

Grand Canyon National Park Mule Rider and Phantom Ranch Visitor Study



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Grand Canyon Mule Rider and Phantom Ranch Visitor Study

I. Introduction

There is a long history of people riding burros, mules, and horses into Grand Canyon. The visibility of riding into the Canyon is reflected in the ever-popular children's book about a burro named "Brighty" who lived more than 100 years ago, and spent summers carrying water for visitor accommodations on the North Rim. He was well-loved by children who enjoyed riding on his back. Although "Brighty" is gone, his legacy of riding visitors into the Canyon is still with us.

The guided mule rides and Phantom Ranch provide access to the inner Canyon for a portion of visitors who otherwise would not venture into the backcountry. During 2005, there were 8,479 visitors who took a guided mule ride from the South Rim into the park's backcountry, with 38% of these mule riders traveling all the way to Phantom Ranch at the Canyon's bottom to stay a night or two. In the same year, there were 24,680 visitor-nights at Phantom Ranch, referred to as "heads-on-pillows." These numbers may have been higher if not for a suspension of mule rides on the Bright Angel Trail from January 1 to February 7, 2005, as well as a two-day trail closure during July.

The Ranch was designed by American architect Mary Colter and built in the 1920s. During the 1930s, the Civilian Conservation Corps built numerous footbridges around the Ranch and the nearby Bright Angel Campground. Today, the rustic cabins and main lodge give a sense of bygone-days, and are nestled within the natural beauty and solitude along Bright Angel Creek. Both the South Rim mule rides and Phantom Ranch are serviced by Xanterra Parks and Resorts as a licensed concessionaire of Grand Canyon National Park. This study reports on a survey of mule riders who enter the Canyon from the South Rim and Phantom Ranch overnight guests, and characterizes their experiences, satisfactions, and preferences for resource conditions and management actions.

II. Purpose

A. Purpose

The purpose of this study was to develop a scientific basis to understand Grand Canyon's mule rider and Phantom Ranch overnight visitors. To develop plans for effectively managing the Park's backcountry there is a need for updated information regarding characteristics of concession patrons. Mule riders and overnight guests at Phantom Ranch are a particularly important and visible set of visitors to Grand Canyon National Park. Their satisfaction with various aspects of their park experience including the planning process for their visit, and impacts related to visitor behavior in the backcountry are relevant considerations for backcountry planning.

B. Objectives

This study was directed at providing a current examination of mule rider and Phantom Ranch overnight guests to inform the upcoming backcountry management planning process. Specific research objectives were:

1. To identify and characterize mule rider and Phantom Ranch overnight visitors,
2. To determine the motivations, expectations, and preferences, of mule riders and Phantom Ranch overnight visitors,
3. To measure mule rider and Phantom Ranch overnight visitor satisfaction with their Grand Canyon experience,
4. To measure mule rider and Phantom Ranch overnight visitor reaction to present and potential policies, including the potential for conflict between various types of visitors, and
5. To suggest management actions that best meet visitor needs.

C. Benefits

The results from the study will provide visitor-based data and analysis: (1) fundamental for the development of backcountry management planning documents, (2) to provide and promote a variety of backcountry recreational opportunities for visitors compatible with wilderness values, resource protection, and visitor safety, (3) to protect and preserve natural resources and to maintain natural ecosystem processes within the park, and (4) to protect and preserve historic and prehistoric cultural resources. Such information is essential for the development of backcountry management planning documents, and will form the foundation of user-based information necessary for effective planning.

III. Methods

A sample of mule rider and Phantom Ranch overnight visitors was selected to participate in the study. The primary data collection instrument for the study was a mail-back questionnaire. Specific information about the sample selection, questionnaire development and administration, response rate, and analyses is presented in the following sections.

A. Sample

The sampling frame for the study consisted of all backcountry mule riders and Phantom Ranch overnight visitors, 18 years of age or older, who registered with a concessionaire to ride mules into the backcountry and/or stay overnight at Phantom Ranch, during two, 2-month periods, July 1, 2004 through August 31, 2004 (summer season) and October 1, 2004 through November 30, 2004 (fall season). On the first day of each month the concessionaire sent the list of all registered day and overnight mule riders and Phantom Ranch overnight visitors to the Park Planning and Policy Laboratory at the University of Illinois. Researchers from the laboratory selected a stratified random sample, proportionate to size, of 600 visitors. The sample was stratified by season (summer and fall); and visitor group (day mule rider, mule rider with overnight stay at Phantom Ranch, and hiker with overnight stay at Phantom Ranch), yielding six strata (total sample of 600 visitors):

1. Summer day mule rider (n=81)
2. Fall day mule rider (n=80)
3. Summer mule rider with overnight stay at Phantom Ranch (n=63)
4. Fall mule rider with overnight stay at Phantom Ranch (n=62)
5. Summer hiker with overnight stay at Phantom Ranch (n=156)
6. Fall hiker with overnight stay at Phantom Ranch (n=158)

B. Questionnaire Development

Each visitor selected to participate in the study was sent a 7 page mail-back questionnaire. The survey methodology/design including questionnaire format and many of the questions have been used in several studies conducted in national parks. Grand Canyon National Park staff, university professors, graduate students, and Xanterra staff reviewed aspects of the survey methodology/design. The questionnaire was formatted for clarity and ease of answering, bound in booklet form, and had an attractive cover of photographs from the Grand Canyon (Appendix A).

C. Questionnaire Administration

The questionnaire was administrated following the guidelines of Dillman's Tailored Design Method, a widely accepted and proven set of techniques to improve response rates, and ultimately insure that the results will represent the population of mule rider

and Phantom Ranch overnight visitors during the specified time period. The Dillman technique prescribes a personalization of procedures with persistent follow-up of sampled visitors. The data collection involved a series of mailings over a four-week period. The initial mailing consisted of a personalized cover letter, questionnaire, and a return postage-paid envelope. Approximately four days after the questionnaire was mailed, a second mailing, a follow-up postcard was sent to all individuals in the sample. This postcard served as a reminder for those who had yet to return their questionnaire and also as a thank you for those who had completed and returned the questionnaire. The third mail-out included a cover letter, questionnaire, and return postage-paid envelope. This mailing was sent to all individuals who had not yet responded. The final mailing consisted of a postcard sent as a reminder to all individuals who had yet to respond. A copy of all mail correspondence with study participants is located in Appendix B. Each questionnaire had an identification number that was matched to a name on the sample list. This was necessary to track who had returned their questionnaire and who needed a follow-up mailing. As soon as an individual returned the questionnaire, their name was removed from the mailing list. Only those individuals who had not returned their questionnaire were sent follow-up mailings. A schedule for mailings follows:

1. First mailing (day 1)—cover letter, questionnaire, and return envelope
2. Second mailing (day 5)—postcard reminder
3. Third mailing (day 21)—cover letter, questionnaire, and return envelope
4. Fourth mailing (day 25)—postcard reminder

D. Questionnaire Response Rate

Following the procedure outlined above, an initial sample of 600 visitors was mailed a questionnaire (Table 3.1). Adjustments to the initial sample (i.e., wrong address, trip cancelled, etc.) yielded an adjusted sample of 557 visitors. Of the adjusted sample size, 406 questionnaires were returned for an overall response rate of 73 percent. The response rate across the six strata ranged from a low of 63 percent for both summer mule rider strata to a high of 80 percent for the fall overnight mule rider stratum.

Table 3.1. Sample Selection, Adjustments, and Response Rate

Characteristic	Visitor Group						Total
	Day Mule Rider		Overnight Phantom Ranch Mule Rider		Overnight Phantom Ranch Hiker		
	Summer	Fall	Summer	Fall	Summer	Fall	
Initial Sample Selection	81	80	63	62	156	158	600
Adjustments ¹	8	11	7	7	6	4	43
Adjusted Sample Size ²	73	69	56	55	150	154	557
Useable Questionnaires Returned	46	48	35	44	115	118	406
Response Rate ³	63%	70%	63%	80%	77%	77%	73%

¹ Adjustments to sample size include questionnaires that were identified as (wrong address, moved left no forwarding address, trip cancelled, etc.) or the questionnaire was returned but not useable.

² Adjusted sample size was calculated by subtracting adjustments from initial sample selection.

³ Response rate was determined by dividing the number of useable questionnaires returned by the adjusted sample size.

Note: Season Response Rate: Summer 70%, Fall 76%

Visitor Group Response Rate: Day Mule Rider 66%, Overnight Phantom Ranch Mule Rider 71%, Overnight Phantom Ranch Hiker 77%

E. Analysis

Based on the sampling plan, three distinct groups of visitors (day mule riders, overnight mule riders staying at Phantom Ranch, and overnight hikers staying at Phantom Ranch) were identified. Visitors were also categorized by season, summer (July and August) and fall (October and November). The combination of group type (3 groups) and season (2 seasons) yielded six distinct groups for analysis. All data were analyzed across the following six groups where appropriate and meaningful:

1. Summer day mule rider
2. Fall day mule rider
3. Summer mule rider with overnight stay at Phantom Ranch
4. Fall mule rider with overnight stay at Phantom Ranch
5. Summer hiker with overnight stay at Phantom Ranch
6. Fall hiker with overnight stay at Phantom Ranch

IV. Findings

The purpose of this section is to present the findings of the study. The findings are organized into six sections based on the study objectives: (A) Characteristics of Respondents, (B) Reasons for Visit, (C) Trip Characteristics, (D) Evaluation of Resource Conditions, (E) Satisfaction, and (F) Preferences for Management Concerns. The tables that follow in this section of the report have a common format with the six groups listed across the top of the table and the variable (s) of interest along the side of the table. Statistically significant differences are noted and discussed where appropriate. Frequency distributions for all questionnaire items can be found in Appendix A.

A. Characteristics of Respondents

This section of the findings presents basic information about visitors that address the questions of **“Who are the visitors?”** **“What experiences have visitors had in backcountry/wilderness areas?”** and **“How important is Grand Canyon National Park to visitors?”** This information is categorized into the following sub-sections: (1) socio-economic and demographic characteristics, (2) previous backcountry/wilderness trips—any area, (3) previous backcountry/wilderness trips-Grand Canyon, and (4) feelings about Grand Canyon National Park.

1. Socio-Economic and Demographic Characteristics

Respondents averaged 50 years of age (fall visitors were older than summer visitors, 54 to 47 years of age, respectively), over one-half (51%) were male, and a large majority (94%) were white (Table 4.1). Respondents were well educated, averaging nearly 17 years of formal education. Nearly one half of the respondents (46%) reported their total household income of \$95,000 or more.

Table 4.1. Socio-Economic Characteristics of Respondents

Socio-Economic Characteristic	Visitor Group by Season						Total (n=406)
	Day Mule Rider (n=94)		Overnight Phantom Ranch Mule Rider (n=79)		Overnight Phantom Ranch Hiker (n=233)		
	Summer (n=46)	Fall (n=48)	Summer (n=35)	Fall (n=44)	Summer (n=115)	Fall (n=118)	
Age (average years) ¹	48 yrs	49 yrs	47 yrs	56 yrs	47 yrs	54 yrs	50 yrs
Gender	%	%	%	%	%	%	%
Male	50	45	31	43	56	51	49
Female	50	55	69	57	44	49	51
Spanish, Hispanic, or Latino	4%	2%	0%	0%	1%	3%	2%
Race	%	%	%	%	%	%	%
Am. Indian or Alaska Native	0	0	3	0	2	1	1
Asian	7	2	0	5	2	0	2
Black or African American	0	0	3	0	1	0	1
Native Hawaiian or Pac. Islander	0	0	0	0	0	0	0
White	91	94	100	93	90	96	94
Not willing to answer	2	4	0	2	5	2	3
Education (average years)	16 yrs	17 yrs	17 yrs	17 yrs	17 yrs	17 yrs	17 yrs
Income	%	%	%	%	%	%	%
Under \$10,000	0	0	0	0	0	1	<1
\$10,000 - \$19,999	0	0	3	0	0	1	1
\$20,000 - \$34,999	5	7	0	3	6	9	6
\$35,000 - \$49,999	7	11	6	19	8	4	8
\$50,000 - \$64,999	21	7	22	16	11	13	14
\$65,000 - \$79,999	12	11	9	3	17	12	12
\$80,000 - \$94,999	16	9	16	27	13	8	13
\$95,000 and over	40	55	44	32	45	52	46

¹ Statistically significant differences among visitor groups, analysis of variance, $p < .05$

Nine of every 10 respondents (92%) indicated their country of origin as the United States (Table 4.2). In terms of international countries represented by respondents, Canada and Great Britain each accounted for two percent of the respondents. Twenty-two percent of the respondents reside in the National Capital/Northeast Region, Intermountain Region (21%), and Midwest Region (21%). The states with the greatest number of respondents (5% or more of the respondents) were Arizona (11%), California (8%), Ohio (5%), and Pennsylvania (5%). Forty-two percent of the respondents live in

cities with a population of 150,000 or greater, while 24 percent of the respondents indicated residence in communities with 10,000 or fewer residents.

