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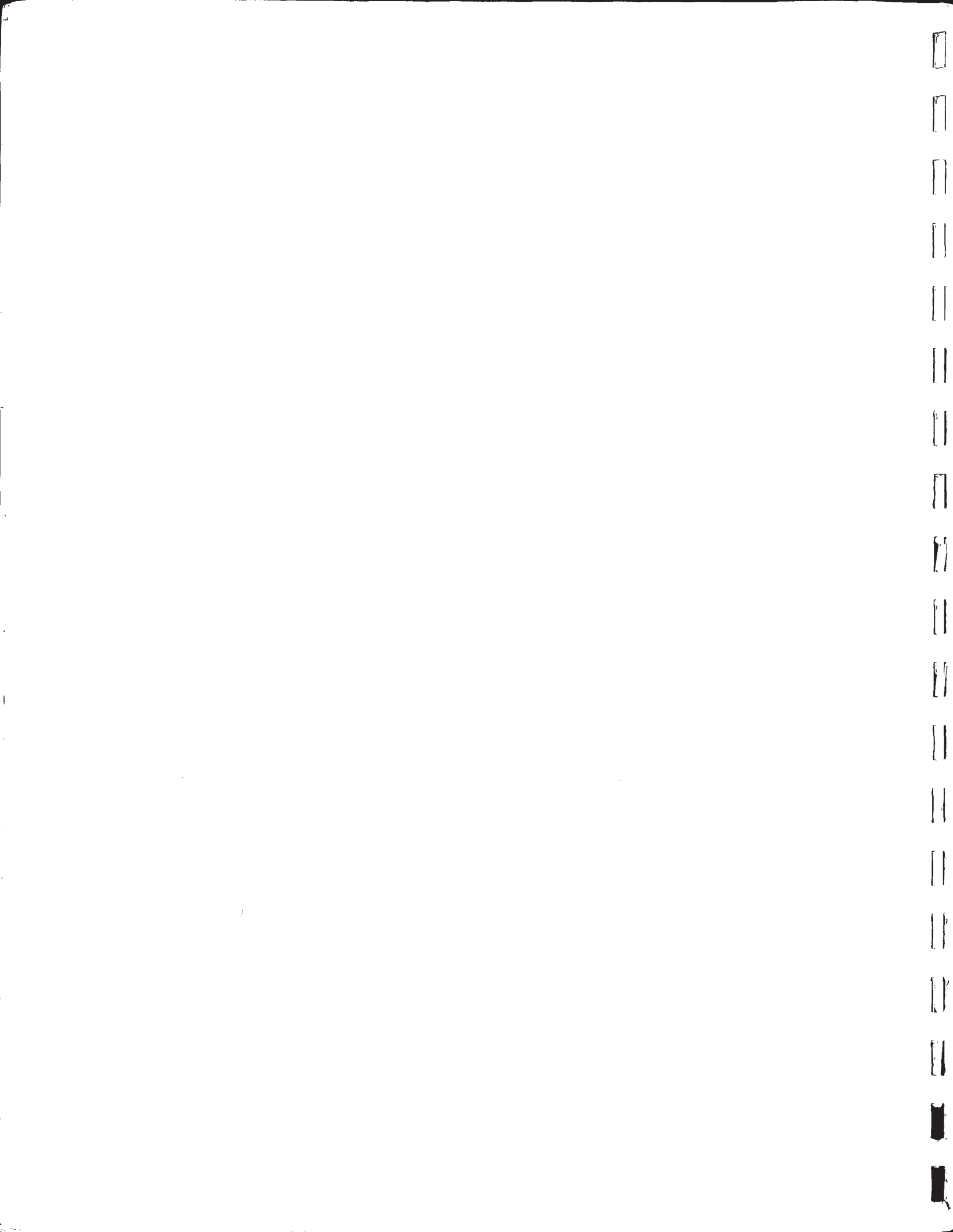
WATER RESOURCES RESEARCH INSTITUTE

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LARAMIE, WYOMING

DAY USE OF GRAND TETON
NATIONAL PARKS BACKCOUNTRY AREAS

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University of Wyoming
Laramie, Wyoming

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I. INTRODUCTION

Background

Grand Teton National Park in northwestern Wyoming covers approximately 500 square miles of land containing spectacular mountain peaks and peaceful lowland lakes and forests. The Park was initially established in 1929 but included at that time only the mountains and the lakes at their feet. In 1950, the Park was expanded to its present boundaries which include much of the Jackson Hole area.

Grand Teton National Park provides a great diversity of experiences and activities for the visitor. Although the topography is extremely rugged and dramatic, high alpine environments and scenic mountain vistas can be experienced with ease and the hiker can engage in a variety of activities ranging from wildlife and plantlife observation to photography, fishing, and mountain climbing. While many of the Park's three million annual visitors come specifically to get out into the backcountry, a large number also come to enjoy the many recreation opportunities provided by Park concessions, such as boating, sailing, bicycling, horseback riding, swimming, and resort vacationing.

Whatever the primary reason for a visit to the Park, increasing numbers of people are taking to the trails and experiencing Grand Teton's backcountry areas. Park records indicate that in 1969 permits were issued for 14,496 overnight stays. By 1974 that number had jumped to 32,186, or an increase of 122 percent. Although data have not been maintained on day hikers or horseback users prior to this study and the study by Wolfley conducted in 1974 (Wolfley, 1975), similar increases

seem apparent in these two groups as well.

The management staff of Grand Teton National Park, in accordance with the National Park Act of 1916, is directed to conserve the scenic, scientific, and historic heritage of the Park while providing for the use and enjoyment of the Park by its visitors, thus presenting the dilemma between preservation on the one hand and use on the other. As Aldo Leopold (1949) wrote: "all conservation of wilderness is self-defeating, for to cherish we must see and fondle, and when enough have seen and fondled, there is no wilderness left to cherish." Lucas (1964) states that in order to avoid this dilemma, "there must be a compromise between complete wilderness with no visitors and, at the other extreme, crowds and no wilderness." For the wilderness manager this compromise means providing a situation that allows for the levels and kinds of use which maximize the enjoyment and satisfaction of the wilderness user while minimizing the degradation of the wilderness environment.

Wilderness, in concept and reality, is in the mind of the beholder. To one person, wilderness may be represented by a walk through Central Park in New York City; to another, true wilderness may only be found in the most remote areas of Alaska. If the management of wilderness is to begin to define the acceptable kinds and levels of use which will maintain wilderness quality, user's attitudes and perceptions of a particular tract of wilderness must be determined.

The Wilderness Act of 1964, the first action to designate wilderness by law, inspired numerous research efforts concerned with the proper use and management of wilderness (Brandborg, 1963).

With the dramatic increase in wilderness visitation and use has come an increasing concern for proper resource management, compatible

wilderness activities, and appropriate levels of use. Robert Lucas (1964) called for action which will manage primarily for environment-dependent activities and expressed a need for intermediate recreation areas which will be maintained for their natural setting but will also allow management for activities not entirely dependent on a pristine environment.

To approach the problems of increasing use, there is a need for research which will begin to define the characteristics of wilderness users, their preferences, motivations, and sensitivity to various levels and kinds of wilderness use. Two prominent efforts in this area are the studies conducted by Hendee and others (1968), and Stankey (1973). Hendee established a scale upon which the attitudes of wilderness users can be measured as to their degree of "wildernism" or "urbanism". This will probably be maintained as a standard against which other research results can be compared. Stankey's work described socially acceptable levels of use in four wilderness areas.

As Hendee, Clark, and Stankey (1974) have stated: "Public sentiment, expressed and gathered as citizens participate in the decision process, is a particularly important input because it helps identify the values that people attach to the alternative goods and services that national forests might provide."

Discussions relating to wilderness management and to considerations of the level of use to be permitted in these areas eventually leads to a discussion of carrying capacity. The concept of carrying capacity on recreational lands has been discussed widely in the literature. It consists basically of two parts: ecological carrying capacity and social carrying capacity. Ecological carrying capacity is the level of use beyond which significant changes will occur in an area's natural

biological or physical systems. Excessive recreational use may result in trail erosion, loss of water quality, detrimental effects on wildlife populations, changes in the local plantlife composition or succession and other effects. Wilderness quality depends upon the prevention of such degradation. Therefore, the upper limits of wilderness carrying capacity should and must be set by the amounts and types of use which will prevent the deterioration of the natural environment.

The second component of an area's capacity, the social and psychological carrying capacity, is determined by the point beyond which significant deterioration in the experience of the wilderness user takes place, and this limit may well be reached or exceeded before the ecological carrying capacity is reached. The user's experience may be affected by a number of different sources including the amounts and types of use he encounters, physical conditions present, and management policies he must comply with. Because of the individual nature of wilderness perception, it becomes critical to management personnel attempting to maximize the user's enjoyment of the area that the characteristics of the different user groups be identified. This identification is the central concern of this study.

Purpose of Study

In the summer of 1974, Wolfley conducted a study to identify the users of Grand Teton National Park's backcountry (Wolfley, 1975). His results showed that of the total user population in the Park, 62 percent were day users--people who hike into the backcountry and return to the point of origin of the hike in the same day. Because of the large numbers of this user group in the Park, and because of their impact on the environment, Park officials felt that more information was needed

specifically regarding the day user.

Wolfley's 1974 study found that day use was concentrated along the fringe of the backcountry. It further indicated that "the purposes. . . for backcountry day use trips tended to be more of an active and specific nature rather than contemplative" (Wolfley, 1975). Moreover, the decision of many day users to hike seems to have been made spontaneously: they needed some activity after lunch, or they wanted a break from riding in the car, or they saw the sign identifying the trail and decided to see where it went. It is questionable how many day users were aware that they were hiking in a designated backcountry area. It appeared that this type of day user was primarily interested in hiking as a diversionary activity and was hiking in the backcountry because that was where the trails were located.

These circumstances obviously do not pertain to all day users. There were day users going into Grand Teton's backcountry who were seeking a wilderness experience. There also appeared to be a group of day users who were going into the backcountry to see a specific site or to visit a particular area. While they might not have been seeking a wilderness experience as such, the purpose of their outing could not have been satisfied outside the backcountry as long as the attraction that motivated their hike was located within the boundaries of the backcountry.

The day user of Grand Teton's backcountry creates a management dilemma in that, on the one hand, use of the backcountry has been increasing at a rapid rate and is the cause of concern for the area's environmental and aesthetic quality. On the other hand, Wolfley's study as well as the experience of backcountry management personnel within the

Park raise questions about the need or desirability of having some components of the day user group hiking in the backcountry. While management policies may not be developed to discourage use of the backcountry by the present component of day users who are not seeking a pure wilderness experience, it may be possible to develop hiking alternatives to the backcountry that would be successful in relieving some of the current and expected future pressure.

Objectives

The general purpose of this study was to identify the use patterns of day users hiking and backpacking in a designated backcountry area of Grand Teton National Park and to survey the day users with regard to various aspects of thier backcountry outings. Specific objectives of the study were as follows:

- 1) To develop a general activity profile for day users including length of stay, travel patterns, and other information that will indicate resource demand.
- 2) To estimate the spatial distrubiton of day users over the backcountry area.
- 3) To identify problems encountered by day users related to physical conditions of the area, user conflicts, or management policies that detract from their experience.
- 4) To obtain general attitudinal and preference information that will assist Park officials in evaluating present management policies or provide guidelines for the establishment of new backcountry use policies.

The Study Area

The specific area of study was the southern portion of the area designated for backcountry management in Grand Teton National Park. It was and is the area of concentrated backcountry use within the Park. It includes the Teton Peaks, Hidden Falls, the major canyons in the Teton

Range and many other attractions that draw Park visitors into the backcountry. The trail going up through Granite Canyon is close to the southern boundary of the Park and was the southernmost trail in the study area. A trail going to Bearpaw Lake and a trail going up Indian Paintbrush Canyon were the northernmost trails included in the study area. In between the Granite Canyon Trail and the Indian Paintbrush Trail there are two other canyon trails, Death and Cascade Canyons, that come together at various points in the high mountain reaches of the backcountry to form a trail network. In between Death and Cascade Canyons, there are two trails that provide access to Taggart, Bradley, Surprise and Amphitheater Lakes. These trails do not connect into the network of backcountry trails as do the canyon trails.

The western boundary of the study area coincides with the western boundary of the Park. There are two or three access trails that come in from the western side of the mountain range. These trails receive little use and they could not be monitored from the eastern side of the mountain range; thus, they were not included in the study area. The eastern boundary of the backcountry study area was along the foot of the mountains on the eastern side of the range. The valley trail is located along the eastern front of the mountains close to the eastern boundary of the backcountry, and it connects into the lower portions of all the trails mentioned. Insofar as this study was concerned, the valley trail was considered the eastern edge of the study area.

The northern portion of the Grand Teton backcountry, that portion of the Teton Mountain Range directly west of Jackson Lake, was not included in the study area because day use in the area is minimal.

Limited access to the area has apparently been barrier enough to keep use of this portion of the backcountry relatively low.

Procedures

The basic task of the study was to collect information from day users of Grand Teton National Park backcountry about their outings. A questionnaire was developed, in conjunction with Park personnel, for use as the primary survey instrument. Dr. Beverly Driver, Rocky Mountain Forest and Range Experiment Station, U.S. Forest Service, Fort Collins, Colorado, also reviewed the questionnaire and offered several helpful suggestions. In its final form (see Appendix A) questions were included that solicited information from users regarding descriptive demographic data, the travel route for their outings, length of stay data, sources of information used in selecting their travel routes, Park features they wanted to see and activities in which they participated while on their outings. They were asked to comment on the condition of the trail or trails on which they had traveled, backcountry use regulations and certain other backcountry use policies. In another section of the questionnaire, users were asked to evaluate certain aspects of their backcountry hike in terms of the level of satisfaction they derived.

The study area included six major trailheads. The sample was designed around a six-day sampling period with a goal of obtaining a minimum of 100 usable day user questionnaires per trail. A random interview schedule was drawn for the six trailheads that permitted the two interviewers to work each trail one day during the six-day interview period. The sample was controlled to the extent that the interview days for each trail were distributed over the days of the week and to the extent that both interviewers were never scheduled to interview on the

same trail. Because some trails do not open up until the snow melts in mid-July, the interview period was limited to July 15 through August 31. A summary of the questionnaires collected by trail is presented below.

<u>Trailhead</u>	<u>Total Response</u>	<u>% of Sample</u>
Jenny Lake	120	18.8
String Lake	113	17.7
Lupine Meadows	103	16.2
Taggart Lake	119	18.7
Whitegrass	93	14.6
Granite Canyon	<u>89</u>	<u>14.0</u>
TOTAL	637	100.0

All day use parties on the trails being surveyed were contacted by the interviewers as the parties were leaving the backcountry. All party members 13 years old and over were asked to participate in the survey. To avoid bias on the part of the party leader, the party (Jubenville, 1971), or the interviewer, each respondent was asked to complete the questionnaire on his own. Only exiting parties were contacted and asked to participate in the survey since the aim was to gather responses to the actual backcountry experience, including reactions to management policies, rather than expectations about the experience.

Respondents required approximately 15 minutes to complete the questionnaire, and many expressed appreciation for the opportunity to participate in the study. Interview stations were located in areas so that the respondents were inconvenienced as little as possible.

If individuals indicated they did not want to participate in the survey, for any reason, they were instructed to return the questionnaire to the interviewer and proceed with their journey. Of those contacted, 23 individuals, or 3.5 percent, refused to participate.

II. DEMOGRAPHIC CHARACTERISTICS

State of Residence

Respondents from forty-one of the fifty United States and two foreign countries were represented in the study sample. California ranked first with 14.0 percent of the sample, followed by Wyoming (10.0 percent), New York (7.2 percent), Utah (6.9 percent), and Illinois (5.0 percent). States not represented in the sample were Alaska, Delaware, Mississippi, North Dakota, South Dakota, South Carolina, Tennessee, Vermont, and West Virginia.

