob Marshall Wilderness Complex, consisting of the Bob Marshall, Great Bear, and Scapegoat Wilderness Areas, will be used for this study. The studies were conducted jointly in 1982, one by the Intermountain Forest and Range Experiment Station, U.S.D.A. Forest Service headed by Dr. Robert Lucas; the second, by the University of Montana, School of Forestry, headed by Professor Stephen F. McCool.

The study headed by Dr. Lucas was the second in a ten year Wilderness use trend study being conducted by the USFS. This study sampled visitors at 42 different trailheads from late June to late October. Twenty-eight of the trailheads were manned by field personnel and 14 had self registration boxes. The sample consisted of wilderness users, 16 years and older, who spent at least a three hour block of time in the area. A random sample was selected from the visitors who were contacted; these visitors were mailed a questionnaire and a self-addressed stamped, return envelope. After effective follow up procedures, with up to two follow up letters for non-respondents, an 82 percent response rate was achieved, (785 from a sample of 972 visitors), (Lucas 1984).

Professor McCool's study utilized the same trailheads, field personnel, and sample restrictions as Dr. Lucas'. This study's respondents were also mailed a questionnaire, self addressed stamped, return envelope, and a maximum of two follow-up notices were mailed to late respondents. The final response rate was 84 percent, (674 from a sample of 800 visitors), (McCool 1983).

Defining the Conflict

Both the USFS and U of M used open ended questions in their studies that allowed the respondents to identify sources of conflict as "low-points", regarding their experiences while in the study area. Since neither used leading questions to prompt responses for the "low-points", the "low-points" should be a valid indicator of self identified conflict.

In order to determine whether or not a conflict actually exists between hikers and horse-users, I will analyze the frequencies for each group's "low-points" and determine their relevance toward conflict with the other group. Since both studies asked respondents to identify "low-points", this analysis will be conducted on both sample populations.

In addition to "low-points", I will also determine if a conflict exists between the two groups by analyzing the frequency of meeting or seeing other types of recreationists as a source of dissatisfaction. This applies to the U of M study only.

The relevant questions from each study that identify the dependent variable (conflict), are:

USES - How satisfied were you, personally, with this trip into the Wilderness? What kind of grade would you give it? ... What was most dissatisfying about the trip? (The low points.) (Appendix A; Q-20)

U of M - We would like to know the 'high' and 'low' points of your recent visit. ... What did you personally enjoy least? (Appendix B; Q-15)

U of M - Listed below are a number of factors which people usually encounter on an outdoor recreation trip. For each factor, please check whether it contributed to a feeling of satisfaction or dissatisfaction. If the factor did not affect you one way or another, please check neither. (Appendix B; Q-12)

I will determine if the two conflict indicators, i.e., users who referred to the other group through "low-points" or as a source of dissatisfaction, are the same or not by using a Chi-square test. Additionally, I will use Chi-square and Mann-Whitney tests to analyze the relationship between each conflict indicator and the frequency of encounters with other types of recreationists.

The question that identifies the independent variable (frequency of encounters), is:

U of M - We are interested in how frequently you encountered certain conditions during your recent visit. For each condition or factor listed below, please check the appropriate box. (Appendix B; Q-11)

The analysis that I will use for (H 1), when experienced hikers or horse-users come into contact with one another, the likelihood of a conflict increases is as follows. First, I will use the Chi-square test procedure on whether the user has visited this Wilderness before or not, by their "low-points". Second, I will use Mann-Whitney tests to analyze the relationship between the number visits to this wilderness and the users' "low-points". Finally, I will use a Mann-Whitney test on the level of satisfaction by the number of previous visits to this wilderness.

The relevant questions that identify the independent variables, in order are:

USFS - Have you visited this Wilderness before? ... About how many times? (Appendix A; Q-10)

U of M - Was this your first visit to the wilderness? ... Including your recent visit, about how many times have you visited this wilderness? (Appendix B; Q-1)

The analysis that I will use for (H 2), as hikers contact horse-user impacts, the asymmetrical conflict intensifies will be a Chi-square test on why a campsite was passed over by the hikers' "low-points". Only the USFS, study population will be used for testing this hypothesis.

The independent variable is identified by the following question:

USFS - On this trip, did you pass up an available campsite because you didn't like the condition it was in? (Appendix A; Q-24)

The analysis that I will use for (H 3), conflict occurs when hikers with possessive attitudes interact with "outsiders", i.e., those perceived as disrupting the accepted norms and traditional uses of the resource, is as follows. First, I will use a Mann-Whitney test on how important or valuable Wilderness areas are to the hikers by their "low-points". Second, I will test the relationship between how the hikers learned about the trailhead and their "low-points" with a Chi-square test. Finally, I will use a Chi-square test to contrast whether hikers visit new areas or revisit areas they have been to before, by their "low-points". Only the USFS, study population will be used for testing this hypothesis.

The questions that identify the independent variables, in order are:

USFS - How important or valuable are Wilderness areas to you personally? (Appendix A; Q-34)

USFS - How did you find out about the trailhead? (Appendix A; Q-13)

USFS - Have you ever visited any Wilderness before this trip? ... Spend most of my time in areas new to me. Spend most of my time revisiting areas I've been in previously. Spend my time doing both the above equally. (Appendix A; Q-9)

The analysis I will use for (H 4), conflict occurs when hikers at the focused end of the continuum interact with horse-users is as follows. First, I will test the reliability for the hikers' perceived outcome domains. Similar or clustered outcome domains should have Cronbach's alpha coefficients greater than .65 in order for them to be reliable measures. Second, I will use a Mann-Whitney test to test the relationship between the "focused" outcome domains and the hikers' "low-points". Finally, I will examine the relationship between the "focused" outcome domains and the level of hiker satisfaction upon meeting or seeing other types or recreationists.

Only the U of M study population will be used for testing this hypothesis. The question that identifies the independent variable for this analysis is:

U of M - Each person has many individual reasons for visiting wilderness. Below is a list of reasons given by recreationists for their visits. Try to recall how important each of the following reasons was to you in your most recent visit. (Appendix B; Q-10)

The analysis I will use for (H 5), overnight hikers are more susceptible to conflict with horse-users than day hikers are, is as follows. First, I will use a Chi-square test on the hikers' length of stay by their "low-points". Second, I will use a Chi-square test on their length of stay by their level of satisfaction upon meeting or seeing other types of recreationists. These tests will also allow me to assess the relationship between "focused" hikers (overnight hikers), and "unfocused" hikers (day hikers), with respect to conflict with horse-users.

The questions that identify the independent variables for this hypothesis test, in order are:

USES - Did your party stay out overnight in the Wilderness, beyond the road, on this visit? (Appendix A; Q-5)

U of M - Did you camp overnight in the wilderness on this visit? (Appendix B; Q-4)

Computer Analysis

The University of Montana's DEC-20 computer was used for all data analysis. SPSSx was the statistical package used (SPSS 1983). Hypothesis tests with significance levels of .05 or less were considered statistically significant.

CHAPTER 4

RESULTS

OVERVIEW

The Bob Marshall Wilderness Complex (BMWC), and its surrounding area are used by a wide variety of recreationists. Hikers and horse-users are the two groups of primary interest in this paper. As the area grows in popularity, its users will continue to come from increasingly different backgrounds. Hence, it would be beneficial to know who the hikers and horse-users are.

Between 63 and 47 percent (USFS percents will always precede U of M percents), of the BMWC visitors hiked, whereas, 30 percent from each study traveled by horseback (Table 1).

Only the U of M study asked visitors their own sex and age; hence, the following analysis applies only to them and does not include visitors sampled by the USFS. Thirty-six percent of the hikers were females, 64 percent were males, whereas, 21 percent of the horse-users were females and 79 percent were males. Hikers ranged in age from 11 to 79 with a median age of 29 years. Horse-users ranged in age from 13 to 80 with their median age at 38 years.

Table 1. Travel Method, in Percent.

	<u>Study</u>	
	USFS n = 746	U of M n = 817
Hiked	62.5	47.1
Horseback	29.9	29.6
Hiked with horses	3.2	1.8
Other	4.4*	21.5**

* Includes trailbikes, rafts, skis, and snowshoes.

** Includes rafts, canoes, kayaks, and other travel methods.

A relatively small amount of hikers, about 7 percent, came from cities with a population over one million. Twenty-six to 32 percent of the hikers came from cities with over 50,000 but less than one million, whereas, about 35 percent came from cities between 5,000 and 50,000 people. Between 39 and 27 percent came from towns, i.e., less than 5,000 people, rural areas and farms (Table 2). This contrasts with horse-users, of whom, 5 percent came from cities with a population over one million. From 10 to 25 percent were from cities between 50,000 and one million, whereas, approximately 29 percent came from cities between 5,000 and 50,000 people. Between 62 and 41 percent came from towns, rural areas, and farms (Table 3).

Table 2. Size of Hikers' Area of Residence, in Percent.

	<u>Study</u>	
	USFS n = 466	U of M n = 385
Large city (over 1 million people)	0.0	6.6
Medium city (50,000 to 1 million people)	25.7	32.0
Small City (5,000 to 50,000 people)	35.1	34.2
Town (1,000 to 5,000 people)	14.9	14.3
Rural	16.3	12.9
Farm	8.0	0.0

Table 3. Size of Horse-users' Area of Residence, in Percent.

	<u>Study</u>	
	USFS n = 223	U of M n = 242
Large city (over 1 million people)	0.0	4.9
Medium city (50,000 to 1 million people)	9.8	25.0
Small City (5,000 to 50,000 people)	27.8	28.9
Town (1,000 to 5,000)	18.0	19.1
Rural	14.4	22.1
Farm	29.9	0.0

Hikers had a high level of formal education with between 69 and 79 percent possessing some college education and 45 to 52 percent (respectively) having completed four years. In addition, approximately 30 percent of the hikers have completed some college at the graduate level (Table 4). In comparison, horse-users had a higher percentage with only a high school education at 39 to 41 percent (respectively). However, approximately the same percentage of horse-users and hikers had four years of college. At the graduate level, horse-users fell behind hikers; between 24 and 18 percent had some graduate level education (Table 5).

Table 4. Level of Hikers' Education, in Percent.

	<u>Study</u>	
	USFS n = 466	U of M n = 385
12 years or less	23.7	31.5
13 years	8.4	9.4
14 years	9.5	8.8
15 years	6.8	4.9
16 years	20.5	15.8
17 years or more	31.1	29.6

Table 5. Level of Horse-users' Education, in Percent.

