



Arches National Park Visitor Use Study

Summer, 2016

Natural Resource Report NPS/ARCH/NRR—2018/1688



ON THE COVER

Photograph of North Window and visitors

Photograph courtesy of Arches National Park

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Resource Systems Group, Incorporated (RSG)
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White River Junction, VT 05001

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Executive Summary

- This report describes the results of a visitor use study at Arches National Park conducted from September 17 through September 25, 2016. During the sampling period, 963 visitor groups were contacted to participate in the survey. Of those groups, 893 agreed to participate in the study by accepting a mail-back survey packet. Questionnaires were completed and returned by 661 visitor groups, resulting in a completion rate of 74% among those visitor groups that agreed to participate in the study and an overall response rate of 69% for the study.
- This report profiles a systematic random sample of Arches National Park visitors. Most of the results are presented in graphs and frequency tables. Summaries of visitor comments are included in the body of the report. Verbatim comments are included in the Visitor Comment Appendix (bound separately).
- Sixty-six percent of visitor groups were groups of two, and 13% of visitor groups were groups of four members. Eighty-seven percent of visitor groups did not include any children (under 18 years of age).
- Approximately 33% of visitors were 65 years old or older, 28% of visitors were 55 to 64 years old, 18% of visitors were 35 to 54 years old, 16% of visitors were 20 to 34 years old, and 5% of visitors were under 20 years old.
- Individuals from the United States comprised 76% of total visitation during the survey period. At the state level, 11% of visitors were from California, 7% of visitors were from Colorado, and 5% of visitors were from Utah. Smaller percentages of visitors were from other U.S. states and the District of Columbia.
- International visitors comprised 24% of total visitation with 21% of international visitors from the United Kingdom, 17% from Germany, 15% from Canada, and smaller percentages of visitors from 25 other countries.
- Ninety-one percent of visitors indicated having visited the park only once during the last 12 months, while 6% had visited two times during the past year. Seventy percent of visitors indicated having visited the park only once during their lifetime, while 14% had visited the park twice in their lifetime.
- Thirty-seven percent of visitor groups decided to visit Arches National Park two to six months before their visit. Twenty-two percent of visitor groups decided to visit the park more than six months but less than a year before their visit. Very few visitors (5%) decided to visit the park on the day of their visit.
- Ninety-six percent of visitor groups obtained information about Arches National Park prior to or during this trip. The most commonly reported information sources used to obtain

information prior to and during a trip were the Arches National Park website (55%), the maps and brochures (49%), friends/relatives/word of mouth (37%), or travel guides/tour books (36%).

- Seventy-eight percent of visitor groups encountered safety information in Arches National Park mostly through the visitor center (31%), trailhead signs (18%) or other signs (17%). The vast majority of visitor groups (94%) indicated they were prepared for common safety situations in Arches National Park
- The experiences most likely to be rated as “extremely important” and “very important” by visitors in Arches National Park included: to view scenic beauty (98%), to be close to nature (85%), and to learn more about nature (64%). The experiences least likely to be rated as “extremely important” or “very important” by visitors to the park included: to be where things are fairly safe (44%), to be my own boss (44%), to avoid the unexpected (28%), and to be near others who could help if you needed them (19%).
- Sixty-three percent of visitor groups used a private vehicle to travel between an overnight accommodation or home and Arches National Park, while 36% of visitor groups used a rental vehicle. The vast majority (96%) of visitor groups who used a private or rental vehicle used one vehicle for the visitor group.
- Thirty-two percent of visitor groups waited two to five minutes to enter Arches National Park, while 25% of visitor groups waited up to one minute. On average, visitors waited over seven minutes in traffic congestion. Twenty-nine percent of visitor groups experienced about the same amount of traffic congestion as they expected, while 24% experienced less traffic congestion than they expected. Twenty-nine percent of visitor groups did not know what to expect in relation to traffic congestion.
- The majority (65%) of visitor groups did not experience parking problems on their visit to Arches National Park. The most commonly mentioned locations for parking problems included: The Windows (21%) and “Everywhere” (17%).
- Other local and regional attractions visitor groups also visited or planned to visit included Canyonlands National Park (68%), Capitol Reef National Park (41%), and Dead Horse Point State Park (35%).
- Of those visitor groups who spent less than 24 hours in the park, 57% visited for five or more hours and 34% spent three or four hours. The mean number of hours spent in the park by a visitor group was approximately five hours. Of those visitor groups spending more than 24 hours in the park, 19% visited for three or four days and 78% visited for up to two days.
- Sixty-two percent of visitor groups used a pass to enter Arches National Park, whereas 23% of visitor groups did not pay a fee.

- The most-visited sites by visitor groups included: Balanced Rock (63%), the Visitor Center (61%), the Windows (57%), Courthouse Towers (46%), Delicate Arch (46%), Delicate Arch Viewpoint (46%), and Park Avenue (44%).
- Visitor groups were most likely to report feeling “extremely” and “very” crowded at the Windows (43%), Delicate Arch (38%), and Devils Garden Primitive Trail (25%). Of visitor groups who hiked in the Fiery Furnace, 48% either disagreed or strongly disagreed that the number people they encountered at the Fiery Furnace interfered with their sense of solitude.
- The most common activities visitor groups participated in included walking/hiking (84%), photography/painting/drawing (83%), auto-touring/sightseeing (80%), and visiting the Visitor Center (70%). Of the visitor groups who participated in hiking, 33% hiked between two and five miles, while 20% hiked between one and two miles during their visit.
- Sixty-seven percent of visitor groups did not desire to explore the backcountry in Arches National Park. Of the visitor groups who desired to explore the backcountry, 30% were unable to access it. The most common reason visitor or groups indicated as a barrier to accessing the backcountry was “Not enough time” (44%).
- Visitor groups were most likely to rate the following backcountry and wilderness characteristics as “extremely important” and “very important” reasons for using the trails in Arches National Park: pristine natural environment (75%), fostering immersion in nature (58%), and fostering a sense of humility toward nature (57%).
- Sixty-six percent of visitor groups did not interact with a park ranger on their visit. Most visitor groups did not participate in the following ranger-led activities/programs: The Windows guided hike (99%), the geology talk at Balanced Rock (99%), Junior Ranger Station (99%), campground evening program (99%), the Fiery Furnace guided hike (95%), or have informal contact with a ranger on a trail (82%).
- Fifty-one percent of visitor groups were interested in roving rangers that would be available to answer questions on a future visit to Arches National Park, while 39% of visitor groups desired night sky programs and 37% desired ranger talks/programs.
- Visitor groups were most likely to rate the protection of the following park resources, attributes, and visitor experiences as “extremely important” and “very important”: scenic views (97%), clean air (94%), and clean water (90%). Park resources, attributes, and visitor experiences rated low for “extremely important” and “very important” included: interpretive/information programs (44%), campground (42%), and recreational opportunities (42%).
- Visitor groups were most likely to support (either “strongly support” or “support”) the following potential management options at Arches National Park: manage commercial tour buses to reduce traffic congestion and crowding (71%), and implement limit on commercial

recreation activities in wilderness areas (62%) Visitor groups were least likely to support (either strongly support or slightly support) the following management options: implement trail limits to reduce crowding (33%), and timed entry to the park to reduce crowding (29%).

Acknowledgments

We thank the staff of Arches National Park and the National Park Service’s Social Science Program for their assistance and support with this visitor use study. Additionally, we thank Washington State University for their contributions to onsite distribution of surveys and survey data entry.

List of Terms

NPS	National Park Service
RSG	Resource Systems Group, Inc.
SSP	Social Science Program
VUS	Visitor Use Study
OMB	Office of Management and Budget

Introduction

This report describes the results of a visitor use study (VUS) conducted at Arches National Park from September 17 through September 25, 2016. The study was conducted by RSG on behalf of Arches National Park and the National Park Service (NPS) Social Science Program (SSP).

Organization of Report

This report is organized into three sections

Section 1: Methods This section discusses the procedures, limitations, and special conditions that may affect the results of this study.

Section 2: Results This section provides summary information for each question in the questionnaire and includes a summary of visitor comments. The results are organized by topic areas, starting with visitor and visitor group characteristics, followed by results of questions related to pre-arrival, and onsite stages of park visits.

Section 3: Appendices

Appendix 1. *The Questionnaire*. A copy of the questionnaire distributed to visitor groups.

Appendix 2. *The Thank You/Reminder Postcard*. A copy of the thank you/reminder postcard mailed to visitor groups.

Appendix 3. *The Replacement Mailing Cover Letter*. A copy of the replacement mailing cover letter mailed to visitor groups.

Appendix 4. *Detailed Sampling Procedures*. A detailed description of sampling locations and procedures.

Appendix 5. *Non-response Bias Analysis - Effects on Survey Responses due to Number of Adults, Number of Children, Group Type, and State or Country of Residence*. Results of statistical tests of number of adults in group, number of children in group, visitor group type, and state or country of residence on key questions in the Arches National Park VUS survey instrument.

Visitor Comments Appendix (separate document). Visitor responses to open-ended questions. Bound separately due to appendix length.

Presentation of the Results

Results are represented in the form of graphs (see example below; Figure 1), tables, or text.

SAMPLE ONLY

1. The figure title describes the graph's information.
2. Listed above the graph, the "N" shows the number of individuals or visitor groups responding to or comments received for the question. When the number of individuals or visitor groups is less than 30 the word "CAUTION!" is shown on the graph to indicate the results may be unreliable due to low sample size.

* appears when total percentages do not equal 100 due to rounding.

** appears when total percentages do not equal 100 because respondents could select more than one answer choice.

1. Vertical information (y-axis) describes the response categories.
2. Horizontal information (x-axis) shows the percentage of responses in each category.
3. The proportion of visitor groups/visitors who responded to each category.