The state of residence distributions varied, to some extent, by trail. Wyoming, Utah and Idaho residents were the primary users of the Whitegrass and Granite Canyon Trails, whereas residents from more distant states (California, New York, Illinois, etc.) were encountered most frequently at the other trails. The Whitegrass and Granite Canyon trails are the two southernmost trails in the study area and can be accessed without going through an entrance gate. Both trails seem to enjoy a reputation among local residents and among summer residents as being "local" trails. Moreover, a relatively high proportion of the summer help in the Jackson area comes from Wyoming, Utah and Idaho compared to the summer employees hired by concessionaires in the Park proper.

Occupation

As has been reported in other wilderness and backcountry studies (Hendee et al., 1968; Wolfley, 1975), backcountry day users tend to be either students or people in the professional occupation category. A

similar result was found to be the case among Grand Teton backcountry day users. Table 1 shows that except for homemakers, there was little representation in the Park from other occupational groups.

Age

Although all age groups were represented, day users in Grand Teton National Park were primarily young to middle-aged adults. Persons between 19 and 35 years of age comprised 61.5 percent of the study sample (Table 2) which is similar to the results Wolfley found in the 1974 study of both the day and overnight user of Grand Teton's backcountry. On the average, the typical user of Grand Teton's backcountry appears to be slightly younger than average wilderness users (ORRRC, 1962; Burch, 1966; Hendee et al., 1968). The age difference of the two area user groups can probably be attributed to two factors. First, just by virtue of the trailheads in Grand Teton being located along Park roads, they are easily accessible to families with young children who may be inclined to go on a day hike. Access points to wilderness areas, on the other hand, are generally located on out-of-the-way roads where drop-in traffic is not likely to be a factor. The rigor of a wilderness experience might discourage a family with young children from going on an overnight wilderness outing, while the same family may take a short day hike into a backcountry or wilderness area.

Reason for Coming to Grand Teton National Park

The day hikers contacted in the study had various reasons for visiting Grand Teton National Park (Table 3). The largest numbers, by far, were there on vacation or recreation trips. This was true for each of the interview areas, although variation between them can be seen.

TABLE 1

OCCUPATION OF GRAND TETON BACKCOUNTRY DAY USERS-JULY AND AUGUST 1975
(In percent by interview location)

Occupation	Total	Jenny Lake	String Lake	Lupine Meadows	Taggart Lake	White- Grass	Granite Canyon
Student	32.2	32.2	35.1	38.6	23.2	33.0	37.9
Homemaker	11.1	16.5	11.7	8.9	14.7	5.5	9.2
Manager, Executive	6.0	7.8	4.5	3.0	12.9	4.4	2.3
Farmer, Rancher	1.6	0.9	2.7	2.0	0.9	2.2	1.1
Sales	0.6	0.9	0	2.0	0	0	1.1
Clerical	2.5	2.6	5.4	1.0	2.6	0	3.4
Craftsman	4.6	5.2	2.7	6.9	4.3	2.2	6.9
Hourly	3.3	2.6	1.8	3.0	2.6	7.7	3.4
Professional	33.9	28.7	33.3	34.7	37.9	41.8	34.5
Other	4.3	2.6	2.7	0	0.9	3.3	0

TABLE 2

AGE OF GRAND TETON BACKCOUNTRY DAY USERS-JULY AND AUGUST 1975
(In percent by interview location)

Age	Total	Jenny Lake	String Lake	Lupine Meadows	Taggart Lake	White- grass	Granite Canyon
-13	1.4	0.8	1.8	1.0	0	2.2	3.4
14-18	9.3	6.8	10.0	9.8	4.2	10.9	17.0
19-25	34.4	41.6	30.9	45.1	25.4	38.0	25.0
26-35	27.1	22.0	25.5	22.5	35.7	27.2	29.6
36-45	12.8	14.4	14.5	10.8	16.1	6.5	12.5
46-65	12.6	11.0	11.8	10.8	16.1	13.0	12.5
-66	2.4	3.4	5.5	0	2.5	2.2	0

TABLE 3

REASON FOR COMING TO GRAND TETON NATIONAL PARK-JULY AND AUGUST 1975
(In percent by interview location)

Reason	Jenny Lake	String Lake	Lupine Meadows	Taggart Lake	Whitegrass	Granite Canyon	Total
Vacation or Recreation trip	92.6	83.2	83.4	89.0	61.3	77.5	82.1
Passing through the area	3.3	2.7	4.9	3.4	0	1.1	2.6
Summer employee in the area	1.7	4.4	3.9	3.4	22.6	4.5	6.3
Summer resident in the area	0.8	2.7	1.0	0.8	4.3	7.9	2.7
Year-round resident	0.8	3.5	0	3.4	11.8	9.0	4.4
Other	<u>0.8</u>	<u>3.5</u>	<u>6.8</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1.9</u>
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0

At the Jenny and Taggart Lake areas, 92.6 and 89.0 percent, respectively, of the respondents were vacation oriented. All other groups received relatively low representation except in the Whitegrass Ranch and Granite Canyon areas, where a larger amount of use comes from Jackson area residents and summer employees and a substantially lower proportion of vacation use occurs. Two factors could account for this. First, the short distance from Jackson to the Granite parking area and Whitegrass Ranch makes both of these areas more accessible to summer and year-round residents of Jackson. Second, access to both of these areas is from the Moose-Wilson Road, and a major portion of the road is unpaved and relatively unknown to the average vacation day hiker.

Wolfley (1975) reported that in 1974, 86.3 percent of the day use in the Park was by vacation visitors. This study shows a decrease in this figure of 4.2 percentage points. Corresponding increases are seen primarily in use by summer and year-round residents of the Jackson area.

Party Type

Over the entire backcountry, about half of the day use parties consisted of family groups (Table 4). The Jenny, String, and Taggart Lake areas received higher use from married couples and family groups (as a combined group), while Lupine Meadows, Whitegrass, and Granite Canyon areas were visited more frequently by groups of friends or companions and individual hikers. At all interview areas, with the exception of String Lake, "friends and companions" was the most represented category using the backcountry area.

TABLE 4

PARTY TYPE OF GRAND TETON BACKCOUNTRY DAY USERS-JULY AND AUGUST 1975
(In percent by interview location)

Party Type	Jenny Lake	String Lake	Lupine Meadows	Taggart Lake	Whitegrass	Granite Canyon	Total
Individual hiker	3.3	7.1	6.8	1.7	8.6	6.7	5.5
Friends and companions	44.8	30.4	51.4	36.9	53.7	42.7	42.7
Married couples (no children)	27.6	26.8	10.7	30.3	18.3	15.7	22.1
Family groups	24.3	35.7	27.2	31.1	18.3	31.5	28.1
Other	0	0	3.9	0	1.1	3.4	1.6

III. TRAVEL PATTERNS, TRAIL PREFERENCES AND CONDITIONS, LENGTH OF STAY

Trail Selection

In order to identify the sources of information used by visitors to select travel routes, the respondents were asked to indicate how they decided on which trail to hike. For the Jenny Lake, String Lake, Lupine Meadows and Taggart Lake Trails, people most frequently used park literature in deciding where to hike (Table 5). Because the picnic area at String Lake is adjacent to the trail, a high percentage (20.5 percent) of the respondents indicated they simply saw the trail sign and decided on the spur of the moment to take a hike.

The Taggart Lake Trail had the highest percentage of repeat visitors (21.2 percent) of the six trails. Repeat visit was also a major reason for those who were hiking in the Jenny Lake (18.3 percent) and Whitegrass (19.4 percent) areas. The users of the Whitegrass and Granite Canyon Trails did not rely on Park literature to the extent as did users on the other trails. The users contacted at the Whitegrass interview location where the principal attractions are Phelps Lake and Death Canyon indicated that recommendations of friends was the most important source of information they had in selecting a trail (30.1 percent). Granite Canyon was used primarily by people who based their decision on non-Park or commercial literature (23.6 percent).

The figures for the Whitegrass and Granite Trails are consistent with figures previously discussed which indicated that both trails were popular with Jackson residents and summer employees. Also, the close

TABLE 5

METHOD OF TRAIL SELECTION BY GRAND TETON BACKCOUNTRY DAY USERS-JULY AND AUGUST 1975
(In percent by interview location)

	Jenny Lake	String Lake	Lupine Meadows	Taggart Lake	Whitegrass	Granite Canyon	Total
Familiar with trail	18.3	15.8	9.8	21.2	19.4	15.7	16.6
Referred by friends	15.8	9.2	9.4	11.9	30.1	16.9	15.3
Referred by visitors	5.0	3.6	2.0	1.7	2.2	2.2	2.8
Referred by ranger	6.7	7.1	12.9	7.6	12.7	3.4	8.3
Desired to see	11.7	9.8	12.9	4.2	5.4	6.7	8.5
Saw sign	5.8	20.5	5.9	8.5	4.3	3.4	8.3
Park literature	25.8	24.1	26.5	23.7	19.4	13.5	22.4
Non-park literature	10.8	4.5	6.9	12.7	2.2	23.6	9.9
Other method	0	5.4	13.7	8.5	4.3	14.6	7.9

proximity of the Granite Canyon Trail to Teton Village provides a reasonable explanation of why a high percentage of users cited non-Park literature as being an important source of information.

Travel Patterns

In order to provide concise information on travel patterns, travel distances, amount of time spent on the hike, off-trail use, and trail preference, each trail will be discussed separately.

Jenny Lake Trails. Three different points of access are available to users going to Hidden Falls. The largest number of day hikers (44.9 percent) took the trail that starts on the east shore of Jenny Lake and goes around the south end of the lake and then up to Hidden Falls. The second largest group (37.3 percent) took the Jenny Lake boat to the west shore of Jenny Lake and then took the trail to the falls. The balance of visitors to Hidden Falls (17.8 percent) came by way of the trail that originates in the String Lake parking area and goes around the north end of Jenny Lake.

Hidden Falls is a major attraction or destination region of the Park for users of this system of trails since 35.2 percent of the users never went beyond the falls. Inspiration Point, a relatively short distance up the trail from the falls with a spectacular view of Jenny Lake, was the destination of 27.9 percent of the users while the remainder (36.9 percent) hiked up into Cascade Canyon.

Travel distance on the Jenny Lake trails reflects the destination orientation of day hikers. The largest percentage (46.2 percent) of day users hiked two or three miles, corresponding with distances from the east shore of Jenny Lake to Hidden Falls (2.5 miles, 16.8 percent) and

to Inspiration Point (2.9 miles, 9.2 percent), the distances from String Lake parking area to Hidden Falls (2.2 miles, 8.4 percent) and to Inspiration Point (2.6 miles, 3.4 percent), and the distance into Cascade Canyon from the west shore boat dock (up to 3 miles, 8.4 percent).

There was a relatively large group of day users (18.3 percent) who hiked less than a mile, the distance from the west shore boat dock to Hidden Falls and Inspiration Point. A relatively small group of day users (6.7 percent) had hiked between four and five miles as they had gone from the west shore boat dock to the forks of Cascade Canyon. A slightly larger group (7.5 percent) had hiked from the Jenny Lake parking area to Cascade Canyon forks. The balance of the Jenny Lake Trail users' trips were spread over varying distances and apparently the users had no particular destinations in mind.

Because the interview station for the Jenny Lake system of trails was located where the north and south Jenny Lake trails converged with the trail leading from the west shore boat dock to Hidden Falls, there is a possibility that some day users were missed. Day use parties starting from either the Jenny Lake parking area or the String Lake parking area could have hiked part way around the lake and then turned back before they got to the interview station.

Although off-trail use occurred infrequently, there were areas in the Jenny Lake region where such use did occur. When day hikers were asked to indicate at what point, if any, on their hike they went off the trail for any significant length of time, 5.0 percent of the respondents on the Jenny Lake trails off-trail use occurred between two and three miles from the trailhead with another 1.7 percent of the respondents indicating they had left the trail after three and four miles. From these

data and the written comments on off-trail use, it appears that the off-trail use occurred in the areas immediately above and below Hidden Falls.

String Lake Trail. As previously mentioned, the trailhead for the String Lake Trail is adjacent to the String Lake picnic area, and subsequently, it gets heavy after-dinner or after-lunch use. A majority of the day users contacted (69.6 percent) only hiked along the east shores of String and Leigh Lakes; a distance of less than two miles from the trailhead. Bearpaw Lake, three to four miles from the trailhead, was the destination of 11.6 percent of the String Lake trail users. Taking a branch of the String Lake Trail that goes up into the mountains, 13.5 percent of the users hiked into Paintbrush Canyon; a hike of five to six miles. The balance of the day users (5.3 percent) indicated they had taken the west branch of the String Lake Trail and hiked south to where the trail merged with the north Jenny Lake Trail and then hiked into the Hidden Falls or up into Cascade Canyon. Starting at the String Lake picnic area, users would have hiked six to seven miles (one way) to get to Cascade Canyon.

Because the String Lake Trail branches into a loop that doubles back along the west side of the Lake, around its southern end and back to the picnic area where the trailhead is located on the east trail, it was impossible to locate an interview station that would intercept all trail traffic. Those day use parties that would have started up the east trail and looped back in the west trail would not have been covered by one of the interview stations. The number of parties that might take that loop was thought to be low by the Park Rangers that supervise that area of the Park, and a decision was made to omit that trail traffic from the survey. Consequently, whatever volume of day use travel may

have exited the backcountry by way of the west String Lake Trail and around the southern end of the lake has not been included in the study or the estimates of total backcountry day use.

Most of the day use respondents on the String Lake Trail indicated they stayed on the trail. Only 6.2 percent of the respondents reported that they had left the trail. Almost all of the off-trail use occurred along the east shore of Leigh Lake between two and four miles from the trailhead.

Lupine Meadows. The Lupine Meadows trailhead is used by day hikers to access many frontal areas of the backcountry. A majority of the day users (59.1 percent) were destined for Amphitheater Lake. Users from the trailhead who hiked as far as the Garnet Canyon Trail junction and returned to the trailhead (14.6 percent) were divided as follows: 12.7 percent traveled only one to two miles, while 1.9 percent actually traveled as far as the junction; 8.7 percent of the sample traveled into Garnet Canyon, while 4.9 percent of the respondents hiked beyond the Canyon for a distance of eight miles or more. Travel from the Lupine Meadow trailhead to Bradley Lake accounted for 12.7 percent of the use in this area.

A relatively high number of day users in the Lupine Meadows area (13.6 percent) indicated that they had left the trail at some time during the hike. All off-trail use occurred beyond three miles from the trailhead, and areas of highest off-trail use occurred between three and four miles (4.9 percent), five and six miles (2.9 percent) and more than eight miles (2.9 percent). This can account for those who left the trail at Surprise and Amphitheater Lakes, those who traveled beyond Amphitheater Lake, and those who traveled beyond the trail end

in Garnet Canyon. The remainder of off-trail use occurred at various other distances between three and eight miles from the trailhead.

Taggart and Bradley Lake. From the Taggart Lake parking area, 49.2 percent of those sampled indicated that they had hiked to Bradley Lake. The largest portion of these people (28.0 percent) traveled only the two miles to the lake and then returned; the remainder of this group traveled various distances along the shore of the lake. Travel to Taggart Lake accounted for 33.9 percent of the use and travel on the Taggart-Beaver Creek Loop accounted for 16.1 percent. Less than one percent of the users traveled to Amphitheater Lake.

The area of most frequent off-trail use appears to be on Taggart Lake and Bradley Lake shores where 7.7 percent and 2.5 percent of the respondents, respectively, indicated leaving the trail. Another 2.5 percent indicated off-trail use on Taggart Creek before reaching the lake.

Whitegrass. The shore of Phelps Lake is the primary destination of hikers leaving the Whitegrass Ranger Station (55.4 percent). Of this group, 46.7 percent indicated hikes only to the lake shore for a distance of two miles, while 5.3 percent hiked up to one additional mile along the lake. Hikes into Death Canyon accounted for 32.7 percent of the use in this area, with 18 percent hiking only to the patrol cabin and 14.7 percent hiking for various distances past the cabin. Phelps Lake Overlook was the destination point of 11.9 percent of the respondents.

The shores of Phelps Lake receive the most off-trail use, where 9.7 percent of the hikers indicated leaving the trail.