	<u>Study</u>	
	USFS n = 223	U of M n = 242
12 years or less	41.0	39.4
13 years	7.8	6.6
14 years	9.2	9.5
15 years	4.6	5.0
16 years	19.7	15.8
17 years or more	17.9	23.7

The most frequently mentioned occupational categories were those at the professional and technical level. Between 41 and 32 percent of the hikers were employed in such categories; whereas, between 28 and 26 percent of the horse-users were. Fifteen to 23 percent of the hikers were students. In comparison, only 4 to 10 percent (respectively) of the horse-users were students. These results demonstrate cultural differences between the hikers and horse-users who frequent the BMWC. This may provide some insight into the hiker and horse-user conflict.

DEFINING THE CONFLICT

Is there a conflict between hikers and horse-users, and/or vice versa? Visitors were asked to respond to "what was most dissatisfying about this trip (the low-points)" in the USFS study (Appendix A), and "we would like to know the "high" and "low" points of your recent visit ... What did you personally enjoy least", in the U of M study (Appendix B). Visitors were also asked in the U of M study to respond to "meeting or seeing other types of recreationists" according to how it contributed to their feeling of satisfaction and dissatisfaction (Appendix B).

Upon evaluating the "low-points" for both studies prior to singling out either hikers or horse-users, the conflict appears to be asymmetrical, with hikers having conflict with horse-users but not vice versa. For instance, less than 1 percent of the horse-users mentioned hikers as "low-points" in the U of M study and hikers were not mentioned as "low-points" or sources of dissatisfaction in the USFS study.

Hikers more readily referred to horse-users as "low-points" in both studies (Table 6). In each study the respondents were allowed up to three "low-point" responses. Upon redefining horse-user related "low-points" from each study as new dependent variables (HCLP), 16 to 17 percent of

the hikers who mentioned any "low-point" perceived a conflict with horse users (Table 7). From the entire hiker populations (n = 466 and n = 385), approximately 12 to 14 percent self identified a conflict with horse-users. HCLP will be used throughout, in reference to hikers who self identified a conflict with horse-users, through a "low-point" response from either study.

Table 6. Hikers' Low-points, in Percent of Cases

	<u>Study</u>	
	USFS	U of M
	n = 357	n = 320
Too many horse parties	12.0	*
Horse manure	5.9	5.0
Horses	*	12.5
Pack strings	*	0.3
Mules	*	0.3
Horse smell	*	0.3
* Not coded as such in this study.		

Table 7. Hikers Who Responded to "Low-Points" and Perceived a Conflict With Horse-users (HCLP).

	<u>Study</u>	
	USFS n = 357	U of M n = 320
<u>Conflict</u>		
Yes	16.2	17.2
No	83.8	82.8

In order to examine the relationship between HCLP and the frequency of encounters with other types of recreationists, a Mann-Whitney test was used (Table 8). The test indicates that hikers who reported a conflict were much more likely to encounter other types of recreationists everywhere than rarely (sign. level .0001). Of additional interest, all the hikers who reported a conflict could recall meeting or seeing the other types of recreationists. Hence, HCLP appears to be a valid conflict indicator in the U of M study. The USFS study did not have the data for testing the validity of HCLP in the same manner. However, since HCLP is valid in the U of M study, it is likely to be so in the USFS study also.

Table 8. Mann-Whitney Test on Hiker Conflict (HCLP) and Frequency of Encounters With Other Types of Recreationists, U of M Study.

	n	mean rank	U	1-tail prob.
<u>Conflict</u>				
Yes	55	118.94	5,001.5	.0001
No	<u>260</u>	166.26		
	315			

Analysis of the second conflict indicator, meeting or seeing other types of recreationists as a source of dissatisfaction, provided some interesting results. HCDS will be used throughout in reference to this conflict indicator. A Mann-Whitney test was used for this test (Table 9). The test demonstrates, as the frequency of encounters with other types of recreationists increases, the greater the likelihood of the hiker being dissatisfied (sign. level .0013). In addition, all 105 of the hikers who were dissatisfied because they met or saw other types of recreationists could recall the frequency of their encounters. Therefore, this conflict indicator (HCDS), also appears to be a valid measure of conflict.

Table 9. Mann-Whitney Test on the Satisfaction Dimension (HCDS) and Frequency of Encounters With Other Types of Recreationists, U of M Study.

	n	mean rank	U	1-tail prob.
<u>Satisfaction Dimension</u>				
Satisfied	83	106.79	3,337.5	.0013
Dissatisfied	<u>105</u>	84.79		
	188			

Horse-users' responses to meeting or seeing other types of recreationists as a source of satisfaction or dissatisfaction provided similar results, however, they were of lesser magnitude than those for hikers. For instance, only 15 percent of the horse-users were dissatisfied upon meeting or seeing other types of recreationists, whereas, over 27 percent of the hikers were. Further analysis consisting of a Mann-Whitney test on the independent variable, frequency of encounters and the dependent variable, satisfaction dimension, revealed the frequency of encounters affected the horse-users' satisfaction dimension (Table 10). The test demonstrates as the frequency of encounters increases so does the likelihood of the horse-user being dissatisfied (sign. level .0076). As previously mentioned though, horse-users did not regard hikers as "low points" in either study; however, they did mention other horse-users, fishermen, and floaters as

"low-points". Hence, it is extremely difficult to equate dissatisfied horse-users as having a conflict with hikers. Therefore, the conflict again appears to be asymmetrical in nature, with hikers being dissatisfied upon meeting or seeing horse-users but not vice versa.

Table 10. Mann-Whitney Test on Horse-users' Satisfaction Dimension and Frequency of Encounters With Other Types of Recreationists, U of M Study.

	n	mean rank	U	1-tail prob.
<u>Satisfaction Dimension</u>				
Satisfied	59	52.37	745.0	.0076
Dissatisfied	<u>35</u>	39.29		
	94			

In order to determine if the two indicators, i.e., HCLP and HCDS, measure the same concept, a Chi-square test was conducted on the two variables (Table 11). The test indicates the two conflict indicators are not the same (sign. level .0023). A Mann-Whitney test was used to contrast the differences between dissatisfied hikers (HCDS), who also reported hiker conflict (HCLP), with the frequency of encounters with other types of recreationists. In addition, a Chi-square test was used to obtain information to compare the combined and separate, i.e., HCLP and HCDS, conflict indicator variables (Table 12). The test

demonstrates that as the frequency of encounters increases, so does the likelihood for dissatisfied hikers who have a conflict with horse-users (sign. level .0180).

When contrasting hikers who reported HCLP and HCDS independently, with those who reported both HCLP and HCDS, some interesting results are revealed (Figure 1). For instance, a pattern develops; as encounters increase, so too does hiker conflict (HCLP), and hiker dissatisfaction (HCDS). In addition, the hiker is more likely to report both dissatisfaction (HCDS), and conflict (HCLP) with horse-users as encounters increase.

Table 11. Test to Determine if Hiker Conflict (HCLP), is the Same as Dissatisfaction (HCDS), U of M Study.

	<u>Satisfaction Dimension</u>			
	HCDS			
	Satisfied		Dissatisfied	
<u>Conflict</u>				
HCLP	n	%	n	%
Yes	7	9.9	29	30.9
No	64	90.1	65	69.1
TOTALS	71	100.0	94	100.0

chi-square = 9.2548 with 1 d.f.; significance = .0023

Table 12. Hikers Who Reported Both HCDS and HCLP by the Frequency of Encounters With Other Types of Recreationists, U of M Study.

A. Cross-tabulation of HCLP with frequency of encounters with other types or recreationists.

Frequency of Encounters

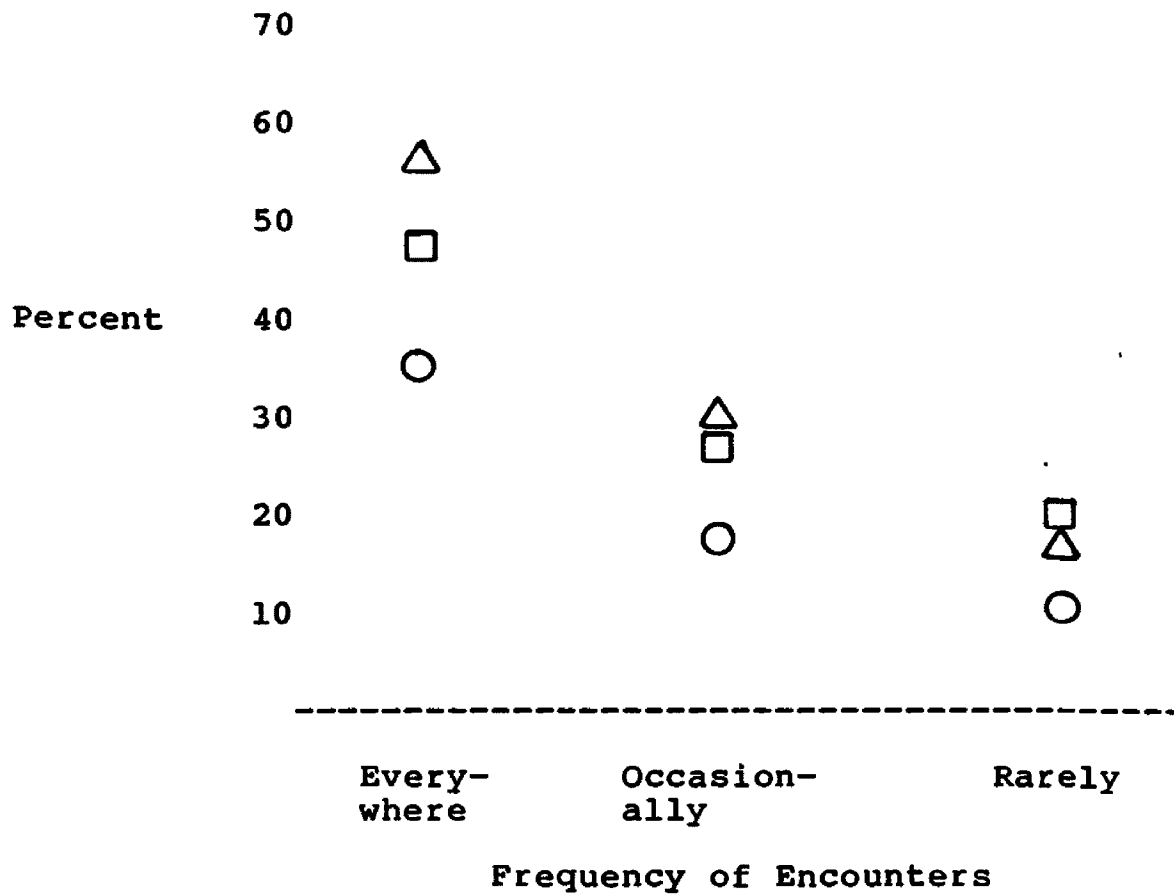
	Every- where		Occasion- ally		Rarely	
<u>Conflict</u>	n	%	n	%	n	%
Yes	14	45.2	12	25.5	3	18.8
No	17	54.8	35	74.5	13	81.3
TOTALS	31	100.0	47	100.0	16	100.0

chi-square = 4.6974 with 2 d.f.; significance = .0955

B. Mann-Whitney Test on HCLP with frequency of encounters with other types or recreationists.

	n	mean rank	U	1-tail prob.
<u>Conflict</u>				
Yes	29	39.43	708.5	.0180
No	<u>65</u>	51.10		
	94			

Figure 1. Percent of HCLP, HCDS and Both by Frequency of Encounters With Other Types of Recreationists.