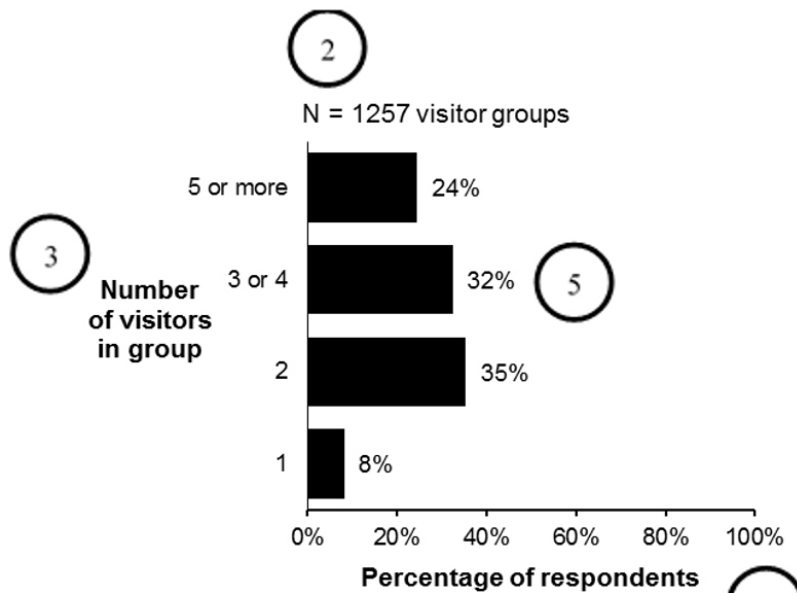


Figure 1. Example figure

Figure 1. Example figure

Methods

Survey Method

The Arches National Park VUS was administered at Arches National Park as a personally delivered self-administered mail-back survey, following the principles outlined in Don A. Dillman's book *Internet, Phone, Mail, and Mixed-Mode Surveys: The Tailored Design Method* (2014). The survey method included three phases: 1) onsite distribution of a booklet-sized questionnaire, 2) a color-picture reminder postcard mailing, and 3) one replacement mailing of a booklet-sized questionnaire for those participants that had not yet returned a completed questionnaire. The study population included visitor groups with at least one group member 18 years of age or older in Arches National Park during the study period. The target margin of error for summary statistics of no greater than +/- 5% (Fowler, 1993) was used to establish the target sample size at 400 completed questionnaires for the study.

Sampling Effort

The Arches National Park VUS survey was administered at Arches National Park from September 17 through September 25, 2016. Ideally, the survey administration dates would target high visitor use at the park during the peak summer use season. The month of July was identified as the peak summer use season month for the park, which was determined using the monthly visitation data for Arches National Park available from the NPS Public Use Statistics Office. The project began in June 2016, which resulted in survey administration dates selected to occur as close to the peak summer use month as possible.

The vast majority of park visitors pass through the single entrance station to access the park, and access the majority of hiking trails and attractions from a single paved road within the park boundaries. Therefore, the park entrance (Entrance) was selected as one sampling location for this study. Due to a lack of physical space at the entrance and the inability to safely contact visitor groups entering the park directly at the entrance station or along portions of the road near the entrance, visitor groups were intercepted at a roadside pullout near the Park Avenue trailhead parking area (approximately 2.25 miles from the entrance station on the park road). Some visitor groups entering the park may not have reached the intercept location due to stopping at the Visitor Center, Moab Fault Overlook, or Park Avenue Trailhead and exiting through the entrance station after visiting these areas, however, the majority of visitor groups visiting the park were to pass the intercept location on their way to more popular trails and attraction sites. At the park's request, the VUS survey was also administered at the Fiery Furnace trailhead (Fiery Furnace) to specifically target visitors to the Fiery Furnace as a subsample in the study.

At both sampling locations, the Arches National Park visitor survey was administered for a select eight-hour period on each sampling day. After four hours of sampling, study administrators took a 30-minute break and then resumed sampling for an additional four hours. At the Entrance sampling location, the hours of survey administration varied among sampling days to capture a broad range of user types entering the park and generally coincided with entrance staff operating hours. Sampling at the Fiery Furnace coincided with the start of the first ranger-led tour through the Fiery Furnace, and

continued throughout the day to maximize sampling efficiency and include visitor groups exiting the Fiery Furnace at the completion of the 2:00 PM ranger-led tour (ranger-led tours of the Fiery Furnace last approximately two and a half to three hours). Visitor groups on commercially-guided tours of the Fiery Furnace and visitor groups who entered the Fiery Furnace with a self-guided tour permit were also contacted to participate in the study. The sampling effort is presented in Table 1.

Table 1. Sampling effort – Entrance and Fiery Furnace

Date	Entrance	Fiery Furnace
Saturday, September 17	8:00AM-4:00PM	10:00AM-6:30PM
Sunday, September 18	9:00AM-5:00PM	10:00AM-6:30PM
Monday, September 19	8:00AM-4:00PM	10:00AM-6:30PM
Tuesday, September 20	9:00AM-5:00PM	10:00AM-6:30PM
Wednesday, September 21	8:00AM-4:00PM	10:00AM-6:30PM
Thursday, September 22	9:00AM-5:00PM	10:00AM-6:30PM
Friday, September 23	8:00AM-4:00PM	10:00AM-6:30PM
Saturday, September 24	9:00AM-5:00PM	10:00AM-6:30PM
Sunday, September 25	8:00AM-4:00PM	10:00AM-6:30PM

Questionnaire Design

The Arches National Park VUS questionnaire was developed through a collaborative process including staff from Arches National Park, NPS SSP, Washington State University, and RSG. The instrument was designed to gather information about visitor and trip characteristics, trip planning efforts, motivations for visiting, visitor perceptions of park experiences, and visitor attitudes about access and transportation. All questions included in the questionnaire were selected from the NPS Programmatic Information Collection Review Pool of Known Questions. The majority of the questions included in the survey instrument ask visitors to choose answers from a list of response options, providing an open-ended option, where appropriate, to ensure that question prompts allowed for inclusive answers. A few questions were completely open-ended to collect unprompted responses from visitors in their own words. The questionnaire was reviewed and approved by the Office of Management and Budget (OMB), and correspondingly conforms to OMB standards and guidelines for questionnaire design. The questionnaire was administered to visitors in English (Appendix 1).

Sampling Procedures

Mail-back survey packets were administered to visitor groups in Arches National Park using onsite vehicle intercept methods (see Appendix 4 for detailed descriptions of how visitors were selected at each sampling location). Each contacted visitor group was greeted, introduced to the purpose of the study, and asked to participate. If a visitor group agreed to participate, they were asked which member of the group (at least 18 years old) had the next birthday; the individual with the next birthday was asked to complete the questionnaire for the group. This was done to randomize selection of the individual within the group to complete the questionnaire.

Individuals who agreed to complete the questionnaire were asked to provide their name and mailing address. This information was used to send follow-up mailings according to Dillman’s (2014) mail-back survey methods. Participating visitors were then administered a mail-back survey packet, which included a booklet-sized questionnaire placed inside of a pre-addressed envelope affixed with a U.S. first class postage stamp. Visitors were asked to complete the questionnaire after completing their trip to the park and to return the questionnaire by mail using the self-addressed postage-paid envelope provided. International visitors were asked to mail their completed questionnaires before leaving the country due to the U.S. first class postage affixed to the return envelope. Table 2 summarizes the survey effort by sampling location.

Table 2. Number of questionnaires distributed, by sampling location

Sampling site	Sampling date									Total questionnaires distributed	
	9/17	9/18	9/19	9/20	9/21	9/22	9/23	9/24	9/25	N	%
Entrance	76	79	79	80	80	71	80	80	80	705	79%
Fiery Furnace	14	20	23	25	20	23	19	24	20	188	21%
All sites	90	99	102	105	100	94	99	104	100	893	100%

Two weeks after field survey administration concluded, all survey participants were sent a color-picture postcard (Appendix 2) thanking them for participating in the study and/or reminding them to complete and return the questionnaire (Table 3). Approximately two weeks after mailing the postcards, a replacement mail-back survey packet was sent to everyone who agreed to participate in the study but had not yet returned his or her questionnaire (Appendix 3). Two distinct replacement mail-back survey packets were sent, depending on whether the provided address was a U.S. address or an international address. U.S. addresses were sent a packet that included a pre-addressed return envelope affixed with a U.S. first class postage stamp. International addresses were sent a packet that included a pre-addressed return envelope printed with international business reply mail postage.

Table 3. Follow-up mailing distribution

Mailing	Date	U.S.	International	Total
Postcards	October 11, 2016	709	184	893
Replacement Mailing	October 25, 2016	365	83	448

Sampling Results¹

During the sampling period, 963 visitor groups were contacted to participate in the survey. Of these groups, 893 agreed to participate in the study by accepting a mail-back survey packet (93%)

¹ Sampling results are reported using three metrics: cooperation rate, completion rate, and overall response rate. Cooperation rate is the proportion of onsite acceptances to total onsite contacts. Response rate is the proportion of completed survey questionnaires to total onsite contacts. Calculation of cooperation rate and response rate follow

cooperation rate) (Table 2). Questionnaires were completed and returned by 661 visitor groups (Table 4), resulting in a completion rate of 74% among those visitor groups that agreed to participate in the study and an overall response rate of 69% for the study.

Table 4. Number of completed questionnaires, by sampling location

Sampling site	N	Percent
Entrance	526	80%
Fiery Furnace	135	20%
Total	661	100%

Data Entry and Cleaning

Data from returned questionnaires were entered into an electronic data entry software by two separate data entry technicians. After independent double entry of the survey data was completed, the data entry software was used to identify any differences between the entries of the two data entry technicians. A data entry supervisor reviewed any differences detected by the software process, identified the correct values by referencing the original paper questionnaire, and entered the correct values into the database. The double-entered, reviewed, and corrected dataset was subjected to additional cleaning and proofing using Microsoft Excel and SPSS statistical software. Data cleaning and proofing included identification and correction of invalid values, and complete manual verification of data entry for a randomly selected subset (n=40) of the completed questionnaires for quality assurance. This process ensured an error rate at or below 1.5% for data entry. Errors in the subset were corrected with reference to hardcopies of questionnaires.

Non-Response Bias

Non-response bias is the bias that results when respondents differ in meaningful ways from non-respondents. Non-response bias affects the ability to generalize survey results, to some degree and in some ways, from the sample to the study’s target population (Salant and Dillman, 1994; Dillman, 2014; Stoop, 2004; Filion, 1976; Dey, 1997). If non-respondents are found to differ from respondents in meaningful ways, care should be taken when interpreting survey responses, as they may over-represent some segments of the target population to some degree, and may under-represent other segments of the population to some degree.

To check for non-response bias and help inform the interpretation of results that may be affected by non-response bias, this study used answers to five, pre-selected non-response bias questions and two observable characteristics of the contacted visitor to compare respondents with non-respondents. After being contacted to participate in the survey, an interview, lasting approximately two minutes,

American Association for Public Opinion Research definitions. Completion rate is the proportion of completed survey questionnaires to onsite acceptances — completion rate is the metric in this study that is directly comparable to response rates reported in the Visitor Services Project (VSP) and is therefore included for reference. See Rookey et al. (2012) for a complete description of VSP response rate calculation.

was conducted with all contacted visitor groups regardless of whether they agreed to participate in the study. The interview included the following five questions used for evaluation of non-response bias:

1. How many adults, 18 years and older, are in your group?
2. How many children (under 18 years) are in your group?
3. What type of group are you with? Friends, family, friends and family, or some other type of group?
4. How long is this trip to Arches National Park in total, from beginning to end?
5. What is your state of residence (if you live in the U.S.) or country of residence (if do not live in the U.S.)?