Granite Canyon. Granite Canyon presents a unique situation in the Park in that the majority of day hikers in this area are starting their hike inside the Canyon at its head and proceeding out; 84.3 percent of the respondents had traveled this way by taking the Teton Village Tram to the top of Rendezvous Mountain and hiking the 12.5 miles through Granite Canyon back to Teton Village. The remaining 15.7 percent traveled from the Granite Canyon parking area on the Moose-Wilson Road and hiked up into Granite Canyon for various distances.

Little off-trail use occurred in Granite Canyon, where only 7.7 percent of the day hikers indicated leaving the trail. This use appears to be randomly dispersed along the trail with little correlation with any physical features.

Time Spent on the Trail

Day hikers spent an average of 4.34 hours on the trail (Table 6). Variations in sample size most likely account for the difference from the 1974 day user average of 3.9 hours (Wolfley, 1975). Length of stay for trails varied from 3.01 hours for respondents at String Lake to 6.24 hours for those at Granite Canyon.

Trail Conditions and Scenic Nature Opportunities

When asked to rate the trail's condition and scenic and nature opportunities, the large majority of day hikers contacted at each location rated eight different trail characteristics (listed in question 8, Appendix A) as favorable or adequate.

Table 7 is a compilation of responses by interview location. The "favorable" percentages in the table include responses of "favorable" and "highly favorable;" the percentages listed under "unfavorable" include

TABLE 6

AVERAGE AMOUNT OF TIME SPENT ON THE TRAIL BY DAY HIKERS
JULY AND AUGUST 1975

Interview Location	Mean Amount of Time (hours)	Standard Deviation (hours)
Jenny Lake	4.14	1.68
String Lake	3.01	1.51
Lupine Meadows	5.41	1.75
Taggart Lake	3.62	1.20
Whitegrass	4.13	1.81
Granite Canyon	6.24	1.38
TOTAL SAMPLE	4.34	1.88

TABLE 7
 RESPONDENTS' RATING OF TRAIL CONDITIONS AND SCENIC OPPORTUNITIES
 (In Percent for Each Trail by Conditions and Opportunities)

Conditions	Favorable ¹						Adequate						Unfavorable ²					
	Jenny Lake	String Lake	Lupine Meadows	Taggart Lake	White-grass	Granite Canyon	Jenny Lake	String Lake	Lupine Meadows	Taggart Lake	White-grass	Granite Canyon	Jenny Lake	String Lake	Lupine Meadows	Taggart Lake	White-grass	Granite Canyon
Litter	86.2	82.0	83.0	84.5	83.7	78.4	8.6	11.7	8.0	6.1	7.6	12.5	2.6	5.4	6.0	6.0	5.4	3.4
Bugs	63.2	39.8	55.1	53.0	40.9	42.9	19.7	28.7	20.4	29.8	28.0	31.0	13.8	22.2	19.3	13.9	28.0	21.8
Trail Wet	55.6	57.3	77.8	77.4	73.9	78.2	23.1	28.2	16.2	18.3	23.9	14.9	19.7	7.3	4.0	2.6	2.2	4.6
Trail Dust	59.6	64.8	77.6	81.9	50.6	75.2	32.8	27.0	23.2	15.7	33.0	15.1	4.2	5.4	4.0	1.8	16.5	7.0
Wildlife	35.7	24.1	38.2	42.4	30.2	35.6	36.6	34.3	35.1	27.7	42.2	37.9	22.3	29.6	20.6	26.5	20.7	20.6
Plant Variety	66.1	76.5	31.8	86.6	89.0	97.7	30.4	18.9	18.2	2.6	13.0	2.3	1.7	3.6	0.0	0.9	0.0	0.0
Scenic Attractions	88.8	84.0	90.9	85.1	83.6	87.2	11.2	13.4	8.1	11.5	14.3	9.3	0.0	0.9	0.0	3.5	2.2	3.5
High Natural Interest	84.5	75.4	85.9	76.8	79.2	81.6	12.9	18.2	11.1	21.6	18.7	13.8	0.9	3.6	2.0	0.0	1.1	3.5
Photo Opportunities	86.3	84.7	87.6	75.8	81.3	83.9	13.0	9.9	11.3	17.4	14.3	8.0	0.0	2.7	0.0	2.6	1.1	4.6
Overall Impression	84.8	88.2	95.0	91.4	95.7	92.0	13.6	10.8	5.0	7.8	4.3	6.9	0.8	0.0	0.0	0.9	0.0	1.1

¹"Favorable" is a compilation of "favorable" and "highly favorable" responses.

²"Unfavorable" is a compilation of "unfavorable" and "highly unfavorable" responses.

both "unfavorable" and "highly unfavorable" responses.

The presence of litter and garbage on the trail was rated as favorable at all locations, while the presence of bothersome insects was rated unfavorable by 28.0 percent of the respondents in the Whitegrass area, 22.2 percent at the String Lake area, 21.8 percent at Granite Canyon, 19.3 percent at Lupine Meadows, and nearly 14 percent at the Jenny and Taggart Lake areas.

Trail conditions with respect to wet, marshy areas and dirt and dust were generally found to be favorable except at the Jenny Lake area, where 19.7 percent of the location sample found parts of the trail to be unfavorably wet, and at the Whitegrass area, where the trail was too dusty for all the 16.5 percent of the respondents.

All scenic and nature opportunities were considered very favorable at all locations except for the presence of wildlife, which was considered adequate by many and unfavorable by a substantial percentage at each location. Considering the large number of visitors at each area it can readily be seen why there is little opportunity for viewing wildlife, but it is unknown whether or not visitors consider smaller animals such as chipmunks, marmots, birds, etc., which can be seen in relatively high abundance throughout the Park, to be wildlife, or if observation of wildlife can be fulfilled only by encountering larger animals such as moose, deer, or elk.

Day users have an overall favorable impression of trails in all interview areas, with the Whitegrass area having the most favorable overall impression (95.7 percent).

These data support the contention that day users in the forested lake areas are fulfilling their preferences for high-country terrain

and alpine environments. While at each location (with the exception of Lupine Meadows and Granite Canyon) the concentration of day users is at the low-elevations, hikers are nonetheless finding favorable trail conditions, outstanding scenic attractions and areas of high natural interest.

Grade or Steepness

To what extent can day hikers choose trails that meet with their abilities? Respondents were asked to select from five statements (question 9A) the one which best described how the steepness of the trail which they hiked met with their abilities (Table 8). The greatest differences between trail steepness and hikers' abilities were expressed at the Jenny and String Lake areas, where 12.8 and 19.1 percent of the respondents, respectively, felt that the trail they had hiked was easier than they would have preferred, and on the trail from Lupine Meadows, where 19.8 percent felt the trail was steeper than preferred.

Development, Maintenance and Manmade Improvement of Basic Trails

The backcountry of Grand Teton National Park has been managed, for the most part, in accordance with traditional wilderness concepts. Development and trail improvements have been kept to a minimum, except where they are necessary to maintain the environmental integrity of the Park. User satisfaction in the Park is determined to a large extent by the conditions encountered on the trail. Although a broad spectrum of satisfaction may be attained by given trail conditions, a person with purist wilderness values may derive a high level of satisfaction from undeveloped, primitive trails, where the more convenience-oriented person

TABLE 8

RESPONSE TO GRADE OR STEEPNESS OF TRAIL
(In percent by interview location)

Response	Jenny Lake	String Lake	Lupine Meadows	Taggart Lake	White- grass	Granite Canyon
Far too flat and easy	0.0	0.9	0.0	0.0	2.2	1.1
Easier than preferred	12.8	19.1	2.0	9.3	4.3	4.6
Satisfactory	83.6	77.3	78.2	87.3	91.4	90.8
Steeper than preferred	3.6	2.7	19.8	3.4	2.1	3.5
Far too steep and difficult	0.0	0.0	0.0	0.0	0.0	0.0

might attain the same level of satisfaction on a trail with bridges, handrails and outhouses.

Day users participating in the study were asked to rate the trail they had hiked regarding the degree of development which they encountered (question 9B & C). At all interview locations day users felt, on the whole, that the level of development and number of manmade improvements was satisfactory and appropriate for a trail in Grand Teton National Park. Although this was true for the majority, a substantial number of hikers at the Jenny Lake, String Lake and Granite Canyon areas felt that there was more development and improvement than they would have preferred (see Tables 9 and 10). The only area where there was a significant number of day users who felt a need for greater attention to rough, rocky areas was the Jenny Lake area, where 11.8 percent felt there were places that needed improvement.

Other Trails Taken During the Park Visit

Trail Use. Respondents were asked to indicate what other trails they had traveled for day hikes or overnight trips on their Park visit (Table 11). Many respondents interpreted the question to include the trail on which they were interviewed, so the interview location trails were most frequently mentioned as "other trails taken". It is also likely that some of the respondents had used the interview location trail previously in their visit, but because of the ambiguity of the question it is impossible to determine the number of repeat visitors to any one trail.

Trails in the Jenny Lake-Hidden Falls-Cascade Canyon area were most often mentioned as "other trails taken" by respondents at all

TABLE 9

RESPONSE TO TRAIL DEVELOPMENT AND MAINTENANCE
(In percent by interview location)

Response	Jenny Lake	String Lake	Lupine Meadows	Taggart Lake	White- grass	Granite Canyon
Trail is over- developed	2.5	2.7	0.0	0.0	1.1	2.3
More development than preferred	15.8	15.3	6.9	7.7	8.6	10.4
Satisfactory	69.9	78.4	86.2	91.5	87.1	83.9
Rocks and ruts need attention	11.8	3.6	6.9	0.8	3.2	3.4
Far too rough and rocky	0.0	0.0	0.0	0.0	0.0	0.0

TABLE 10

RESPONSE TO MANMADE IMPROVEMENTS
(In percent by interview location)

Response	Jenny Lake	String Lake	Lupine Meadows	Taggart Lake	White- grass	Granite Canyon
Improvements incompatible with backcountry	5.4	0.0	3.0	1.7	2.2	2.3
More improvements than preferred	14.8	13.0	6.9	3.4	8.6	11.5
Satisfactory	75.9	84.3	88.1	94.1	88.1	82.8
Trail would benefit from more improve- ments	3.9	2.8	2.0	0.8	1.1	1.1
Serious need for improvements	0.0	0.0	0.0	0.0	0.0	2.3

TABLE 11

OTHER TRAILS TAKEN DURING THE PARK VISIT
(In percent by interview location)¹

Trail Taken and Type of Use	Jenny Lake	String Lake	Lupine Meadows	Taggart Lake	White- grass	Granite Canyon	Total
Granite Canyon							
Day use	5.5	4.5	2.0	4.2	24.8	84.3	17.5
Overnight use	0.0	4.5	1.0	0.0	2.2	3.4	1.0
Death Canyon							
Day use	2.5	8.0	4.9	6.7	49.5	10.1	12.5
Overnight use	0.8	0.9	3.9	0.8	4.3	1.1	1.8
Trail to Taggart and/or Bradley Lakes							
Day use	8.3	14.2	22.3	83.2	24.7	5.6	24.2
Overnight use	0.0	0.9	1.0	0.0	0.0	1.1	0.5
Garnet Canyon							
Day use	4.2	0.0	7.7	0.0	7.6	5.6	4.0
Overnight use	0.8	0.0	5.8	0.8	2.2	1.1	1.8
Amphitheater Lake Trail							
Day use	7.5	6.2	64.1	6.8	17.2	3.4	17.4
Overnight use	0.0	0.0	1.0	0.8	2.2	2.2	1.1
Hidden Falls							
Day use	84.2	37.1	29.1	37.0	53.9	42.8	48.8
Overnight use	2.4	0.0	0.0	0.0	7.6	0.0	2.3
Cascade Canyon above Hidden Falls							
Day use	44.9	15.9	13.6	17.6	21.6	22.5	21.0
Overnight use	3.3	4.5	3.9	0.8	7.6	0.0	2.8
Paintbrush Canyon							
Day use	10.8	23.0	9.7	9.2	10.8	7.9	12.1
Overnight use	0.8	2.7	1.0	1.6	5.4	2.2	2.2
Leigh Lake (also Bearpaw and Trapper Lakes)							
Day use	11.7	61.1	6.8	14.3	19.4	14.6	21.8
Overnight use	0.0	0.9	1.0	0.0	3.2	1.1	1.1

TABLE 11
(continued)

Trail Taken and Type of Use	Jenny Lake	String Lake	Lupine Meadows	Taggart Lake	White- grass	Granite Canyon	Total
Webb Canyon							
Day use	0.0	0.0	1.0	0.0	2.2	1.1	0.6
Overnight use	0.0	0.9	0.0	0.0	1.1	1.1	0.5
Berry-Owl Creek							
Day use	0.0	0.9	0.0	0.0	1.1	0.0	0.4
Overnight use	0.8	3.6	0.0	0.0	0.0	2.2	1.1
Conant Trail							
Day use	0.0	0.9	0.0	0.0	1.1	0.0	0.4
Overnight use	0.0	2.7	0.0	0.0	0.0	0.0	0.5
Oxbow Bend Trail							
Day use	5.8	3.5	0.0	1.7	4.3	1.1	2.8
Overnight use	--	--	--	--	--	--	-- ²
Colter Bay Trail							
Day use	12.5	10.6	1.9	10.1	12.9	5.6	9.1
Overnight use	--	--	--	--	--	--	--
Hemitage Point Trail							
Day use	6.7	4.4	1.0	1.7	11.8	3.4	4.7
Overnight use	--	--	--	--	--	--	--
Emma Matilda-Two Ocean Lake Trail							
Day use	8.3	11.5	1.9	5.9	11.8	3.4	7.2
Overnight use	--	--	--	--	--	--	--
Naturalist Walk							
Day use	4.2	8.8	1.9	4.2	12.9	1.1	5.5
Overnight use	--	--	--	--	--	--	--

¹Not all respondents used the trails listed, so location percentages total less than 100 percent.

²Not applicable.

interview locations. Nearly one-third to over one-half of the respondents at all interview locations indicated that they had previously visited Hidden Falls, while Cascade Canyon above Hidden Falls had been visited by 14 to 23 percent of all respondents.

Respondents interviewed on Jenny Lake Trail most often reported little use of Park trails in other areas. A large majority (84.2 percent) had visited Hidden Falls and 44.9 percent had hiked to Cascade Canyon above Hidden Falls. Just over ten percent reported using Colter Bay, Leigh Lake and Paintbrush Canyon trails. String Lake hikers also reported little use of other Park trails, but that use was fairly generalized: 14.2 percent had used the Taggart/Bradley Lake trail, 37.1 percent had hiked to Hidden Falls, 15 percent had gone to Cascade Canyon, 23 percent had hiked Paintbrush Canyon, 61.1 percent had used the Leigh Lake trail, 10.6 percent had been on Colter Bay trail and 11.5 percent had used the Emma-Matilda-Two Ocean Lake trail. The latter two were the only trails out of the String Lake area that received substantial use from String Lake trail users.

Lupine Meadows trail users reported some visits to Hidden Falls (29.1 percent) and Cascade Canyon (13.6 percent). Another 22.3 percent indicated use of the Taggart/Bradley Lakes trail, and nearly 10 percent had visited Paintbrush Canyon. Most of the Lupine Meadows trail users (64.1 percent), however, used the Amphitheater Lake trail. This concentration probably reflects the large number of mountain climbers in the area.

Many respondents on Taggart Lake trail (37 percent) had visited Hidden Falls and 17.6 percent had hiked Cascade Canyon. Leigh Lake had been visited by 14.3 percent and another 10.1 percent had used the

Colter Bay trail. Again, the Colter Bay trail was the only one out of the area that had received substantial use.

As might be expected from the heavy concentration of "local" hikers in the Whitegrass area, these respondents reported the most use of nearly all other trails in the Park. The summer and year-round residents that often visit the Whitegrass area not only have more time to spend in the Park, but they are also probably more familiar with the many attractions on all of the various trails.

Many Granite Canyon hikers, like users of all of the other interview location trails, had visited Hidden Falls (42.8 percent) and Cascade Canyon (22.5 percent). Another 14.6 percent had been to the Leigh Lake area, and about ten percent had hiked Death Canyon.