Code	Indicator	n
○	Hiker conflict (HCLP)	55
△	Dissatisfied (HCDS)	105
□	Both (HCLP and HCDS)	29

In summary, there is a conflict between hikers and horse-users. This conflict is asymmetrical in nature, with hikers perceiving a conflict with horse-users but not vice versa. There are two distinct conflict indicators, each of which represents a different measure of conflict. The first is HCLP, hikers who self identified horse-users as either the most dissatisfying part of their trip (USFS study), or as the part they personally enjoyed least (U of M study). The second is HCDS, hikers who felt meeting or seeing other types of recreationists, was a source of dissatisfaction (U of M study).

Both measures of conflict, HCLP and HCDS were directly related to the frequency of encounters with other types of recreationists, i.e., as encounters increased, so too did the frequency of hikers reporting HCLP, HCDS, or both.

Tests of Study Hypotheses

Hypothesis 1 - When experienced hikers or horse-users come into contact with one another, the likelihood of a conflict increases.

As previously mentioned, horse-users did not include hikers or hiker related activities as "low-points"; hence, there is not a test to validate or invalidate experienced horse-users having a conflict with hikers. However, one

would expect experienced horse-users did not have a conflict with hikers because earlier evidence indicates the conflict is asymmetrical, with only hikers having conflict with horse-users.

In order to test this hypothesis, hikers were recoded as either novice or new to the area and experienced, according to how many visits they have made to the wilderness. Hikers with less than three visits, were considered novice or new to the area, whereas, those with eight or more visits were considered experienced. Extremes were used in this case in order to better separate the hikers according to their level of experience.

Chi-square tests were used to test the relationships between the independent variable, frequency of encounters with other types of recreationists and the dependent variables, hiker conflict (HCLP and HCDS), according to the hikers' level of experience (Tables 13 and 14).

The results indicate as the frequency of encounters with other types of recreationists increases, so does the likelihood for conflict (HCLP), between novice or hikers new to the area and horse-users (sign. level .0892). The results fail to demonstrate that conflict (HCLP or HCDS), increases when experienced hikers come into contact with horse-users.

Table 13. Hikers, According to Experience Level, Who Reported HCLP by the Frequency of Encounters With Other Types of Recreationists, U of M Study.

A. Cross-tabulation of novice hikers who reported HCLP by frequency of encounters.

	<u>Frequency of Encounters</u>			
	<u>Everywhere/ occasionally</u>		<u>Rarely / do not recall</u>	
<u>Conflict</u>	n	%	n	%
Yes	15	32.6	3	11.5
No	31	67.4	23	88.5
TOTALS	46	100.0	26	100.0

chi-square = 2.8896 with 1 d.f.; significance = .0892

B. Cross-tabulation of experienced hikers who reported HCLP by frequency of encounters.

	<u>Frequency of Encounters</u>			
	<u>Everywhere/ occasionally</u>		<u>Rarely / do not recall</u>	
<u>Conflict</u>	n	%	n	%
Yes	4	9.3	2	7.1
No	39	90.7	26	92.9
TOTALS	43	100.0	28	100.0

chi-square = 0.0000 with 1 d.f.; significance = 1.0000

Table 14. Hikers, According to Experience Level, Who Reported HCDS by the Frequency of Encounters With Other Types of Recreationists, U of M Study.

A. Cross-tabulation of novice hikers who reported HCDS by frequency of encounters.

Satisfaction Dimension	<u>Frequency of Encounters</u>			
	Everywhere/ occasionally		Rarely / do not recall	
	n	%	n	%
Satisfied	14	46.7	4	50.0
Dissatisfied	16	53.5	4	50.0
TOTALS	30	100.0	8	100.0

chi-square = 0.0000 with 1 d.f.; significance = 1.0000

B. Cross-tabulation of experienced hikers who reported HCDS by frequency of encounters.

Satisfaction Dimension	<u>Frequency of Encounters</u>			
	Everywhere/ occasionally		Rarely / do not recall	
	n	%	n	%
Satisfied	14	51.9	8	57.1
Dissatisfied	13	48.1	6	42.9
TOTALS	27	100.0	14	100.0

chi-square = 0.0000 with 1 d.f.; significance = 1.0000

In addition, four independent experience level variables were used in the evaluation of their relationship with the dependent variables, hiker conflict and level of satisfaction (satisfaction dimension), when meeting or seeing other types of recreationists (Table 15).

First, a Chi-square test was used to contrast the nominal level independent variable, if the hiker has visited this Wilderness before, against the nominal level dependent variable, HCLP. This test does not support the hypothesis, however, it does illustrate those hikers experienced in the BMWC are less likely to have a conflict with horse-users than those inexperienced in the BMWC (sign. level .0433).

Second, a Mann-Whitney test was used to contrast the ordinal level independent variables, number of previous visits with the nominal level dependent variables, HCLP and HCDS. The results indicate that as experience level increases the likelihood of HCLP decreases (sign. levels .0051 and .0033). In addition, as experience level increases, hikers are neither more nor less dissatisfied upon meeting or seeing other types of recreationists (sign. level .3313).

Table 15. Experience Levels and Hiker Conflict With Horse-users.

- A. Cross-tabulation of HCLP with whether or not the hikers have visited this Wilderness before, USFS study.

<u>Conflict</u>	<u>Visited This Wilderness Before</u>			
	Yes		No	
	n	%	n	%
Yes	20	9.7	31	17.1
No	187	90.3	150	82.9
TOTALS	207	100.0	181	100.0

chi-square = 4.0826 with 1 d.f.; significance = .0433

- B. Mann-Whitney Test on HCLP and hiker experience, USFS study.

	n	mean rank	U	1-tail prob.
<u>Conflict</u>				
Yes	18	66.64	1,028.5	.0051
No	<u>173</u>	99.05		
	191			

C. Mann-Whitney Test on HCLP and hiker experience,
U of M study.

	n	mean rank	U	1-tail prob.
<u>Conflict</u>				
Yes	32	72.91	1,805.0	.0033
No	<u>159</u>	100.65		
	191			

D. Mann-Whitney Test on HCDS and hiker experience,
U of M study.

	n	mean rank	U	1-tail prob.
<u>Satisfaction Dimension</u>				
Satisfied	52	55.81	1,388.0	.3313
Dissatisfied	<u>56</u>	53.29		
	108			

Since the hypothesis cannot be supported by these tests, one might expect experienced hikers have developed one or more coping strategies for dealing with horse use in the BMWC. Hence, the question arises: what are these strategies, if they do indeed exist?

First, one must determine where hikers are more susceptible to having a conflict with horse-users. Of the 42 trailheads where sampling occurred there are 5 that lead most of the hikers who reported either, HCLP or HCDS into

the area. These 5 trailheads, which will be referred as conflict prone include: Benchmark, Swift Reservoir, North side Holland Lake, Indian Meadows, and North Fork of the Blackfoot. Lucas found half of the 1982 BMWC visitors used just seven trailheads; in fact, "the most used half had about 90 percent of total visits" (1985). With such high amounts of use concentrated at so few trailheads, it is easy to understand why certain trailheads are more prone to conflict than others.

One test that may be used to examine the strategy question is a Mann-Whitney test on the dependent variable, trailhead (conflict prone or not), and the independent variable, experience level (Table 16). This test indicates that as the hikers' experience level increases, they are more likely to enter at non-conflict prone trailheads, i.e., trailheads in which hikers indicated little or no conflict with horse-users, (sign. levels .2900 and .0083).

Table 16. Type of Trailhead Used and Hikers' Experience Level.

A. Mann-Whitney Test on type of trailhead and hikers' experience level, USFS study.

	n	mean rank	U	1-tail prob.
<u>Trailhead Status</u>				
Conflict prone *	32	91.45	2,398.5	.2900
Non-conflict prone **	<u>159</u>	96.92		
	191			

* Includes the following trailheads: Benchmark, Indian Meadows, Swift Reservoir, and North side Holland Lake.

** Includes 38 of the 42 trailheads sampled.

B. Mann-Whitney Test on type of trailhead and hikers' experience level, U of M study.

	n	mean rank	U	1-tail prob.
<u>Trailhead Status</u>				
Conflict prone *	97	104.60	5,393.0	.0083
Non-conflict prone **	<u>135</u>	125.05		
	232			

* Includes the following trailheads: Benchmark, North Fork of the Blackfoot, North side Holland Lake, and Swift Reservoir.

** Includes 38 of the 42 trailheads sampled.

A second test to determine whether or not a coping strategy exists is to use a Chi-square test on the nominal level dependent variable, trailhead (conflict prone or not), and the nominal level independent variable, type of area visited, i.e., an area new to the visitor or an area they have been to before, (Table 17). This test demonstrates hikers who enter at conflict prone trailheads were more than likely visiting a new area. Those hikers who returned to a particular area were less likely to use a conflict prone trailhead (sign. level .0452). Obviously, some coping strategies exist, which help explain the hypothesis' test results.

Table 17. Coping Strategy as Determined by the Type of Trailhead (conflict prone vs. non-conflict prone) and Type of Area Visited, USFS study.

	<u>Type of Area Visited</u>					
	New		Previously visited		Both	
<u>Trailhead Status</u>	n	%	n	%	n	%
Conflict prone	26	28.9	11	18.2	37	16.8
Non-conflict prone	64	71.1	53	82.8	183	83.2
TOTALS	90	100.0	64	100.0	220	100.0

chi-square = 6.1921 with 2 d.f.; significance = .0452

Hypothesis 2 - As hikers contact horse-user impacts, the asymmetrical conflict intensifies.

A Chi-square test was used on the variables, hiker conflict (HCLP), and why a campsite was rejected. Horse manure was singled out from the other reasons for rejecting a campsite, hence, the test contrasts "horse manure" and "other reasons" as to why a campsite was rejected. No support was found for this hypothesis (Table 18).

Table 18. Hiker Conflict (HCLP) and Why a Campsite was Rejected, USFS Study.

<u>Conflict</u>	<u>Reason Campsite was Rejected</u>			
	Horse manure		Other*	
	n	%	n	%
Yes	2	28.6	19	25.7
No	5	71.4	55	74.3
TOTALS	7	100.0	74	100.0

chi-square = 0.0000 with 1 d.f.; significance = 1.0000

* Includes litter, bare ground, old fire rings, scarce fire wood, and other dissimilar reasons.