Table 4.2. Demographic Characteristics of Respondents

Demographic Characteristics	Visitor Group by Season						Total (n=406)
	Day Mule Rider (n=94)		Overnight Phantom Ranch Mule Rider (n=79)		Overnight Phantom Ranch Hiker (n=233)		
	Summer (n=46)	Fall (n=48)	Summer (n=35)	Fall (n=44)	Summer (n=115)	Fall (n=118)	
Country of Origin	%	%	%	%	%	%	%
Australia	4	4	0	0	0	0	1
Austria	0	0	0	0	2	0	1
Canada	0	0	3	0	2	2	2
Denmark	0	0	0	0	1	0	<1
France	0	0	0	0	0	1	<1
Germany	0	0	0	0	0	2	1
Great Britain	0	0	3	0	5	2	2
Ireland	2	0	0	0	2	0	1
Japan	0	0	0	2	0	0	<1
Netherlands	0	0	0	0	1	1	1
New Zealand	0	0	0	2	0	1	1
United States	94	96	94	96	88	92	92
NPS Region(State of Residence) ¹	%	%	%	%	%	%	%
Alaska	0	0	0	2	2	1	1
Intermountain	9	11	23	23	19	32	21
Midwest	2	29	23	18	18	23	21
National Capital/Northeast	26	34	23	11	28	14	22
Pacific West	9	4	6	21	11	13	11
Southeast	28	19	20	20	10	8	15
Other/Missing	6	3	5	5	12	9	9
Size of Community Live	%	%	%	%	%	%	%
City, >150,000	38	40	37	36	49	42	42
City, 75,001 – 150,000	9	13	11	11	8	11	10
City, 10,001 – 75,000	31	28	26	21	26	20	24
Town, 1,000 – 10,000	16	17	14	18	10	16	15
Town, <1,000	0	0	3	2	2	3	2
Farm or Ranch	4	0	6	7	3	5	4
Other	2	2	3	5	3	3	3

¹ Regions based on NPS administrative subdivisions with Washington D.C. combined with the Northeast Region.

2. Previous Backcountry and Wilderness Trips—Any Area

Overall, respondents averaged 2.7 trips to backcountry and wilderness areas during the **last 12 months** (Table 4.3). The fall hiker visitor group reported about twice as many trips (4.3 trips) than the other five visitor groups (range 1.8 to 2.2 trips). **During the past 5 years**, respondents averaged 7.6 trips to backcountry and wilderness areas. Fall respondents, compared to summer respondents in all three users groups, reported more trips than their summer counterparts. Of the six visitor groups, fall hikers averaged significantly more trips (11.5 trips) than the other five groups (averaged ranged from 4.4 to 8.5 trips).

Regarding **previous mule trips** in any backcountry and wilderness area, summer and fall hikers averaged less than one mule ride (0.3 and 0.2 mule rides, respectively), significantly fewer mule rides than the four mule rider groups (Table 4.3). The number of past trips for the four mule rider groups ranged from an average of 1.3 to 1.7 trips.

3. Previous Backcountry and Wilderness Trips—Grand Canyon National Park

Respondents were asked to indicate the year of their first visit to Grand Canyon National Park. This information was then converted to “number of years since first visit” by subtracting that value from the current year, 2005. In this conversion, first year visitors (those visiting for the first time year 2004) were coded as 1. Respondents averaged 15 years since their **first visit to the Grand Canyon** (Table 4.4). Fall overnight hikers (17.1 years) and fall mule riders (19.1 years) averaged significantly more years since their first visit to Grand Canyon compared to fall day mule riders. Respondents in the fall day mule rider group averaged 8.4 years since their first visit to Grand Canyon.

There was no difference in the number of trips taken by all respondent groups in the **previous 12 months below the rim** at Grand Canyon (Table 4.4). All respondent groups averaged slightly more than 1 trip. For trips taken below the rim **during the previous 5 years**, respondents averaged 2.2 trips. Overnight summer and fall hiker groups averaged significantly more trips (2.1 and 3.4 trips, respectively), than the four mule rider groups. The mule rider groups averaged slightly more than 1 trip below the rim during the previous five years.

Table 4.3. Backcountry and Wilderness Trips—Any Area

Backcountry and Wilderness Trips	Visitor Group by Season						Total (n=406)
	Day Mule Rider (n=94)		Overnight Phantom Ranch Mule Rider (n=79)		Overnight Phantom Ranch Hiker (n=233)		
	Summer (n=46)	Fall (n=48)	Summer (n=35)	Fall (n=44)	Summer (n=115)	Fall (n=118)	
Backcountry and wilderness trips taken in last 12 months	%	%	%	%	%	%	%
1 trip	58	65	67	69	60	48	59
2 – 5 trips	37	33	24	21	35	39	34
6 – 10 trips	5	2	9	7	2	4	4
More than 10 trips	0	0	0	2	3	9	4
Average number of trips ¹	1.9 trips	1.8 trips	2.2 trips	2.2 trips	2.1 trips	4.3 trips	2.7 trips
Backcountry and wilderness trips taken in last 5 years	%	%	%	%	%	%	%
1 trip	33	40	39	36	18	16	25
2 – 5 trips	40	36	46	33	51	37	42
6 – 10 trips	16	7	3	14	17	20	15
11 – 25 trips	11	13	6	7	11	16	12
More than 25 trips	0	4	6	10	4	12	7
Average number of trips ^{1,2}	4.4 trips	5.5 trips	4.8 trips	8.5 trips	6.6 trips	11.5 trips	7.6 trips
Number of Mule Rides Anywhere	%	%	%	%	%	%	%
0 trips	0	0	0	0	90	88	49
1 trip	83	90	71	73	6	10	40
2 trips	7	8	11	11	3	1	5
3 – 5 trips	11	0	9	9	1	0	3
More than 5 trips	0	2	9	7	1	1	2
Average number of rides ^{1,2}	1.3 trips	1.3 trips	1.7 trips	1.4 trips	0.3 trips	0.2 trips	0.8 trips

¹ Statistically significance differences among visitor groups, analysis of variance, p < .05

² Four extreme values (over 100 trips) removed for analysis purposes

Table 4.4. Backcountry Experience--Grand Canyon

Previous Experience at Grand Canyon	Visitor Group by Season						Total (n=406)
	Day Mule Rider (n=94)		Overnight Phantom Ranch Mule Rider (n=79)		Overnight Phantom Ranch Hiker (n=233)		
	Summer (n=46)	Fall (n=48)	Summer (n=35)	Fall (n=44)	Summer (n=115)	Fall (n=118)	
Years since first visit to Grand Canyon ¹	%	%	%	%	%	%	%
1 year	50	56	31	29	17	15	27
2 – 5 years	4	9	6	5	17	13	11
6 – 10 years	9	4	9	5	18	18	13
11 – 25 years	15	24	26	26	24	23	23
More than 25 years	22	7	29	36	25	31	26
Average number of years ²	12.2 yrs	8.4 yrs	15.9 yrs	19.1 yrs	15.0 yrs	17.1 yrs	15.0 yrs
Total trips taken below the rim in Grand Canyon last 12 months	%	%	%	%	%	%	%
1 trip	89	92	91	96	89	81	88
2 trips	9	9	9	5	6	17	10
3 – 5 trips	2	0	0	0	5	2	2
Average number of trips	1.1 trips	1.1 trips	1.1 trips	1.1 trips	1.2 trips	1.2 trips	1.2 trips
Total trips taken below the rim in Grand Canyon last 5 years	%	%	%	%	%	%	%
1 trip	85	82	79	81	52	36	59
2 trips	13	13	6	10	23	21	17
3 – 5 trips	3	2	15	7	22	26	17
More than 5 trips	0	2	0	2	4	17	7
Average number of trips ²	1.2 trips	1.4 trips	1.4 trips	1.5 trips	2.1 trips	3.4 trips	2.2 trips

¹ Created by subtracting year of first visit from current year, 2005. First year visitors were coded as 1 year since first visit to Grand Canyon National Park.

² Statistically significance differences among visitor groups, analysis of variance, $p < .05$

4. Feelings about Grand Canyon National Park

Respondents indicated their level of agreement with 3 statements designed to measure their feelings about Grand Canyon National Park (Table 4.5). Each statement was rated on a 5-point agreement scale where 1=strongly agree, 2=agree, 3=neutral, 4=disagree, and 5=strongly disagree. For the purpose of presenting this information in Table 4.5, responses strongly agree and agree were combined while responses disagree and strongly disagree were combined.

Grand Canyon National Park is a special place for a large majority of the respondents. Eighty-five percent of the respondents agreed/strongly agreed with the statement **“I am very attached to the Grand Canyon.”** Overnight night Phantom Ranch hikers (summer group, 91% and fall group, 86%) indicated a higher level of attachment than the other four user groups. Most respondents (95%) agreed/strongly agreed that **“Grand Canyon is a very special place,”** although only one of every four respondents (24%) agreed/strongly agreed that **“Visiting Grand Canyon is more important than visiting anywhere else.”** Summer and fall hiker respondents indicated a higher level of agreement than the four mule rider group respondents (27% and 31%, respectively), while the summer day mule rider respondents indicated the lowest level of agreement (11%).

Table 4.5. Respondent Attachment to Grand Canyon

Statement	Visitor Group by Season						Total (n=406)
	Day Mule Rider (n=94)		Overnight Phantom Ranch Mule Rider (n=79)		Overnight Phantom Ranch Hiker (n=233)		
	Summer (n=46)	Fall (n=48)	Summer (n=35)	Fall (n=44)	Summer (n=115)	Fall (n=118)	
I am very attached to the Grand Canyon	%	%	%	%	%	%	%
% Agree or strongly agree	80	81	77	79	91	86	85
% Disagree or strongly disagree	4	4	3	0	2	2	2
Average ^{1,2}	2.0	1.9	1.8	1.8	1.5	1.6	1.7
The Grand Canyon is very special to me	%	%	%	%	%	%	%
% Agree or strongly agree	94	92	91	93	98	94	95
% Disagree or strongly disagree	0	0	0	0	0	1	<1
Average ¹	1.5	1.4	1.5	1.5	1.3	1.3	1.4
Visiting Grand Canyon is more important to me than visiting anywhere else	%	%	%	%	%	%	%
% Agree or strongly agree	11	23	17	19	27	31	24
% Disagree or strongly disagree	37	25	37	35	31	28	31
Average ¹	3.2	3.0	3.2	3.2	3.0	2.9	3.0

¹ Average based on 5-point rating scale ranging from 1=strongly agree to 5=strongly disagree

² Statistically significant differences among visitor groups, analysis of variance, $p < .05$

B. Reasons for Visit

This section of the findings presents basic information about experiences sought by mule riders and overnight guests at Phantom Ranch. This information is intended to address the questions of **“What experiences are visitors seeking?”** and **“How important are those experiences to visitors?”** Knowledge of experiences sought by visitors can be extremely valuable to park managers for planning and programming.