Nature Trails. Use of nature trails and naturalist-conducted walks by backcountry day users appears to be quite low. The Whitegrass area hikers most frequently reported using these trails, but fewer than 13 percent indicated visiting any one of the nature trails or walks. Other interview location respondents reported even less use of these trails. The Colter Bay trail was the most often mentioned nature trail at all interview locations except String Lake, where slightly more use was attributed to the Emma-Matilda-Two Ocean Lake trail.

Overnight Use Among Day Users. The day users contacted in this study appear to be almost exclusively "day users"--that is, only a small percentage at all interview locations indicated that they had previously taken overnight backcountry trips during their visits. Whitegrass respondents, however, were again the most likely to engage in this activity.

Length of Stay

Jackson/Teton Park Area. Respondents who were not residents or employees in the Jackson area were asked to indicate how many days they planned to stay in the Jackson/Teton and Yellowstone Park areas (question 18). This group reported a minimum stay in the Jackson/Teton area of one day, a maximum of 56 days, and an average length of stay of 4.6 days (Table 12). This average must be considered too conservative since some respondents interpreted the question to mean additional days, and they did not count the interview day or previous days in the Park. Length of stay in the Jackson/Teton area was fairly consistent for all interview locations.

Most of the time these "non-resident" respondents spent in the Jackson Hole area was spent in Grand Teton National Park (question 20). Of the 4.6 average days spent in the area, 3.9 days were spent in the Park itself.

Yellowstone Park Area. Less than half of the "non-resident" respondents reported that they had already visited or were planning to visit the Yellowstone Park area on this trip. Length of stay in the area ranged from one to 40 days, and the average length of stay in the Yellowstone Park area was reported to be 1.3 days (Table 12).

Teton Backcountry. All respondents, including Jackson area residents and employees, were asked to indicate the number of days they had spent in the backcountry prior to the interview and how many additional days they planned to spend. They were asked to differentiate between days spent on day hikes and days spent on overnight backcountry trips (questions 17A and 17B).

TABLE 12

AVERAGE LENGTH OF STAY IN THE
JACKSON, TETON AND YELLOWSTONE AREAS
(In percent by interview location,
excluding Jackson area residents)

	Jackson/ Teton Area (days)	Yellowstone Area Average Stay (days)
Jenny Lake	5.0	1.2
String Lake	4.5	1.4
Lupine Meadows	4.7	1.3
Taggart Lake	5.1	1.6
Whitegrass	4.4	0.9
Granite Canyon	3.6	1.0
Total Sample	4.6	1.3

The average total number of days spent on day hikes in the Teton backcountry was 4.5 days (Table 13). There was considerable variation in this figure by interview location with an average of 2.7 days at Lupine Meadows to 6.6 days at Whitegrass. The large number of days indicated by Whitegrass respondents reflects the heavy local use in that area.

These results appear to conflict with the previously discussed 3.9 average days spent in Teton National Park; however, the discrepancy can be explained as the impact of Jackson area residents and employees--a group not included in the calculation of the 3.9 day average. Also, the 3.9 day average, as pointed out in the previous section, is somewhat low.

Day hikers in the Teton backcountry reported very limited participation in overnight backcountry hiking. For the total sample, the average number of days spent on overnight trips was 0.7, and the average number of additional days planned for overnight trips was 0.4. As might be expected, Jackson area residents and employees reported slightly higher participation in overnight backcountry trips.

Accommodations

Grand Teton National Park campgrounds were by far the most popular type of accommodation among backcountry day hikers (Table 14). While this preference was true for all interview locations, respondents at the Lupine Meadows area were the heaviest Park campground users (65.3 percent), and Granite Canyon respondents used the Park campgrounds least (27.1 percent).

Respondents at the Jenny Lake, Taggart Lake and Whitegrass areas were the most frequent users of motels, hotels, and lodges inside the

TABLE 13
AVERAGE NUMBER OF DAYS HIKE
IN THE TETON BACKCOUNTRY
(In percent by interview location,
including Jackson area residents)

Location	Days Hiked Prior to Interview	Additional Days Planned	Total Days Hiked
Jenny Lake	2.4	1.1	3.5
String Lake	3.9	1.6	5.5
Lupine Meadows	1.9	0.8	2.7
Taggart Lake	2.7	1.7	4.4
Whitegrass	4.5	2.1	6.6
Granite Canyon	3.4	1.0	4.4
Total Sample	3.1	1.4	4.5

TABLE 14

TYPE OF ACCOMMODATIONS USED
(In percent of sample and average
number of nights)

Type of Accommodation	Percent of Sample	Average Number of Nights
Grand Teton campgrounds	37.4	4.7
Forest Service campgrounds	12.1	3.1
Motels, hotels, or lodges in the Park	11.6	3.0
Motels, hotels, or lodges in the Jackson area	11.5	3.0
Other	27.4	

Park (13.8 percent, 19.1 percent, and 21.1 percent, respectively).

Hotels, motels and lodges in the Jackson area but outside the Park were most often used by Jenny Lake, Whitegrass and Granite Canyon area respondents. In addition, a large number (13.3 percent) of the Granite Canyon area respondents reported using cabins and guest ranches in the valley area.

IV. ACTIVITY PROFILES

Backcountry Activity Participation

Respondents to the questionnaire were asked to indicate from a list of backcountry activities (question 15) the activities in which they participated during their hike and to rate the relative importance they attached to each activity from Extremely Important to Not Important. Responses were tabulated for each activity to arrive at a group participation rate and an importance rating. The group participation rate for an activity is simply the percentage of the sample population that indicated participation in that activity. The importance rating was calculated by assigning a value of 5 to the Extremely Important category, 4 to the Very Important category and so on with 0 assigned to the Not Important category. The importance rating is the weighted average of the values assigned to the categories checked by respondents who had participated in the various activities. The percentage of respondents participating in the various activities and the associated importance rating are presented in Table 15.

It would seem that many of the backcountry activities such as hiking, being in the backcountry, and viewing backcountry scenery would be considered inherent in and inseparable from a trip into the backcountry. From the percentage of respondents indicating that they had participated in these activities it appears that this assumption is not necessarily valid. At least some day users made a distinction between participation in these specific activities and in a general backcountry outing. All respondents, except those on horseback, had

TABLE 15

PARTICIPATION IN AND IMPORTANCE OF SELECTED
HIKE-RELATED ACTIVITIES

Importance Rating		Group Participation	
		Percent	Rank
4.43	Being in the Backcountry	73.8	(3)
4.41	Viewing Backcountry Scenery	83.1	(1)
4.31	Solitude	67.2	(5)
4.17	Hiking	79.1	(2)
4.10	Observing Wildlife	69.4	(4)
4.01	Viewing Specific Scenic Attractions	55.9	(7)
3.94	Photographing Wildlife	42.5	(11)
3.90	Photographing Scenic Views	65.8	(6)
3.69	Family or Group Outing	43.5	(10)
3.54	Mountain Climbing	18.2	(13)
3.48	Identifying Plants	49.9	(8)
3.08	Picnicking	36.4	(12)
2.81	Bird Watching	44.4	(9)
2.71	Horseback Riding	11.8	(14)
1.83	Fishing	13.0	(15)

to walk into the backcountry. Nevertheless, slightly over 20 percent (Table 15) of the users did not consider hiking to be an activity in which they had participated. The same holds true for nearly one-quarter of the day users who felt that being in the backcountry was a specific activity and for the 17 percent of the respondents who had not checked viewing backcountry scenery. If, as appeared to be the case for some of the more casual parties that were interviewed, the party was not aware that they were actually in Grand Teton's backcountry, they would not likely consider that they had participated in backcountry activities.

When the participation rates are displayed from all interview locations (Table 16), the popular areas for participating in the various activities can be identified. As a general statement, the activities associated with the Jenny Lake and String Lake trails are the more casual or less rigorous activities. In a related sense, these two trails attracted a large number of users and they had the lowest percentage of users seeking a solitude experience.

Aspects of the Backcountry Experience Enjoyed Most by Day Users

Day users were asked to list in an open-ended question those aspects of the backcountry which they found most enjoyable. The general scenic attributes of Grand Teton's backcountry was the most frequently listed response to this question (Table 17). Nearly 50 percent of the Lupine Meadows and Taggart Lake trail respondents made reference to general scenic attractions. Only about one-third of the respondents interviewed at the other trailhead locations made reference to general scenic attractions. Wildflowers were listed by over 25 percent of the Taggart and Granite Canyon trail respondents and just under 25 percent of the Lupine Meadows respondents. Seeing wildlife was noted by nearly one-third

TABLE 16

PARTICIPATION IN BACKCOUNTRY ACTIVITIES
(In percent of respondents at each interview location)

	Jenny Lake	String Lake	Lupine Meadows	Taggart Lake	Whitegrass	Granite Canyon
Bird watching	27.5	40.7	32.0	47.1	43.0	31.5
Family or group outing	40.8	45.1	35.0	43.7	31.2	46.1
Fishing	4.2	1.8	4.9	6.7	4.3	6.7
Hiking (1 day or less)	80.8	69.0	79.6	79.8	74.2	75.3
Horseback riding	2.5	6.2	1.0	5.0	4.3	6.7
Being in the backcountry	71.7	59.3	75.7	67.2	75.3	74.2
Mountain climbing	11.7	0	14.6	2.5	10.8	23.6
Observing wildlife	66.7	59.3	67.0	70.6	65.6	61.8
Photographing wildlife	44.2	35.4	34.0	44.5	23.7	39.3
Picnicking	23.3	26.5	32.0	33.6	29.0	40.4
Photographing scenic views	70.8	57.5	65.0	67.2	54.8	55.1
Identifying plants	28.3	45.1	44.7	58.0	49.5	51.7
Viewing backcountry scenery	84.2	70.8	82.5	79.0	74.2	79.8
Viewing specific scenic attractions	64.2	35.4	62.1	49.6	52.7	40.4
Experiencing solitude of backcountry	53.3	61.1	66.0	67.2	67.7	61.8

TABLE 17

ASPECTS OF THE BACKCOUNTRY OUTING ENJOYED BY DAY USERS
(In percent response by interview location)

Aspect Enjoyed	Jenny Lake	String Lake	Lupine Meadows	Taggart Lake	Whitegrass	Granite Canyon
Scenery	40.0	31.9	49.6	49.6	33.4	33.7
Solitude	13.8	14.2	10.7	13.7	18.3	15.7
Wildlife	14.2	15.1	21.4	32.0	18.4	22.4
Wildflowers	11.5	15.1	23.4	32.8	19.5	26.9
Being in the backcountry	12.5	11.5	7.8	10.9	12.9	4.5
Hiking/Exercise	9.2	3.5	14.6	2.5	7.5	10.1

of the Taggart Lake users and by about one-fifth of the users interviewed at the Lupine Meadows and Granite Canyon interview stations. Solitude was listed most frequently (18.3 percent) by respondents contacted at the Whitegrass station.

Other enjoyable aspects which were listed with low frequency, but are not presented in Table 17, were the geology of the area, fresh air, clean water, variety of terrain, appropriate man-made structures, and the opportunity to bring horses on trails.

Area Activity Participation

Nonresident respondents were asked to choose from a list of popular outdoor activities available in the Grand Teton area, five or fewer activities in which they had participated and to rank the activities in terms of their relative importance. A substantial number of these respondents indicated participation in five activities but did not rank them; thus the importance rating encompassed a 6-point scale whereby 6 = most important and 1 = participation but no preference.

The participation percentages and importance ratings (Table 18) indicate that day use visitors to the area participated most frequently in activities related to the backcountry: sightseeing (62.8 percent), observing wildlife (52.8 percent), photography (44.4 percent), and nature study (28.7 percent). Although these activities may be engaged in elsewhere in the Park, they differ from activities such as river floating, golf, and sailing, which cannot take place in the backcountry.

Most day use visitors indicated low participation in many of the non-backcountry activities, but for the small number of day hikers who did indicate participation, the importance rating reveals these

TABLE 18
VISITOR ACTIVITY PARTICIPATION AND IMPORTANCE¹

Importance Rating	Activity	Participation Rate (%)
4.88	Backpacking	14.0
4.77	Sightseeing	62.8
4.33	Developed Camping	28.1
4.23	Mountain Climbing	17.3
3.90	Power Boating	1.6
3.83	River Floating	24.3
3.74	Fishing (Streams)	7.8
3.68	Bicycling	4.9
3.67	Golfing	2.4
3.62	Observing Wildlife	52.8
3.51	Fishing (Lakes)	7.4
3.39	Photography	44.4
3.37	Horseback Riding	12.4
3.36	Swimming	11.8
3.31	Canoeing	8.2
3.27	Sailing	1.7
3.22	Nature Study	28.7
3.21	Tennis	2.2
3.13	Water Skiing	1.3
2.94	Bird Watching ²	10.8
4.88	Other (Hiking)	19.0

¹ Permanent and summer residents of the Jackson/Teton Park area were asked not to respond to this part of the questionnaire (questions 18-22).

² Hiking was inadvertently left off the questionnaire and had to be listed under "Other" by the respondents. Hiking is therefore underestimated in participation and possibly overestimated in importance.

activities to be a rather important aspect of the Grand Teton experience. Examples include bicycling, in which only 4.9 percent of the sample participated but which held an importance of 3.68 for those who did (3.00 is the median line between "high" and "low" importance) and power boating, which was quite important (3.90) to the 1.6 percent of the respondents who participated. For the most part, however, the nonresident day users indicated infrequent participation (with the exception of river-floating) in non-backcountry type activities.

V. REACTION TO POSSIBLE BACKCOUNTRY MANAGEMENT AND DEVELOPMENT ACTIONS AND NATURE-INTERPRETIVE PROGRAMS

At the time of this study, little development had occurred in Grand Teton's backcountry. Since the level of development of the backcountry influences the amount and type of use that takes place in the backcountry environment, user attitudes play an important role in determining what levels and types of development are appropriate, and conversely, the way in which the backcountry is managed ultimately affects the kinds of users attracted to the area (Lime, 1970). If, for example, the Grand Teton backcountry area were to be designated as wilderness, management objectives would be different than if it were not designated. Studies have shown that some wilderness users tend to oppose development and artifacts of civilization in a wilderness area, while those users who are not strong wilderness purists (as defined by Hendee et al., 1968) are more tolerant of development (Lucas, 1964; Hendee et al., 1968; Stankey, 1973).

Day users participating in the study were asked to react to specific actions the Park Service could take to facilitate use of the backcountry. Possible reactions ranged from "strongly favor" to "strongly oppose" on a five-point scale, and the scale for purposes of this report has been summarized to three more general reactions: "favor," "neutral," and "oppose."

Backcountry Development Issues

Restrooms at trailheads. As backcountry use increases, the problem of human waste becomes more serious, especially in proximity to water

resources. To ease this problem and to provide a convenience for users, a possible development alternative is to provide restrooms at trailheads. Table 19 tabulates the responses to this action for the total sample and for each interview location.

The possibility of placing restrooms at trailheads received considerable favorable response at all locations. Respondents in the Lupine Meadows area reacted most favorably, possibly because of the length of the trail and its destination point in a high alpine rocky environment where the problems of human waste are very noticeable. The least favorable response was received at the Granite Canyon area where only 48.3 percent favored the action and over one-half of the respondents were either undecided or opposed to restrooms at trailheads.

TABLE 19
RESPONSE TO PROVIDING RESTROOMS AT TRAILHEADS
(In percent by interview location)

Interview Location	Reaction			N
	Favor	Neutral	Oppose	
Jenny Lake	58.9	22.7	18.4	117
String Lake	58.5	22.6	18.9	111
Lupine Meadows	66.7	17.1	16.2	99
Taggart Lake	55.3	18.4	26.3	114
Whitegrass	61.3	12.8	25.9	93
Granite Canyon	48.3	24.9	26.8	87
Total Sample	58.3	18.4	23.3	621

Restrooms in the backcountry. Placing restrooms along trails in the backcountry was another possible development action to which respondents were asked to react. Nearly 70 percent of the respondents felt that restrooms in Grand Teton's backcountry would be inappropriate (Table 20).

Attitudes varied little regarding this action throughout the Park. The strongest opposition was registered by respondents in the southern areas of the backcountry--Taggart Lake, Whitegrass and Granite Canyon. The general negative reaction to the possibility of restrooms in the backcountry was apparent at the other interview locations as well.