This failure may be due to the small number of hikers, i.e., conflict and non-conflict prone, who rejected a campsite due to horse manure. Another possible reason,

hikers are more prone to conflict along trails than at campsites. This is because encounters with horse-users and their impacts are likely to be highest while hiking. However, neither study contained sufficient data to test this reason.

Hypothesis 3 - Conflict occurs when hikers with possessive attitudes interact with "outsiders", i.e., those perceived as disrupting the accepted norms and traditional uses of the resource.

Three tests were used to test this hypothesis (Table 19). First, a Mann-Whitney test was used on the dependent variable, HCLP and the independent variable, how important Wilderness is to the visitor. The second and third tests consisted of Chi-square tests on the dependent variable, HCLP and the independent variables, how they learned about the trailhead, and whether they visited new or revisited old areas.

Hikers with a conflict (HCLP), felt Wilderness was more important than those without a conflict (sign. level .1062). The other tests for possessiveness, i.e., HCLP with how the hiker learned of the trailhead, and HCLP with the type of area visited, provide results that demonstrate the opposite of the hypothesis. For instance, hikers who reported HCLP are less likely to have visited a particular trailhead

before (sign. level .1761). Of greater importance, hikers who reported HCLP are more likely to be visiting only "new" areas (sign. level .0215), on a given trip into the area.

Table 19. Possessiveness Toward the Area as Related to Hiker Conflict (HCLP), USFS Study.

A. Mann-Whitney Test on HCLP and how important Wilderness is to hikers.

	n	mean rank	U	1-tail prob.
<u>Conflict</u>				
Yes	58	216.70	10,857.5	.1062
No	<u>406</u>	234.76		
	464			

B. Cross-tabulation of HCLP with how the visitor learned about the trailhead.

<u>Conflict</u>	<u>Been There Before</u>			
	No		Yes	
	n	%	n	%
Yes	35	13.1	5	6.6
No	233	86.9	71	93.4
TOTALS	268	100.0	76	100.0

chi-square = 1.8305 with 1 d.f.; significance = .1761

C. Cross-tabulation of HCLP with the type of area visited.

	<u>Type of Area Visited</u>			
	New*		Previously visited	
<u>Conflict</u>	n	%	n	%
Yes	19	21.1	31	10.9
No	71	78.9	253	89.1
TOTALS	90	100.0	284	100.0

chi-square = 5.2853 with 1 d.f.; significance = .0215

* Includes hikers that only visited new areas.

Hypothesis 4 - Conflict occurs when hikers at the focused end of the continuum interact with horse-users.

Hikers were asked to respond to 21 statements regarding their expected benefits and satisfactions while in the area. Table 20 lists the 7 factors used to evaluate expectations (Driver 1977), and the individual items used to measure them. Cluster analysis was performed in order to assure the items measured the same factor (Dixon 1981). Cronbach's alphas are included to verify their reliability, all of which are well above .65, which indicates the factors are reliable measures of hikers' expected outcomes.

Table 20. Hikers' Perceived Outcomes While in the BMWC.

<u>Outcome Domains</u>	<u>Cronbach's Alpha</u>
Scenery	.82
- to enjoy the smells and sounds of nature	
- to observe the scenic beauty	
- so I can take in the natural surroundings	
Learning	.85
- to learn more about nature	
- to understand the natural world better	
Affiliation	.82
- so I can do things with my companions	
- so I can be with my friends	
- to be with others who enjoy the same things I do	
- to have fun	
Solitude/Stress Release	.79
- to help reduce or release some built-up tensions	
- so my mind could move at a slower pace	
- to get away from other people	
- for the solitude	
Physical Exercise	.85
- to help me keep in shape	
- to improve my physical health	
Adventure	.73
- because I thought it would be a challenge	
- for the adventure	
- because something exciting is always happening here	
Achievement	.79
- so I could become better at it	
- to develop my skills and abilities	

The two factors that best represent hikers in the focused mode, are learning and solitude/stress release. Braun, Linder, and Asimov (1979) define learning as a systematic and purposeful process for developing associations between stimuli and responses; hence, hikers who have learning as an expected outcome are likely to focus on a single or specific entity and examine it closely, which places them at the focused end of the "mode of experience" continuum. In addition, hikers with solitude/stress release as an expected outcome also fall toward the focused end of the continuum, since they wish to slow down their pace, become detached from the "human" world, and seek solitude within the wilderness.

A Mann-Whitney test was conducted to assess the relationship between the dependent variable, HCLP and independent variables, learning and solitude/stress release (Table 21). The test provides marginal support for the learning outcome (sign. level .1396), and no support for the solitude/stress release outcome.

When the second measure of conflict, HCDS was tested (Mann-Whitney test), against the learning and solitude/stress release outcomes the results strongly supported the hypothesis (Table 22). First, hikers who hold learning as quite important are more likely to be dissatisfied upon meeting or seeing other types of

recreationists (sign. level .0124). Secondly, hikers who feel solitude/stress release is an important outcome are much more likely to be dissatisfied upon meeting or seeing other types of recreationists (sign. level .0014).

Table 21. Associations of "Focused" Outcome Domains and Hiker Conflict, U of M Study.

A. Mann-Whitney Test on HCLP and learning.

	n	mean rank	U	1-tail prob.
<u>Conflict</u>				
Yes	53	170.80	6,317.5	.1396
No	<u>263</u>	156.02		
	316			

B. Mann-Whitney Test on HCLP and solitude/stress release.

	n	mean rank	U	1-tail prob.
<u>Conflict</u>				
Yes	53	154.70	6,768.0	.4715
No	<u>257</u>	155.67		
	310			

Table 22. Associations of "Focused" Outcome Domains and Satisfaction Dimension, U of M Study.

A. Mann-Whitney Test on HCDS and learning.

	n	mean rank	U	1-tail prob.
<u>Satisfaction Dimension</u>				
Satisfied	82	83.60	3,452.5	.0124
Dissatisfied	<u>104</u>	101.30		
	186			

B. Mann-Whitney Test on HCDS and solitude/stress release.

	n	mean rank	U	1-tail prob.
<u>Satisfaction Dimension</u>				
Satisfied	81	79.62	3,128.0	.0014
Dissatisfied	<u>104</u>	103.42		
	185			

Hypothesis 5 - Overnight hikers are more susceptible to conflict with horse-users than day hikers are.

To test this hypothesis, Chi-square tests were used to assess the associations between the three independent variables and the dependent variables, hiker conflict (HCLP), and satisfaction dimension (HCDS). The first and third tests lend support for the hypothesis (Table 23). For instance, approximately 16 percent of the hikers reporting

HCLP were overnight campers versus the 6 percent who were day users (sign. level .0020). In addition, those who were dissatisfied upon meeting or seeing other types of recreationists (HCDS), were more likely to be overnight hikers than day hikers (sign. level .0252). The second test, showed hikers reporting HCLP not to be significantly different than those without HCLP (sign. level .4792).

Table 23. Hiker Conflict as Related to Length of Stay.

A. Cross-tabulation of HCLP with length of stay, USFS study.

<u>Conflict</u>	<u>Length of Stay</u>			
	Overnight		Day	
	n	%	n	%
Yes	44	16.2	12	6.3
No	227	83.8	179	93.7
TOTALS	271	100.0	191	100.0

chi-square = 9.5068 with 1 d.f.; significance = .0020

B. Cross-tabulation of HCLP with length of stay, U of M study.

<u>Conflict</u>	<u>Length of Stay</u>			
	Overnight		Day	
	n	%	n	%
Yes	43	18.3	12	14.1
No	192	81.7	73	85.9
TOTALS	235	100.0	85	100.0

chi-square = 0.5008 with 1 d.f.; significance = .4792

C. Cross-tabulation of HCDS with length of stay, U of M study.

<u>Satisfaction Dimension</u>	<u>Length of Stay</u>			
	Overnight		Day	
	n	%	n	%
Satisfied	56	39.4	28	59.6
Dissatisfied	86	60.6	19	40.4
TOTALS	142	100.0	47	100.0

chi-square = 5.0128 with 1 d.f.; significance = .0252

SUMMARY of TEST of HYPOTHESES

Support was found for three of the five research hypotheses:

Hypothesis 1 - When experienced hikers or horse-users come into contact with one another, the likelihood of a conflict increases.

Study	Support
USFS	No
U of M	No

Hypothesis 2 - As hikers contact horse-user impacts, the asymmetrical conflict intensifies.

Study	Support
USFS	No
U of M	*

Hypothesis 3 - Conflict occurs when hikers with possessive attitudes interact with "outsiders", i.e., those perceived as disrupting the accepted norms and traditional uses of the resource.

Study	Support
USFS	Partial
U of M	*

Hypothesis 4 - Conflict occurs when hikers at the focused end of the continuum interact with horse-users.

Study	Support
USFS	*
U of M	Yes

Hypothesis 5 - Overnight hikers are more susceptible to conflict with horse-users than day hikers are.

Study	Support
USFS U of M	Yes Partial

*** Hypothesis testing was not conducted in this study.**

CHAPTER 5
DISCUSSION and SUMMARY

Discussion

A conflict clearly exists between hikers and horse-users in the BMWC. This conflict is asymmetrical in nature, with hikers perceiving a conflict with horse-users, but not vice-versa.

The hiker/horse-user conflict is represented in this study by two different measures of conflict. First, conflict is measured in situations where hikers referred to horse-users or horse-user related activities as their "low-points", while in the area (HCLP). Secondly, hikers referred to other types of recreationists as a source of dissatisfaction while in the BMWC (HCDS). HCDS does not specify horse-users per se; however, judging from "low-points" mentioned, hikers did not complain about any user group, other than horse-users in either study. Hence, HCDS appropriately applies to horse-users.

Both HCLP and HCDS are directly related to the frequency of encounters with other types of recreationists. That is, as encounters rise, so too does reported conflict (HCLP or HCDS).

HCLP and HCDS are not necessarily the same measure of conflict. However, if the conflict measured is the same, then the intensity levels of the two variables may differ. For instance, in the U of M study, 105 hikers were dissatisfied upon meeting or seeing other types of recreationists; whereas, only 55 referred to horse-users or horse-user related activities as "low-points". Because hikers who mentioned horse-user related "low-points" could narrow the conflict down to a single specific entity, and there were twice as few of these hikers, one would expect this conflict (HCLP) to be the most intense.

Hypothesis testing was conducted for each study. The U of M study allowed testing for both HCLP and HCDS; whereas, the USFS study was used for only HCLP analysis. In addition, due to differences in design format, both studies were not always used for a given hypothesis test.

Hikers often attach personal meanings to the set of behaviors that define a recreational experience. For some, specific standards are used to establish a satisfactory experience, for others any experience is satisfactory. One would expect experienced hikers to have well defined standards in contrast to novice hikers who do not (Jacob and Schreyer 1980).