Respondents rated the importance of 31 items that represent various kinds of experiences that may be sought by mule riders and overnight visitors to Phantom Ranch. A listing of these items can be found in the questionnaire located in Appendix A. Each of these items was rated on a 5-point importance scale where 1=extremely unimportant, 2=unimportant, 3=neutral, 4=important, and 5=extremely important. These items have been widely used to characterize the quality of outdoor recreational experiences. The 31 items were designed to represent seven general categories, “domains” of preferred experiences sought by visitors. These “preferred experience domains” include the following: learning, nature appreciation, family togetherness, solitude, skill and ability, being with others, and risk taking. For the purpose of presenting this information in Table 4.6, responses extremely unimportant and unimportant were combined while responses important and extremely important were combined.

Table 4.6 displays information, percentage of visitors in each of the six groups indicating the importance and average rating, for each of the seven “preferred experience domains.” Over 90% of the visitors indicated learning and nature appreciation were important reasons for their visit. A majority of respondents also indicated family togetherness (80%), solitude (73%), and skill and ability (69%) were important reasons for their visit. Nearly one-half of the respondents (47%) felt being with others was important while one of every three respondents (32%) rated risk taking as important.

The importance of learning and being with others differed among the six defined user groups. Being with others and learning, although important for all visitor groups, were less important for overnight Phantom Ranch hikers than the other user groups.

Table 4.6. Respondent Reasons for Visit

Reasons for Visit	Visitor Group by Season						Total (n=406)
	Day Mule Rider (n=94)		Overnight Phantom Ranch Mule Rider (n=79)		Overnight Phantom Ranch Hiker (n=233)		
	Summer (n=46)	Fall (n=48)	Summer (n=35)	Fall (n=44)	Summer (n=115)	Fall (n=118)	
Learning	%	%	%	%	%	%	%
% Unimportant/Extremely Unimportant	0	0	3	0	0	1	1
% Important/Extremely Important	100	98	91	93	89	91	93
Average ^{1,2}	4.3	4.4	4.2	4.3	4.1	4.0	4.1
Nature Appreciation	%	%	%	%	%	%	%
% Unimportant/Extremely Unimportant	0	0	0	2	0	0	<1
% Important/Extremely Important	91	96	89	86	91	91	91
Average ¹	4.2	4.3	4.2	4.1	4.2	4.2	4.2
Family Togetherness	%	%	%	%	%	%	%
% Unimportant/Extremely Unimportant	4	2	6	5	4	9	5
% Important/Extremely Important	89	87	83	77	80	75	80
Average ¹	4.3	4.2	4.2	4.0	4.1	3.9	4.1
Solitude	%	%	%	%	%	%	%
% Unimportant/Extremely Unimportant	2	6	6	2	1	3	3
% Important/Extremely Important	70	66	74	57	79	77	73
Average ¹	3.6	3.7	3.6	3.6	3.8	3.8	3.7
Skill and Ability	%	%	%	%	%	%	%
% Unimportant/Extremely Unimportant	13	11	6	5	3	3	5
% Important/Extremely Important	61	62	60	61	76	75	69
Average ¹	3.6	3.7	3.6	3.6	3.9	3.9	3.8

¹ Average based on 5-point rating scale ranging from 1=extremely unimportant to 5=extremely important

² Statistically significant differences among visitor groups, analysis of variance, p < .05

Table 4.6 (con't). Respondent Reasons for Visit

Reasons for Visit	Visitor Group by Season						Total (n=406)
	Day Mule Rider (n=94)		Overnight Phantom Ranch Mule Rider (n=79)		Overnight Phantom Ranch Hiker (n=233)		
	Summer (n=46)	Fall (n=48)	Summer (n=35)	Fall (n=44)	Summer (n=115)	Fall (n=118)	
Being with Others	%	%	%	%	%	%	%
% Unimportant/Extremely Unimportant	2	4	6	9	7	13	8
% Important/Extremely Important	47	57	62	68	40	38	47
Average ^{1,2}	3.4	3.5	3.5	3.5	3.3	3.2	3.3
Risk Taking	%	%	%	%	%	%	%
% Unimportant/Extremely Unimportant	20	15	12	25	23	23	21
% Important/Extremely Important	33	48	47	25	30	23	32
Average ^{1,2}	3.2	3.4	3.4	3.1	3.1	3.0	3.1

¹ Average based on 5-point rating scale ranging from 1=extremely unimportant to 5=extremely important

² Statistically significant differences among visitor groups, analysis of variance, $p < .05$

C. Trip Characteristics

This section of the findings presents information about different facets of the trip. Information presented in this section addresses questions such as “**How do people plan for their trip?**” “**What information do they use?**” “**Who and how many people do they travel with?**” “**How long do people stay?**” “**What items did they take along on trip?**” “**What types of groups were encountered on trip?**” “**Where did they visit on a mule trip?**” and “**How many nights are spent at Phantom Ranch?**”

This information is categorized into the following sub-sections: (1) trip planning, (2) group type, (3) length of stay, (4) items carried along on trip, (5) types of groups encountered, (6) areas visited by mule riders, and (7) number of nights spent at Phantom Ranch.

1. Trip Planning

Two out of every three respondents (63%) planned their trip more than six months in advance (Table 4.7). Overnight mule riders and hikers planned their trip further in advance than the day mule riders. Respondents used a variety of sources for information to plan their trip to the Grand Canyon. The most common information source used by respondents was the Grand Canyon website, used by 81% of the

respondents. Other websites were used by 20% of the respondents. Family and friends were other information sources used by many respondents (24%). A majority of respondents (81%) decided 4 or more months in advance to either take a mule trip or stay at Phantom Ranch. Respondent groups reporting an overnight stay at Phantom Ranch (overnight mule rider or hiker groups), planned further in advance than the day mule rider groups.

Table 4.7. Trip Planning

Trip Planning	Visitor Group by Season						Total (n=406)
	Day Mule Rider (n=94)		Overnight Phantom Ranch Mule Rider (n=79)		Overnight Phantom Ranch Hiker (n=233)		
	Summer (n=46)	Fall (n=48)	Summer (n=35)	Fall (n=44)	Summer (n=115)	Fall (n=118)	
Advance Planning for Trip ¹	%	%	%	%	%	%	%
During the trip	0	0	0	0	1	0	<1
1-6 days	0	0	0	0	0	1	<1
1-2 weeks	0	0	0	0	0	3	1
3-8 weeks	9	19	6	7	4	6	7
2-3 months	9	26	6	0	10	3	8
4-6 months	39	34	26	26	15	9	20
More than 6 months	44	21	63	67	70	78	63
Information Sources Used	%	%	%	%	%	%	%
Television	11	4	12	18	3	3	6
Radio	0	0	0	0	1	0	<1
Newspaper/magazines	15	8	21	21	4	18	13
State tourism office	26	13	12	14	14	7	13
Family/friends	22	23	24	9	30	24	24
AAA	15	25	21	14	13	7	14
Travel agent	4	4	3	0	4	3	3
Family/friends/word of mouth	22	35	15	14	23	26	23
Grand Canyon website	91	81	91	80	87	69	81
Other website	15	25	12	23	24	17	20
Decide mule ride/Phantom Ranch Stay in Advance ¹	%	%	%	%	%	%	%
During the trip	0	0	0	0	1	0	<1
1-6 days	0	2	0	0	1	0	1
1-2 weeks	0	4	0	0	0	4	2
3-8 weeks	11	21	6	5	4	6	8
2-3 months	9	23	6	5	10	3	8
4-6 months	38	31	34	23	15	8	20
More than 6 months	42	19	54	68	69	79	61

¹ Statistically significant differences among visitor groups, Chi-square analysis, $p < .05$

2. Group Type

The majority of respondents traveled with family groups (57%) or a mixed family/friends group (21%) (Table 4.8). A higher proportion of mule riders, compared to hikers, were more likely to be with family group. The average group size was 3.5 people, with the overnight summer mule rider group being larger (4.3 people) than the other groups (range from 2.6 to 3.8 people), while the fall day mule rider group size was somewhat smaller (2.6 people) than the other groups (range 3.2 to 4.3 people).

Table 4.8. Type of Group

Group Characteristics	Visitor Group by Season						Total (n=406)
	Day Mule Rider (n=94)		Overnight Phantom Ranch Mule Rider (n=79)		Overnight Phantom Ranch Hiker (n=233)		
	Summer (n=46)	Fall (n=48)	Summer (n=35)	Fall (n=44)	Summer (n=115)	Fall (n=118)	
Type of Group ¹	%	%	%	%	%	%	%
Family	80	57	69	68	53	44	57
Friends	9	13	9	9	16	15	13
Family/Friends	9	23	9	9	24	32	21
Organized group	0	0	0	5	0	0	1
Alone	2	6	14	9	8	9	8
Number of People in Group	%	%	%	%	%	%	%
1 person	4	9	14	7	6	11	8
2 people	49	60	17	56	36	39	41
3 people	11	15	17	5	11	11	11
4 people	18	11	23	14	26	11	17
5 people	9	2	11	5	11	3	7
More than 5 people	9	4	17	14	11	25	15
Average number of people ²	3.2	2.6	4.3	3.3	3.5	3.8	3.5
Part of an Organized Group ¹	0%	0%	3%	7%	0%	1%	%

¹ Statistically significant differences among visitor groups, Chi-square analysis, $p < .05$

² Statistically significant differences among visitor groups, analysis of variance, $p < .05$

3. Length of Stay

The number of days spent at Grand Canyon ranged across the six visitor groups from 3.5 to 4.0 days (Table 4.9). On average, respondents spent 3.8 days at Grand Canyon. There was no difference in the length of stay across the six user groups.

Table 4.9. Number of Days Spent at Grand Canyon

Number of Days	Visitor Group by Season						Total (n=406)
	Day Mule Rider (n=94)		Overnight Phantom Ranch Mule Rider (n=79)		Overnight Phantom Ranch Hiker (n=233)		
	Summer (n=46)	Fall (n=48)	Summer (n=35)	Fall (n=44)	Summer (n=115)	Fall (n=118)	
Number of Days	%	%	%	%	%	%	%
1 day	4	2	0	0	2	1	2
2 days	13	35	23	7	17	14	18
3 days	50	35	34	32	24	32	32
4 days	9	8	17	46	26	22	22
5 days	17	4	14	2	17	19	14
6-days	0	0	3	7	5	6	4
7 days	4	10	9	5	4	4	5
More than 7 days	2	4	0	2	4	2	3
Average number of days	3.5 days	3.5 days	3.7 days	3.9days	4.0 days	3.9 days	3.8 days

4. Items Carried

Respondents carried a variety of items on their trip (Table 4.10). Those items included cell phones (22% of the respondents), camera/binoculars (11%), GPS unit (6%) and personal stereo (5%); although respondent use of these items was much less. Camera/binoculars were used by 9 percent of the respondents, GPS used by 4 percent, personal stereo and cell phones by 3 percent of the respondents. Although cell phones were carried by 22 percent of the respondents, only 3 percent actually reported using the cell phone.

The items carried and used by respondents did vary across the six user groups. Fall mule riders were more likely to use their cell phone than respondents in the other five groups. Fall overnight hikers were more likely to carry and use a GPS unit than the other user groups.

Table 4.10. Items Carried

Carried and/or Used	Visitor Group by Season						Total (n=406)
	Day Mule Rider (n=94)		Overnight Phantom Ranch Mule Rider (n=79)		Overnight Phantom Ranch Hiker (n=233)		
	Summer (n=46)	Fall (n=48)	Summer (n=35)	Fall (n=44)	Summer (n=115)	Fall (n=118)	
Cell Phone	%	%	%	%	%	%	%
Carried	30	23	20	11	30	16	22
Used	2	13	6	2	3	1	3
Laptop computer	%	%	%	%	%	%	%
Carried	2	0	6	0	0	1	1
Used	2	0	3	0	0	1	1
PDA	%	%	%	%	%	%	%
Carried	4	0	3	0	3	3	2
Used	4	0	0	0	0	3	1
Pager	%	%	%	%	%	%	%
Carried	2	0	0	0	1	0	<1
Used	2	0	0	0	0	0	<1
Satellite phone	%	%	%	%	%	%	%
Carried	2	0	0	0	2	2	1
Used	2	0	0	0	1	2	1
GPS unit	%	%	%	%	%	%	%
Carried	4	2	3	2	4	11	6
Used	2	2	0	2	3	8	4
Personal stereo	%	%	%	%	%	%	%
Carried	7	0	3	0	9	5	5
Used	7	0	3	0	6	2	3
Other (camera, binoculars)	%	%	%	%	%	%	%
Carried	11	21	11	16	9	8	11
Used	9	15	6	9	9	7	9

5. Types of Groups Encountered

Almost all respondents (98%) reported encountering day hikers during their backcountry trip (Table 4.11). Overnight mule rider and hiker groups were more likely than day mule riders to report encountering overnight backpackers and horse/mule groups. Seventeen percent of the respondents reported encountering aircraft tours overhead. Encounters with aircraft tours differed across the six user groups. Fall day mule riders (29%) and summer overnight mule riders (20%) reported encountering more aircraft overhead than fall overnight mule riders (7%).