In addition to the five, pre-selected non-response bias questions, the gender of the person in the group who was first contacted by the survey administrator was observed and recorded.

An effort was made to obtain answers to the non-response bias questions from all visitor groups contacted, including those that declined to participate in the survey. Responses were obtained from most of the participating visitor groups and from many, but not all, of those that declined to participate in the study. When the survey administrator was unable to obtain responses to the non-response bias questions, it was often because the approached contact refused all further contact from the administrator after the initial refusal, usually with no reason provided. These instances were defined as “hard refusals.” Additionally, due to the use of vehicle based intercept methods at the Entrance for this study, there were times when study administrators were unable to pull vehicles over despite employing best practices for conducting a vehicle-based survey intercept. These instances were defined as “drive-by refusals.” Both “hard refusals” and “drive-by refusals” were recorded as refusals without non-response bias questions for the non-response bias analysis.

Ideally, responses or observed estimates for non-response bias variables should be collected from all respondents and non-respondents. The collection of information from all contacted individuals provides the best comparison of characteristics between the respondent and non-respondent populations. More practically, a substantial majority of responses or observed estimates must be present to adequately characterize both the respondent and non-respondent populations. In this study, 70% was identified as the minimum percentage of valid values for non-response variables needed for both respondent and non-respondent populations to adequately characterize the populations on a given non-response variable.² There were at least 70% or more valid values among respondents and

²The Office of Management and Budget Standards and Guidelines for Statistics Surveys (2006) suggest that any survey item with at least 70% non-missing data can be presumed to reflect the entire data set (i.e., for such items, any differences between the subjects with data and those without data are negligible).

non-respondents for each of the seven non-response bias variables (Table 5). Correspondingly, all six variables were used for non-response bias analysis.

Table 5. Number and percentage of respondents and non-respondents with valid values for non-response variables

Variable	Respondents (n=661)		Non-Respondents (n=302)	
	Valid N	Valid Percent	Valid N	Valid Percent
Initial contact gender	661	100%	297	98%
Number of adults	661	100%	282	93%
Number of children	661	100%	281	93%
Group type	661	100%	280	93%
Visit length	660	99%	280	93%
State or country of residence	661	100%	280	93%

The non-response bias analysis was performed using chi-square tests of independence to test for differences between respondents and non-respondents. For each of the six non-response bias variables, the chi-square test determines whether statistically significant differences exist in the distribution of responses across the range of response categories for respondents and non-respondents. Each chi-square test result reported is accompanied by three components: the frequency distribution across response options, the chi-square test statistic, and the p-value for the test statistic. The frequency distribution across response options report the percentage of responses in each of the non-response bias variable categories. The chi-square value (χ^2) presents the test statistic used to determine the second value, the p-value. The p-value (p) presents the likelihood that differences among respondents and non-respondents in the distribution of response options are due to chance alone.

To increase the validity of the use of chi-square analyses for non-response bias testing among respondents, response categories for number of adult group members, number of child group members, visitor group type, visit length, and state or country of residence were grouped to consolidate categories with low subsample values into larger categories for more robust statistical testing. Values for the number of adult group members were collapsed into the following four categories: groups with one adult, groups with two adults, groups with three or four adults, and groups with five or more adults. Values for the number of children in the visitor group were collapsed into three categories: groups with no children, groups with one child, groups with two or more children. Values for visit length were collapsed into the following four categories: 1 to 4 hours, 5 to 10 hours, 48 or 72 hours, and greater than 96 hours. Responses of “other” for visitor group type (n=9 for respondents, n=11 for non-respondents) were recoded as “family and friends” based on the assumption that these “other” groups were primarily organized groups (e.g., school or church groups) composed of family and friends. Responses for state or country of residence were collapsed into three categories: in state visitor, out of state visitor, and international visitor.

A Bonferroni correction was applied to account for the fact that six simultaneous statistical tests were conducted with the same data set. The Bonferroni correction minimizes the likelihood of concluding from the results of the statistical tests that there are differences between respondents and non-respondents, when there actually are no differences (i.e., minimizes the probability of making a Type I error). With the Bonferroni correction applied in this analysis, statistical test results with p-values of less than 0.008 are assumed to be statistically significant.

The results of the chi-square tests in Table 6 and Table 7 suggest that respondents and non-respondents do not differ significantly with respect to initial contact gender ($p=0.761$) and visit length ($p=0.039$). These results provide no compelling evidence of non-response bias related to the initial contact gender or the visit length within the survey sample.

Table 6. Initial contact gender comparison between respondents and non-respondents, p-value (chi-square)¹ < 0.761 ($\chi^2 = 0.092$)

Response	Respondents (n=661)		Non-Respondents (n=302)	
	N	Percent	N	Percent
Male	526	80%	233	79%
Female	135	20%	63	21%

¹ $\alpha = 0.05$, $p \leq 0.008$ indicates significant result following Bonferroni correction to account for multiple non-response bias statistical tests.

Table 7. Visit length comparison between respondents and non-respondents, p-value (chi-square)¹ < 0.039 ($\chi^2 = 8.359$)

Response	Respondents (n=660)		Non-Respondents (n=280)	
	N	Percent	N	Percent
1 to 4 hours	266	40%	141	50%
5 to 24 hours	128	19%	48	17%
48 to 72 hours	249	38%	86	31%
96 hours or more	17	3%	5	2%

¹ $\alpha = 0.05$, $p \leq 0.008$ indicates significant result following Bonferroni correction to account for multiple non-response bias statistical tests.

The results of the chi-square tests in Table 8 through Table 11 suggest respondents and non-respondents differed significantly, with respect to number of adults group members ($p < 0.001$), number of child group members ($p < 0.001$), group type ($p < 0.001$), and state or country of residence ($p < 0.001$); thus, there is evidence of potential non-response bias related to number of adult group members, number of child group members, group type, and state or country of residence within the survey's sample. Specifically, respondents were more likely than non-respondents to be in groups of two adults, while non-respondents were more likely than respondents to be in groups of one or five or more adults. Respondents were more likely than non-respondents to have no children in their group. Respondents were more likely than non-respondents to have visited the park with family,

while non-respondents were more likely to have visited alone, with friends, or with family and friends. Respondents were more likely than non-respondents to have visited the park from out of state, while non-respondents were more likely to have visited from Utah or from a foreign country.

The potential impact of non-response bias, with respect to number of adults group members, number of child group members, group type, and state or country of residence on the results of the survey was further explored (Appendix 5). Statistical tests of number of adult group members, number of child group members, group type, and state or country of residence effects on key questions (103 questions total) in the survey instrument were performed. Very few statistically significant effects of number of adult group members, number of child group members, and visitor group type on survey responses were observed ($\alpha = 0.05$, $p \leq 0.0005$ indicates significant result following Bonferroni adjustment): effects of number of adults were observed for two questions, effects of number of children were also observed for two questions, and effects of visitor group type were observed for just one question. Statistically significant effects of state or country of residence on survey responses were observed for six of the 103 questions that were assessed ($\alpha = 0.05$, $p \leq 0.0005$ indicates significant result following Bonferroni adjustment).

Table 8. Number of adult group members comparison between respondents and non-respondents, p-value (chi-square)¹ < 0.001 ($\chi^2 = 19.276$)

Response	Respondents (n=661)		Non-Respondents (n=281)	
	N	Percent	N	Percent
1 adult	39	6%	26	9%
2 adults	482	73%	177	63%
3 or 4 adults	112	17%	48	17%
5 or more adults	28	4%	30	11%

¹ $\alpha = 0.05$, $p \leq 0.008$ indicates significant result following Bonferroni correction to account for multiple non-response bias statistical tests.

Table 9. Number of children in group comparison between respondents and non-respondents, p-value (chi-square)¹ < 0.001 ($\chi^2 = 23.671$)

Response	Respondents (n=662)		Non-Respondents (n=281)	
	N	Percent	N	Percent
No children	629	95%	243	86%
1 child	12	2%	21	7%
2 or more children	21	3%	17	6%

¹ $\alpha = 0.05$, $p \leq 0.008$ indicates significant result following Bonferroni correction to account for multiple non-response bias statistical tests.

Table 10. Group type comparison between respondents and non-respondents, p-value (chi-square)¹ < 0.001 ($\chi^2 = 26.787$)

Response	Respondents (n=660)		Non-Respondents (n=281)	
	N	Percent	N	Percent
Alone	38	6%	23	8%
Family	485	73%	159	57%
Friends	94	14%	71	25%
Family and friends	43	7%	28	10%

¹ $\alpha = 0.05$, $p \leq 0.008$ indicates significant result following Bonferroni correction to account for multiple non-response bias statistical tests.

Table 11. State or country of residence comparison between respondents and non-respondents, p-value (chi-square)¹ < 0.001 ($\chi^2 = 23.364$)

Response	Respondents (n=661)		Non-Respondents (n=280)	
	N	Percent	N	Percent
In state visitor	27	4%	24	9%
Out of state visitor	501	76%	170	61%
International visitor	132	20%	86	31%

¹ $\alpha = 0.05$, $p \leq 0.008$ indicates significant result following Bonferroni correction to account for multiple non-response bias statistical tests.

Results of statistical tests comparing respondents to non-respondents (i.e., non-response bias analysis) suggest that, for some questions, the survey results may over-represent opinions, evaluations, or behaviors from visitor groups with two adults, groups with no children, families, and groups visiting the park from out of state. For those select questions where there is potential non-response bias, the effects are analyzed and reported in Appendix 5.

Weighting of Survey Response Data

Visitor groups contacted during non-peak hours of sample days and/or at lower use sampling locations had a higher probability of selection for participation in the study than visitor groups contacted during peak hours of the sample days and/or at higher use sampling locations. To account for these differences in selection probability at the Entrance, the survey data were weighted using hourly vehicle volume data collected at the entrance station by park entrance station staff. Survey data from respondents contacted at the Fiery Furnace were weighted using daily totals of permits issued for access to the Fiery Furnace and the number of visitors who attended each ranger-led tour of the Fiery Furnace on each sampling day. All data used for weighting survey responses were collected by park staff as part of routine operations and were provided to RSG for use in weighting by probability of selection.

Data Analysis

SPSS statistical software was used for data analysis. For all questions where pre-defined response options were provided, frequencies are reported. Descriptive statistics (mean, median, standard

deviation) are presented in tables below figures for those variables for which measures of central tendency can be computed.