Garbage receptacles at trailheads. Placing garbage receptacles at trailheads was another possible action to which respondents were asked to react.

TABLE 20
RESPONSE TO PLACEMENT OF RESTROOMS IN THE BACKCOUNTRY
(In percent by interview location)

Interview Location	Reaction			N
	Favor	Neutral	Oppose	
Jenny Lake	23.6	13.3	63.1	114
String Lake	8.2	28.2	63.6	110
Lupine Meadows	17.4	15.3	67.3	98
Taggart Lake	11.5	16.8	71.7	113
Whitegrass	8.8	16.4	74.8	91
Granite Canyon	9.1	13.9	77.0	87
Total Sample	13.4	17.4	69.2	613

Response to another portion of the questionnaire indicated that litter in the backcountry was encountered very infrequently by day users. Although litter was a minor problem to most respondents, over 80 percent of those sampled felt that garbage receptacles at trailheads would be an appropriate convenience (Table 21). Again, the least support for this development action came from Granite Canyon day users (65.9 percent), while response at Jenny Lake was the most favorable (87.7 percent).

Garbage receptacles in the backcountry. Response to the possibility of placing garbage receptacles in the backcountry itself was almost uniformly negative (Table 22). The exception to this response was registered at Jenny Lake, where nearly as many respondents favored as opposed garbage receptacles in the backcountry.

TABLE 21

RESPONSE TO PLACEMENT OF GARBAGE RECEPTACLES AT TRAILHEADS
(In percent by interview location)

Interview Location	Reaction			N
	Favor	Neutral	Oppose	
Jenny Lake	87.7	7.8	4.5	113
String Lake	88.8	5.6	5.6	107
Lupine Meadows	79.6	12.3	8.1	98
Taggart Lake	85.4	7.4	7.2	110
Whitegrass	85.5	5.6	8.9	90
Granite Canyon	65.9	12.9	21.2	85
Total Sample	82.8	8.4	8.8	603

TABLE 22
RESPONSE TO PLACEMENT OF GARBAGE RECEPTACLES
IN THE BACKCOUNTRY
(In percent by interview location)

Interview Location	Reaction			N
	Favor	Neutral	Oppose	
Jenny Lake	41.0	17.1	41.9	112
String Lake	32.1	17.9	50.0	106
Lupine Meadows	22.7	18.5	58.8	97
Taggart Lake	28.6	12.4	59.0	112
Whitegrass	20.0	26.7	53.3	90
Granite Canyon	15.6	15.7	68.7	83
Total Sample	27.5	17.9	54.6	600

When respondent reactions to the possible development were analyzed with regard to distance traveled in the backcountry, it was found that day users traveling farther into the backcountry were more opposed to backcountry garbage receptacles than those who traveled only a short distance. Again, Jenny Lake was an exception. Respondents in this area were divided in their reactions, irrespective of distance traveled.

Developing additional trails. Response to the development of new trails in the Teton backcountry was generally positive (Table 23). A considerable number of respondents felt neutral regarding new trails (31.1 percent), but 43.5 percent favored development. Respondents at Lupine Meadows responded least favorably (37.7 percent), while the most favorable response (47.7 percent) was recorded at Jenny Lake.

Analysis of distances traveled into the backcountry revealed that day users traveling more than 5 miles into Cascade Canyon felt additional

TABLE 23

RESPONSE TO DEVELOPING ADDITIONAL TRAILS
(In percent by interview location)

Interview Location	Reaction			N
	Favor	Neutral	Oppose	
Jenny Lake	47.7	25.3	27.0	111
String Lake	44.4	24.1	31.5	108
Lupine Meadows	37.7	34.8	27.5	98
Taggart Lake	46.5	30.7	22.8	114
Whitegrass	45.1	30.7	24.2	91
Granite Canyon	38.1	44.1	17.8	84
Total Sample	43.5	31.1	25.4	606

trails were needed (64.3 percent favored) as did 58.3 percent of those traveling more than 5 miles into Paintbrush Canyon. Day users traveling all distances in the other areas reflect the attitudes of the full sample except for those who traveled 3 to 4.9 miles and greater than 5 miles in the Lupine Meadows area. Here 45.9 and 52.9 percent of the day users, respectively, were opposed to the development of additional trails.

Providing more signs along trails. The possibility of providing more signs along trails met with slight opposition over all day users sampled (Table 24). Again, needs for more signs became more apparent when cross-tabulated with travel distance.

Day users traveling more than 5 miles from the String Lake trail-head, Lupine Meadows and Whitegrass hikers traveling more than 3 miles, and the Granite Canyon day users who traveled less than 2.9 miles all

TABLE 24

RESPONSE TO PROVIDING MORE SIGNS ALONG TRAILS
(In percent by interview location)

Interview Location	Reaction			N
	Favor	Neutral	Oppose	
Jenny Lake	38.4	30.3	31.3	112
String Lake	28.0	31.9	40.1	107
Lupine Meadows	24.5	31.7	43.8	98
Taggart Lake	26.6	30.0	43.4	113
Whitegrass	34.4	30.0	35.6	90
Granite Canyon	25.3	34.9	39.8	83
Total Sample	29.7	31.3	39.0	603

strongly opposed additional signs. In the Taggart Lake area, day users who traveled from 3 to 4.9 miles to Bradley Lake strongly favored more signs.

Nature-Interpretive Issues

Locating Park Rangers at trailheads. Day hikers were asked to respond to the possibility of locating a ranger at trailheads to brief users on trail conditions and difficulty, points of interest, backcountry regulations, and other trail alternatives.

Table 25 indicates that this possible action was generally favored by respondents, particularly those in the Jenny Lake area.

Day users at the other interview locations were either slightly in favor of the action or neutral, and backcountry travel distance made no difference in reaction.

TABLE 25

RESPONSE TO LOCATING PARK RANGERS AT TRAILHEADS
(In percent by interview location)

Interview Location	Reaction			N
	Favor	Neutral	Oppose	
Jenny Lake	51.3	29.8	18.9	111
String Lake	43.9	34.6	21.5	107
Lupine Meadows	44.4	32.3	23.3	99
Taggart Lake	29.8	38.6	31.6	114
Whitegrass	44.1	34.4	21.5	93
Granite Canyon	30.2	39.5	30.3	86
Total Sample	40.8	34.7	24.5	610

Interpretive programs at major attractions. Respondents generally were slightly opposed to the idea of having interpretive programs presented at major attractions in the backcountry.

Lupine Meadows and Granite Canyon day users were mostly strongly opposed to the action (Table 26). Especially for Granite Canyon users, where 61.1 percent opposed the action, this is consistent with the stronger pro-wilderness attitudes indicated in the discussion of the other possible Park Service actions.

Opposition to interpretive programs at attractions increased as travel distance in the backcountry increased. This difference in reactions appeared in day users in the Jenny Lake, String Lake, Whitegrass and Granite Canyon areas.

Identifying trees and plants along trails. This possible action met with slightly overall support by day users (Table 27). Only visitors

TABLE 26

RESPONSE TO PRESENTING INTERPRETIVE PROGRAMS AT
MAJOR ATTRACTIONS
(In percent by interview location)

Interview Location	Reaction			N
	Favor	Neutral	Oppose	
Jenny Lake	37.3	28.2	34.5	110
String Lake	26.2	37.4	36.4	107
Lupine Meadows	25.2	21.3	53.5	99
Taggart Lake	22.8	35.1	42.1	114
Whitegrass	26.4	29.6	44.0	91
Granite Canyon	18.8	20.1	61.1	85
Total Sample	26.4	29.0	44.6	606

TABLE 27

RESPONSE TO IDENTIFYING TREES AND PLANTS ALONG TRAILS
(In percent by interview location)

Interview Location	Reaction			N
	Favor	Neutral	Oppose	
Jenny Lake	44.6	26.3	29.1	110
String Lake	44.5	20.6	34.9	106
Taggart Lake	35.1	24.7	40.2	97
Lupine Meadows	44.3	22.6	33.1	106
Whitegrass	48.9	21.7	29.4	92
Granite Canyon	32.2	19.0	48.8	84
Total Sample	42.9	21.7	35.4	595

at the Taggart Lake and Granite Canyon areas expressed stronger opposition than support for the possibility of identifying trees and plants along trails.

When travel distance is considered, the only increases in opposition to this action with increases in travel distance occurred for respondents traveling more than 5 miles in the String Lake, Taggart Lake and Granite Canyon areas, and day users traveling more than 3 miles in the Lupine Meadows area.

Summary of Reactions to Various Management Actions

It can be concluded that day users generally oppose development in the backcountry but favor trailhead development. Placement of restrooms at trailheads was favored at all interview areas by a substantial margin, while restrooms placed in the backcountry were strongly opposed. The same holds true for garbage receptacles placed at trailheads and in the backcountry.

Furthermore, analysis of the data by backcountry travel distance reveals in many cases a stronger opposition to development by day users who hike greater distances. For issues such as the placement of restrooms and garbage receptacles at trailheads and restrooms in the backcountry, day user opinions were consistent enough throughout the entire sample so as not to indicate these differences, but for garbage receptacles in the backcountry, day users traveling into Paintbrush Canyon, Amphitheater Lake, Garnet Canyon, Bradley Lake, Death Canyon and Granite Canyon expressed greater opposition than those who stayed in the less remote portions of the backcountry. Day users in the Jenny Lake area, however, showed no real difference in attitudes towards this development regardless of travel distance.

The need for additional trails was expressed particularly by day users traveling into Cascade Canyon and Paintbrush Canyon, 5 miles from the trailhead. String Lake, Taggart Lake, and Whitegrass day users felt an overall need for additional trails, while Granite Canyon day users were undecided and Lupine Meadows day users traveling more than 3 miles were opposed to new trails.

An apparent need for better signs was expressed only in the Taggart Lake area between Taggart and Bradley Lakes.

Expanding the ranger program to include locating park rangers at trailheads was favored by day users at all locations except at the Taggart Lake and Granite Canyon areas where indecision or neutrality was recorded. Slight opposition to interpretive programs at major attractions in the Park was expressed by day users in all areas except Jenny Lake, and opposition increased with travel distance at Jenny Lake, String Lake, Whitegrass and Granite Canyon. Support was expressed, however, for the identification of trees and plants on the trail except for day users at Taggart Lake and Granite Canyon areas.

VI. PERCEPTIONS OF CROWDING

Present backcountry use levels in Grand Teton National Park and visitor reaction to these levels play an important role in determining use capacity in the Park. Social carrying capacity with respect to the number of visitors using the Park depends largely on the satisfactions which users derive from their experiences in the Park in relation to the amount of use they encounter. As satisfaction levels decrease for large numbers of users, it might be concluded that the social carrying capacity of the resource has been reached, and appropriate levels of use can be established. But the identification of satisfactions in quantifiable terms should not imply that there should be a rigid overall standard around which use in the Park will be manipulated.

It is evident that in a national park setting, visitor expectations of use levels and the actual effect of use levels upon their experiences will vary greatly. Data previously discussed in this study show the day user in Grand Teton National Park to be a vacationing tourist seeking the scenic splendor of the mountains with some knowledge of physical features which will suit his preferences. Within a group of these users, it might be expected that a wide variety of tolerances would be found for encounters with other users while on the trail. If it is true that visitor expectations of use levels vary between areas of the Park, either through prior knowledge or personal preference, then it might be expected that variation would be found regarding appropriate levels of use for the various regions

of the Park. Lime (1970) expressed the idea of differing carrying capacities for different resource elements according to visitor attitudes and perception and the rate of deterioration of the environment. This concept was applied by Lucas (1964) in the Boundary Waters Canoe Area in Minnesota where conflicts between two user groups existed. Canoeists were found to be much less tolerant of encounters with motorboatists than with other canoeists, and motorboatists were found to be much less tolerant. From user distribution patterns and differences in user tolerances, various social capacity levels were established to maintain high wilderness quality in terms of user satisfaction. Although this example does not apply directly to the Grand Teton area insofar as user-types are concerned, it does point out the possibility of assigning different levels of acceptable use to different physical and attitudinal areas.

It is important to note that visitor perception of the resource is not static. As changes occur in amount of use, contemporary social values, management policies, and the physical resource, changes will also occur in the manner in which visitors view the resource. Recognizing the inevitability of change, resource managers will have to identify the "limits of acceptable change" (Stankey, 1973). For Grand Teton National Park this means defining what opportunities and types of experiences the Park should provide and how these fit with current goals and constraints as directed, in part, by the people who are using the Park. This portion of the study provides information that should help define these limits in terms of user perceptions of crowding and the effects on user satisfaction from current levels of use.

Respondents were asked to supply information about (1) the number of other hikers they encountered on the trail, (2) how this met with their expectations, (3) whether or not they felt the trail was crowded, and (4) what effect the encountered level of use had on the satisfaction derived from their backcountry experience. Analysis of these data will identify (1) crowded areas in the Park, (2) how crowding relates to the day user's expectations, (3) whether crowding and its effects on user satisfaction vary in different areas of the Park, and (4) implications this may have for possible methods of limiting use and the limits of acceptable change.

Present Use Levels and Trail Encounters

Respondents were asked to estimate the number of people they saw on their hike. They were then asked to indicate how well this number of people encountered compared with the number of people they expected to see. (Responses could range, on a five-point scale, from "saw many more people than expected" to "saw far less than expected.") Respondents were further asked to indicate ("yes" or "no") if this trail or parts of it were "too crowded." If respondents indicated that the trail was too crowded, they were asked to show on a seven-point scale the effect the crowding had on their backcountry experience. Responses ranged from "severely reduced quality of experience" to "no effect on experience."

Responses to the two scaled questions were analyzed as follows: regarding the number of people respondents expected to encounter, an "expectation index" was developed from the five-point scale where a number greater than 3.00 represented encountering more people than

expected and a number less than 3.00 represented encountering fewer people than expected. Regarding the effect of overcrowding on backcountry experiences, an "effect index" was developed from the continuous seven-point scale where 1.00 represents no effect on the quality of experience and 7.00 represents a severe reduction in the quality of experience.

Table 28 reports the number of people respondents encountered, the expectation index, the percentage of respondents that felt the trail was too crowded and, for those respondents, the effect index describing the effects of the crowding.

By far the most concentrated backcountry day-use in the Park occurred in the Hidden Falls-Cascade Canyon area. In this region of the Park day hikers encountered an average of 71 other visitors of all types (i.e., day users, backpackers, and horse users). Trail counter data also indicated higher overall seasonal visitation to the Jenny Lake area than to other areas. This area provides access to major attractions in the Park. Trails from Jenny Lake lead to Hidden Falls and Inspiration Point and provide the visitor with an outstanding view of the group of mountains known as the Cathedral Group, of which Grand Teton is one. Activity profiles previously reported show that visitors travel to this area more frequently for the scenic opportunities of the area (viewing backcountry scenery, specific scenic attraction and photographing scenic views) than other areas of the Park.

In all other areas of the backcountry, trail encounters were considerably lower than in the Jenny Lake area. With the exception of the Lupine Meadows area, respondents encountered about 20 other

TABLE 28

TRAIL ENCOUNTERS AND CROWDING ON GRAND TETON PARK TRAILS

Trail or Destination	Mean Number of People Encountered	Expectation Index ²	Percent Feeling Trail Was Too Crowded	Effect Index ³
	Combined Mean ¹		Area %	
Jenny Lake Area	71.4		54.1	
Hidden Falls	70.9	3.62	50.5	4.32
Cascade Canyon above Hidden Falls	71.9	3.86	62.8	4.00
String Lake Area	25.4		38.5	
Leigh Lake Trail not including Bearpaw and Trapper Lakes	25.9	3.26	40.8	4.41
Trapper and Bearpaw Lakes	27.3	3.15	15.4	4.00
Paintbrush Canyon	22.9	3.00	46.7	3.00
Lupine Meadows Area	35.6		47.1	
Lupine Meadows to Amphitheater Lake	31.9	3.75	41.5	3.58
Garnet Canyon	39.3	4.00	88.9	3.63
Taggart and Bradley Lakes	20.7	2.86	18.1	3.48

TABLE 28
(continued)

Trail or Destination	Mean Number of People Encountered	Expectation Index ²	Percent Feeling Trail Was Too Crowded	Effect Index ³
	Combined Mean ¹		Area %	
Whitegrass Area	17.8		25.3	
Phelps Lake Overlook	12.8	3.18	18.2	2.67
Phelps Lake	14.2	3.39	32.7	3.88
Death Canyon	22.1	3.14	25.0	4.22
Granite Canyon	21.4	3.56	29.2	3.41

¹Weighted averages reflecting N for each area.