Table 4.11. Types of Groups Encountered During Backcountry Trip

Type of User Group Encountered	Visitor Group by Season						Total (n=406)
	Day Mule Rider (n=94)		Overnight Phantom Ranch Mule Rider (n=79)		Overnight Phantom Ranch Hiker (n=233)		
	Summer (n=46)	Fall (n=48)	Summer (n=35)	Fall (n=44)	Summer (n=115)	Fall (n=118)	
Type of group	%	%	%	%	%	%	%
Day hikers	100	100	100	93	98	98	98
Overnight backpackers ¹	72	77	97	93	97	98	91
Groups using horses/mules ¹	76	67	77	86	88	91	84
Hikers from a river trip ¹	11	8	29	14	45	27	27
Commercially guided hikers ¹	4	0	14	2	3	6	5
Aircraft tours overhead	17	29	20	7	17	14	17

¹ Statistically significant differences among visitor groups, Chi-square analysis, $p < .05$

6. Areas Visited by Day and Overnight Mule Riders

Most day mule rider trips included a visit to Plateau Point (96%), while two out of every three day mule rider trips visited Indian Gardens (64%) (Table 4.12). There was no difference in areas visited between summer and fall day mule trips.

A large majority of overnight mule riders visited Indian Gardens (80% summer and 88% fall). Summer overnight mule riders were more likely to visit Plateau Point than fall overnight mule riders, 27 percent compared to 5 percent, respectively.

Table 4.12. Mule Riding Activity

Places Visited on Mule Ride	Mule Rider by Season				
	Day Mule Rider (n=94)		Overnight Phantom Ranch Mule Rider (n=79)		Total (n=173)
	Summer (n=46)	Fall (n=48)	Summer (n=35)	Fall (n=44)	
Places visited on Mule Trip	%	%	%	%	%
Indian Gardens	63	64	80	88	73
Plateau Point	96	96	27	5	59
Phantom Ranch	4	2	100	98	47

7. Overnight Stay at Phantom Ranch by Mule Rider and Hiker Groups

Overnight mule rider and hiker respondents spent an average of 1.6 nights at Phantom Ranch (Table 4.13). On average, overnight hikers were stayed longer than overnight mule riders, while fall mule riders and hikers stayed longer than summer mule riders and hikers.

Table 4.13. Number of Nights at Phantom Ranch

Nights Stayed at Phantom Ranch	Phantom Ranch Guest by Season				Total (n=312)
	Overnight Phantom Ranch Mule Rider (n=79)		Overnight Phantom Ranch Hiker (n=233)		
	Summer (n=35)	Fall (n=44)	Summer (n=115)	Fall (n=118)	
Number of Nights at Phantom Ranch	%	%	%	%	%
1 night	100	67	57	37	56
2 nights	0	33	37	51	38
3 nights	0	0	4	10	5
4 nights	0	0	0	2	1
5 nights	0	0	1	1	1
More than 5 nights	0	0	1	0	<1
Average number of nights ¹	1.0 night	1.3 nights	1.6 nights	1.8 nights	1.6 nights

¹ Statistically significant differences among visitor groups, analysis of variance, $p < .05$

D. Evaluation of Resource Conditions

In this section, respondents were given an opportunity to evaluate several resource conditions in the backcountry. This information is intended to address questions such as **“Do visitors notice resource conditions?”** **“Are visitors disturbed with resource conditions?”** and **“Are visitors satisfied with the condition of the resource?”** Respondents were asked to rate (1) the extent each resource condition was apparent, (2) the extent they felt those resource conditions were disturbing, and (3) satisfaction with four backcountry trail conditions.

1. Apparent Resource Conditions

Table 4.14 summarizes the degree to which respondents perceived eight resource conditions to be apparent. Each resource condition was rated on a 5-point apparentness scale where 1=not apparent at all, 2=slightly apparent, 3=moderately apparent, 4=very apparent, and 5=extremely apparent. For the purpose of presenting this information in Table 4.14, responses not at all and slightly apparent were combined while responses very and extremely apparent were combined.

The most apparent resource conditions were “livestock waste along trail” and “trail erosion,” reported by 48 percent and 22 percent of the respondents, respectively. The least apparent resource conditions were “human waste along trail,” “toilet paper along trail,” “litter along trail,” and “vegetation damage from trampling.” No respondents reported “litter along trails” or “human waste along trail” as very or extremely apparent, while “toilet paper along trail” was reported by only 1 percent of the respondents as being apparent.

Based on the average ratings, the degree to which respondents indicated that resource conditions were apparent varied across the six visitor groups for “litter along trails,” “livestock waste along trail,” “aircraft overhead,” “trail erosion,” and “motorized equipment on river.” The average “apparent rating” is displayed in Table 4.14. “Litter along trails” was more apparent to the summer hiker respondents (average rating of 1.5) and less apparent to the fall day mule riders (1.2) and the summer overnight mule riders (1.2). “Livestock waste along trail” was more apparent to the hiker respondents compared to the mule rider respondents. “Aircraft overhead” was most apparent to the summer overnight hiker respondents and least apparent to the summer day and overnight mule rider respondents. “Trail erosion” was least apparent to summer (2.1) and fall (2.3) day mule rider respondents and summer overnight mule rider respondents (2.3), while most apparent to the fall hiker respondents (3.1). “Motorized equipment on the river” was most apparent to fall hiker respondents (1.5) and summer overnight mule rider respondents (1.5) and least apparent to fall day mule rider respondents (1.1).

Table 4.14. Resource Conditions Apparent to Respondents

Condition	Visitor Group by Season						Total (n=406)
	Day Mule Rider (n=94)		Overnight Phantom Ranch Mule Rider (n=79)		Overnight Phantom Ranch Hiker (n=233)		
	Summer (n=46)	Fall (n=48)	Summer (n=35)	Fall (n=44)	Summer (n=115)	Fall (n=118)	
Litter along trails	%	%	%	%	%	%	%
% Not at all or slightly apparent	98	98	100	96	97	98	98
% Very or extremely apparent	0	0	0	0	0	0	0
Average rating ^{1,2}	1.3	1.2	1.2	1.3	1.5	1.4	1.4
Human waste along trail	%	%	%	%	%	%	%
% Not at all or slightly apparent	100	100	100	100	99	100	100
% Very or extremely apparent	0	0	0	0	0	0	0
Average rating ¹	1.1	1.0	1.0	1.1	1.1	1.1	1.1
Toilet paper along trail	%	%	%	%	%	%	%
% Not at all or slightly apparent	100	100	100	100	98	97	99
% Very or extremely apparent	0	0	0	0	1	1	1
Average rating ¹	1.0	1.0	1.2	1.1	1.2	1.2	1.1
Livestock waste along trail	%	%	%	%	%	%	%
% Not at all or slightly apparent	44	36	31	26	18	15	24
% Very or extremely apparent	20	21	37	33	59	68	48
Average rating ^{1,2}	2.7	2.9	3.1	3.1	3.6	3.9	3.4

¹ Average based on 5-point rating scale ranging from 1=not at all apparent to 5=extremely apparent

² Statistically significant differences among visitor groups, analysis of variance, $p < .05$

Table 4.14 (con't). Resource Conditions Apparent to Respondents

Condition	Visitor Group by Season						Total (n=406)
	Day Mule Rider (n=94)		Overnight Phantom Ranch Mule Rider (n=79)		Overnight Phantom Ranch Hiker (n=233)		
	Summer (n=46)	Fall (n=48)	Summer (n=35)	Fall (n=44)	Summer (n=115)	Fall (n=118)	
Aircraft overhead	%	%	%	%	%	%	%
% Not at all or slightly apparent	93	85	91	86	81	77	83
% Very or extremely apparent	2	7	0	2	7	4	5
Average rating ^{1,2}	1.5	1.8	1.5	1.6	2.0	1.9	1.8
Trail erosion	%	%	%	%	%	%	%
% Not at all or slightly apparent	72	67	69	52	44	36	51
% Very or extremely apparent	2	13	6	25	24	34	22
Average rating ^{1,2}	2.1	2.3	2.3	2.7	2.7	3.1	2.7
Motorized equipment on river	%	%	%	%	%	%	%
% Not at all or slightly apparent	97	98	88	95	89	94	93
% Very or extremely apparent	3	0	3	2	6	5	4
Average rating ^{1,2}	1.2	1.1	1.5	1.2	1.5	1.3	1.3
Vegetation damage trampling	%	%	%	%	%	%	%
% Not at all or slightly apparent	94	98	91	91	88	92	91
% Very or extremely apparent	2	0	0	2	5	1	2
Average rating ¹	1.7	1.5	1.5	1.5	1.7	1.5	1.6

¹ Average based on 5-point rating scale ranging from 1=not apparent at all to 5=extremely apparent

² Statistically significant differences among visitor groups, analysis of variance, $p < .05$

2. Disturbing Resource Conditions

Table 4.15 summarizes the degree to which respondents felt eight resource conditions were disturbing. Each resource condition was rated on a 5-point disturbance scale where 1=not at all disturbing, 2=slightly disturbing, 3=moderately disturbing, 4=very disturbing, and 5=extremely disturbing. For the purpose of presenting this information in Table 4.15, responses not at all and slightly disturbing were combined while responses very and extremely disturbing were combined.

The most disturbing resource conditions reported by respondents were “litter along trail,” “toilet paper along trail,” “livestock waste along trail,” “aircraft overhead,” and “trail erosion.” The percentage of respondents reporting these conditions as disturbing ranged from 10 to 14 percent. The least disturbing resource conditions were “motorized equipment on river,” “vegetation damage from trampling,” and “human waste along trail” with 5 to 8 percent reporting being disturbed by these conditions.

Based on the average ratings, the degree to which respondents indicated that resource conditions were disturbing varied across the six visitor groups for “livestock waste along trail” and “motorized equipment on river.” The average “disturbance rating” is displayed in Table 4.15. “Livestock waste along trail” was much more disturbing to hikers, average rating of 2.3, compared to mule riders, average rating ranged from 1.3 to 1.4. As one would expect, “motorized equipment on river” was more disturbing to overnight respondents (since they actually spent a night at the river—Phantom Ranch) than day mule riders (day mule trip did not go to the river).