For open ended questions (i.e., without pre-defined response options), thematic codes were applied to the responses to categorize the data. The categorized data are reported in tabular format providing the percent of valid responses for each theme. For all open-ended questions and questions with open-ended response options, verbatim visitor comments are reported in the stand-alone *Visitor Comments Appendix*.

Limitations

This study has limitations that should be considered when interpreting the results.

1. The survey was self-administered. Respondents completed the questionnaire after an unknown amount of time after the visit, which may have resulted in poor recall. Thus, it is not possible to know whether visitor responses reflect actual behavior.
2. The data reflect visitor use patterns as collected during the study period of September 17 through September 25, 2016. The results present a ‘snapshot-in-time’ and do not necessarily apply to visitor groups during other times of the year.
3. Caution is advised when interpreting any data with a sample size of less than 30, as the results may be unreliable. Whenever the sample size is less than 30, the word “CAUTION!” is included in the graph, figure, table, or text.
4. Sample size may vary for some questions, due to item non-response (i.e., one or more questions left blank by a respondent). Therefore, refer to both the percentage and sample values when interpreting the results.
5. Results of statistical tests comparing respondents to non-respondents (i.e., non-response bias analysis) suggest that, for some questions, the survey results may over-represent opinions, evaluations, or behaviors from visitor groups with two adults, groups with no children, families, and groups visiting the park from out of state. For those select questions where there is potential non-response bias, the effects are analyzed and reported in Appendix 5.

Special Conditions

The weather during the survey period was generally sunny and warm, with some periods of wind. High temperatures ranged from the mid-60s to low-90s.

National Public Lands Day was observed on Saturday, September 24, 2016. On this day, the entrance fee was waived for all visitor groups entering the park. This condition may have affected visitor use volumes or patterns throughout the park on this date, and may have influenced responses to survey questions regarding traffic congestion, parking issues, and perceived crowding at sites throughout the park.

Results

Group and Visitor Characteristics

Visitor group size

Question 33

Including yourself, how many people were in your personal group during your visit to Arches National Park on the day you were contacted for this survey?

Results (Figure 2, Table 12)

- 66% of visitor groups consisted of two members.
- 13% of visitor groups consisted of four members.

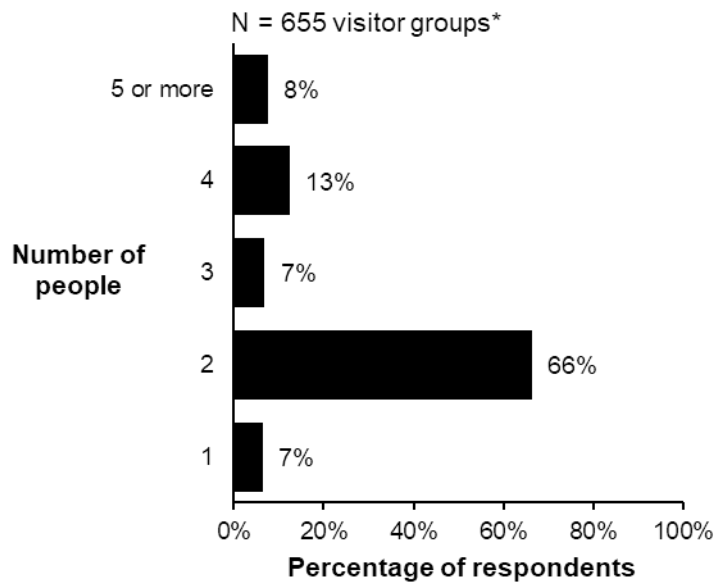


Figure 2. Visitor group size

Table 12. Descriptive statistics: Number of visitors in group

Statistic	Mean	Median	Std. Deviation
Number of visitors in group	4.25	2.00	8.01

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Number of adults in group

Question 33

Including yourself, how many people were in your personal group during your visit to Arches National Park on the day you were contacted for this survey?

Number of adults (18 years and older).

Results (Figure 3, Table 13)

- 69% of visitor groups consisted of two adults.
- 11% of visitor groups consisted of four adults.

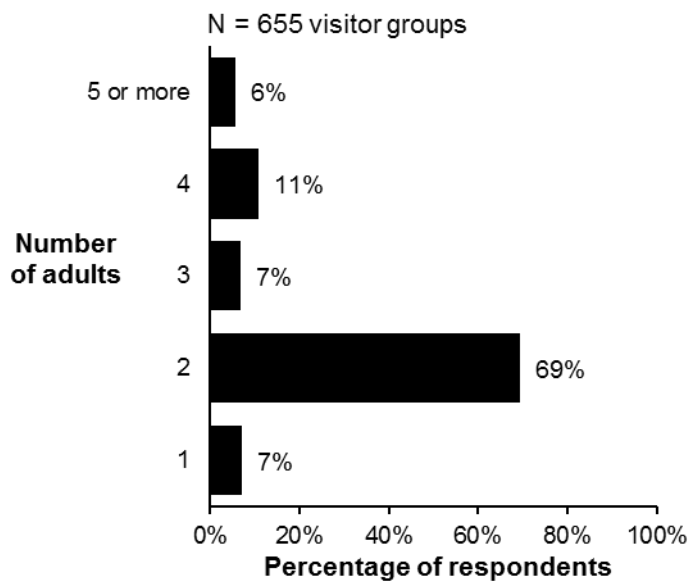


Figure 3. Number of adults in group

Table 13. Descriptive statistics: Number of adults in group

Statistic	Mean	Median	Std. Deviation
Number of adults in group	4.12	2.00	8.01

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Number of children in group

Question 33

Including yourself, how many people were in your personal group during your visit to Arches National Park on the day you were contacted for this survey?

Number of children (under 18 years).

Results (Figure 4, Table 14)

- Most visitor groups (87%) did not include children.
- Of those visitor groups that did include children (n=36), 42% of visitor groups consisted of two children.

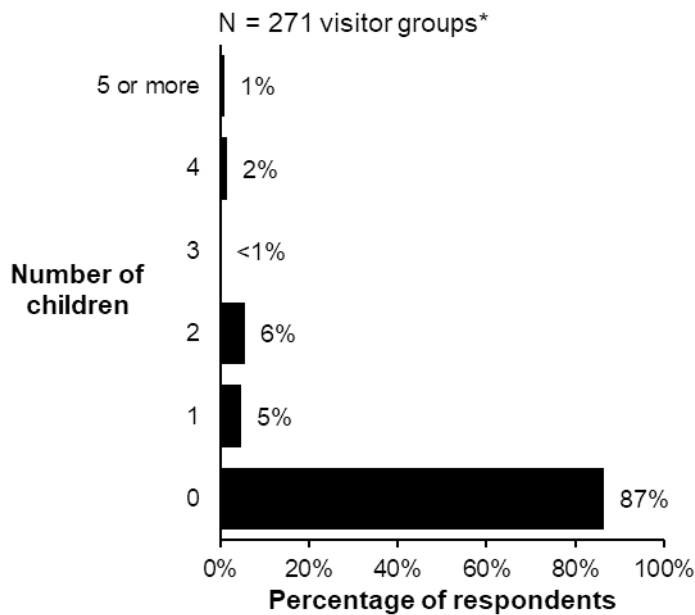


Figure 4. Number of children in group

Table 14. Descriptive statistics: Number of children in group (for groups with children)

Statistic	Mean	Median	Std. Deviation
Number of children in group	2.33	2.00	1.78

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Visitor group type

Question 34

On this visit to Arches National Park, which one of the following best describes your personal group?

Results (Figure 5)

- 73% of visitor groups were made up of family.
- 13% were with friends.

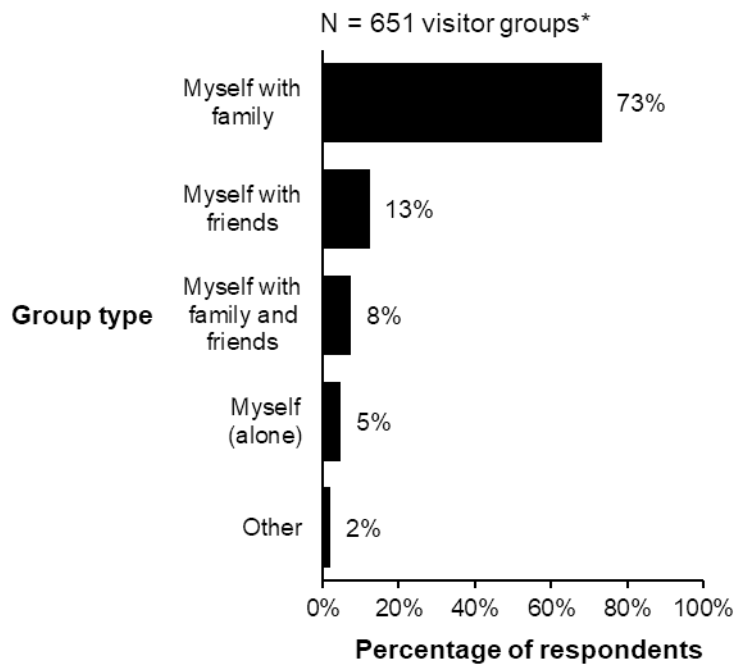


Figure 5. Visitor group type

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Organized group type

Question 35

On this visit to Arches National Park, were you and your personal group with the following types of organized group?

Results (Figure 6 and Figure 7)

- As shown in Figure 6, 95% of visitor groups were not with any type of organized group.

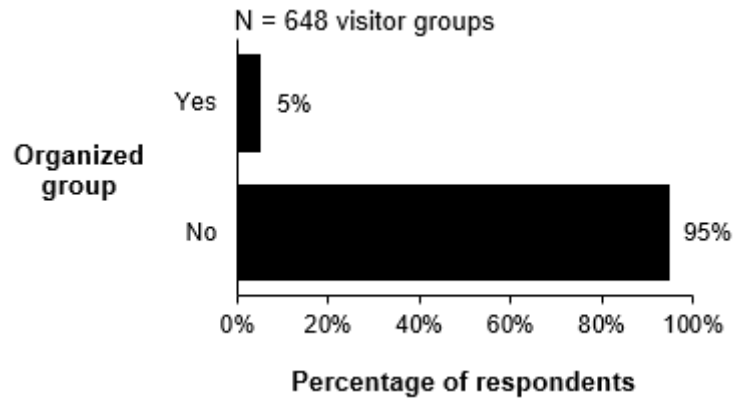


Figure 6. Visitor groups who were a part of an organized group

- As shown in Figure 7, of those visitor groups that indicated they were part of an organized group (n=34), 71% were with a commercial guided tour group.