The results contradict the range of experience and definitions of quality assumption, that novice hikers have few if any experiences on which to base their definitions of a satisfactory experience, and are less likely to experience conflict. For instance, novice hikers find the heavy horse-use in the BMWC offensive. Prior to visiting the BMWC, these hikers have set predetermined standards regarding their experiences, standards that do not allow for encounters with horse-users. Hence, the novice or hiker who is new to the area is much more likely to report a conflict with horse-users, than is the experienced or returning hiker.

In addition, experienced hikers, who have many experiences on which they equate specific standards for what constitutes a quality experience, actually experience less conflict with horse-users. The primary reason for this, is that they have developed coping strategies to accommodate heavy horse use. One such strategy is to enter at trailheads where conflict with horse-users is less likely.

Experienced hikers also appear to have less conflict with horse-users when they revisit an area they have been to before, and more conflict when they visit areas new to them. This is in line with the range of experience and definitions of quality (activity style), which states: experienced hikers have specific standards for what constitutes a

quality recreational experience.

Hikers who experienced conflict with horse-users rejected campsites for a number of reasons. Only a small number rejected campsites because of horse manure, compared to a rather large number who rejected sites for other reasons. Hence, the conflict may be more related to encounters with horse-users and their impacts along trails than to campsite conditions.

Hikers who felt Wilderness was important to them personally, perceived horse-users as disrupting the accepted norms and traditional uses of the resource. However, other results for possessiveness demonstrate hikers who have frequented an area before, actually experience less horse-user related conflict. In fact, hikers who were visiting new areas were far more susceptible to having conflict (HCLP), with horse-users than were hikers who were returning to a previously visited area. Here again, hikers who are possessive over a given area may have developed some sort of coping strategy. For instance, they too, may be frequenting an area that receives little horse-use, which would explain the lack of horse-user related conflict or they may simply view horse-users as compatible with the resource.

The mode of experience continuum ranges from focused to unfocused. The focused end consists of hikers who have reported learning or solitude/stress release as expected outcomes while visiting the BMWC. Since the nature of these outcomes is either to totally absorb oneself while viewing a particular entity or to slow down at a pace generally accepted as being detached from the civilized world, a conflict is likely to occur when someone else prevents the realization of these outcomes.

"Focused" hikers who interacted with horse-users were likely to experience conflict (HCDS). This is to be expected, as horse-users generally lie toward the unfocused end of the mode of experience continuum.

In addition, overnight hikers most likely fall toward the focused end of the continuum. These hikers have more time to focus on a specific entity and are able to spend more time detached from the civilized world than are day hikers. Here again, one would anticipate a conflict with horse-users. The test results show overnight hikers are more susceptible to conflict (HCLP and HCDS) than are day hikers.

One might ask what was learned about conflict. First, it is possible to determine some of the conflict's causal factors within: activity style, resource specificity, and

mode of experience. Second, it was reaffirmed that conflict occurs when ones' goal attainment is prevented by someone else's actions or presence. Finally, and of particular interest, the mere presence of a different recreational party is sufficient to cause conflict when two or more parties share the same physical resource (interdependence). In fact, their presence is as likely to cause a conflict as are their physical impacts upon the resource.

In addition, to say a conflict exists between two or more parties is not enough, if it is to be managed productively. One must determine the basis (causal factors), for the conflict, and its intensity level in order to achieve a better conceptual understanding prior to any management attempt. Without this understanding, managers will not be able to control the situation and most likely will aggravate the conflict until extreme party polarization occurs.

Future Research

There are a number of areas related to conflict where future research is needed. For instance, researchers could address the validity of, and intensity levels for self identified conflict (open ended questions), as opposed to cued responses (closed ended questions). Another area that should be researched in the future, are the connotations of

status among different recreationists that use the same resource, such as hikers and horse-users. This would allow researchers to determine the effect, if any on conflict. Additionally, researchers could address the differences between encounters with any recreationists, and encounters with conflict prone recreationists. This would provide some valuable insight on how encounters affect outdoor recreationists' perceptions regarding conflict.

Suggested Management Actions

Resource managers could alleviate the hiker/horse-user conflict with a number of soft-handed management actions. First, information could be provided to wilderness users via a wide spectrum of media sources. This information should address novice or hikers new to the area differently than those experienced in the area. Managers could inform the new-comers about horse-use levels, i.e., how much horse-use, where it is concentrated, and where to go to avoid it; this would allow the visitor to make their own decision regarding encounters with horse-users.

The percentage of hiker encounters with horse-users would need to be determined once evidence of the conflict exists. This percentage could be identified by contrasting the number of hiker encounters with horse-users against a conflict indicator, such as HCLP or HCDS. Once the

percentage is identified, it could be worked into the Limits of Acceptable Change Planning System (LAC), by developing social indicators, setting standards, and finally implementing management actions (Stankey, Cole, Lucas, Petersen, and Frissell 1985). This would aid resource managers in their effort to manage the conflict productively, before it escalates beyond their control and/or authority.

Another management action would be to separate hikers and horse-users where they are most susceptible to conflict. This would be at the popular, conflict prone trailheads and along trails where hiker encounters with horse-users are high (perhaps, as identified by the LAC process). Separating the two groups would not be difficult in areas where trails already exist on both sides of a river or drainage. In other areas where the conflict exists, low standard trails could be constructed to separate hikers and horse-users. This does not imply the entire trail system be duplicated; however, hikers and horse-users should be separated in conflict prone areas.

Resource managers will never fully understand the nature of the conflict unless they attempt to experience it from both a hiker and horse-user perspective. Perhaps managers should hike the trails that receive heavy horse-use; experience the mud, the manure, and the flies as

a hiker would, in order to fully appreciate the problem (Ream 1985). If resource managers attempt to manage the area solely from horseback, it is unlikely they will be able to understand the problem or conflict, since as this study demonstrates, horse-users do not perceive a conflict with hikers.

Summary

In summary, the conflict between hikers and horse-users is asymmetrical, with only hikers perceiving a conflict with horse-users. As with other outdoor recreation related conflicts, such as the canoeist/motorboater conflict in the Boundary Waters Canoe Area, the conflict begins as an asymmetrical one and gradually progresses to a highly polarized, extremely intense asymmetrical conflict, if left unchecked by resource managers (Adelman, Heberlein, and Bonnicksen 1982). When the conflict reaches this stage, it would be considered destructive, where all recreationists involved would be dissatisfied with their outcomes and feel they have lost as a result of the conflict (Hocker and Wilmot 1985). When this occurs, the recreationists will seek out other resource areas to fulfill their needs.

Without considering the conflict's causal factors: activity style, resource specificity, mode of experience, and lifestyle tolerance, resource managers will merely touch the periphery of the conflict in attempting to manage it. In addition, these factors must not be overlooked, because the BMWC users represent not only Montana's population but the world's population.

The study clearly indicates the conflict is greatest among new-comers or previous users who wish to visit an area new to them. Resource managers could alleviate or manage the conflict by educating the conflict prone hikers about heavy horse-use, and by identifying areas within the BMWC where they would experience few encounters with horse-users or their related impacts.

In conclusion, the Bob Marshall Wilderness Complex was set aside and:

"shall be administered for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness and so as to provide for the protection of these areas, the preservation of their wilderness character, and for the gathering and dissemination of information regarding their use and enjoyment as wilderness" (The Wilderness Act 1964).

Clearly, the USFS is mandated by Congress to provide satisfactory experiences, if this can be equated as enjoyment by wilderness users. However, they cannot prevent

incompatible hikers and horse-users from encountering each other in a confined area such as the BMWC. Yet, much of this conflict could be prevented or productively managed by providing quality information to hikers and horse-users prior to their visit (Lime and Lucas 1979). This would allow both visitor groups the opportunity to make their own decisions regarding the frequency of encounters with horse-users while in the BMWC.

GLOSSARY

Activity Style - "the personal meanings attached to the set of behaviors constituting a recreation activity" (Jacob and Schreyer 1980 p.371).

Expressed Struggle - The verbal or nonverbal recognition of a conflict (Hocker and Wilmot 1985).

Hiker - Overnight or day-hikers.

HCDS - Conflict with horse-users, as identified by hikers. Hikers were dissatisfied upon meeting or seeing horse-users in the area. HCDS applies only to the U of M study.

HCLP - Conflict with horse-users, as identified by hikers through their horse-user related low-points. HCLP applies to the USFS and U of M studies.

Horse-user - Horseback riders only.

Interdependence - The mutual interests, regardless of degree, that conflicting parties have with each other (Hocker and Wilmot 1985).

Lifestyle Tolerance - The tendency of people to accept or reject lifestyles different from their own (Jacob and Schreyer 1980).

Mode of Experience - Modes or ways of experiencing the environment as a continuum ranging from unfocused to focused (Jacob and Schreyer 1980).

Resource Specificity - "the importance an individual attaches to the use of a particular recreation resource" (Jacob and Schreyer 1980 p.373).

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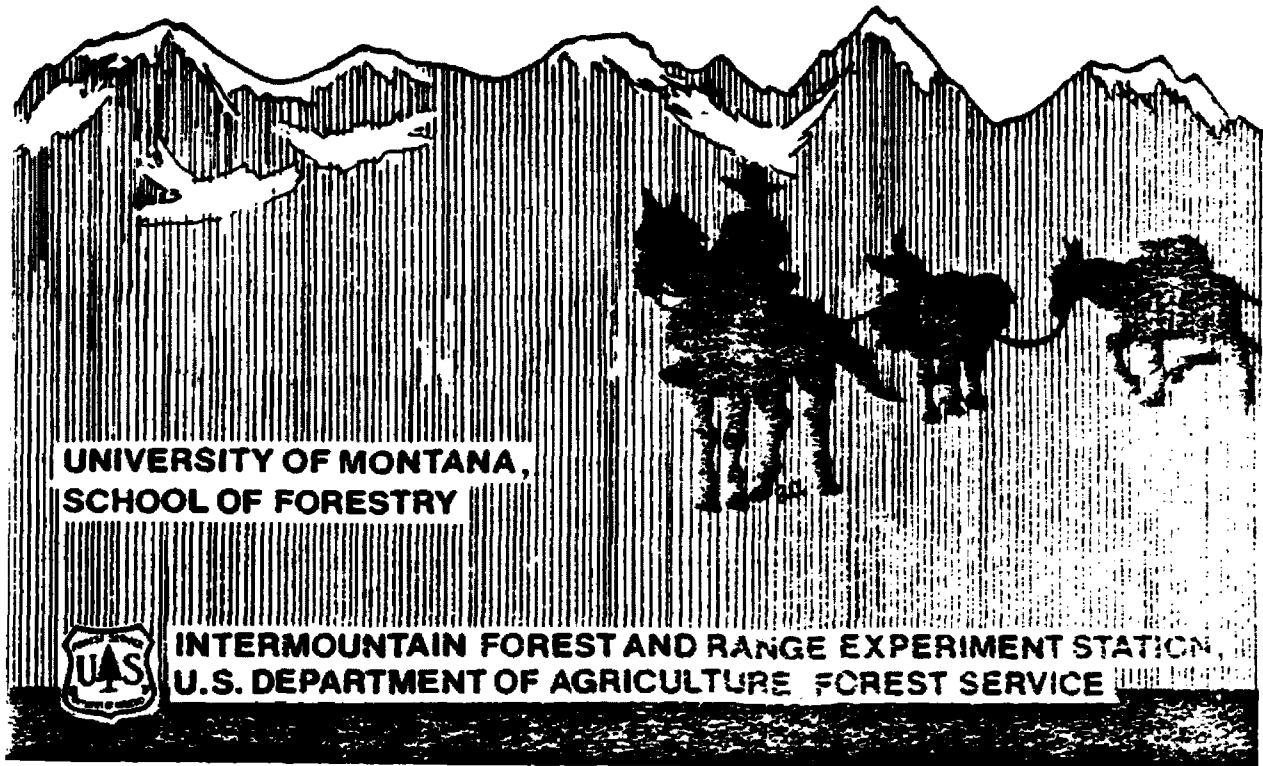
Wilderness Act

1964. Public Law 88-577 88th Congress, S.4 September 3, 1964.

Appendix A
USFS Questionnaire

WILDERNESS VISITOR STUDY

**Bob Marshall
Great Bear
Scapegoat**



FORM APPROVED
OMB NO. 0596-00-71

Wilderness Visitor Study

All of the following questions refer to the Wilderness visit you made about _____, 1982, entering at _____.