Table 4.15. Resource Conditions Disturbing to Respondents

Condition	Visitor Group by Season						Total (n=406)
	Day Mule Rider (n=94)		Overnight Phantom Ranch Mule Rider (n=79)		Overnight Phantom Ranch Hiker (n=233)		
	Summer (n=46)	Fall (n=48)	Summer (n=35)	Fall (n=44)	Summer (n=115)	Fall (n=118)	
Litter along trails	%	%	%	%	%	%	%
% Not at all or slightly disturbing	84	87	85	81	71	78	79
% Very or extremely disturbing	5	13	9	14	16	17	14
Average rating ¹	1.6	1.6	1.4	1.8	2.0	1.9	1.8
Human waste along trail	%	%	%	%	%	%	%
% Not at all or slightly disturbing	91	93	94	91	85	90	89
% Very or extremely disturbing	5	5	6	6	12	9	8
Average rating ¹	1.3	1.3	1.2	1.3	1.6	1.4	1.4
Toilet paper along trail	%	%	%	%	%	%	%
% Not at all or slightly disturbing	91	93	91	89	81	86	87
% Very or extremely disturbing	7	7	9	9	16	12	11
Average rating ¹	1.3	1.4	1.4	1.4	1.6	1.5	1.5

Table 4.15 (con't). Resource Conditions Disturbing to Respondents

Condition	Visitor Group by Season						Total (n=406)
	Day Mule Rider (n=94)		Overnight Phantom Ranch Mule Rider (n=79)		Overnight Phantom Ranch Hiker (n=233)		
	Summer (n=46)	Fall (n=48)	Summer (n=35)	Fall (n=44)	Summer (n=115)	Fall (n=118)	
Livestock waste along trail	%	%	%	%	%	%	%
% Not at all or slightly disturbing	94	90	100	95	66	63	77
% Very or extremely disturbing	4	0	0	3	18	16	10
Average rating ^{1,2}	1.4	1.4	1.3	1.4	2.3	2.3	1.9
Aircraft overhead	%	%	%	%	%	%	%
% Not at all or slightly disturbing	93	87	87	84	77	77	82
% Very or extremely disturbing	7	9	10	8	11	12	10
Average rating ¹	1.4	1.5	1.5	1.6	1.7	1.8	1.6
Trail erosion	%	%	%	%	%	%	%
% Not at all or slightly disturbing	80	77	85	70	70	69	73
% Very or extremely disturbing	7	10	6	10	5	15	10
Average rating ¹	1.8	1.9	1.7	2.0	2.0	2.2	2.0
Motorized equipment on river	%	%	%	%	%	%	%
% Not at all or slightly disturbing	100	100	90	89	88	91	92
% Very or extremely disturbing	0	0	3	8	10	3	5
Average rating ^{1,2}	1.1	1.1	1.3	1.4	1.5	1.3	1.3
Vegetation damage trampling	%	%	%	%	%	%	%
% Not at all or slightly disturbing	80	89	87	82	77	84	82
% Very or extremely disturbing	5	6	7	8	11	8	8
Average rating ¹	1.6	1.6	1.5	1.6	1.9	1.7	1.7

¹ Average based on 5-point rating scale ranging from 1=not at all disturbing to 5=extremely disturbing

² Statistically significant differences among visitor groups, analysis of variance, $p < .05$

3. Satisfaction with Backcountry Trail Conditions

To assess satisfaction with backcountry trail conditions, respondents were asked to indicate their level of satisfaction with four backcountry trail conditions (Table 4.16). Each of the four backcountry trail conditions was rated on a 5-point satisfaction scale where 1=very satisfied, 2=satisfied, 3=neutral, 4=unsatisfied, and 5=very unsatisfied. For the purpose of presenting this information in Table 4.16, responses very satisfied and satisfied were combined while responses unsatisfied and very unsatisfied were combined. Table 4.16 summarizes the satisfaction levels reported by respondents for the four backcountry trail conditions.

A large majority of respondents were satisfied with the “physical condition of the trails,” “sanitary facilities in backcountry,” “noise by other people on trail,” and “hiking etiquette of others.” However, a small percentage of respondents (range from 3 to 8 percent of the respondents) was unsatisfied with each of the four backcountry trail conditions.

Based on the average satisfaction rating displayed in Table 4.16, respondent satisfaction with the backcountry trail conditions differed by respondent groups for the “physical condition of trails” and “hiking etiquette of others.” On average, overnight hikers expressed the greatest level of dissatisfaction with the “physical condition of trails,” satisfaction rating of 2.1; while summer respondents (day mule rider group--1.6 rating and overnight mule rider group--1.5 rating) expressed the least level of dissatisfaction among the six respondent groups.

Table 4.16. Satisfaction with Backcountry Trail Conditions

Condition	Visitor Group by Season						Total (n=406)
	Day Mule Rider (n=94)		Overnight Phantom Ranch Mule Rider (n=79)		Overnight Phantom Ranch Hiker (n=233)		
	Summer (n=46)	Fall (n=48)	Summer (n=35)	Fall (n=44)	Summer (n=115)	Fall (n=118)	
Physical condition of trails	%	%	%	%	%	%	%
% Satisfied or very satisfied	94	87	97	89	90	76	86
% Unsatisfied or very unsatisfied	0	4	3	5	3	15	6
Average rating ^{1,2}	1.6	1.7	1.5	1.7	1.7	2.1	1.8
Sanitary facilities in backcountry	%	%	%	%	%	%	%
% Satisfied or very satisfied	86	94	86	93	85	89	88
% Unsatisfied or very unsatisfied	2	0	0	0	3	5	3
Average rating ¹	1.8	1.4	1.7	1.5	1.7	1.7	1.7
Noise by other people on trail	%	%	%	%	%	%	%
% Satisfied or very satisfied	87	83	74	84	76	73	78
% Unsatisfied or very unsatisfied	0	2	6	2	9	6	5
Average rating ¹	1.7	1.7	1.7	1.7	2.0	2.0	1.9
Hiking etiquette of others	%	%	%	%	%	%	%
% Satisfied or very satisfied	83	85	83	86	73	77	79
% Unsatisfied or very unsatisfied	2	4	6	5	12	10	8
Average rating ^{1,2}	1.7	1.8	1.7	1.6	2.1	1.9	1.9

¹ Average based on 5-point rating scale ranging from 1=very satisfied to 5=very unsatisfied

² Statistically significant differences among visitor groups, analysis of variance, $p < .05$

E. Satisfaction

An important objective of this research was to assess day mule rider, overnight mule rider, and overnight hiker satisfaction with their Grand Canyon experience. This information is intended to address questions such as **“How do mule riders feel about their guide?”** **“Are visitors satisfied with Phantom Ranch employees?”** **“Overall, how satisfied were respondents?”** and **“Would respondents return?”** These questions are addressed in the following sections (1) satisfaction with mule guide, (2) satisfaction with Phantom Ranch employees, (3) overall satisfaction, and (4) likelihood of future visit.

1. Satisfaction with Mule Guide

A large majority (97%) of day and overnight mule riders were satisfied with their mule rider guide; either very satisfied (82%) or satisfied (15%) (Table 4.17). No mule riders indicated being unsatisfied or very unsatisfied with their mule guide. There was no difference in the average satisfaction rating among the four mule rider groups.

Table 4.17. Satisfaction with Mule Rider Guide

Satisfaction Level	Mule Rider by Season				
	Day Mule Rider (n=94)		Overnight Phantom Ranch Mule Rider (n=79)		Total (n=173)
	Summer (n=46)	Fall (n=48)	Summer (n=35)	Fall (n=44)	
Satisfied with mule guide	%	%	%	%	%
Very satisfied	78	90	86	76	82
Satisfied	16	10	9	24	15
Neutral	7	0	5	0	3
Unsatisfied	0	0	0	0	0
Very unsatisfied	0	0	0	0	0
Average satisfaction level ¹	1.3	1.1	1.2	1.2	1.2

¹ Average based on 5-point rating scale ranging from 1=very satisfied to 5=very unsatisfied

2. Satisfaction with Phantom Ranch Employees

A large majority (96%) of overnight mule riders and hikers were satisfied with their interaction with Phantom Ranch employees; either very satisfied (75%) or satisfied (21%) (Table 4.18). One percent of the respondents were unsatisfied with their interaction with Phantom Ranch employees.

Table 4.18. Satisfaction with Phantom Ranch Employees

Satisfaction Level	Phantom Ranch Guest by Season				
	Overnight Phantom Ranch Mule Rider (n=79)		Overnight Phantom Ranch Hiker (n=233)		Total (n=312)
	Summer (n=35)	Fall (n=44)	Summer (n=115)	Fall (n=118)	
Satisfied with Interaction with Phantom Ranch Employees	%	%	%	%	%
Very satisfied	71	75	72	78	75
Satisfied	23	21	25	17	21
Neutral	6	2	3	2	3
Unsatisfied	0	2	0	2	1
Very unsatisfied	0	0	0	1	<1
Average satisfaction level ¹	1.3	1.3	1.3	1.3	1.3

¹ Average based on 5-point rating scale ranging from 1=very satisfied to 5=very unsatisfied

3. Overall Satisfaction

To assess overall satisfaction, respondents were asked to indicate the degree to which they agreed or disagreed with seven statements (Table 4.19). Each satisfaction statement was rated on a 5-point agreement scale where 1=strongly agree, 2=agree, 3=neutral, 4=disagree, and 5=strongly disagree. For the purpose of presenting this information in Table 4.19, responses strongly agree and agree were combined while responses disagree and strongly disagree were combined. Table 4.19 summarizes the degree of agreement/disagreement reported by respondents for the seven satisfaction statements.

A large majority of respondents agreed with the following statements, “I thoroughly enjoyed my visit to the backcountry at Grand Canyon” and “My trip to the backcountry at Grand Canyon was well worth the cost,” 98 and 97 percent, respectively. Very few respondents agreed with the following statements. Twelve percent of the respondents agreed that “I was disappointed with some aspects of my trip” and two percent of the respondents agreed that “I do not want to visit any more areas like the backcountry at Grand Canyon.” Responses to both statements reflect a positive evaluation by respondents.

Respondents were somewhat mixed in their level of agreement/disagreement with three of the satisfaction statements. Two out of every three respondents (67%) agreed with the following statement “I cannot imagine a better trip than the one I took in the backcountry at Grand Canyon.” Only eight percent of the respondents disagreed with the statement, however, a significant percentage of respondents (25%) did not agree or disagree, but were neutral in their response. Sixty-one percent of the respondents

disagreed with the statement “Encountering a large backpacking group (over 11 people) detracted from my enjoyment,” only nine percent of the respondents agreed with the statement. Aircraft over the backcountry detracted from the satisfaction level of some respondents. One of every five respondents (20%) disagreed with the statement “Aircraft over the backcountry did not detract from the enjoyment of my trip.”

Based on the average satisfaction rating displayed in Table 4.19, respondent agreement/disagreement rating for two of the satisfaction statements differed by respondent groups. Although a majority of respondents agreed with the statement “My trip to the backcountry at Grand Canyon was well worth the cost,” the fall overnight mule rider respondents (1.6 average rating, 91%) were slightly less in agreement than the other five user groups (1.3 average rating, range from 96 to 100%). The second statement that differed by user group was “Encountering a large backpacking group (over 11 people) detracted from my enjoyment.” Although a majority of all respondents disagreed with the statement, the average rating for the fall hiker respondents (3.6) indicated slightly less disagreement than mule rider respondents (average rating ranged from 3.8 to 4.0).

Overall, one could conclude that respondents were very satisfied with their Grand Canyon experience. Although, there is some concern by respondents related to the impact of backpacking group size and aircraft overhead on visitor satisfaction.