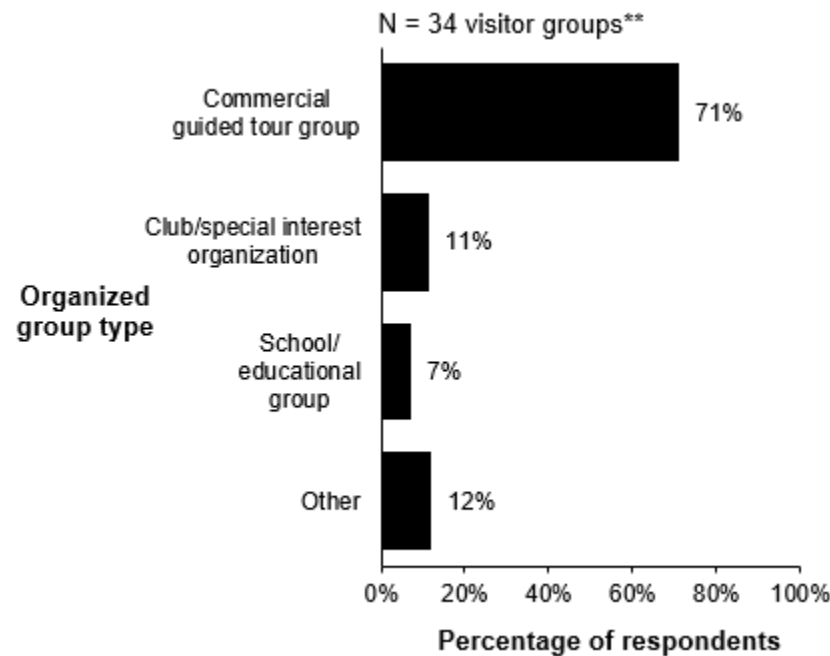


Figure 7. Organized group type

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Visitor age

Question 36

For your personal group during your visit to Arches National Park on the day you were contacted for this survey, please provide your current age.

Note: Respondent was asked to report this information for themselves and up to six additional members of their visitor group.

Results (Figure 8, Table 15)

- Visitor ages ranged from 1 to 90 years old
- 33% of visitors were 65 years old or older.
- 28% of visitors were 55 to 64 years old.
- 18% of visitors were 35 to 54 years old.
- 16% of visitors were 20 to 34 years old.
- 5% of visitors were under 20 years old.

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

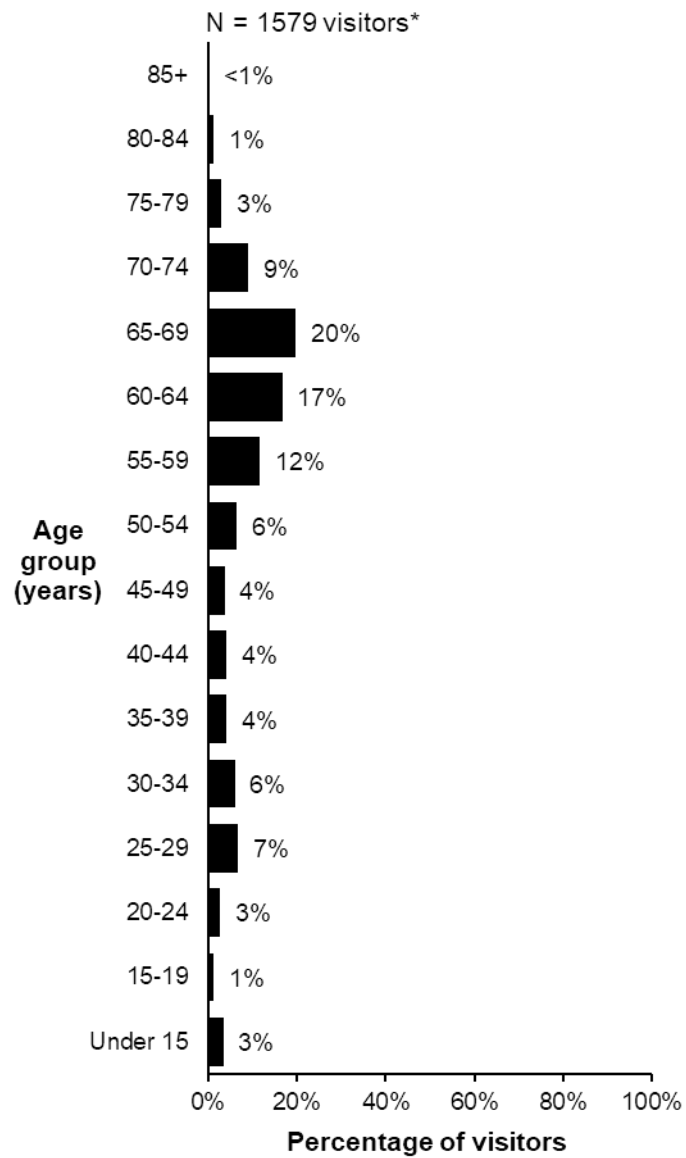


Figure 8. Visitor age

Table 15. Descriptive statistics: Visitor age

Statistic	Mean	Median	Std. Deviation
Visitor age	54.41	61.00	18.00

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

U.S. visitors' state of residence

Question 36

For your personal group during your visit to Arches National Park on the day you were contacted for this survey, please provide your U.S. ZIP code (if you are a U.S. resident).

Note: Respondent was asked to report this information for themselves and up to six additional members of their visitor group.

Results (Table 16, Figure 9)

- U.S. visitors came from 50 states and comprised 74% of total visitation to the park during the survey period.
- 11% of visitors came from California.
- 7% of visitors came from Colorado.
- Smaller proportions of visitors came from other U.S. states.

Table 16. United States visitors by state of residence

State	Percent of U.S. visitors N = 1143 individuals*	Percent of all visitors N = 1545 individuals
California	11%	8%
Colorado	7%	5%
Utah	5%	4%
Wisconsin	5%	3%
Washington	5%	3%
Texas	4%	3%
Florida	4%	3%
Ohio	4%	3%
Michigan	4%	3%
Illinois	3%	2%
Oregon	3%	2%
Minnesota	3%	2%
Georgia	3%	2%
Missouri	3%	2%
North Carolina	2%	2%
Pennsylvania	2%	2%
New York	2%	2%
Indiana	2%	1%
Arizona	2%	1%
New Mexico	2%	1%
30 other states	25%	18%

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

International visitors' country of residence

Question 36

For your personal group during your visit to Arches National Park on the day you were contacted for this survey, please provide your country of residence (if other than U.S.).

Note: Respondent was asked to report this information for themselves and up to six additional members of their visitor group.

Results (Table 17)

- International visitors were from 28 countries and comprised 26% of total visitation to the park during the survey period.
- 21% of international visitors came from the United Kingdom.
- 17% of international visitors came from Germany.
- 15% of international visitors came from Canada.
- Smaller proportions of visitors came from other countries.

Table 17. International visitors by country of residence

Country	Percent of international visitors N = 402 individuals	Percent of all visitors N = 1545 individuals
United Kingdom	21%	6%
Germany	17%	5%
Canada	15%	4%
The Netherlands	6%	2%
Switzerland	6%	2%
France	5%	1%
Belgium	5%	1%
Hong Kong	4%	1%
New Zealand	3%	1%
Spain	2%	1%
Ukraine	2%	1%
Australia	2%	1%
Czech Republic	2%	<1%
Denmark	1%	<1%
Austria	1%	<1%
Scotland	1%	<1%
China	1%	<1%
11 other countries	7%	2%

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Visitor level of education

Question 37

What is the highest level of formal education you have completed?

Results (Figure 10)

- 35% of respondents' highest level of formal education completed was a four-year college or bachelor's degree.
- 25% of respondents' highest level of formal education completed was a master's degree (or graduate degree).

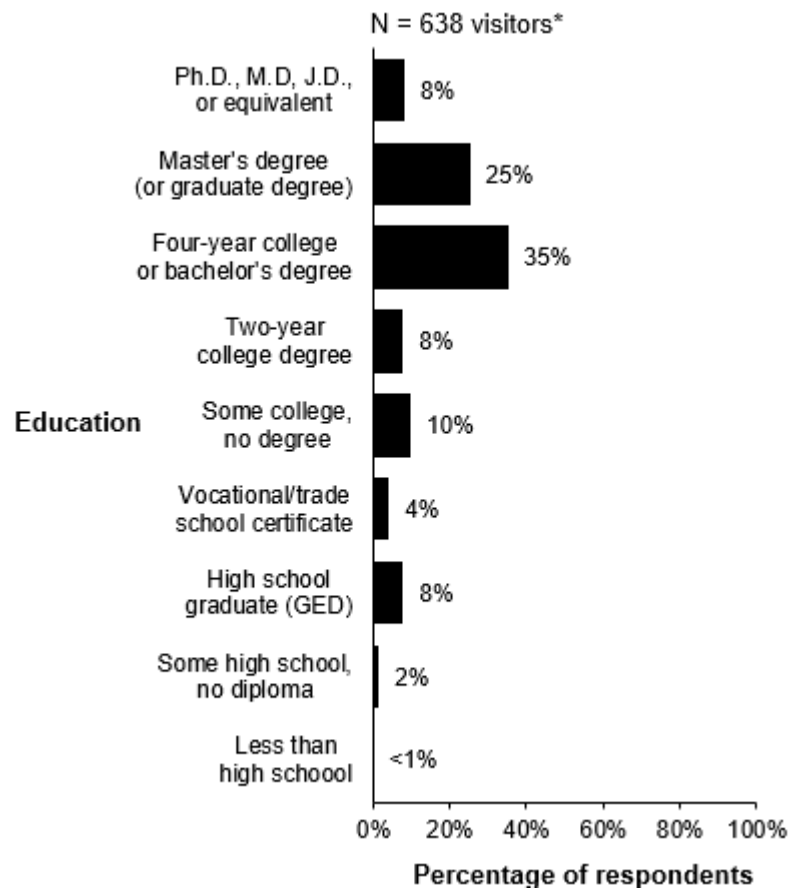


Figure 10. Visitor level of education

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Frequency of visits to park

Question 36

For your personal group during your visit to Arches National Park on the day you were contacted for this survey, please provide the number of visits you have made to Arches National Park in the last 12 months and in your lifetime, including this trip.

Note: Respondent was asked to report this information for themselves and up to six additional members of their visitor group.

Number of visits to park in last 12 months

Results (Figure 11, Table 18)

- 91% of visitors visited the park once in the last 12 months.
- 6% of visitors visited the park twice in the last 12 months.