²Expectation Index - Scale from 1.00 to 5.00 when a quantity greater than 3.00 represents encountering more people than were expected, and less than 3.00 represents encountering fewer people than expected.

³Effect Index - Scale from 1.00 to 7.00, where a quantity of 1.00 indicates no effect on the quality of the hiker's experience from the level of crowding encountered, and 7.00 indicates a severe reduction in the quality of the experience.

visitors on their trips. Hikers into the Lupine Meadows area encountered a slightly higher number of people (36 encounters) reflecting the attractions of Surprise and Amphitheater Lakes.

As Table 28 indicates, travelers to Phelps Lake Overlook and the shores of Phelps Lake encountered the fewest number of visitors of any areas in the backcountry (12.8 and 14.2 encounters, respectively). Not only is this area--the Whitegrass area--remote and less accessible than other areas, but travel to Phelps Lake represents a trip of 2 to 3 miles one-way, minimizing the likelihood of encounters in this lesser used area.

Visitor Expectations of Use Levels

Day users contacted in the study were further asked if the number of people encountered on the trail met with their expectations, and almost half of the respondents indicated that it did (Table 29).

TABLE 29

DAY USER EXPECTATIONS OF USE LEVELS COMPARED WITH
ACTUAL TRAIL ENCOUNTERS (PERCENT)

	Percent of Total Sample	(N=625)
Saw many more people than expected	14.1	
Saw more people than expected	25.4	
Saw about what expected	46.2	
Saw less than expected	12.6	
Saw far less than expected	1.6	
Expectation Index - 3.38		

One-quarter felt that they had encountered more people than they had expected, while a relatively small percentage encountered many more people than expected or fewer than expected. The previously described expectation index for the total samples was 3.38, indicating that on the whole, respondents encountered slightly more use on the trail than they expected.

The expectation indices for day users on each trail or destination are listed in Table 28. For most individual areas in the Park expectations were much the same as they were for the total sample, but three areas reported day user expectation indices somewhat higher than the sample norm.

At the Jenny Lake area (Hidden Falls-Cascade Canyon), respondents did not expect the high levels of use they encountered. Day users traveling into Cascade Canyon must encounter the very dense use in the area around Hidden Falls before entering the area of lower density use inside the Canyon. It is possible that some Cascade Canyon visitors were not aware of the very heavy use on this trail up to Hidden Falls, and they therefore encountered more people than they expected.

Respondents in the Lupine Meadows area (Surprise and Amphitheater Lakes and Garnet Canyon) also found more use than expected. Possibly because of the degree of difficulty of the trail, those who chose this route into the backcountry apparently did not expect many others to accept the challenge. The attractions of Surprise and Amphitheater Lakes probably account for the relatively heavy use of the area. Garnet Canyon is a major staging point for those who wish to climb the most prominent peaks in the Park, and those who traveled this route apparently expected very few encounters inside the canyon. Use

encounters increased by an average of only 7 people over encounters on the Amphitheater Lake trail, but Garnet Canyon day users reported the highest expectation index of all day users, indicating a more serious discrepancy between expectations and actual encounters.

The third area where actual encounters were higher than expected was in the Granite Canyon area. As Table 28 shows, backcountry use in Granite Canyon was the lowest of any region in the study area, but because of the remoteness of the area and presumably the characteristics of the user who travels in Granite Canyon, use levels were expected to be much lower than those encountered. Furthermore, tram users, which represent the largest user group in the area, begin their hikes deep in the backcountry where very few encounters with other users might be expected.

A case in the opposite direction was that of the Taggart and Bradley Lakes area. Here use levels were relatively low and day users encountered fewer people than expected (Table 28).

Crowding

Despite the fact that respondents had a reasonably accurate idea of the amount of use they expected to encounter on the trails, there still remained a fairly high proportion of respondents in each area that felt encountered levels of use made the trail too crowded.

Table 28 presents the actual percentages of day users who felt that the trail they hiked was too crowded. The data on crowding represents day user attitudes towards the use levels presented in Table 28 rather than reflections of the actual use levels themselves. An area which had lower levels of use may have been visited by day

users who felt that this was more crowded than day users in a more heavily used area. These data may reflect, then, differing user attitudes towards crowding rather than reflecting actual use rates.

As might be expected, in the Jenny Lake area where use levels were very high and day user expectations fell below the actual use which was encountered, there was a high level of perceived crowding. For the entire area, including Hidden Falls and Cascade Canyon, over half of the respondents felt the area was too crowded. Respondents traveling into Cascade Canyon, although they encountered fewer people inside the Canyon than at Hidden Falls, perceived the situation to be more crowded than the Hidden Falls visitor. On the other hand, however, the effects on the quality of experience of encountered crowding were less for the Cascade Canyon respondents than for those who traveled to Hidden Falls alone. For Hidden Falls and Cascade Canyon, the effect index described previously was 4.32 and 4.00, respectively. Both figures fall about midway on the scale, with Hidden Falls users indicating a slightly lower quality experience due to crowding than the Cascade Canyon user. Apparently for the Cascade Canyon user, the lower density of use further in the back-country outweighed the heavy use encountered in the early parts of the trail, thus lessening to a small extent the effects of crowding at Hidden Falls and elsewhere on the trail.

The Lupine Meadows area received the second highest level of use in terms of day user encounters. Trail encounters in the area averaged 35.6 people for the day user. Although this figure is only half of what was reported at the Jenny Lake area, nearly the same percentage of Lupine Meadows day users (47.1 percent) felt that

crowding existed, and 88.9 percent of the respondents in Garnet Canyon experienced crowding. While the effects of crowding on the Lupine Meadows respondents' experiences were less than in the Jenny Lake area, the data show that hikers in the Lupine Meadows area perceived crowding to exist at a much lower use level than at the Jenny Lake area.

Visitor reactions to trail use encountered in the String Lake area presented a similar situation to that at the Jenny Lake area. Although actual trail encounters (25.4 people) were approximately half of what was encountered in the Jenny Lake area, and a lower percentage (38.5 percent) of the sample felt that the trail was too crowded, there was a similar difference in the effects of crowding for those who traveled only on the more highly used parts of the trail near the trailhead and those who traveled farther into the backcountry.

Day users who travel to Trapper and Bearpaw Lakes must hike along the String Lake-Leigh Lake trail. Table 28 shows that hikers to these lakes encountered slightly more people than those who traveled only to some point along the shore of Leigh Lake and returned. Crowding was perceived by 40.8 percent of the Leigh Lake hikers, while only 15.4 percent of the Trapper-Bearpaw Lakes hikers reported the trail to be too crowded. Similarly, the effects of encountered crowding was less for the Trapper-Bearpaw Lake day user. As with the Cascade Canyon respondents, Trapper and Bearpaw Lake hikers apparently tolerated crowding early in the hike in order to reach their lesser-used destination, and thus produced a high quality experience.

Respondents traveling into Paintbrush Canyon encountered amounts of use similar to that encountered by the Leigh Lake trail user. A large percentage of the Paintbrush Canyon travelers reported crowded conditions (46.7 percent), but they reported little effect on the quality of their experience from the crowding (effect index of 3.00). It is uncertain whether this low effect from crowding is a product of highly dispersed use along the trail or from the majority of encounters occurring near the trailhead and fewer encounters occurring at greater distances along the trail. Regardless, the Paintbrush Canyon day user hiked a longer average distance than the Trapper-Bearpaw Lake day user (5 miles average hiking distance as opposed to 3.7 miles hiking distance to Bearpaw Lake). About the same number of trail encounters were reported by Paintbrush Canyon respondents and Bearpaw Lake respondents. Paintbrush Canyon respondents, however, perceived more crowding than did those at Bearpaw Lake. Apparently because of the greater distance traveled, the effects of crowding are less in Paintbrush Canyon than in the Bearpaw Lake area.

Taggart and Bradley Lakes received relatively low levels of use with average trail encounters of 20.7. This was somewhat less than day hikers to the area expected, and only 18.1 percent of the respondents experienced a crowded situation with a relatively low effect on the quality of their experience (3.48).

Respondents in the Whitegrass area (Phelps Lake and Death Canyon) reported different reactions to crowding than did respondents in Jenny Lake area and the String Lake area. Encounter levels on the trail were the lowest in the study area (17.8 people) which met with day user expectations, but one-quarter of the respondents felt that

a crowded situation existed. In the Jenny and String Lake areas the effects of crowding decreased as day users proceeded into the reaches of Cascade and Paintbrush Canyons, but for respondents in Death Canyon, the effects of crowding increase dramatically over effects on visitors to the less remote Phelps Lake and Phelps Lake Overlook (4.22 as opposed to 3.88 and 2.67 for the latter two groups).

Granite Canyon respondents, represented primarily by tram users (84.3 percent), encountered low levels of use (21.4 people), which was still a little higher than they had expected (3.56). At this level of use, only 29.2 percent of the respondents felt that the trail was too crowded. For those who experienced crowding, the effect on the quality of their experience was relatively small (3.41) when compared with the effect of crowding on those encountering much higher levels of use in other areas of the Park.

As the data indicate, respondents encountered levels of use on the trails from about what was expected to a little bit more than expected. Although their expectations were fairly accurate, there still remained a relatively large number of respondents who felt that use levels were too high and that trails were crowded.

VII. CONTROLLING BACKCOUNTRY USE

The previous section described respondents' perceptions of crowding. If a respondent perceived a crowded condition, and even if that perception substantially diminished his or her backcountry experience, it does not necessarily follow that that person would favor any and all control measures to limit backcountry use. In order to ascertain day user reactions to backcountry control methods, respondents were asked to indicate, on a five-point scale, the degree to which they favored or opposed specific control alternatives that might be implemented should Grand Teton's backcountry become crowded. For reporting purposes, the scale has been summarized to three categories: Favor, Neutral, and Oppose (Table 30). In addition, responses were broken down for each alternative by trail (Table 31).

Backcountry Control Measures

Continue open access. The alternative of "continuing an open access policy and allowing crowded conditions to regulate use" represented the status quo alternative presented to respondents. For the total sample, 46.1 percent of the respondents opposed this alternative, but only 27.2 favored it. Over one-fourth of the respondents were neutral or undecided. In retrospect, it is possible that the wording of the alternative, ". . .allow crowded conditions to regulate use," may have had some negative effect on the responses.

TABLE 30

DAY USER REACTION TO METHODS OF LIMITING
BACKCOUNTRY USE (PERCENT)

Trail	Reaction		
	Favor	Neutral	Oppose
Continue open access-let crowding regulate use	27.2	26.6	46.1
Allow backcountry use by permit only	40.5	16.8	42.7
Reservation System for each trail	21.6	20.0	58.3
Quota for each trail on a first come, first served basis	39.4	18.5	42.1
Restrict parking at trailheads	29.2	27.8	42.9
Quota on horse use	62.2	21.7	16.1
Prohibit horse use of certain trails	67.3	15.9	16.8

TABLE 31

SUMMARY OF REACTIONS TO BACKCOUNTRY USE CONTROL ALTERNATIVES
BY TRAIL (IN PERCENT OF RESPONSE BY TRAIL)

Trail	Response	Alternatives						
		Continue Open Access	Use by Permit Only	Reservation System	Quota System - First Come, First Served	Restrict Parking at Trailheads	Quota on Horse Use	Prohibit Horse Use of Certain Trails
Hidden Falls	Favor	35.0	39.0	20.5	46.3	32.1	57.5	67.9
	Neutral	22.5	14.6	22.9	16.4	29.6	26.3	19.8
	Oppose	42.5	46.4	56.6	37.3	38.3	16.2	12.3
Cascade Canyon	Favor	20.0	51.4	22.9	50.0	37.2	70.6	68.6
	Neutral	25.7	2.9	14.3	14.7	31.4	17.6	17.1
	Oppose	54.3	45.7	62.8	35.3	31.4	11.8	14.3
Leigh Lake	Favor	27.9	43.7	20.0	39.7	33.9	63.8	62.0
	Neutral	20.6	12.7	30.0	23.3	25.1	20.3	18.3
	Oppose	51.5	43.6	50.0	37.0	38.0	15.9	19.7
Bearpaw Lake	Favor	18.2	54.5	40.0	41.7	45.4	70.0	40.0
	Neutral	36.4	27.3	10.0	16.6	27.3	10.0	20.0
	Oppose	45.5	18.2	50.0	41.7	27.3	20.0	40.0
Paintbrush Canyon	Favor	28.6	50.0	38.6	21.4	26.7	53.4	73.3
	Neutral	28.6	21.4	7.1	35.7	20.0	13.3	0.0
	Oppose	42.9	28.6	54.3	42.9	53.3	33.3	26.7
Lupine Meadows to Amphitheater Lake	Favor	22.1	45.5	26.0	49.3	32.0	59.2	71.4
	Neutral	33.8	19.5	19.5	12.0	20.0	21.1	16.9
	Oppose	44.2	35.0	54.5	38.7	48.0	19.7	11.7
Garnet Canyon	Favor	0	66.7	55.6	55.6	37.5	50.0	50.0
	Neutral	0	11.1	11.1	11.1	50.0	25.0	0
	Oppose	100.0	22.2	33.3	33.3	12.5	25.0	50.0

TABLE 31
(continued)

Trail	Response	Alternatives						
		Continue Open Access	Use by Permit Only	Reservation System	Quota System - First Come, First Served	Restrict Parking at Trailheads	Quota on Horse Use	Prohibit Horse Use of Certain Trails
Taggart-Bradley Lakes	Favor	19.8	37.7	18.5	36.6	22.4	62.6	68.4
	Neutral	32.8	20.2	21.8	24.1	31.0	10.4	15.8
	Oppose	47.5	42.1	59.7	39.3	46.6	27.0	15.8
Phelps Overlook	Favor	45.5	0	22.0	27.3	18.1	63.6	54.5
	Neutral	27.3	36.4	16.0	0	36.4	27.3	27.3
	Oppose	27.3	63.6	62.0	72.7	45.5	9.1	18.2
Phelps Lake	Favor	30.0	58.0	22.0	40.0	18.0	54.9	62.0
	Neutral	18.0	10.0	16.0	18.0	28.0	19.6	16.0
	Oppose	52.0	32.0	62.0	42.0	54.0	25.5	22.0
Death Canyon	Favor	35.7	32.1	17.9	46.4	28.6	82.1	78.6
	Neutral	25.0	21.4	7.1	7.2	28.6	10.7	7.1
	Oppose	39.3	46.5	75.0	46.4	42.8	7.2	14.3
Granite Canyon	Favor	35.9	23.7	17.6	26.5	29.3	64.6	69.2
	Neutral	26.9	21.3	20.0	19.0	23.2	19.0	13.5
	Oppose	37.1	55.0	62.4	54.5	47.5	16.5	17.3
TOTAL SAMPLE	Favor	27.2	40.5	21.6	39.4	29.4	62.2	67.3
	Neutral	26.6	16.8	20.0	18.5	27.7	21.7	15.9
	Oppose	46.1	42.7	58.4	42.1	43.0	16.1	16.8

Table 32 presents a more useful picture of responses to the continued open-access policy, in that it details response for each trail. Except at Phelps Overlook, where 45.5 percent of respondents favored the open access policy, respondents on all trails were more opposed to than in favor of continuation of the policy. The most extreme reaction to the policy was expressed by Garnet Canyon day users, where 100 percent of the respondents opposed the policy.

Allow use by permit only. When respondents evaluated the alternative of allowing use of the backcountry by permit only, nearly equal numbers favored (40.5 percent) as opposed (42.7 percent) the idea (Table 30). Analysis of the responses by trail serves to emphasize the point that visitors' perceptions vary greatly from one part of the Park to another (Table 33). For example, 66.7 percent of the Garnet Canyon respondents favored the permit-only system, while 63.6 percent of the Phelps Overlook respondents opposed it.