IMPORTANT! The term "Wilderness" in this questionnaire means the roadless, undeveloped country reached only by trails or rivers. These questions refer only to the Wilderness portion of your trip, not to places along the road.

First, we would like to know about some of the things your party did on this visit.

1. How did you travel in the Wilderness (the roadless country) on this visit? (Check all that apply, but if more than one, underline the way you traveled most.)

- HIKED, CARRYING OUR EQUIPMENT OURSELVES
- RAFT, CANOE, KAYAK, ETC.
- HIKED, LEADING HORSES OR MULES
- HORSEBACK
- OTHER (describe _____)

2. If your party used horses or mules, please answer the following question. (If not, please skip to QUESTION 3.)

- a. How many horses or mules did your party take? _____
- b. Was supplemental feed packed in?
 - NO
 - YES — If Yes: What kind of feed? HAY; GRAIN; PELLETS
- c. How were most of the horses or mules handled at night?
 - KEPT IN A CORRAL TURNED LOOSE HOBbled
 - TIED TO TREES PICKETED
 - TIED TO A ROPE STRETCHED BETWEEN TREES
 - OTHER (explain _____)

8. Was going to the Wilderness the SOLE purpose of this trip away from home, or were there other purposes for the trip, too (such as visiting another recreation area or park or visiting friends along the way)?

- VISITING THE WILDERNESS WAS THE SOLE PURPOSE OF THIS TRIP
- VISITED ANOTHER PLACE OR PLACES ON THIS TRIP ALSO

9. Have you ever visited any Wilderness before this trip?

- NO → SKIP TO QUESTION 11
- YES → At about what age did you first visit a Wilderness? _____
Was this with your parents? NO; YES

Do you usually return to Wilderness places you have already visited, or do you spend most of your time hiking or riding in areas new to you?

- SPEND MOST OF MY TIME IN AREAS NEW TO ME
- SPEND MOST OF MY TIME REVISITING AREAS I'VE BEEN IN PREVIOUSLY
- SPEND MY TIME DOING BOTH OF THE ABOVE EQUALLY

10. Have you visited this Wilderness area before?

- NO → GO TO QUESTION 11
- YES → About how many times? _____)

Would you say the quality of the area was:

- GETTING BETTER
- ABOUT THE SAME
- GETTING WORSE

What, if anything, seemed different?

11. Did you personally choose (or help choose) the trailhead where you entered the Wilderness?

- YES → CONTINUE WITH QUESTION 12
- NO → Who did choose?
 - AN OUTFITTER OR GUIDE
 - SOMEONE ELSE IN YOUR PARTY
 - OTHER (explain _____)

NOW SKIP TO QUESTION 16

16. Did you contact the Forest Service to get information about the Wilderness before your trip?

NO → SKIP TO QUESTION 18

YES

17. a. Did you: (Check all that apply.)

VISIT A FOREST SERVICE OFFICE

TELEPHONE A FOREST SERVICE OFFICE

WRITE A FOREST SERVICE OFFICE

b. How well did the information you got from the Forest Service meet your needs?

VERY WELL

FAIRLY WELL

NOT VERY WELL

NO OPINION, OR DON'T REMEMBER

18. Including this visit, how many times did you visit a Wilderness in the past 12 months? _____

How many total days did you spend in Wilderness areas on all visits in the past 12 months? _____

The following questions ask for your personal opinion about the Wilderness you visited. This information will assist the Forest Service to better manage and protect the Wilderness.

19. What were your main reasons for choosing to visit this kind of area (a roadless Wilderness) instead of some other kind of recreation area? Please indicate the importance of each of the following by marking one answer after each statement.

	VERY IMPORTANT	SOMEWHAT IMPORTANT	NOT IMPORTANT
To enjoy scenic beauty	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To fish	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To hunt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To relax	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To exercise and get in shape	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To escape civilization	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To develop backcountry skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To experience solitude	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To face the challenge of wild country . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To avoid mechanized recreation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other reasons	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(explain _____)

20. How satisfied were you, personally, with this trip into the Wilderness? What kind of a grade would you give it? (Check one.)

A, VERY GOOD B, GOOD C, FAIR D, POOR F, VERY POOR

What was most satisfying about the trip? (The high points.) _____


What was most dissatisfying about the trip? (The low points.) _____

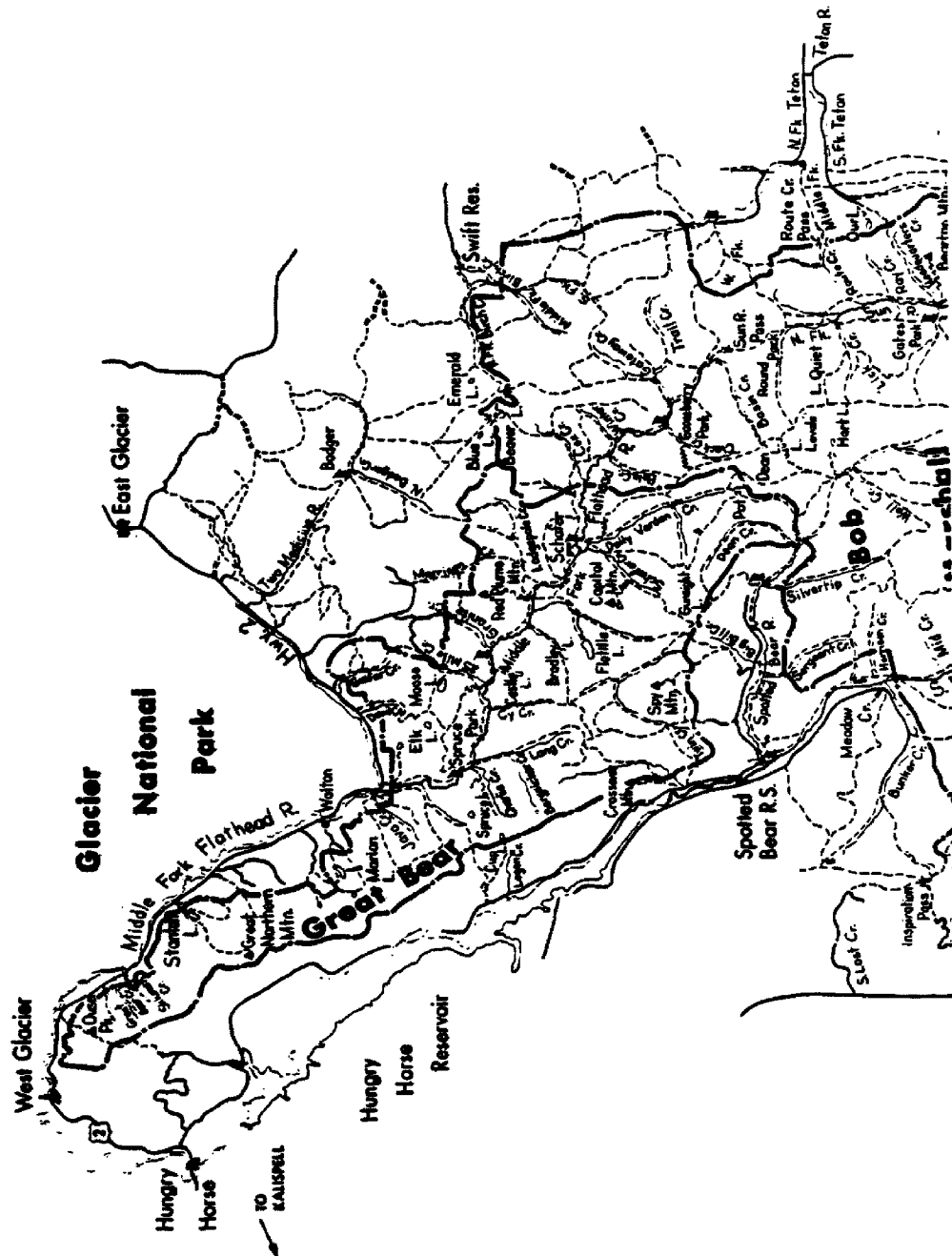
21. When you are camped in the Wilderness, about how many other parties would you prefer camped within sight or sound of your camp? _____