Table 4.19. Respondent Satisfaction with Visit

Satisfaction Item	Visitor Group by Season						Total (n=406)
	Day Mule Rider (n=94)		Overnight Phantom Ranch Mule Rider (n=79)		Overnight Phantom Ranch Hiker (n=233)		
	Summer (n=46)	Fall (n=48)	Summer (n=35)	Fall (n=44)	Summer (n=115)	Fall (n=118)	
I was disappointed with some aspects of my trip	%	%	%	%	%	%	%
% Agree or strongly agree	9	13	14	7	13	13	12
% Neutral	11	4	3	5	4	4	5
% Disagree or strongly disagree	80	83	83	89	83	83	83
Average ¹	4.3	4.3	4.3	4.3	4.1	4.2	4.2
I thoroughly enjoyed my visit to the backcountry at Grand Canyon	%	%	%	%	%	%	%
% Agree or strongly agree	100	100	100	95	98	95	98
% Neutral	0	0	0	0	1	3	1
% Disagree or strongly disagree	0	0	0	5	1	2	1
Average ¹	1.1	1.1	1.1	1.3	1.2	1.2	1.2
I do not want to visit any more areas like the backcountry at Grand Canyon	%	%	%	%	%	%	%
% Agree or strongly agree	2	0	0	7	1	1	2
% Neutral	2	0	3	2	4	1	2
% Disagree or strongly disagree	96	100	97	91	95	98	96
Average ¹	4.7	4.8	4.8	4.6	4.5	4.8	4.8
My trip to the backcountry at Grand Canyon was well worth the cost	%	%	%	%	%	%	%
% Agree or strongly agree	100	98	97	91	99	96	97
% Neutral	0	2	0	2	1	3	2
% Disagree or strongly disagree	0	0	3	7	0	1	1
Average ^{1,2}	1.3	1.3	1.3	1.6	1.3	1.3	1.3

¹ Average based on 5-point rating scale ranging from 1=strongly agree to 5=strongly disagree

² Statistically significant differences among visitor groups, analysis of variance, $p < .05$

Table 4.19 (con't). Respondent Satisfaction with Visit

Satisfaction Item	Visitor Group by Season						Total (n=406)
	Day Mule Rider (n=94)		Overnight Phantom Ranch Mule Rider (n=79)		Overnight Phantom Ranch Hiker (n=233)		
	Summer (n=46)	Fall (n=48)	Summer (n=35)	Fall (n=44)	Summer (n=115)	Fall (n=118)	
I cannot imagine a better trip than the one I took in the backcountry at Grand Canyon	%	%	%	%	%	%	%
% Agree or strongly agree	59	66	80	66	64	69	67
% Neutral	39	26	14	25	27	21	25
% Disagree or strongly disagree	2	9	6	9	9	10	8
Average ¹	2.2	2.2	1.9	2.1	2.2	2.1	2.1
Encountering a large backpacking group (over 11 people) detracted from my enjoyment	%	%	%	%	%	%	%
% Agree or strongly agree	4	2	6	10	11	13	9
% Neutral	26	29	29	25	31	33	30
% Disagree or strongly disagree	70	69	65	65	58	54	61
Average ^{1,2}	4.0	4.0	3.8	4.0	3.7	3.6	3.8
Aircraft over the backcountry did not detract from the enjoyment of my trip	%	%	%	%	%	%	%
% Agree or strongly agree	74	57	57	56	62	55	60
% Neutral	17	28	17	24	20	19	21
% Disagree or strongly disagree	9	15	26	20	19	26	20
Average ¹	2.2	2.3	2.5	2.5	2.5	2.6	2.5

¹ Average based on 5-point rating scale ranging from 1=strongly agree to 5=strongly disagree

² Statistically significant differences among visitor groups, analysis of variance, $p < .05$

4. Likelihood of Future Visit

Another indicator of respondent satisfaction is based on an assumption that satisfied visitors are more likely to return than unsatisfied visitors. Over 9 out of every 10 respondents (94%) would like to take another trip into the backcountry at Grand Canyon (Table 4.20). The majority of mule riders would ride a mule again on another visit, while few hikers indicated they would ride a mule on a future visit. Nearly all overnight mule riders and hikers would like to stay overnight at Phantom Ranch on a future visit. Although few day mule riders stayed overnight at Phantom Ranch during their visit, a majority of summer day mule riders (79%) and fall day mule riders (84%) indicated a desire to stay overnight at Phantom Ranch on a future visit.

Table 4.20. Future Visit

Future Visit	Visitor Group by Season						Total (n=406)
	Day Mule Rider (n=94)		Overnight Phantom Ranch Mule Rider (n=79)		Overnight Phantom Ranch Hiker (n=233)		
	Summer (n=46)	Fall (n=48)	Summer (n=35)	Fall (n=44)	Summer (n=115)	Fall (n=118)	
Take another trip into the backcountry at Grand Canyon	%	%	%	%	%	%	%
Yes	89	98	97	84	98	92	94
Would you ride a mule?	%	%	%	%	%	%	%
Yes	81	86	88	78	6	7	39
Would you stay at Phantom Ranch?	%	%	%	%	%	%	%
Yes	79	84	100	97	99	96	94

F. Preferences for Management Concerns

To assess feelings about various management concerns, respondents were asked to indicate their level of agreement/disagreement with 11 statements related to management; six of the statements were related to safety concerns, while five statements pertained to social concerns. Each management concern was rated on a 5-point agreement scale where 1=strongly agree, 2=agree, 3=neutral, 4=disagree, and 5=strongly disagree. For the purpose of presenting this information in the following tables, responses strongly agree and agree were combined while responses disagree and strongly disagree were combined.

1. Safety Concerns

Respondents were asked to indicate their feeling about two sets of management related safety concerns: (1) role of park rangers and (2) visitor preparedness (Table 4.21).

A large majority of respondents (89%) agreed that “backcountry ranger patrols are necessary and appropriate,” while, one of every two respondents (49%) agreed that “park rangers will rescue me if I get into trouble in the backcountry.” Based on the average agreement rating for this statement, mule riders (average rating ranged from 2.2 to 2.6) expressed a higher level of agreement for the statement than hikers (average rating ranged from 2.8 to 3.0). Seven percent of the respondents agreed that “park rangers exaggerate the dangers of traveling in the park’s backcountry;” a majority of respondents (84%) disagreed with the statement.

A majority of respondents agreed that they were “well prepared for their trip” (95%) and “well informed about appropriate behavior to protect park resources” (87%). Based on the average agreement rating for this statement, mule riders (average rating ranged from 1.6 to 1.8) expressed a higher level of agreement for the statement than hikers (average rating ranged from 1.9 to 2.1). A larger percentage of mule rider respondents, compared to hiker respondents, agreed with the statement. A little more than one half of the respondents (52%) disagreed with the statement that “backcountry users should be required to carry out their fecal waste.”

Table 4.21. Respondent Management Safety Concerns

Safety Concern	Visitor Group by Season						Total (n=406)
	Day Mule Rider (n=94)		Overnight Phantom Ranch Mule Rider (n=79)		Overnight Phantom Ranch Hiker (n=233)		
	Summer (n=46)	Fall (n=48)	Summer (n=35)	Fall (n=44)	Summer (n=115)	Fall (n=118)	
Backcountry ranger patrols are necessary and appropriate	%	%	%	%	%	%	%
% Agree or strongly agree	91	92	97	86	89	86	89
% Neutral	7	4	3	14	8	11	8
% Disagree or strongly disagree	2	4	0	0	3	4	3
Average ¹	1.5	1.6	1.4	1.5	1.7	1.7	1.6

¹ Average based on 5-point rating scale ranging from 1=strongly agree to 5=strongly disagree

² Statistically significant differences among visitor groups, analysis of variance, $p < .05$

Table 4.21 (con't). Respondent Management Safety Concerns

Safety Concern	Visitor Group by Season						Total (n=406)
	Day Mule Rider (n=94)		Overnight Phantom Ranch Mule Rider (n=79)		Overnight Phantom Ranch Hiker (n=233)		
	Summer (n=46)	Fall (n=48)	Summer (n=35)	Fall (n=44)	Summer (n=115)	Fall (n=118)	
Park rangers will rescue me if I get into trouble in the backcountry	%	%	%	%	%	%	%
% Agree or strongly agree	74	55	47	65	41	40	49
% Neutral	17	28	32	19	30	29	27
% Disagree or strongly disagree	9	17	21	16	30	32	24
Average ^{1,2}	2.2	2.5	2.6	2.4	2.8	3.0	2.7
Park rangers exaggerate the dangers of traveling in the park's backcountry	%	%	%	%	%	%	%
% Agree or strongly agree	4	4	0	2	10	9	7
% Neutral	2	15	11	7	11	10	10
% Disagree or strongly disagree	96	80	89	91	79	81	84
Average ¹	4.4	4.2	4.3	4.4	4.1	4.1	4.2
Backcountry users should be required to carry out their fecal wastes	%	%	%	%	%	%	%
% Agree or strongly agree	30	23	24	39	22	23	25
% Neutral	24	26	32	23	19	23	23
% Disagree or strongly disagree	46	51	44	39	59	55	52
Average ¹	3.1	3.3	3.2	3.1	3.4	3.4	3.3

¹ Average based on 5-point rating scale ranging from 1=strongly agree to 5=strongly disagree

² Statistically significant differences among visitor groups, analysis of variance, $p < .05$

Table 4.21 (con't). Respondent Management Safety Concerns

Safety Concern	Visitor Group by Season						Total (n=406)
	Day Mule Rider (n=94)		Overnight Phantom Ranch Mule Rider (n=79)		Overnight Phantom Ranch Hiker (n=233)		
	Summer (n=46)	Fall (n=48)	Summer (n=35)	Fall (n=44)	Summer (n=115)	Fall (n=118)	
I was well informed about appropriate behavior to protect park resources	%	%	%	%	%	%	%
% Agree or strongly agree	96	87	97	90	87	79	87
% Neutral	2	9	3	2	6	14	8
% Disagree or strongly disagree	2	4	0	7	6	7	5
Average ^{1,2}	1.6	1.7	1.6	1.8	1.9	2.1	1.9
I was well prepared for my trip	%	%	%	%	%	%	%
% Agree or strongly agree	91	94	97	96	94	97	95
% Neutral	2	2	3	0	4	1	2
% Disagree or strongly disagree	7	4	0	5	2	3	3
Average ¹	1.7	1.7	1.6	1.8	1.6	1.5	1.6

¹ Average based on 5-point rating scale ranging from 1=strongly agree to 5=strongly disagree

² Statistically significant differences among visitor groups, analysis of variance, $p < .05$

2. Social Concerns

Respondents were asked to indicate their feeling about three sets of management related social concerns: (1) number of aircraft overflights, (2) number of people in backcountry, and (3) commercial operations in the backcountry (Table 4.22).

Respondents did express some concern with the number of aircraft flying over the backcountry. Fifteen percent of the respondents agreed that “Too many aircraft fly over the backcountry,” 42 percent disagreed, and 43% of the respondents neither agreed nor disagreed with the statement—a neutral rating.

A majority of respondents expressed little concern about the numbers of people in the backcountry. Sixty percent of the respondents agreed that “The NPS allows about the right number of people in the backcountry at Grand Canyon” while only nine percent of the respondents agreed that “The backcountry at Grand Canyon is used by too many people” a majority of respondents (60%) disagreed with the statement. A significant

percentage of respondents (31 and 35%) neither agreed nor disagreed with the two statements—a neutral rating. This group represents about one-third of the respondents.

Respondents were rather mixed on support for commercial guided mule trips. Fifty-four percent of the respondents agreed that “Commercial guided mule riders should be allowed in the backcountry” while 26 percent of the respondents disagreed with the statement. Based on the average agreement rating for this statement, mule riders were more supportive of commercial guided mule trips than hikers. A majority of respondents (70%) disagreed with the statement “Hiring a guide for a backcountry trip should not be allowed” while only eight percent of the respondents agreed with the statement. Although a majority of respondents in each of the user groups disagreed with the statement, respondents in the mule rider groups disagreed more than hiker respondents.