Reservation system. When asked to evaluate the idea of establishing a reservation system for each trail, respondents recorded fairly negative reactions. Only at Garnet Canyon, where 55.6 percent responded favorably, were there more positive than negative reactions. Overall, the reservation system alternative was the least attractive to respondents: 58.4 opposed the idea (Table 34).

Quota system. The alternative of establishing a quota for each trail on a first-come, first-served basis received mixed reactions from the respondents (Table 35). Responses varied from 72.7 percent opposition to the quota system at Phelps Overlook to 55.6 percent

support at Garnet Canyon. Overall, responses in favor of (39.4) and opposed to (42.1) the quota system were fairly evenly divided, and it is only on a trail-by-trail basis that the variations in response can be appreciated.

Restrict parking at trailheads. When asked to react to the alternative of restricting parking at trailheads as a means of limiting use, respondents were 43.0 percent opposed, but a large percent (27.7) were neutral, and only 29.4 percent favored the alternative (Table 36). Only at Paintbrush Canyon and Phelps Lake did more than half of the respondents oppose the alternative of restricting parking, and the highest percentage of favorable responses was reported at Bearpaw Lake (45.4 percent).

Quota and prohibition of horse use. When respondents were asked to evaluate two restrictions on horse use, the perceived conflicts between on-foot day users and horseback riders became evident.

The response to establishing a quota on horse use of trails--no reduction of hikers, was 62.2 percent favorable and only 16.1 percent of respondents opposed the alternative (Table 37).

The only alternative that received a more favorable response was prohibiting horse use of certain trails--no reduction of hikers. This alternative received a 67.3 percent favorable response (Table 38). (It is important to note, however, that this alternative did not specify on which trails horse use would be prohibited.) Only at Bearpaw Lake and Garnet Canyon were responses favoring and opposing this alternative equally divided. On all other trails, responses were largely in favor of prohibiting horse use on certain trails.

Summary. There are a number of points that should be made regarding respondent reaction to alternatives to control backcountry use.

As was reported in the previous chapter (Table 28), more than half of the respondents reported feeling the trail was too crowded at only three locations: Hidden Falls (50.5 percent), Cascade Canyon (62.8 percent) and Garnet Canyon (88.9 percent). Since the control alternative question was worded, "If Grand Teton's backcountry became overcrowded. . .," for these three groups of respondents, their reactions were to an existing situation rather than a possible future situation.

At Hidden Falls, only the alternatives of establishing a first come, first served quota system for each trail and the horse restrictions received more favorable than opposition response. For Cascade Canyon, the horse restrictions and the quota system were again reacted to favorably, as was the additional alternative of allowing backcountry use by permit only. At Garnet Canyon, where 100 percent of the respondents, albeit a small sample, were opposed to continued open access, respondents were more in favor of than opposed to all possible control alternatives except prohibition of horse use, where feelings were evenly divided.

For the remainder of the trails, reactions to the control alternatives were extremely variable (with the exception of the general support for horse restrictions). In most cases, there were a considerable number of respondents who were "neutral" or "undecided" on the alternatives. So, while only at Phelps Overlook were there more positive

than negative responses to continuing the open access policy, it is difficult to draw generalizations regarding acceptable methods for controlling use of the backcountry. Again, each trail and each alternative must be considered individually.

It bears repeating that the wording of the status quo alternative, "continue open access policy and allow crowded conditions to regulate use," may have caused some respondents to report a more negative reaction than they otherwise might have.

TABLE 32

REACTION TO CONTINUING AN OPEN ACCESS POLICY
(IN PERCENT BY TRAIL)

Trail	Reaction		
	Favor	Neutral	Oppose
Hidden Falls	35.0	2..5	42.5
Cascade Canyon	20.0	25.7	54.3
Leigh Lake	27.9	20.6	51.5
Bearpaw Lake	18.2	36.4	45.5
Paintbrush Canyon	28.6	28.6	42.9
Lupine Meadows to Amphitheater Lake	22.1	33.8	44.2
Garnet Canyon	0	0	100.0
Taggart-Bradley Lakes	19.8	32.8	47.5
Phelps Overlook	45.5	27.3	27.3
Phelps Lake	30.0	18.0	52.0
Death Canyon	35.7	25.0	39.3
Granite Canyon	35.9	26.9	37.1
TOTAL SAMPLE	27.2	26.6	46.1

TABLE 33

REACTION TO ALLOWING BACKCOUNTRY USE
BY PERMIT ONLY (IN PERCENT BY TRAIL)

Trail	Reaction		
	Favor	Neutral	Oppose
Hidden Falls	39.0	14.6	46.4
Cascade Canyon	51.4	2.9	45.7
Leigh Lake	43.7	12.7	43.6
Bearpaw Lake	54.5	27.3	18.2
Paintbrush Canyon	50.0	21.4	28.6
Lupine Meadows to Amphitheater Lake	45.5	19.5	35.0
Garnet Canyon	66.7	11.1	22.2
Taggart-Bradley Lakes	37.7	20.2	42.1
Phelps Overlook	0	36.4	63.6
Phelps Lake	58.0	10.0	32.0
Death Canyon	32.1	21.4	46.5
Granite Canyon	23.7	21.3	55.0
TOTAL SAMPLE	40.5	16.8	42.7

TABLE 34

REACTION TO ESTABLISHING A RESERVATION SYSTEM
FOR EACH TRAIL (IN PERCENT BY TRAIL)

Trail	Reaction		
	Favor	Neutral	Oppose
Hidden Falls	20.5	22.9	56.6
Cascade Canyon	22.9	14.3	62.8
Leigh Lake	20.0	30.0	50.0
Bearpaw Lake	40.0	10.0	50.0
Paintbrush Canyon	38.6	7.1	54.3
Lupine Meadows to Amphitheater Lake	26.0	19.5	54.5
Garnet Canyon	55.6	11.1	33.3
Taggart-Bradley Lakes	18.5	21.8	59.7
Phelps Overlook	22.0	16.0	62.0
Phelps Lake	22.0	16.0	62.0
Death Canyon	17.9	7.1	75.0
Granite Canyon	17.6	20.0	62.4
TOTAL SAMPLE	21.6	20.0	58.4

TABLE 35

REACTION TO ESTABLISHING A QUOTA FOR EACH TRAIL ON A
FIRST COME, FIRST SERVED BASIS
(IN PERCENT BY TRAIL)

Trail	Reaction		
	Favor	Neutral	Oppose
Hidden Falls	46.3	16.4	37.3
Cascade Canyon	50.0	14.7	35.3
Leigh Lake	39.7	23.3	37.0
Bearpaw Lake	41.7	16.6	41.7
Paintbrush Canyon	21.4	35.7	42.9
Lupine Meadows to Amphitheater Lake	49.3	12.0	38.7
Garnet Canyon	55.6	11.1	33.3
Taggart-Bradley Lakes	36.6	24.1	39.3
Phelps Overlook	27.3	0	72.7
Phelps Lake	40.0	18.0	42.0
Death Canyon	46.4	7.2	46.4
Granite Canyon	26.5	19.0	54.5
TOTAL SAMPLE	39.4	18.5	42.1

TABLE 36

REACTION TO RESTRICTING PARKING AT TRAILHEADS AS MEANS
OF LIMITING USE (IN PERCENT BY TRAIL)

Trail	Reaction		
	Favor	Neutral	Oppose
Hidden Falls	32.1	29.6	38.3
Cascade Canyon	37.2	31.4	31.4
Leigh Lake	33.9	28.1	38.0
Bearpaw Lake	45.4	27.3	27.3
Paintbrush Canyon	26.7	20.0	53.3
Lupine Meadows to Amphitheater Lake	32.0	20.0	48.0
Garnet Canyon	37.5	50.0	12.5
Taggart-Bradley Lakes	22.4	31.0	46.6
Phelps Overlook	18.1	36.4	45.5
Phelps Lake	18.0	28.0	54.0
Death Canyon	28.6	28.6	42.8
Granite Canyon	29.3	23.2	47.5
TOTAL SAMPLE	29.4	27.7	43.0

TABLE 37

REACTION TO ESTABLISHING A QUOTA ON HORSE USE OF TRAILS--
NO REDUCTION OF HIKERS (IN PERCENT BY TRAIL)

Trail	Reaction		
	Favor	Neutral	Oppose
Hidden Falls	57.5	26.3	16.2
Cascade Canyon	70.6	17.6	11.8
Leigh Lake	63.8	20.3	15.9
Bearpaw Lake	70.0	10.0	20.0
Paintbrush Canyon	53.4	13.3	33.3
Lupine Meadows to Amphitheater Lake	59.2	21.1	19.7
Garnet Canyon	50.0	25.0	25.0
Taggart-Bradley Lakes	62.6	10.4	27.0
Phelps Overlook	63.6	27.3	9.1
Phelps Lake	54.9	19.6	25.5
Death Canyon	82.1	10.7	7.2
Granite Canyon	64.6	17.0	16.5
TOTAL SAMPLE	62.2	21.7	16.1

TABLE 38

REACTION TO PROHIBITING HORSE USE OF CERTAIN TRAILS--
NO REDUCTION OF HIKERS (IN PERCENT BY TRAIL)

Trail	Reaction		
	Favor	Neutral	Oppose
Hidden Falls	67.9	19.8	12.3
Cascade Canyon	68.6	17.1	14.3
Leigh Lake	62.0	18.3	19.7
Bearpaw Lake	40.0	20.0	40.0
Paintbrush Canyon	73.3	0	26.7
Lupine Meadows to Amphitheater Lake	71.4	16.9	11.7
Garnet Canyon	50.0	0	50.0
Taggart-Bradley Lakes	68.4	15.8	15.8
Phelps Overlook	54.5	27.3	18.2
Phelps Lake	62.0	16.0	22.0
Death Canyon	78.6	7.1	14.3
Granite Canyon	69.2	13.5	17.3
TOTAL SAMPLE	67.3	15.9	16.8

SUMMARY AND CONCLUSIONS

Purpose

The purpose of this study was to identify the use patterns of day users hiking and backpacking in a designated area of Grand Teton National Park and to survey these individuals with regard to various aspects of their backcountry outings. In particular, the study developed day user activity profiles, estimated the distribution of day users over the backcountry area, identified problems encountered by day users in the Park and obtained attitude and preference information to aid Park officials in policy decisions.

Summary of Results

Demographics. In summary, it was found that day users originated their visits to Grand Teton National Park from nearly every state, and the states most heavily represented in the day users sampled were California, Wyoming, and New York.

Day users were for the most part vacationing tourists, either students or professionals, and primarily between the ages of 19 and 35 (Tables 1, 2, and 3). There appeared to be a fairly even distribution between families or married couples and groups of friends and companions. The String Lake interview area seemed to be more attractive to the former while Lupine Meadows and Whitegrass areas attracted the latter (Table 4).

Information. In deciding where to hike in the Park's backcountry, day users, for the most part, used Park literature. In the Granite

Canyon area near Teton Village, however, there was an increased frequency of those using non-Park or commercial literature (Table 5). Regardless of the source of information, day users appeared to be adequately informed regarding Park opportunities which would accommodate their abilities and preferences. A high correlation was found between the region of the backcountry in which the day user hiked and his stated preferences for backcountry characteristics. On the other hand, whether the day user preferred easy trails in low elevation forested areas or difficult high alpine trails, the primary reason for a trip into the backcountry was to see and experience the Tetons.

Trail Patterns. Once in the backcountry, most respondents stayed in the lower regions, where 50 percent reported traveling from one to three miles from the trailhead. This varied most for day users in the Lupine Meadows and Granite Canyon areas, where the majority of the respondents hiked greater distances to Amphitheater Lake and from the top of Rendezvous Mountain. Time spent on the trail averaged 4.3 hours for the day user (Table 6).

Trail conditions and scenic opportunities encountered by respondents (Table 7) were reacted to more favorably than not. The only categories in which respondents registered notable unfavorable responses were "presence of bothersome insects" and "variety of wildlife." In addition, 19.7 percent of the Jenny Lake respondents responded unfavorably on "condition of trail or route with respect to wet marshy areas."

Day user visitation to trails other than the one on which they were contacted varied for day hikers in the different interview

areas (Table 11). Respondents from all areas reported high visitation to the Jenny Lake-Hidden Falls area. Whitegrass respondents reported the greatest use of all areas in the Park, probably because of the high percentage of Jackson area residents and employees using this area. Jenny Lake area day users reported the lowest visitation to other areas of the Park and the use of nature trails and naturalist-conducted walks was low for all day users.

Respondents reported very low use of the backcountry for overnight backpacking trips. The full sample averaged only .85 days in the backcountry on overnight trips, indicating that day users are a distinct group from backpackers.

Length of stay in the Jackson-Teton area averaged 4.6 days for the day user (Table 12). When this is compared with the 1.3 day average stay in the Yellowstone Park area by Grand Teton day users, it is apparent that respondents come to this region of the country primarily to visit Grand Teton Park rather than as a side trip from Yellowstone.

Of their total stay in the area, respondents spent an average of 3.9 days in the Park itself. Respondents from the Jackson area spent a considerably larger amount of time in the Park (an average of 18.9 days).

While visiting the Jackson-Teton area, respondents found accommodations primarily in campgrounds within Grand Teton National Park. A large percentage of the sample also stayed in Forest Service campgrounds and hotels, motels, or lodges in the area (Table 14).

Activity Profiles. Activity profiles, discussed in Chapter IV, show the day user to be primarily concerned with experiencing the

attributes of the Park, i.e., enjoying the scenery, being in the backcountry, hiking, and observing wildlife (Table 15). There was little participation by non-resident respondents in recreation opportunities outside of the backcountry such as boating, fishing, golfing or bicycling (Table 18).

Reaction to Development. When presented with possible backcountry development alternatives, day users were found to be generally in favor of trailhead development in terms of restrooms and garbage receptacles, but opposed to the placement of these facilities in the backcountry (Tables 19-23). On certain issues and in some locations, opposition to development increased for day users traveling greater distances into the backcountry.

Respondent opinions on new trails and additional signs indicated needs only in specific areas of the Park (Tables 23 and 24). Primarily in Cascade and Paintbrush Canyons there was a perceived need for additional trails and day users at Hidden Falls and Taggart Lake felt the need for improved signs.

The development of permanent nature and interpretive programs in the backcountry met with mixed day user reaction (Tables 25-27).

Crowding. A perception of crowding in Grand Teton National Park was reported by respondents at a much higher rate than was indicated in the 1974 study. The percentage of respondents that indicated crowded conditions ranged from 54 percent in the Jenny Lake area to 18 percent in the Taggart Lake area (Table 28). More crowding was perceived in Cascade Canyon and in Garnet Canyon than in other areas. Although respondents tended to expect the levels

of use which they encountered, there still remained a considerable number who felt that crowding existed and for whom crowding reduced the quality of the backcountry experience.

The data indicate that the effects of high levels of use varied at different points on the trail and day user sensitivity to crowding varied between regions in the study area.

Alternative methods of use control were presented to the respondents for their reaction. The most acceptable measures were a permit system for all backcountry use and a quota system for each trail; first come, first served. Respondents largely rejected a reservation system for each trail, restriction of trailhead parking and the continuation of the open access policy. Attitudes toward the limitation of backcountry users varied between the interview areas and with the amount of use encountered in each area (Tables 30-31).

Limitation on horse use in the backcountry, either through a quota system or through the prohibition of horse use of certain trails, received a favorable reaction from respondents.

Conclusions

Wilderness, like beauty, is in the eye of the beholder. Some individuals may have a wilderness experience while strolling in a natural area of Central Park in New York, while others may require the remoteness of the high Wind River mountains in Wyoming to feel the same level of solitude. To manage a backcountry area to satisfy the needs of the wide spectrum of experience-seekers in a National Park, then, is more complicated than simply designating an area as part of the wilderness system. This study was conducted to gather

information that would assist decision-makers in best serving the needs and preferences of day-users in Grand Teton's backcountry. (At the time the study was conducted, it had been proposed that the backcountry be designated as wilderness.)