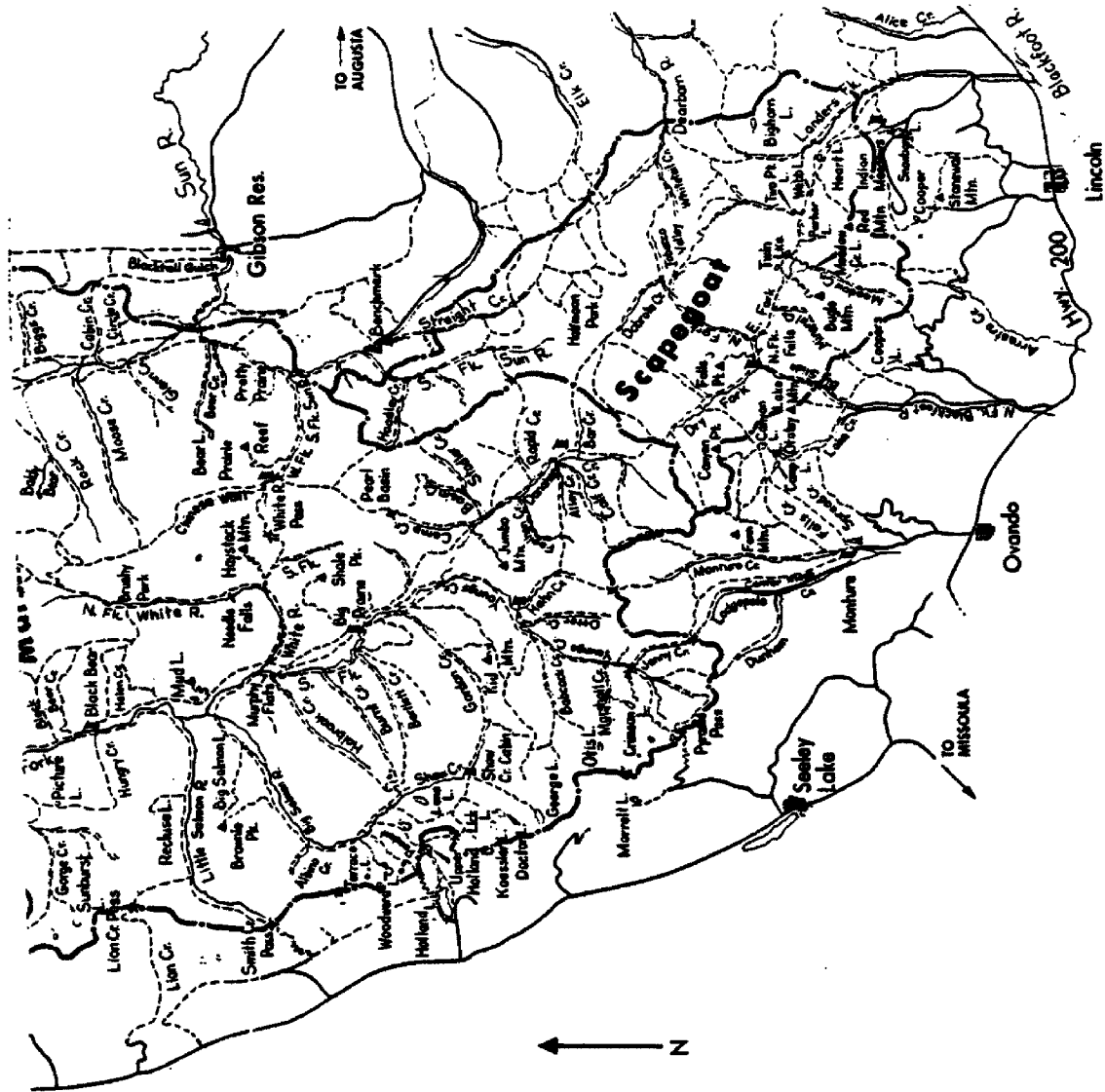
IF YOU DIDN'T CAMP OVERNIGHT IN THE WILDERNESS ON THIS TRIP, PLEASE SKIP TO QUESTION 29

22. On this trip into the Wilderness, were you able to find a campsite with this preferred number of other campers?
- ALWAYS USUALLY
(AT LEAST 1/2 TIME) SOMETIMES NEVER
(LESS THAN 1/2 TIME)
23. When you were looking for a place to camp on this trip, did you take the first available campsite you found in the general area where you intended to stay?
- ALWAYS USUALLY
(AT LEAST 1/2 TIME) SOMETIMES NEVER
(LESS THAN 1/2 TIME)
24. On this trip, did you pass up an available campsite because you didn't like the condition it was in? (The next question asks about location; now we just want to know if you passed up a campsite because of its condition.)
- NO
- YES—What didn't you like about it? (Check all that apply.)
- | | |
|---|--|
| <input type="checkbox"/> LITTER (CANS, PAPER, ETC.) | <input type="checkbox"/> FIREWOOD SCARCE |
| <input type="checkbox"/> HORSE MANURE | <input type="checkbox"/> CUT OR DAMAGED TREES |
| <input type="checkbox"/> BARE GROUND OR DUST, EXPOSED TREE ROOTS, EROSION OF THE SOIL, ETC. | <input type="checkbox"/> GRAZING FOR HORSES SCARCE |
| <input type="checkbox"/> OLD CAMPFIRE REMAINS, ROCK FIRE RINGS, ETC. | |
| <input type="checkbox"/> OTHER (explain _____) | |
25. On this trip, did you pass up an available campsite in the area where you intended to stay because of its location?
- NO
- YES—If so, what was it that you didn't like about it?
- | | |
|---|--|
| <input type="checkbox"/> POOR VIEW | <input type="checkbox"/> TOO CLOSE TO OTHER OCCUPIED CAMPS |
| <input type="checkbox"/> WATER TOO FAR AWAY | <input type="checkbox"/> TOO CLOSE TO TRAIL; NO PRIVACY |
| <input type="checkbox"/> OTHER (describe _____) | |

26. On this trip, did you purposely leave the trail to look for a campsite?
 NO
 YES
27. Did you have serious problems finding unoccupied places to camp?
 NO
 AT ONE PLACE
 AT MORE THAN ONE PLACE
28. On this trip did you generally use campsites that had been used before, or sites that hadn't been used before, as best as you could tell? (Check one.)
 USUALLY USED SITES THAT HADN'T BEEN CAMPED ON BEFORE
 USUALLY USED SITES THAT HAD BEEN CAMPED ON BEFORE
 USED BOTH SITES THAT HAD AND HADN'T BEEN USED BEFORE ABOUT EQUALLY
29. How did you feel about the number of other people you saw in the Wilderness on this visit? (Check one.)
 SAW WAY TOO FEW
 SAW TOO FEW
 ABOUT RIGHT
 SAW TOO MANY
 SAW WAY TOO MANY
 DID NOT MATTER TO ME ONE WAY OR THE OTHER
 DO NOT REMEMBER
30. About how many other parties did you see in the Wilderness on this trip? ___
How many of these were large parties (say, over 10 people)? ___
How many of the parties had horses or mules? ___

On the map below please: (A) Draw an arrow  along your route (off the road). Include any off-trail travel. (B) Mark your campsites with an "X" and write the number of nights you spent at each campsite next to the "X".





31. Did you feel crowding was a problem in the Wilderness in places you visited?

NO

YES → Please note the places you felt were crowded. (A very simple description of the place will be enough; something like, "around Smith Lake," or "on the trail between Jones Pass and Brown River.")

32. How did you feel about the condition of the Wilderness in terms of wear and tear from use, causing erosion and loss of vegetation, and in terms of litter? (Check one box in each row.)

	VERY GOOD	GOOD	FAIR	POOR	VERY POOR	DO NOT REMEMBER
Wear and tear	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Litter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please describe what seemed wrong, if anything: -----

33. Thinking about the Wilderness you visited, how desirable or undesirable do you think each of the following is? (Check one box after each item.)

	<u>Undesirable</u>	<u>Don't care</u>	<u>Desirable</u>	<u>Desirable in more heavily used parts of Wilderness, but not in more lightly used parts</u>
A. High standard trails (wide, steady grades, fairly straight)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Low standard trails (somewhat like a game trail—narrow, grade varies, winding, not the shortest route)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Leaving some areas with no trails	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. A few trees blown down across the trail, maybe 1 or 2 per mile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Bridges over creeks where hikers would otherwise get wet feet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. Bridges over rivers that are dangerous for hikers to wade or for horses to ford	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. Outhouses (pit toilets)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H. Cemented rock fireplaces with metal grates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I. Small, loose rock fireplaces (fire rings)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
J. Natural forest fires started by lightning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
K. Pole corrals at camp-sites for horses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L. Closing some areas to use by horse parties	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	<u>Undesirable</u>	<u>Don't care</u>	<u>Desirable</u>	<u>Desirable in more heavily used parts of Wilderness, but not in more lightly used parts</u>
M. Prohibiting wood fires where dead wood is scarce (requiring use of gas stoves)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
N. Split log picnic tables at campsites	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
O. Restricting the number of visitors to an area if it is being used beyond capacity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P. Eliminating grazing by visitors' horses (require carrying horse feed)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Q. Requiring all visitors to register when entering	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
R. A natural fishery--no stocking, and barren lakes left barren	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S. Limiting the size of parties to 12 people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T. Prohibiting camping within 200 feet of lakes or streams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
U. Encouraging visitors to remove fire rings and all evidence of campfires when breaking camp	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
V. Signs along the trail explaining natural features or early history	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
W. Burying unburnable garbage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	<u>Undesirable</u>	<u>Don't care</u>	<u>Desirable</u>	<u>Desirable in more heavily used parts of Wilderness, but not in more lightly used parts</u>
X. Use of chain saws by the administrators to clear trails of trees	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Y. A guidebook to the Wilderness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Z. A detailed, accurate map	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AA. Issue trip permits so visitors could only camp each night in the area assigned to them	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
BB. Expect campers to use only dead wood on the ground for campfires	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CC. Allow visitors to catch fish to eat in the Wilderness but not to bring out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DD. Packing unburnable garbage back out of the Wilderness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
EE. Rangers or patrolmen in the backcountry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Did you meet a Ranger in the Wilderness? NO; YES

Please comment on any of the items above, if you want to: _____

34. How important or valuable are Wilderness areas to you personally?

- EXTREMELY IMPORTANT
- VERY IMPORTANT
- FAIRLY IMPORTANT
- NOT VERY IMPORTANT
- NOT AT ALL IMPORTANT

35. How well do each of the following statements describe your feelings about your recent trip in the Wilderness? (Please check one box for each statement.)

	Very strongly disagree	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Very strongly agree
This Wilderness trip was better than any other Wilderness trip I remember	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
This Wilderness trip was better than any other outdoor recreation experience I remember	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
This Wilderness trip was so good I would like to take it again	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

We would also like some background information about you. This information is needed to predict future use and to compare different kinds of recreation areas. We respect your privacy—all this information will be kept strictly confidential.

36. How many people were in your party in the Wilderness on this trip, including yourself? -----

How many were in each of the following age and sex categories? (Please put the correct number in each box.)

	up to 14 years old	15 to 24 years old	25 to 44 years old	over 44 years old
MALES				
FEMALES				

37. Were these people: (Skip if you were alone.)

- A FAMILY OR FAMILIES (INCLUDES PART OF A FAMILY)
- A FAMILY PLUS FRIENDS (INCLUDES PART OF A FAMILY)
- FRIENDS AND ACQUAINTANCES (NOT RELATED)
- FROM AN ORGANIZATION (SCOUTS, CLUB, ETC.)
- OTHER (describe -----)

38. Do you belong to any conservation or outdoor recreation clubs?

- NO
- YES —→ Which ones? -----

39. Where do you live? And where did you live most of your life before age 18?
 (Check one box in each column. If you live or used to live in a suburb, answer
 in terms of the whole metropolitan area.)