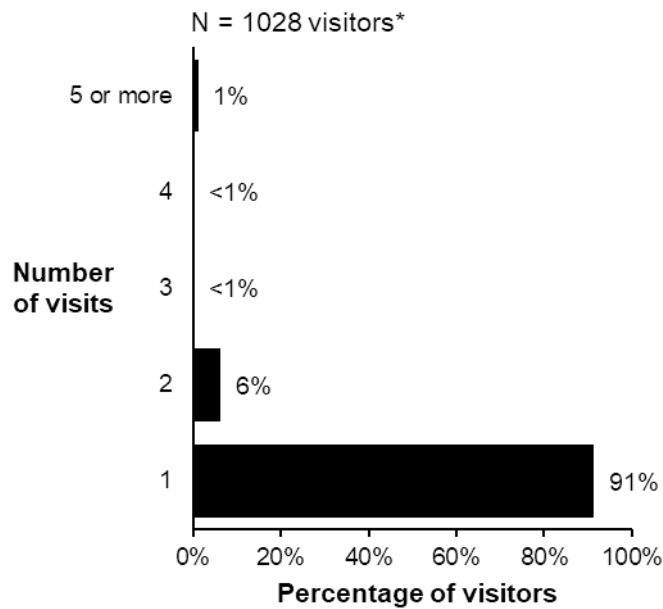


Figure 11. Park visits in last 12 months

Table 18. Descriptive statistics: Park visits in last 12 months

Statistic	Mean	Median	Std. Deviation
Number of visits	1.10	1.00	1.12

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Number of visits to park in lifetime

Results (Figure 12, Table 19)

- 70% of visitors visited the park once in their lifetime.
- 14% of visitors visited the park twice in their lifetime.

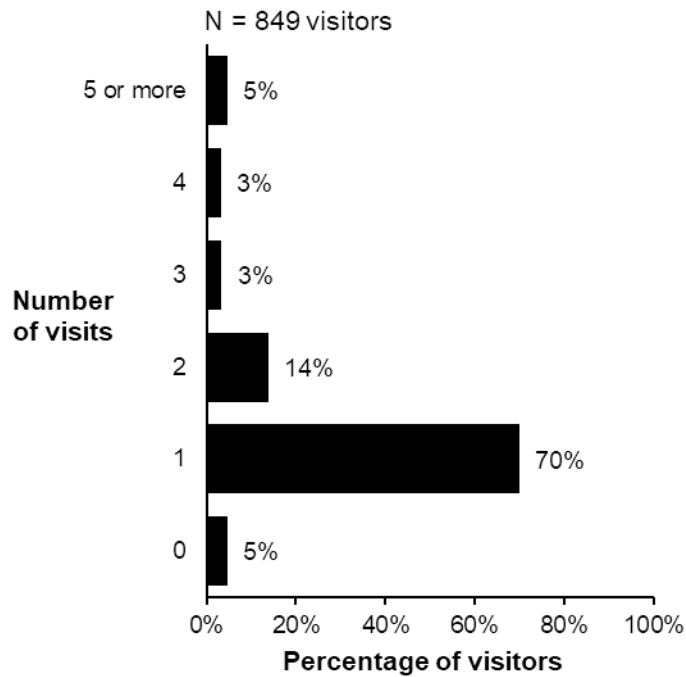


Figure 12. Park visits in lifetime

Table 19. Descriptive statistics: Park visits in lifetime

Statistic	Mean	Median	Std. Deviation
Number of visits	1.99	1.00	12.81

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Pre-Trip Planning and Motivations

Time of decision to visit

Question 10

When did you make the decision to visit Arches National Park?

Results (Figure 13)

- 37% of visitor groups decided to visit the park two to six months before their visit.
- 22% of visitor groups decided to visit the park more than six months but less than one year before their visit.

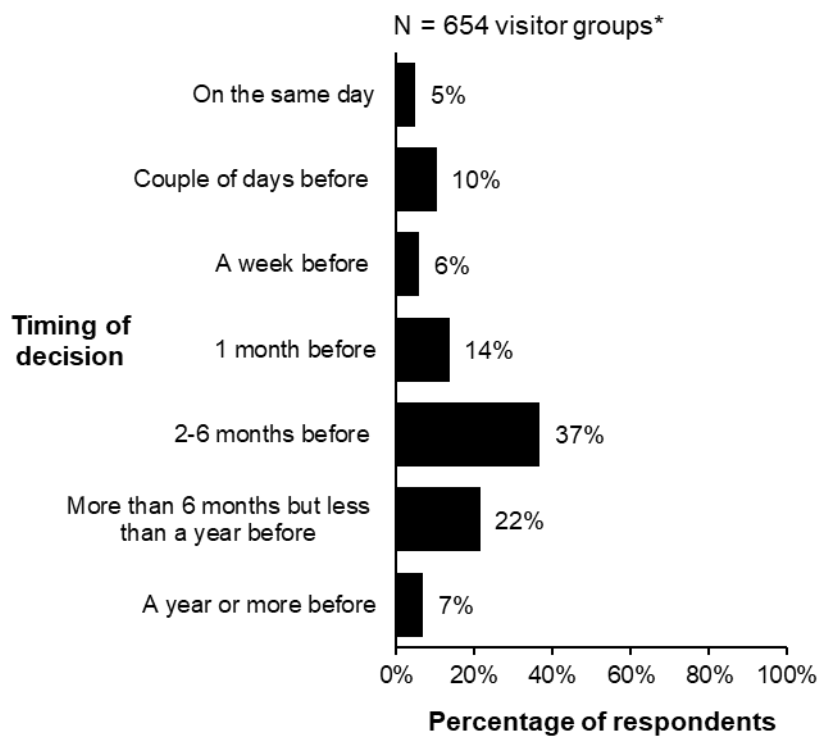


Figure 13. Timing of decision to visit park

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Information sources used for trip planning

Question 1a

Prior to this trip, how did you obtain information such as directions, accommodations, availability of activities, etc. to plan your visit to Arches National Park?

Results (Figure 14, Figure 15)

- 96% of visitor groups obtained information about Arches National Park prior to their visit.

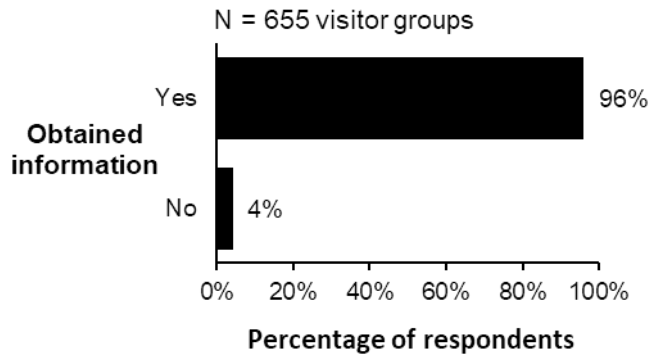


Figure 14. Visitor groups that obtained information about the park prior to and during visit

- As shown in Figure 15, among those visitor groups that obtained information about Arches National Park prior to or during their visit, the most common information sources were:
 - 55% Arches National Park website
 - 49% Maps/brochures
 - 37% Friends/relatives/word of mouth

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

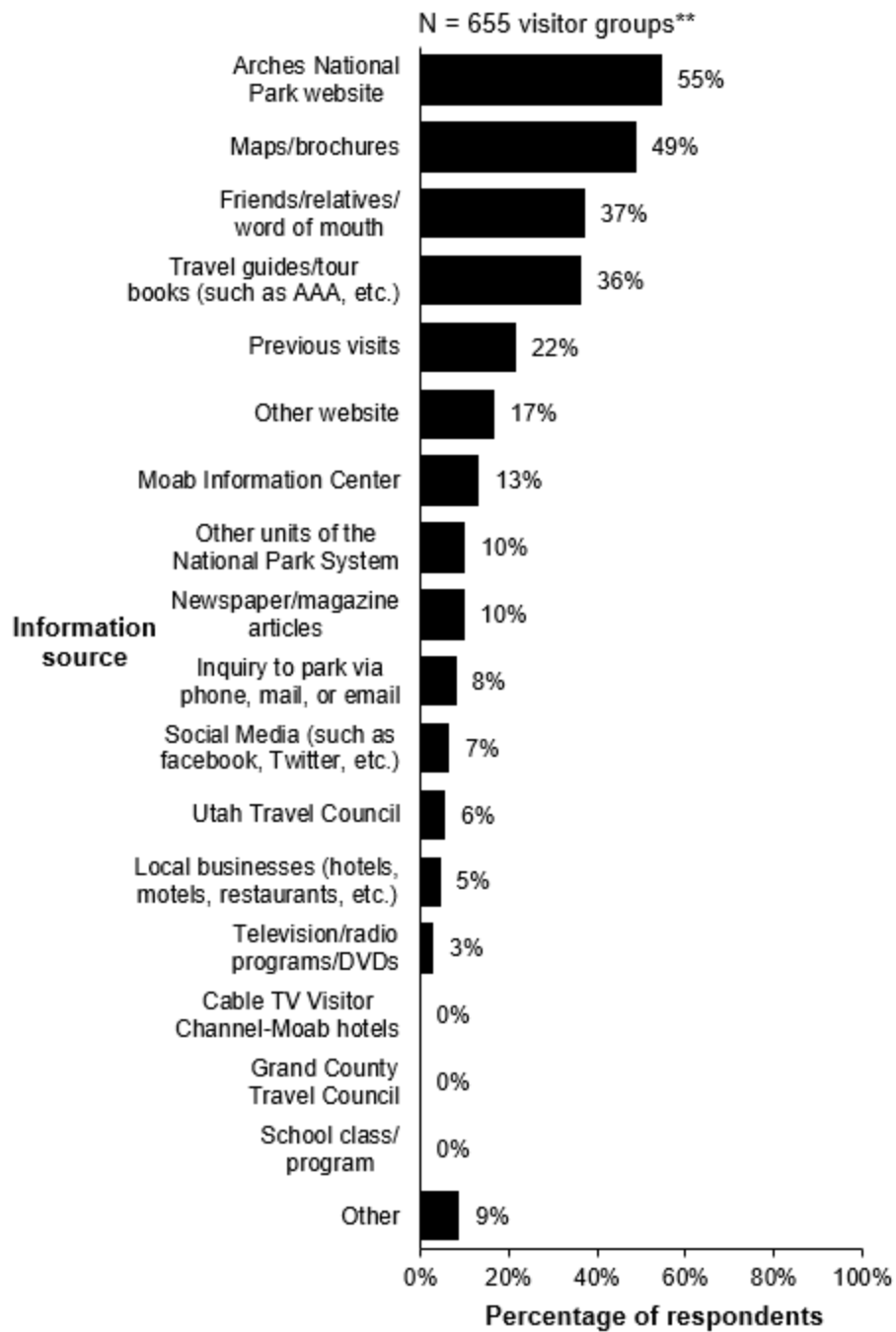


Figure 15. Information sources used for trip planning

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Information sources used for safety information

Question 1b

Specifically, how did you obtain information about safety measures such as exposure to sun, heat, staying hydrated, flash floods, proper footwear, staying on trails, etc.)?