Wilderness, in this case, is used in the formal or designated sense. In actuality, much of the Teton backcountry included in the study has been managed as wilderness, although it has never been formally designated such. Acquiring such a designation for the Teton backcountry would remove much of the flexibility that exists with backcountry designation--the management of the areas would be dictated by the stringent rules and regulations that attend the Wilderness Preservation system. Among the rules and regulations are those that disallow almost all types of manmade developments within wilderness areas.

This limitation has impact in two ways. First, when areas of the backcountry in Teton became extremely heavily used, the present management scheme could accommodate a variety of actions to handle the heavy pressure, i.e., perhaps some trails could be hardened or, to increase access for less physically capable visitors, even paved. Should human refuse become a problem, accommodations could be placed in the backcountry. In other words, the physical resource could be manipulated to accommodate increasing levels of use. If the areas were designated wilderness, this option would be foregone in favor of manipulating users (i.e., limiting numbers, etc.).

The second and larger impact is of a social nature, and it is in this area that management decisions are most difficult. Do day users in Grand Teton really expect a purist wilderness experience

or are they there to enjoy the spectacular mountain scenery? Results of this study show that although day-users enjoyed many of the traditional wilderness opportunities, their primary reason for visiting the Teton backcountry was to in some way experience the Tetons themselves. Although there were perceptions of crowding, the use levels encountered were largely expected. Would designating this backcountry as wilderness, then, serve the spirit of the Wilderness Act, which by nature limits access, as well as the Park Service Act, which demands that resources be enjoyed? The answer must be found by examining the trade-offs.

Should the managers of Teton's backcountry employ rigid wilderness standards and serve the absolute wilderness purist? Is the satisfaction he receives from utter solitude of more or higher value than that received by an elderly woman who takes what is for her a rigorous hike to view the Tetons from Hidden Falls?

Left as it is, the present management scheme would probably produce some self-regulating. If conditions become increasingly crowded, then the purist will be likely to move to more remote backcountry areas outside the Park, and the numbers of more view-oriented users is likely to increase. Should designation occur, the purist may still be crowded, since this National Park is so popular and well known, but the more casual user of the backcountry may be eliminated from the wilderness area.

Perhaps the most important conclusion that can be drawn from this study is that there is justification for both types of management in the Park. Since the more purist of the day users hiked further into the Park than other users, perhaps some of the more remote areas

should be managed for that type of enjoyment. On the other hand, in areas such as Hidden Falls, it would possibly be more appropriate to intensify management to accommodate the resource to the large numbers of visitors.

As a matter of equity, it would be difficult to justify restrictive wilderness management for the entire Teton backcountry: the wilderness purist has some of the finest alternatives available in Wyoming, but for people who want to see the Tetons from a natural setting, there is no alternative for the Grand Teton backcountry. Creative management of the individual areas of the backcountry can provide a spectrum of opportunities that will satisfy all of Grand Teton's backcountry day users.

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APPENDIX A

BACKCOUNTRY MANAGEMENT QUESTIONNAIRE
GRAND TETON NATIONAL PARK

Questionnaire No. _____

Date _____

Location _____

Interviewer _____

UNIVERSITY OF WYOMING
BACKCOUNTRY MANAGEMENT QUESTIONNAIRE
GRAND TETON NATIONAL PARK

This survey is being conducted to obtain information from backcountry day users (those who did not stay overnight) of Grand Teton National Park. The ideas and expressions collected by the survey will be used to evaluate existing backcountry management programs and to develop new programs that might be suggested by the information you and other backcountry users furnish.

We are not asking for your name and address. The answers you give will be treated confidentially. Please feel free to request assistance from the interviewer if you don't understand parts of the questionnaire. While some of you may have hiked other backcountry trails in Grand Teton, it is important that you relate your answers to this trail and to this day use outing.

If for any reason you do not wish to participate in the survey, please return the questionnaire to the interviewer and proceed with your journey. Have a good day!

1. Please check the category that best describes your presence in Grand Teton National Park.

☐ Vacation or recreation trip	☐ Summer resident of Jackson area
☐ Passing through the area on business or personal affairs	☐ Year-round resident of Jackson area
☐ Summer employee in Park or Jackson area	☐ Other (specify) _____

2. Please indicate the category that best describes your backcountry or hiking party.

☐ Individual hiker	☐ Married couple (no children)
☐ Friends and companions	☐ Family group
☐ Commercial tour group	☐ Other (specify) _____
☐ Horseback group	_____

3. Please check the category that best indicates the amount of time you will have spent on this backcountry outing (this hike, this walk) by the time you reach the trailhead parking lot or termination point.

☐ 8 hours or more	☐ 3 to 4 hours	☐ 1 to 2 hours
☐ 6 to 8 hours	☐ 2 to 3 hours	☐ Less than 1 hour
☐ 4 to 6 hours		

4. The interviewer has a large map of Grand Teton's backcountry. Please consult this map and, with the assistance of the interviewer, identify the route you traveled on this backcountry outing. We are particularly interested in the following:

A: Name of trail or trails _____

B: Distance of travel _____

(List trail section No. where hike terminated)

C: Indicate areas of off-trail use _____

(List trail section No. where off-trail use occurred)

Grand Teton National Park officials are seeking ways to better inform the visitors of day hiking opportunities within the Park. The following questions are intended to determine how and why you selected this particular trail, whether you were aware of other backcountry trails, and how you evaluate your experience on this outing.

5. Which category best describes why you selected this trail or the route you indicated on the map, if this outing has taken you over different trails.

- | | |
|--|--|
| ☐ Familiar with trail or route from previous outings | ☐ Saw trail signs and decided to take a hike |
| ☐ Referred to this trail or route by friends | ☐ Selected trail or route from maps and other information I was given when I entered the Park |
| ☐ Referred to this trail or route by other Park visitors | ☐ Selected trail or route from non-Park or commercial literature that describes hiking and backpacking opportunities in Grand Teton National Park |
| ☐ Referred to this trail or route by Park Ranger | |
| ☐ Desire to see a particular area, landmark or site dictated use of this trail or route | ☐ Trail or route was selected by another member of my group |

6. Listed below are sets of attractions that a day user might consider in selecting a trail. Please check which attraction in each set you feel is most important.

- A: ☐ Seeing wildlife or ☐ seeing deep canyons and steep cliffs
- B: ☐ Seeing wildlife or ☐ finding solitude
- C: ☐ Rugged, physically challenging terrain or ☐ pleasing natural setting
- D: ☐ Nature study or ☐ exploration
- E: ☐ Finding solitude or ☐ seeing spectacular scenic attractions
- F: ☐ Hiking in an alpine environment or ☐ hiking in a dense forest environment
- G: ☐ Scenery associated with large, low elevation lakes or ☐ high country scenes of peaks, ridges and canyons
- H: ☐ High country vistas or ☐ wildlife observation
- I: ☐ Nature study and observation or ☐ solitude
- J: ☐ Physical exercise and test of hiking skills or ☐ leisurely enjoyment of high quality natural setting

7. Listed below are some actions the Park Service could take to facilitate use of the backcountry. In terms of this outline, please indicate how you feel about each action. (Please check appropriate category.)

Possible Action	Strongly Favor	Favor	Undecided or Neutral	Oppose	Strongly Oppose
Provide restrooms at trailheads	☐	☐	☐	☐	☐
Provide restrooms in backcountry	☐	☐	☐	☐	☐
Locate Park Ranger at trailheads to brief users on trail condition and difficulty, points of interest, backcountry regulations, and other trail alternatives	☐	☐	☐	☐	☐
Provide more signs along trails	☐	☐	☐	☐	☐
Develop additional trails	☐	☐	☐	☐	☐
Provide garbage and litter receptacles along trails	☐	☐	☐	☐	☐
Provide garbage and litter receptacles at trailheads	☐	☐	☐	☐	☐
Present Interpretive programs at major attractions along trails	☐	☐	☐	☐	☐
Identify trees and plants along trails	☐	☐	☐	☐	☐

Comments on above actions, if any: _____

Trail Factors	Highly Favorable	Favorable	Adequate	Unfavorable	Highly Unfavorable	Does Not Apply or Of No Concern
A: Presence of litter and garbage						
B: Presence of mosquitos, gnats, flies and other bothersome insects						
C: Condition of trail or route with respect to wet marshy areas						
D: Condition of trail with respect to dust and dirt						
E: Variety of wildlife						
F: Variety of wildflowers and native plants						
G: Presence of outstanding scenic attractions						
H: Area of high natural interest						
I: Photographic opportunities						
J: Overall impression of trail						

A: Grade or steepness of a backcountry trail:

_____ Trail is far too flat and easy	_____ Trail is flatter and easier than you would prefer	_____ Grade of trail is satisfactory	_____ Trail is steeper and more difficult than you prefer	_____ Trail is far too steep and difficult
--------------------------------------	---	--------------------------------------	---	--

Trail is over-developed, unnatural for backcountry	Trail is developed more than you prefer	Degree of development is satisfactory	Trail has rocks, ruts, or rough places that need attention	Trail is far too rough, rocky or rutty for you.
--	---	---------------------------------------	--	---

Bridges and constructed sections of this trail are incompatible with backcountry	Trail has more manmade improvements than you prefer	Manmade improvements on this trail are satisfactory or not a factor	Trail would benefit from better bridges and other trail improvements	Trail is in serious need of bridges or other manmade improvements
--	---	---	--	---

11. About how many people did you see on this hike? people.

_____ Saw many more people than expected _____ Saw about what expected _____ Saw far less than expected
Saw more people than expected Saw less than expected

A: If your answer was yes, please indicate by placing a check in the section of the following scale which most closely approximates what effect this overcrowding had on your backcountry experience.

Severely reduced quality of experience										No effect on experience
---	--	--	--	--	--	--	--	--	--	----------------------------

14. If Grand Teton's backcountry becomes overcrowded, several alternatives are available to control or limit use. Please check the category which best describes the degree to which you favor or oppose each method.

Management Alternatives	Strongly Favor	Favor	Neutral or Undecided	Oppose	Strongly Oppose
1: Allow use of backcountry by permit only					
2: Establish reservation system for each trail					
3: Establish quota for each trail on first come, first served basis					
4: Establish quota on horse use of trails—no reduction of hikers					
5: Prohibit horse use of certain trails—no reduction of hikers					
6: Restrict parking at trailheads as a means of limiting use					
7: Continue open access policy and allow crowded conditions to regulate use					

15. A number of activities that frequently occur on backcountry trips are listed below. In the first column please check those activities in which you participated on this backcountry outing. Then, check the relative importance you place on being able to engage in each activity on this outing.

Check (✓) activities in which you participated	GRAND TETON BACKCOUNTRY ACTIVITIES	Extremely Important	Very Important	Moderately Important	Somewhat Important	Of Little Importance	Not Important
	Bird watching						
	Family or group outing						
	Fishing						
	Hiking trips (1 day or less)						
	Horseback riding						
	Being in the backcountry						
	Mountain climbing						
	Observing wildlife						
	Photographing wildlife						
	Picnicking						
	Photographing scenic views						
	Identifying plants						
	Viewing backcountry scenery						
	Viewing specific scenic attractions						
	Experiencing solitude of backcountry						
	Other (list) _____						

16. People enjoy different aspects of a backcountry outing. Please list or comment on some of the things you enjoyed most on this outing.

Comments:

17. A: Please indicate the total number of days you have spent in Grand Teton's backcountry on this visit to the Park. (If you are a permanent or summer resident of the Jackson/Teton Park area, please indicate the number of days you have spent in the backcountry this year.)

Number of days, day use hikes

Number of days, overnight backcountry trips

Total number of days

- B: (Park visitors only) About how many more days do you plan to spend in Grand Teton's backcountry during this visit to the Park?

Number of additional days, day use hikes

Number of additional planned days, overnight backcountry trips

Total number of additional days

- C: Please check (✓) which of the following trails in Grand Teton National Park you have used for day use hikes during this visit (during this year for permanent or summer residents). Also, please mark with an X other trails you may have been on during this visit (during this year for permanent or summer residents) or overnight backpacking trips.

Day Use		Overnight		Trails	Day Use		Overnight		Trails
				a. Granite Canyon Trail					i. Paintbrush Canyon via North or South String Lake Trails
				b. Death Canyon Trail					j. Leigh Lake (also Trapper and Bearpaw Lakes Trail) via North String Lake Trail
				c. Trail to Taggart and/or Bradley Lakes					k. Webb Canyon Trail
				d. Trail between Taggart and Phelps Lakes					l. Berry Creek - Owl Creek Trail
				e. Garnet Canyon Trail					m. Conant Trail
				f. Amphitheater Lake Trail					
				g. Hidden Falls					n. Oxbow Bend Nature Trail
				via Jenny Lake boat ferry					o. Colter Bay Nature Trail
				via South Jenny Lake Trail					p. Hermitage Point Trail
				via North Jenny Lake Trail					q. Emma Matilda - Two Ocean Lake Trail
				h. Cascade Canyon Trail above Hidden Falls					r. Naturalist Conducted Walk
				via Jenny Lake boat ferry					
				via South Jenny Lake Trail					
				via North Jenny Lake Trail					

- D: Considering your own personal likes and dislikes for "day use" hikes, please rank in order of your preference (1, 2, 3 etc.) the Grand Teton trails or off-trail tours you have taken.

1: _____ 3: _____ 5: _____

2: _____ 4: _____ 6: _____

- F: If the trail you are presently on was not your first choice in item D above, give the major reason(s) why you listed a different trail as your first choice.

Comments:

The next set of questions is intended to obtain general information about your visit to Grand Teton National Park. If you are a permanent or summer resident (summer employee) in the Jackson/Teton Park area, please skip to question #23 and complete the remainder of the questionnaire.

18. How long are you planning to stay in the Jackson/Teton and Yellowstone Park area?

_____ Number of days in Jackson/Teton Park area

_____ Number of days in Yellowstone Park area

19. Please indicate the number of nights you have stayed or plan to stay in each of the following types of overnight accommodations.

A: Motel-Hotel-Lodge

B: Campground

C: Cabins-Guest Ranch

D: Other (specify)

_____ In Grand Teton Park

_____ In Grand Teton Park

_____ In Grand Teton

_____ In Jackson

_____ Forest Service

_____ In Jackson

_____ In the valley area

_____ Campground

_____ In the valley

_____ Commercial

_____ area

_____ Campground

20. How many of the total number of days you plan to stay in the Jackson/Grand Teton Park area (question #18 above) do you plan to spend in the Park?

_____ Number of days

21. Below is a general list of outdoor activities popular with visitors to this area. Please rank in 1, 2, 3, 4, 5 order the five (or fewer) most important activities you have participated in or you plan to participate in during your visit to this area. (If we have omitted an important activity, please list it in the "Other" category and rank it accordingly.)

_____ Sightseeing

_____ River floating

_____ Horseback riding

_____ Camping:

_____ Water skiing

_____ Observing wildlife

_____ Developed Campgrounds

_____ Fishing (lakes)

_____ Bird watching

_____ Overnight backpacking
into backcountry areas

_____ Fishing (streams)

_____ Mountain climbing

_____ Power boating

_____ Golfing

_____ Photography

_____ Canoeing, kayaking
or rowboating

_____ Tennis

_____ Nature study

_____ Sailing

_____ Swimming

_____ Other (specify)

_____ Bicycling

22. If the opportunity to participate in one or two of the above activities was your primary reason for visiting the Jackson/Teton Park area, please list the activity. (Do not list an activity unless you sincerely attribute a great deal of importance to it.

First important activity _____

Second important activity _____

Personal Data

23. What is your state of residence? _____

24. Please check the category that best describes your occupation.

_____ Student

_____ Farmer or rancher

_____ Craftsman, technician
operative

_____ Professional

_____ Homemaker

_____ Salesperson

_____ Other (specify)

_____ Manager, executive

_____ Clerical

_____ Hourly or
service worker

25. Please check the category that includes your age.

_____ 13 years and under

_____ 26 to 35 years

_____ 46 to 65 years

_____ 14 to 18 years

_____ 36 to 45 years

_____ 66 years and over

_____ 19 to 25 years