Table 4.22. Respondent Management Social Concerns

Social Concern	Visitor Group by Season						Total (n=406)
	Day Mule Rider (n=94)		Overnight Phantom Ranch Mule Rider (n=79)		Overnight Phantom Ranch Hiker (n=233)		
	Summer (n=46)	Fall (n=48)	Summer (n=35)	Fall (n=44)	Summer (n=115)	Fall (n=118)	
Too many aircraft fly over the backcountry	%	%	%	%	%	%	%
% Agree or strongly agree	4	15	9	19	16	19	15
% Neutral	39	47	43	33	44	46	43
% Disagree or strongly disagree	57	38	46	48	40	35	42
Average ¹	3.8	3.3	3.5	3.4	3.3	3.2	3.4
The backcountry in Grand Canyon is used by too many people	%	%	%	%	%	%	%
% Agree or strongly agree	9	13	6	11	8	8	9
% Neutral	28	28	24	36	31	33	31
% Disagree or strongly disagree	63	60	71	52	61	59	60
Average ¹	3.7	3.7	3.8	3.5	3.7	3.7	3.7

¹ Average based on 5-point rating scale ranging from 1=strongly agree to 5=strongly disagree

² Statistically significant differences among visitor groups, analysis of variance, $p < .05$

Table 4.22 (con't). Respondent Management Social Concerns

Social Concern	Visitor Group by Season						Total (n=406)
	Day Mule Rider (n=94)		Overnight Phantom Ranch Mule Rider (n=79)		Overnight Phantom Ranch Hiker (n=233)		
	Summer (n=46)	Fall (n=48)	Summer (n=35)	Fall (n=44)	Summer (n=115)	Fall (n=118)	
The NPS allows about the right number of people in the backcountry at Grand Canyon	%	%	%	%	%	%	%
% Agree or strongly agree	59	51	51	64	68	56	60
% Neutral	33	47	40	34	26	39	35
% Disagree or strongly disagree	9	2	9	2	6	5	5
Commercial guided mule riders should be allowed in the backcountry	%	%	%	%	%	%	%
% Agree or strongly agree	73	77	79	77	39	35	54
% Neutral	9	6	15	2	33	27	20
% Disagree or strongly disagree	18	17	6	21	28	38	26
Average ^{1,2}	2.1	1.8	1.8	2.1	3.0	3.2	2.6
Hiring a guide for a backcountry trip should not be allowed	%	%	%	%	%	%	%
% Agree or strongly agree	7	4	3	5	11	11	8
% Neutral	13	17	21	21	26	26	22
% Disagree or strongly disagree	80	79	77	75	64	64	70
Average ^{1,2}	4.0	4.0	4.1	4.1	3.6	3.7	3.8

¹ Average based on 5-point rating scale ranging from 1=strongly agree to 5=strongly disagree

² Statistically significant differences among visitor groups, analysis of variance, $p < .05$

V. Conclusions and Recommendations

These recommendations were developed based upon the evidence of the study, and through discussions between researchers, NPS personnel, and Xanterra staffs during a backcountry workshop in January, 2006 on the South Rim.

1. **The park should continue to offer, and appreciate the functions of, guided mules rides from the South Rim and guest services at Phantom Ranch as part of its spectrum of opportunities and activities.** The historic presence of mules in Grand Canyon, the importance of these services to facilitate visitors' access to the Canyon, and the experiences achieved by mule riders and Phantom Ranch guests (namely, learning about the Canyon and appreciating nature) are aligned with the expressed mission of the park.

Both the South Rim mule rides and Phantom Ranch provide valuable services to segments of Grand Canyon visitors. For visitors who want to travel into the Canyon away from hotels and shops of the South Rim Village, the opportunities for a guided mule ride and/or stay at Phantom Ranch are unique adventures. They offer visitors who generally do not have previous experience in the Grand Canyon's backcountry the opportunity to do so under the care and supervision of guides and Ranch staff. Both of these groups (i.e., mule riders, Phantom Ranch guests) were extremely motivated to learn about Grand Canyon and to appreciate nature. On average, being together with their family and experiencing solitude also were important, although secondary, motivations.

These visitors appreciated their guides and the services at Phantom Ranch to facilitate their desire to see a more intimate view of Grand Canyon other than just being on the rim. Without these services, they most likely would not have stayed as long at Grand Canyon nor would they have ventured into the Canyon on their own. An important indicator of their satisfaction with the services from their guides and staff at the Ranch, is their willingness to return to Grand Canyon and repeat their trip into the backcountry – 94% reported they would take another trip “into the backcountry at Grand Canyon.” Of those who rode a mule, more than 80% indicated they would ride a mule on their next trip, and of those who stayed at Phantom Ranch, more than 96% reported that they would stay at the Ranch on their next trip. It is clear that the staff at Xanterra Parks and Resorts do a good job of meeting the needs of these segments of Grand Canyon visitors.

2. **To improve the experiences of mule riders and Phantom Ranch guests, the park should continue to direct management efforts to reduce litter and toilet paper along the trail, and decrease trail erosion on the South Kaibab and Bright Angel Trails.** Although mule riders and Phantom Ranch guests were very satisfied with their trip, there were times when their perceptions of the resource conditions disturbed their experiences. A significant group of mule

riders and Phantom Ranch guests were sensitive to litter along the trail, toilet paper along the trail, trail erosion, and aircraft overhead. There were seasonal differences on the respondents who were disturbed by trail erosion. Fall visitors, compared to summer visitors, reported that trail erosion was more apparent and more disturbing. It may be that late-summer rains in 2004 washed away portions of the trail, and that weather-related erosion is the source of respondents' perceptions. However, even if small amounts of these conditions were apparent, they were disturbing to respondents. In addition, hikers who stayed as guests at Phantom Ranch were sensitive to livestock waste along the trail.

3. **Continue to direct management efforts to improve the hiking etiquette and facilitate positive social interaction between groups of people on the Bright Angel and South Kaibab Trails.** A significant source of dissatisfaction with backcountry trail conditions was the hiking etiquette of others on the trail. Particularly for visitors who hiked down for an overnight at Phantom Ranch, more than 25% of them were less than satisfied with the hiking etiquette of others. Even for the mule riders, this aspect of backcountry trail conditions was associated with the lowest level of satisfaction. Other trail conditions that received higher reports of satisfaction were physical conditions of trail, sanitary facilities, and noise by other people on the trail.

Mule riders and Phantom Ranch guests are segments of park visitors who would be most reachable by park efforts of interpretation and education. More than 90% are from the U.S., most had five years of college or more, and close to two-thirds had income greater than \$80,000 suggesting that they would have home access to internet, DVD, and other forms of communication technology. In addition, almost two-thirds planned their trip more than six months in advance – giving plenty of time to anticipate and prepare for their trip. About half of mule riders and Phantom Ranch guests stayed at the park for four or more days. Finally, 81% of respondents used the Grand Canyon website as an information source to plan their trip, with 20% using other websites about Grand Canyon to plan their trip. These socio-demographic characteristics combined with trip planning behavior indicate a group of visitors who would encounter and comprehend any public messages from the park and who would have time and resources to further prepare for their trip. This point is not to say that mule riders and Phantom Ranch guests are likely to have poor hiking etiquette, but is to say that with the park's need to reach as many visitors as possible through interpretation and education, these two segments are particularly reachable.

Being that mule riders and Phantom Ranch guests are generally very satisfied groups of visitors, these recommendations are provided in the spirit of improving an already good job of managing these segments of visitors, and to prevent any problems with visitor satisfaction from growing larger in the future.

Appendices

Appendix A: Mail-Back Questionnaire with Overall Frequency Distributions

Grand Canyon Mule Rider and Phantom Ranch Visitor Study



Conducted by
University of Illinois
Park Planning and Policy Laboratory
104 Huff Hall
Champaign, IL 61820

Sponsored by
The National Park Service

Privacy Act and Paperwork Reduction Act Statement: 16 U.S.C. 1a-7 authorizes collection of this information. This information will be used by park managers to better serve the public. Response requested is voluntary. No action may be taken against you for refusing to supply the information requested. When analysis of the questionnaires is complete, all name and address files will be destroyed. Thus, permanent data will be anonymous. Please do not put your name or that of any member of your group on the questionnaire. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

Burden estimate statement:

Public reporting burden for this form is estimate to average 20 minutes per respondent. Direct comments regarding the burden estimate or any other aspect of this form can be made to the Information Collection Clearance Officer, WASO Administrative Program Center, National Park Service, 1849 C Street N.W., Washington D.C. 20240.

For information on the rights of human subjects in University of Illinois research, contact the Institutional Review Board at (217) 333-2670 or irb@uiuc.edu

Grand Canyon National Park

Questionnaire for Mule Riders and Phantom Ranch Guests

Thank you for choosing to participate in this study! Your opinions and ideas are important to the staff of Grand Canyon National Park. They will help the National Park Service (NPS) plan for the future and improve service for backcountry visitors. We would like to know a few things about your Grand Canyon backcountry experience, and your opinions about NPS policies. This questionnaire refers to the part of your trip where you traveled into the canyon below the rim either as a mule rider or as a guest at Phantom Ranch.

The questionnaire is 7 pages long and will take approximately 20 minutes to complete. Please fill in all appropriate blanks and boxes. All of your responses will be held confidential and results will be reported in aggregate so that individual responses cannot be identified. When complete, return the survey in the self-addressed, postage-paid envelope. As soon as we receive your survey we will take your name off of our mailing list. We *WILL NOT* share our mailing list with any other parties.

If you have questions regarding this study please contact Bill Stewart at (217) 244-4532 or email : wstewart@uiuc.edu.

SECTION 1: ACTIVITY OF TRIP

- 1.1 a) Did you ride a mule in Grand Canyon on this trip?

Yes	43
No	57

- b) If "Yes," please indicate the places you visited on your mule ride? (Check all that apply)

Indian Garden	73
Plateau Point	59
Phantom Ranch	47

- c) To what extent were you satisfied with the guide of your mule trip?

very satisfied	82
satisfied	15
neutral	3
unsatisfied	0
very unsatisfied	0

- 1.2 a) Did you stay overnight at Phantom Ranch on this trip?

Yes, If so, how many nights did you stay there?	76
No, Skip to question 2.1.	24

- b) To what extent were you satisfied with your interaction with the Phantom Ranch employees?

very satisfied	75
satisfied	21
neutral	3
unsatisfied	1
very unsatisfied	<1

SECTION 2: PAST EXPERIENCE IN BACKCOUNTRY AREAS

- 2.1 About how many trips (including this one) have you taken to a backcountry or wilderness area? (Record number in spaces below.)

a) In the last 12 months?	<u>2.7</u>
	(number)
b) In the last 5 years?	<u>9.8</u>
	(number)

2.2 About how many mule rides (including any you took on this trip) have you taken (in your lifetime) that took more than one hour?

2.8
(number)

2.3 About how many trips (including this one) have you taken below the rim Grand Canyon? (Record number in spaces below.)

a) In the last 12 months? 1.2
(number)

b) In the last 5 years? 2.2
(number)

2.4 About what year did you go on your first trip to Grand Canyon?

(Estimate as closely as possible) Year 15

2.5 What would you say were your two or three main reasons for your most recent trip to the Grand Canyon?

SECTION 3: TRIP PLANNING

3.1 How many days did you stay at Grand Canyon (including your trip below the rim)?

3.8 Days

3.2 a) How far in advance did you (and/or members of your travel group) start planning your Grand Canyon trip? (Check one response)

<1	During the trip	7	3-8 weeks in advance
0	Day of departure	8	2-3 months in advance
<1	1-6 days in advance	20	4-6 months in advance
1	1-2weeks in advance	63	More than 6 months in advance

b) How far in advance did you decide to take a mule ride or stay overnight at Phantom Ranch? (Check one response)

<1	During the trip	8	3-8 weeks in advance
1	Day of departure	8	2-3 months in advance
0	1-6 days in advance	20	4-6 months in advance
2	1-2weeks in advance	61	More than 6 months in advance

3.3 What information sources did you use to plan your Grand Canyon trip? (Check all that apply.)

6	Television	24	Family/Friends	81	Grand Canyon website
<1	Radio	14	AAA		(www.nps.gov/grca)
13	Newspapers/Magazines	3	Travel agent	20	Other website, specify address :
13	State tourism office	23	Family/Friends/Word of Mouth		<u></u>

SECTION 4: YOUR BACKCOUNTRY TRIP

We are interested in the type of conditions you encountered in the Grand Canyon's backcountry, and the influence those conditions may have had on your recent trip.

4.1 Which kinds of user groups did you encounter during your backcountry trip? (Check all that apply.)

98	Day hikers	27	Hike from a river trip
91	Overnight backpackers	5	Commercially guided hikers
84	Groups using horses / mules	17	Aircraft tours overhead

4.2 How would you rate the extent to which each of the following conditions was apparent during your trip?
(Check one response for each item.)

	Not Apparent At All	Slightly Apparent	Moderately Apparent	Very Apparent	Extremely Apparent
a) Litter along trails	66	32	2	0	0
b) Human waste along trails	94	6	<1	0	0
c) Toilet paper along trails	90	9	1	0	1
d) Livestock waste along trails	8	17	28	24	24
e) Aircraft overhead	46	37	12	2	2
f) Trail erosion	13	37	28	15	7
g) Motorized equipment on river trips	80	13	3	3	1
h) Vegetation damage from trampling or cutting	54	38	6	2	<1

4.3 How would you rate the extent to which the presence of each of these conditions disturbed you?
(Check one response for each item.)