Results (Figure 16, Figure 17)

- 77% of visitors obtained safety information about Arches National Park prior to or during their visit.

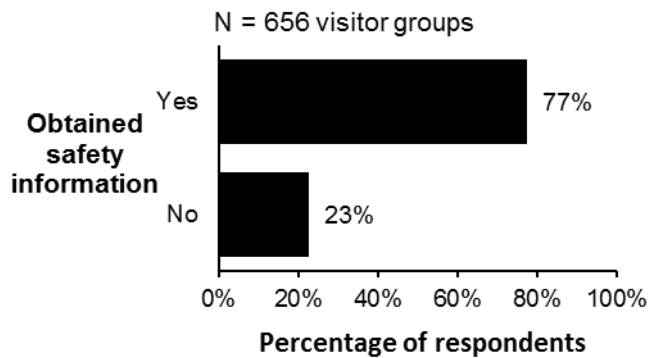


Figure 16. Visitor groups that obtained information about the park prior to and during visit

- As shown in Figure 17, among those visitor groups that obtained safety information about Arches National Park prior to or during their visit, the most common information sources were:
 - 30% Arches National Park website
 - 18% Maps/brochures
 - 14% Previous visits
 - 14% Travel guides/tour books

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

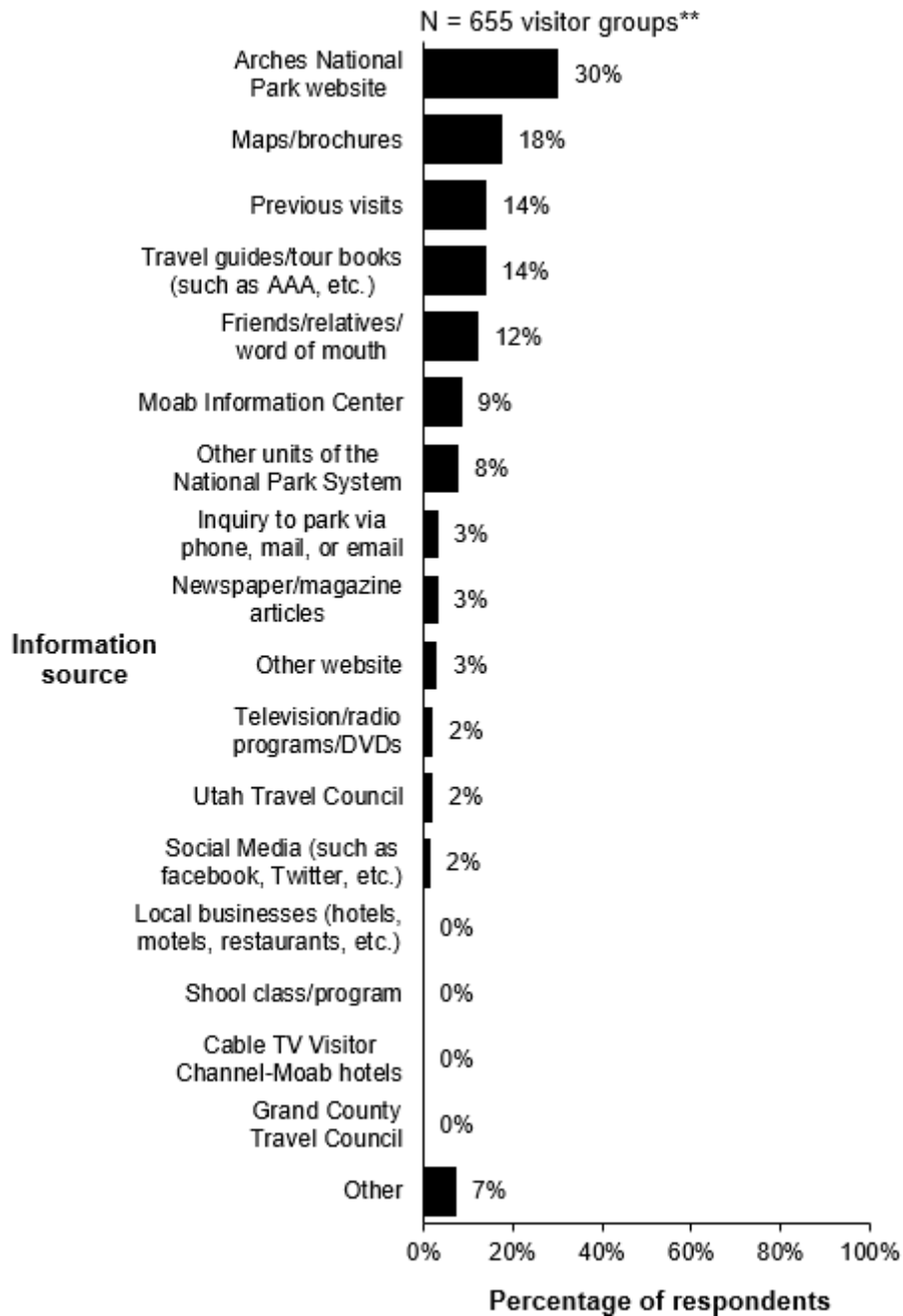


Figure 17. Information sources used for safety information

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Helpfulness of park website

Question 2

If you used the park website (nps.gov/arch) prior to or during your visit, please rate how helpful the website was in planning your visit.

Results (Figure 18)

- 40% of visitor groups did not use nps.gov/arch.
- Of the visitors who used nps.gov/arch prior to their visit, 62% of visitors rated the website as very helpful.

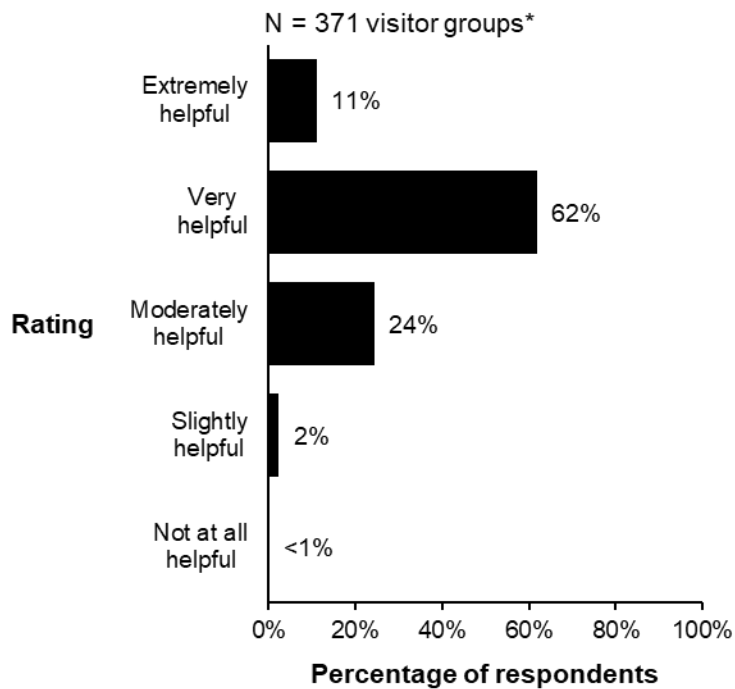


Figure 18. Helpfulness of park website

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Encountering safety information in the park

Question 4a

During this visit, did you and your personal group encounter safety information in Arches National Park?

Results (Figure 19)

- 78% of visitor groups encountered safety information in Arches National Park.

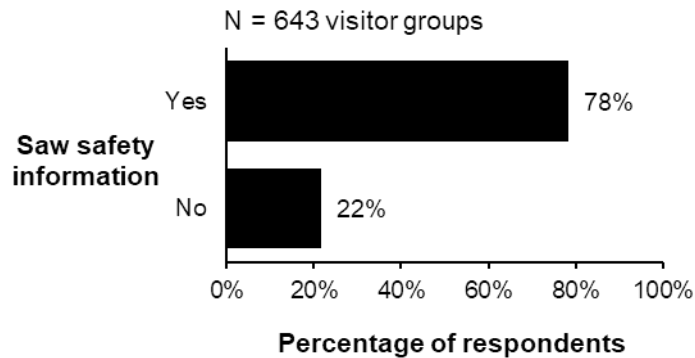


Figure 19. Encountered safety information in the park

Question 4b

If YES, where did you encounter safety information in the park?

Results (Table 20)

- Of those who encountered safety information in the park, the most frequently mentioned location was:
 - 31% Visitor Center
 - 18% Trailhead signs
 - 17% Signs

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Table 20. Where safety information was encountered. N = 660 comments; some visitor groups may have made more than one comment.

Response	Percent of valid responses*
Visitor Center	31%
Trailhead signs	18%
Signs	17%
Park handouts	8%
Rangers	5%
Park entrance	4%
Signs along road	3%
Radio	2%
Throughout park	2%
Maps	2%
Newsletter	2%
Orientation film	1%
Visitor guide	1%
Park website	1%
Guided tour	1%
Park staff	1%
Bathrooms	<1%
Other location	1%

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Preparedness for common safety situations

Question 3

On this visit, did you and your personal group feel prepared for common safety situations (such as exposure to sun, heat, access to drinking water, flash floods, use of proper footwear, etc.) that you encountered in Arches National Park?

Results (Figure 20)

- 94% of visitor groups indicated that they were prepared for common safety situations in Arches National Park.

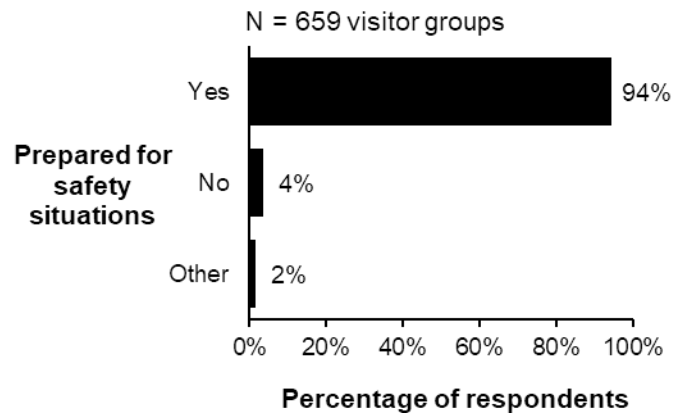


Figure 20. Preparedness for common safety situations

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Knowledge of park rules and regulations

Question 5

To your knowledge, does Arches National Park have any rules/regulations regarding climbing on arches, staying on trails, graffiti, collection of park resources, or pets in the park?