	<u>Where do you now live?</u>	<u>Where did you live most of your life before age 18?</u>
ON A FARM	<input type="checkbox"/>	<input type="checkbox"/>
RURAL OR SMALL TOWN (UNDER 1,000 POPULATION)	<input type="checkbox"/>	<input type="checkbox"/>
TOWN (1,000 - 5,000 POPULATION)	<input type="checkbox"/>	<input type="checkbox"/>
SMALL CITY (5,000 - 50,000 POPULATION)	<input type="checkbox"/>	<input type="checkbox"/>
MEDIUM CITY (50,000 - 1 MILLION POPULATION)	<input type="checkbox"/>	<input type="checkbox"/>
LARGE CITY (OVER 1 MILLION POPULATION)	<input type="checkbox"/>	<input type="checkbox"/>

40. What is the highest year of school you have completed? (circle)

ELEMENTARY								HIGH SCHOOL				COLLEGE					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	OR MORE

Are you still a student?

NO

YES

41. What is your occupation? (If retired, also show occupation before retirement.)

What kind of work are you doing? -----

To help us determine occupation, please list your most important activities or
 duties. -----

PLEASE MAIL THE COMPLETED QUESTIONNAIRE
 IN THE SELF-ADDRESSED, STAMPED ENVELOPE.
 THANK YOU VERY MUCH!

(If you have any other comments, please write them here. And, thanks again!)

REPROGRAPHS

Appendix B
U of M Questionnaire

SUMMER 1982
RECREATION SURVEY



School of Forestry
University of Montana

UNIVERSITY OF MONTANA

School of Forestry
Missoula, Montana 59812

Wilderness Visitor Survey

Please answer all questions as they relate to your most recent visit to the wilderness.

1. Was this your first visit to the wilderness? (Circle one answer)

1 YES (if yes, please go to Question 2)

2 NO (if no, please answer the following)

a) In what year was your first visit? 19_____

b) Including your recent visit, about how many times have you visited this wilderness?

1 ONE TO THREE VISITS

3 EIGHT TO TWELVE VISITS

2 FOUR TO SEVEN VISITS

4 OVER TWELVE VISITS

2. During your recent visit, what type of group were you with? (Circle one number)

1 ALONE

4 FAMILY & FRIENDS

2 FAMILY

5 OUTFITTER

3 FRIENDS

6 CLUB OR ORGANIZED GROUP_____

3. About how many people were in your group including yourself?

1 ONE OR TWO

4 SEVEN TO TEN

2 THREE TO FOUR

5 ELEVEN OR MORE

3 FIVE TO SIX

4. Did you camp overnight in the wilderness on this visit?
 1 YES → How many nights? _____
 2 NO
5. During your most recent visit, what was your primary method of travel? (Circle one number)
 1 HIKING 3 USED HORSES TO CARRY PACKS ONLY
 2 HORSEBACK RIDING 4 OTHER _____
6. Please check each of the following activities you participated in during your most recent visit to the wilderness. (Please circle all numbers that apply)
- | | | |
|--|--------------------------|--------------------------------|
| 1 LOOKING AT ROCKS & GEOLOGICAL FORMATIONS | 7 HUNTING | 13 PHOTOGRAPHY |
| 2 SWIMMING | 8 FISHING | 14 WATCHING WILDLIFE |
| 3 ROCK CLIMBING | 9 RELAXING | 15 HORSEBACK RIDING |
| 4 NATURE STUDY | 10 EXPLORING | 16 TECHNICAL MOUNTAIN CLIMBING |
| 5 VIEWING SCENERY | 11 PLAYING GAMES, SPORTS | 17 OTHER _____ |
| 6 CAMPING | 12 HIKING AND WALKING | |
7. During your last visit, did you observe any wildlife?
 1 NO 2 YES (if yes, please list) _____
-
8. About how many other people did you see during your most recent visit to the wilderness? (Circle one number)
 1 NONE 4 ELEVEN TO TWENTY
 2 ONE TO FIVE 5 TWENTY-ONE TO FORTY
 3 SIX TO TEN 6 OVER FORTY
9. How did you feel about the number of people you saw in the wilderness on this visit? (Circle one number)
 1 SAW WAY TOO FEW 5 SAW WAY TOO MANY
 2 SAW TOO FEW 6 DID NOT MATTER TO ME ONE WAY OR THE OTHER
 3 ABOUT RIGHT
 4 SAW TOO MANY 7 DO NOT REMEMBER

10. Each person has many individual reasons for visiting wilderness. Below is a list of reasons given by recreationists for their visits. Try to recall how important each of the following reasons was to you in your most recent visit.

Check the appropriate box

I visited the wilderness for the opportunity:	not at all important	slightly important	somewhat important	moderately important	very important	extremely important
to observe the scenic beauty	()	()	()	()	()	()
so I can be with friends	()	()	()	()	()	()
so I can take in some natural surroundings	()	()	()	()	()	()
to develop my skills and ability	()	()	()	()	()	()
for the adventure	()	()	()	()	()	()
to improve my physical health	()	()	()	()	()	()
so I could do things with my companions	()	()	()	()	()	()
to enjoy the smells & sounds of nature	()	()	()	()	()	()
to get away from some of the expectations people have of me back home	()	()	()	()	()	()
because I thought it would be a challenge	()	()	()	()	()	()
to get away from other people	()	()	()	()	()	()
because something exciting is always happening here	()	()	()	()	()	()
to understand the natural world better	()	()	()	()	()	()
so my mind could move at a slower pace	()	()	()	()	()	()
to have fun	()	()	()	()	()	()
to learn more about nature	()	()	()	()	()	()
for the solitude	()	()	()	()	()	()

10. Continued

Check the appropriate box

	<i>not at all important</i>	<i>slightly important</i>	<i>somewhat important</i>	<i>moderately important</i>	<i>very important</i>	<i>extremely important</i>
I visited the wilderness for the opportunity:						
to help reduce or release some built-up tensions	()	()	()	()	()	()
to be with others who enjoy the same things I do	()	()	()	()	()	()
to help keep me in shape	()	()	()	()	()	()
so I could become better at it	()	()	()	()	()	()

11. We are interested in how frequently you encountered certain conditions during your recent visit. For each condition or factor listed below, please check the appropriate box.

Please check appropriate box

Factor:	<i>I encountered this nearly everywhere</i>	<i>I encountered this occasionally (less than half the time)</i>	<i>I rarely or never encountered this</i>	<i>Don't recall</i>
Litter.	()	()	()	()
Biting Insects.	()	()	()	()
Rain or Cold Temperatures . .	()	()	()	()
Other Types of Recreationists	()	()	()	()
Warm, Sunny Weather	()	()	()	()
Muddy or Dusty Trails	()	()	()	()
Other Similar Recreationists.	()	()	()	()
Loose Dogs	()	()	()	()

12. Listed below are a number of factors which people usually encounter during an outdoor recreation trip. For each factor, please check whether it contributed to a feeling of satisfaction or dissatisfaction. If the factor did not affect you one way or the other, please check "neither".

Check the Appropriate Box

Factor:	Was it a source of satisfaction?	Was it a source of dissatisfaction?	Neither
Trails.	()	()	()
Weather	()	()	()
Biting Insects.	()	()	()
Recreation Equipment.	()	()	()
Management rules	()	()	()
Scenery	()	()	()
Litter.	()	()	()
Meeting or seeing other similar recreationists	()	()	()
Meeting or seeing other types of recreationists	()	()	()
Dogs.	()	()	()
Wildlife.	()	()	()
Lakes	()	()	()
Streams	()	()	()

13. How well do each of the following statements describe your feelings about your recent visit?

Please check one box for each statement

Very Strongly Agree	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree	Very Strongly Disagree
---------------------	----------------	-------	----------------------------	----------	-------------------	------------------------

This wilderness trip was better than any other wilderness trip I remember

() () () () () () ()

This wilderness trip was better than any other outdoor recreation experience I remember

() () () () () () ()

This wilderness trip was so good I would like to take it again

() () () () () () ()

14. Listed below are another group of factors which concern how your visit was organized and carried out. Please indicate whether each factor gave you a feeling of satisfaction, dissatisfaction, or had no effect either way.

Factor:	Was it a source of satisfaction?	Was it a source of dissatisfaction?	Neither
People I traveled with	()	()	()
The group leader	()	()	()
Responsibilities I had on trip	()	()	()
The activity itself	()	()	()
Improving activity skill level	()	()	()
Personal physical condition	()	()	()
The route our group took	()	()	()

15. We would like to know the "high" and "low" points of your recent visit.

a. What did you personally enjoy most?

b. What did you personally enjoy least?

16. Finally, overall, how would you rate your visit?

___ POOR

___ FAIR, IT JUST DIDN'T WORK OUT VERY WELL

___ GOOD, BUT I WISH A NUMBER OF THINGS COULD HAVE BEEN DIFFERENT

___ VERY GOOD, BUT COULD HAVE BEEN BETTER

___ EXCELLENT, ONLY MINOR PROBLEMS

___ PERFECT

17. Do you have suggestions about how this wilderness could be managed in order to improve future trips?

18. Are there any different ways in which you would organize future trips into the wilderness to improve your experience?

Background Information

Finally, we have a few questions about you personally which provide information useful in management. Remember, you will not be identified with your answers, so please be frank.

19. What is your present age? _____

20. Are you?

1 FEMALE

2 MALE

21. What best describes the area in which you live?

1 LARGE CITY OVER ONE MILLION PEOPLE

2 MEDIUM CITY 50,000 TO ONE MILLION PEOPLE

3 SMALL CITY 5,000 TO 50,000 PEOPLE

4 TOWN 1,000 TO 5,000 PEOPLE

5 RURAL

6 FARM

22. What is the highest level of education you have completed so far? (circle one number)

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 16+
ELEMENTARY HIGH SCHOOL COLLEGE

23. What is your occupation? (Please indicate what kind of work you do, not for whom you work. If you are a homemaker, student, or retired, please so indicate.)

24. Do you have any additional comments or suggestions on how to improve the management of this wilderness? Any general comments?

25. If you hunted during your trip please indicate what game you bagged.

___ deer ___ moose ___ sheep ___ grouse
___ elk ___ bear ___ goat ___ none

PLEASE PLACE YOUR COMPLETED QUESTIONNAIRE IN THE STAMPED, SELF-
ADDRESSED ENVELOPE PROVIDED AND DROP IN ANY CONVENIENT MAILBOX.

THANK YOU FOR YOUR HELP.
School of Forestry
University of Montana

THANK YOU FOR HELPING US TO CONDUCT THIS SURVEY. IF YOU WISH TO
RECEIVE A SUMMARY OF THE RESULTS, PLEASE PRINT YOUR NAME AND ADDRESS
ON THE BACK OF THE RETURN ENVELOPE (*Not on this questionnaire*) AND
WE WILL SEE THAT YOU GET IT.