	Not at all Disturbing	Slightly Disturbing	Moderately Disturbing	Very Disturbing	Extremely Disturbing
a) Litter along the trails	63	16	8	8	6
b) Human waste along trails	86	4	2	3	6
c) Toilet paper along trails	82	5	2	5	6
d) Livestock waste along trails	49	28	13	6	4
e) Aircraft overhead	68	14	8	7	3
f) Trail erosion	40	33	18	6	3
g) Motorized equipment on river trips	83	8	4	4	1
h) Vegetation damage from trampling or cutting	62	20	10	4	4

4.4 We are interested in how satisfied you were with the backcountry conditions. Please indicate your level of satisfaction for each of the following items. (Check one response for each item.)

	Very Satisfied	Satisfied	Neutral	Unsatisfied	Very Unsatisfied
a) Physical conditions of trails	43	43	8	5	1
b) Sanitary facilities in the backcountry	49	39	9	3	0
c) Noise caused by other people on the trail	43	36	17	4	1
d) Hiking etiquette of other people on the trail	43	36	13	6	2

4.5 We are interested in your opinions about your backcountry experience in Grand Canyon. Rate the extent to which you agree or disagree with each of the following statements. (Check one response for each item.)

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
a) I was disappointed with some aspects of my trip.	3	9	5	32	51
b) I am very attached to the Grand Canyon.	51	34	13	2	1
c) Backcountry ranger patrols are necessary and appropriate.	53	36	8	2	1
d) I thoroughly enjoyed my visit to the backcountry at Grand Canyon.	86	12	1	1	1
e) I do not want to visit any more areas like the backcountry at Grand Canyon.	1	1	2	15	82
f) The Grand Canyon is very special to me.	68	27	5	0	<1
g) My trip to the backcountry at Grand Canyon was well worth the cost.	75	23	2	1	1
h) I cannot imagine a better trip than the one I took in the backcountry at Grand Canyon	30	37	25	8	1
i) Visiting Grand Canyon is more important to me than visiting anywhere else.	10	14	45	26	5
j) Encountering a large backpacking group (over 11 people) detracted from my trip	2	7	30	33	28
k) Aircraft over the backcountry did <u>not</u> detract from the enjoyment of my trip.	21	39	21	13	7
l) Too many aircraft fly over the backcountry.	5	6	43	27	15
m) The backcountry in Grand Canyon is used by too many people.	1	8	31	47	14
n) Park rangers will rescue me if I get into trouble in the backcountry.	11	38	27	20	4
o) Park rangers exaggerate the dangers of traveling in the park's backcountry.	1	6	10	42	42
p) The NPS allows about the right number of people in the backcountry of Grand Canyon.	11	49	35	5	1
q) Backcountry users should be required to carry out their fecal wastes.	13	12	23	36	16

4.5 Continued...

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
r) Commercial guided mule rides should be allowed in the backcountry.	26	28	20	13	13
s) Hiring a guide for a backpacking trip should <u>not</u> be allowed.	3	5	22	45	25
t) I was well informed about appropriate behavior to protect park resources.	31	56	8	5	1
u) I was well prepared for my trip.	48	47	2	2	1

- 4.6 The following are experiences that visitors might seek in the Grand Canyon. Please indicate how important each of the following experiences were to you for your trip in Grand Canyon backcountry. You may notice some apparent repetition among the items, but this is for the purpose of increasing accuracy of the results. (Check one response for each item.)

	<u>Degree of Importance</u>				
	Extremely Unimportant	Unimportant	Neither	Important	Extremely Important
a) Enjoying the sounds of nature	1	1	4	48	47
b) Developing your outdoor abilities and skills	<1	4	24	51	21
c) Depending on your skills to deal with wilderness conditions	1	8	18	55	18
d) Learning about the park's history	1	2	10	61	26
e) Releasing or reducing some built-up tensions	3	11	29	39	19
f) Talking to new and varied people	3	8	29	48	11
g) Studying nature	1	1	19	57	22
h) Experiencing solitude	1	5	18	52	25
i) Doing something with your family	2	4	13	36	45
j) Learning about the park's natural wonders	1	4	3	57	39
k) Being alone	4	16	37	30	13
l) Getting away from crowded situations	2	4	15	50	30
m) Experiencing peace and calm	1	2	8	55	36
n) Depending on your skills to deal with wilderness conditions					
o) Observing other people in the area	14	30	41	14	3
p) Experiencing the risks involved	4	12	34	42	8
q) Enjoying the smells of nature	1	4	16	56	24
r) Testing your abilities	2	7	20	54	18
s) Learning what you are capable of	2	6	21	52	20
t) Having thrills	6	12	30	38	13
u) Being self-sufficient in a wilderness area	2	11	31	42	14
v) Being your own boss	4	14	44	29	10

4.6 Continued...

	Degree of Importance				
	Extremely Unimportant	Unimportant	Neither	Important	Extremely Important
w) Chancing dangerous situations	17	28	38	14	4
x) Knowing others are nearby	4	27	35	31	5
y) Being near others who could help you if you need them	2	17	28	43	10
z) Bringing your family closer together	3	7	18	40	33
aa) Reflecting on your spiritual values	3	6	28	45	19
bb) Being with others who enjoy the same thing you do	<1	4	13	59	24
cc) Meeting other people in the area	3	16	35	39	7
dd) Being in an area where human influence is not noticeable	1	5	22	46	27
ee) Encountering wildlife	<1	1	12	56	31
ff) Being in a wilderness setting	4	4	2	49	48

4.7 Please check any of the items you may have carried with you and used on your recent backcountry trip.

	Carried	Used
Cell Phone	22	3
Laptop Computer	1	<1
Personal Digital Assistant (e.g. Palm Pilot)	3	1
Pager	1	<1
Satellite Phone	1	1
GPS Unit	6	4
Personal stereo (e.g. walkman)	5	3
Other, please specify: _____		

If you used any of these items while on your backcountry trip please describe the reasons for using them.
(Record below)

4.8 a) If you had the opportunity would you take another trip to the backcountry in Grand Canyon?

94 Yes, likely.

4 No, unlikely.

If you answered "no," why not? Please explain below:

2 Not Sure

b) If "Yes," would you ride a mule?

39 Yes

61 No

c) If "Yes," would you stay overnight at Phantom Ranch?

94 Yes

6 No

SECTION 5: TELL US ABOUT YOURSELF

5.1 Now we would like to ask you a few questions about yourself.

a) How would you best describe your personal group? (Check one.):

- | | |
|-----------------------|--|
| 57 Family | 1 Organized group (scouts, club, etc.) |
| 13 Friends | 8 Alone |
| 21 Family and friends | |

b) How many people (including you) were in your personal group? (Record number.) 3.5

c) Was your personal group part of an organized group (scouts, club, etc)?

- 1 Yes
99 No

5.2 What year were you born? (Record year.) 50.4

5.3 What is your sex? (Check one.)

- 49 Male
51 Female

5.4 a) Do you consider yourself Spanish, Hispanic, or Latino?

- 2 Yes
97 No
2 Do not wish to answer.

b) What race or races do you consider yourself to be? (Check all that apply.)

- | | |
|------------------------------------|---|
| 1 American Indian or Alaska Native | 0 Native Hawaiian or Other Pacific Islander |
| 2 Asian | 94 White |
| 1 Black or African American | 3 Do not wish to answer. |

5.5 What is the highest level of education you have completed so far? (please circle.)

<i>Elementary</i>				<i>High School</i>				<i>College</i>				<i>Graduate Study</i>			
5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+
						4	8	5	9	2	25	7	15	9	20

5.6 Which category best represents your total annual household (before taxes) income? (Check one.):

- | | |
|-----------------------|------------------------|
| <1 less than \$10,000 | 14 \$50,000 - \$64,999 |
| 1 \$10,000 - \$19,999 | 12 \$65,000 - \$79,999 |
| 6 \$20,000 - \$34,999 | 13 \$80,000 - \$94,999 |
| 8 \$35,000 - \$49,999 | 46 \$95,000 or more |

5.7 How would you characterize the area in which you live? (Check one.):

- 42 City larger than 150,000 population
10 City of 75,001-150,000 population
24 City of 10,001-75,000 population
15 Town of 1,000-10,000 population
2 Town with less than 1,000 population
4 Farm or ranch
3 Other

5.8 Do you have any other comments or observations that you would like to bring to the attention of the park staff or bring to the attention of the management of the mule trips and Phantom Ranch? (Use space below.)

Thank you for your patience in completing this questionnaire. Please return the questionnaire to us in the envelope provided -- postage has already been paid.

Appendix B: Cover Letters and Postcard Reminders

- 1st Mailing--Initial Cover Letter**
- 2nd Mailing--Postcard Reminder**
- 3rd Mailing--2nd Cover Letter**
- 4th Mailing--Postcard Reminder**

November 24, 2004

Name
Address
Address

Dear

An important study of backcountry visitors at Grand Canyon is currently being conducted. The study will assist the park in its upcoming backcountry planning process. The study will provide information about visitor characteristics and opinions that will help the park protect resources and enhance recreation experiences for visitors like you.

To accomplish this study, your help is needed. We invite you to complete the enclosed questionnaire. Your name was randomly selected from a list of visitors who either took a mule trip into the Canyon or stayed overnight at Phantom Ranch. Completing the questionnaire takes approximately 20 minutes. The size of the sample is being deliberately kept as small as possible. For this reason, it is very important that your questionnaire be completed and returned in the postage-paid envelope.

Participation in this study is completely voluntary. Your answers will be kept confidential and will be reported in combination with responses of others. Your name and address also will be kept confidential; they will not be sold or distributed. When we receive your completed questionnaire, your name will be removed from our mailing list.

I would be happy to answer any questions you may have about this questionnaire. Please write me at the letterhead address, e-mail to carym@uiuc.edu, or call (217) 244-5817. I appreciate your time and assistance.

Sincerely,

Cary McDonald
Project Leader

Enclosures

Dear Grand Canyon Backcountry Visitor:

A few a days ago you should have received a questionnaire concerning your recent visit to Grand Canyon National Park. Your response is important to the success of this study. If you have already returned the questionnaire, thank you. If not, we hope to hear from you soon.

If you have lost your questionnaire, have not received one, or have any questions, please contact Cary McDonald at (217) 244-5817 or e-mail the Park Planning and Policy Lab at carym@uiuc.edu.

Sincerely,

Cary McDonald

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

Park Planning & Policy Laboratory

Department of Leisure Studies
104 Huff Hall
1206 South Fourth Street
Champaign, IL 61820

Name
Address
Address

December 14, 2004

Name
Address
Address

Dear

A few weeks ago, we sent you a questionnaire regarding your recent visit to the backcountry of Grand Canyon National Park. As of yet, we have not heard from you. The questionnaire is part of a planning effort to help the park protect resources and enhance recreation experiences.

In case you've lost or misplaced the questionnaire, we've enclosed an extra copy. Please complete the questionnaire and return it in the postage paid envelope. Your answers will be kept confidential and will be reported in combination with responses of others. Your name and address also will be kept confidential; they will not be sold or distributed. When we receive your completed questionnaire, your name will be removed from our mailing list.

If you have already returned the questionnaire to us, there is no need to respond to this follow-up questionnaire. Thanks for your help and please recycle this questionnaire packet

I would be happy to answer any questions you may have about this questionnaire. Please write me at the letterhead address, e-mail to carym@uiuc.edu, or call (217) 244-5817. I appreciate your time and assistance.

Sincerely,

Cary McDonald
Project Leader

Enclosures

Dear Grand Canyon Backcountry Visitor:

A few a days ago you should have received a second questionnaire concerning your recent visit to Grand Canyon National Park. Your response is important to the success of this study. If you have already returned the questionnaire, thank you. If not, we hope to hear from you soon.

If you have lost your questionnaire, have not received one, or have any questions, please contact Cary McDonald at (217) 244-5817 or e-mail the Park Planning and Policy Lab at carym@uiuc.edu.

Sincerely,

Cary McDonald

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

Park Planning & Policy Laboratory

Department of Leisure Studies
104 Huff Hall
1206 South Fourth Street
Champaign, IL 61820

Name

Address

Address