Results (Figure 21)

- 94% of visitor groups indicated that they were aware of the rules and regulations inside Arches National Park.

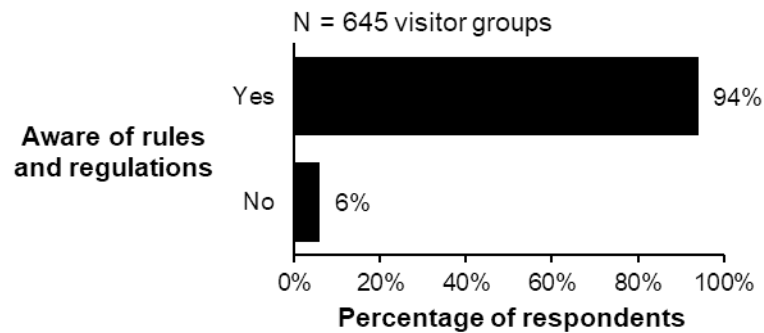


Figure 21. Knowledge of park rules and regulations

If YES, please explain how you became aware of the rules/regulations prior to this visit.

Results (Table 21)

- Of those who indicated they were aware of the rules and regulations inside the park, the most frequently mentioned resources used were:
 - 35% Signs
 - 11% Visitor Center
 - 10% Park handouts

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Table 21. How visitor groups became aware of park rules and regulations. N = 842 comments; some visitor groups may have made more than one comment.

Response	Percent of valid responses*
Signs	35%
Visitor Center	11%
Park handouts	10%
Park website	9%
Common sense	6%
Other NPS experiences	4%
Guide books	4%
Rangers	3%
Visitor Center film	3%
Newsletter	3%
Radio	2%
Didn't know prior to visit	2%
Prior knowledge	2%
Previous visits	1%
Tour guide	1%
Word of mouth	1%
Park entrance	1%
Other internet sites	<1%
Other resource	2%

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Tours with independent guides, and rules and regulations

Question 6a

On this visit, did you and your personal group take a tour with an independent guide (not a park ranger)?

Results (Figure 22)

- 93% of visitor groups did not take a tour with an independent guide.

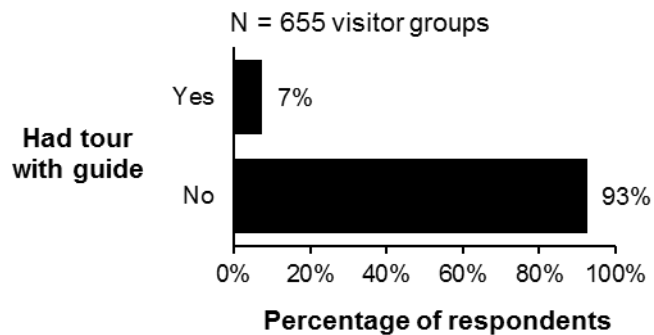


Figure 22. Visitor groups who took a tour with an independent guide

Question 6b

If you took a tour with an independent guide, did they explain the park rules and regulations to you and your personal group?

Results (Figure 23)

- 85% of visitor groups who took a tour with an independent guide indicated that the guide explained the rules and regulations.

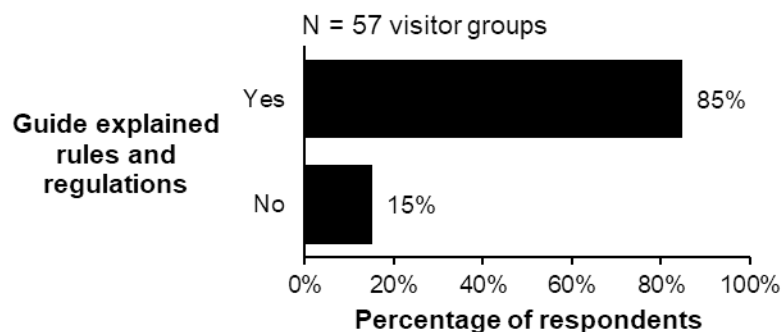


Figure 23. Rules and regulations explained by independent guides

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Awareness of park reservation systems

Question 8a

Were you aware of the following reservation systems at Arches National Park, prior to your visit?

Fiery Furnace tour

Results (Figure 24)

- 75% of visitor groups were not aware of the Fiery Furnace tour reservation system.

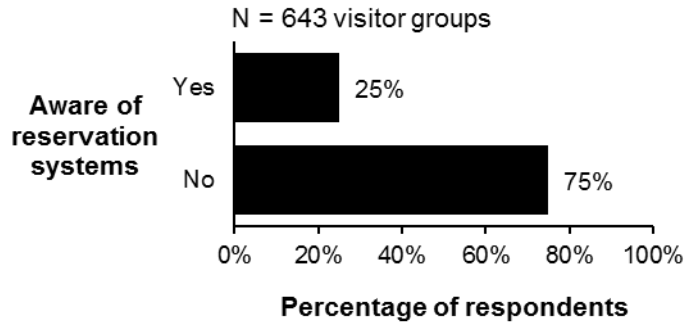


Figure 24. Visitor groups who were aware of Fiery Furnace tour reservation system

Campground

Results (Figure 25)

- 57% of visitor groups were aware of the campground reservation system.

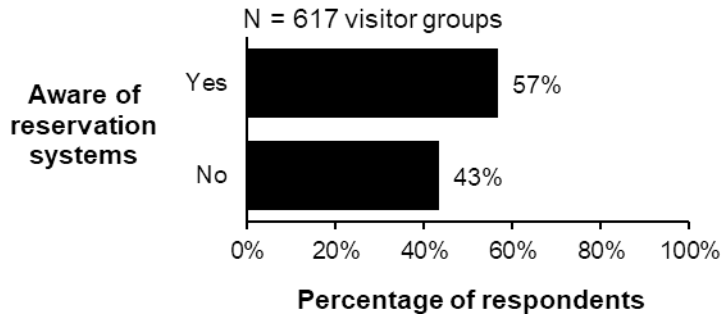


Figure 25. Visitor groups who were aware of campground reservation system

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Use of park reservation systems

Question 8b

On this visit to Arches National Park, how did you and your personal group make a tour or campground reservation?

Tour Reservation

Results (Figure 26)

- 86% of visitor groups did not make a tour reservation.
- Of the visitor groups that did make a tour reservation (n=118), 35% of visitor groups reserved online via the NPS reservation site.

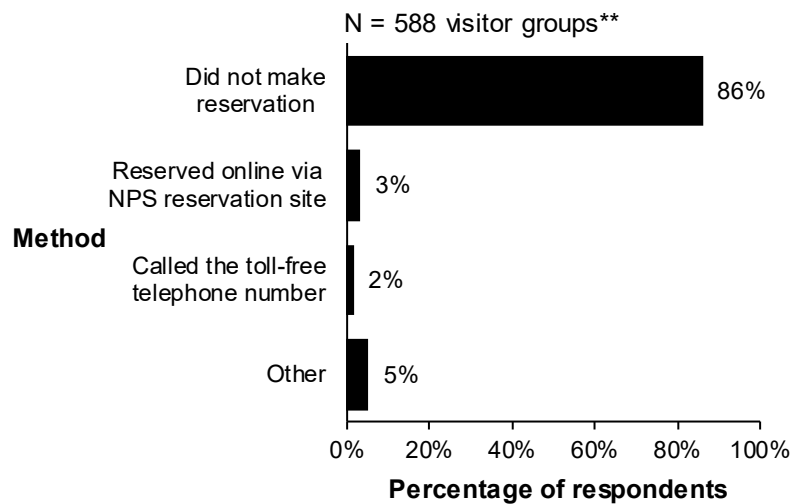


Figure 26. Means of making tour reservations

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Campground Reservation

Results (Figure 27)

- 79% of visitor groups did not make a campground reservation.
- Of those visitor groups that did make a reservation (n=50), 45% of visitor groups reserved by calling the toll-free telephone number.

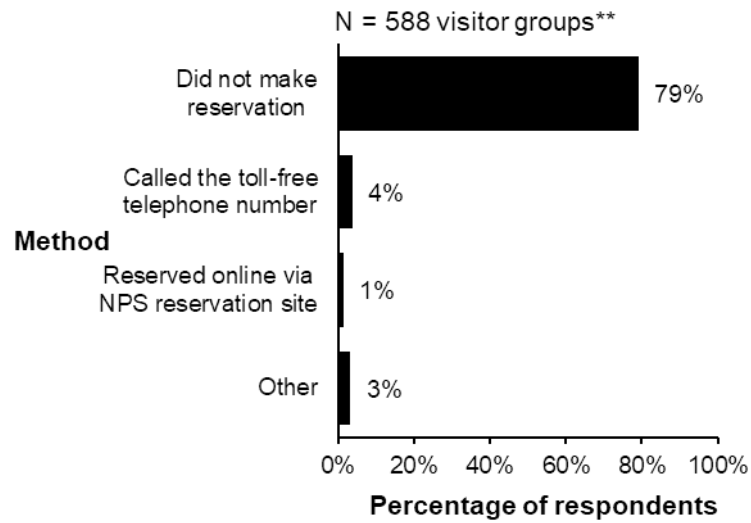


Figure 27. Means of making campground reservations

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Use of Recreation.gov

Question 9a

On this visit, did you and your personal group use Recreation.gov?

Results (Figure 28)

- 90% of visitor groups did not use Recreation.gov on this visit.

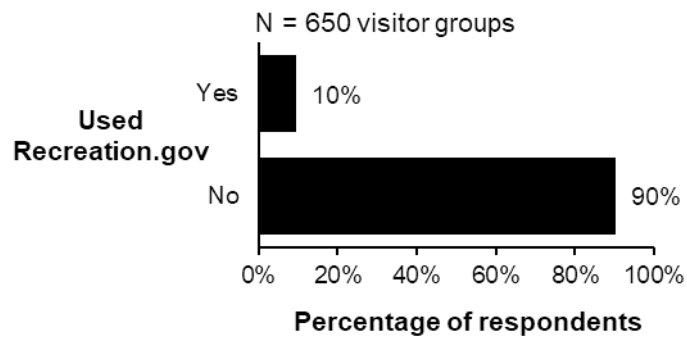


Figure 28. Visitor groups who used Recreation.gov

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Quality of reservation services on Recreation.gov

Question 9b

If YES, please rate the quality of the reservation services.

Rating choices

- Very good
- Good
- Average
- Poor
- Very poor

Results

- Figure 29 shows the combined proportions of “very good” and “good” ratings for quality of reservations services.
- The reasons that received the highest combined proportions of “very good” and “good” ratings were:
 - 85% Accuracy of reservation
 - 77% Sufficiency of information provided

Figure 30 through Figure 33 show ratings for each service.

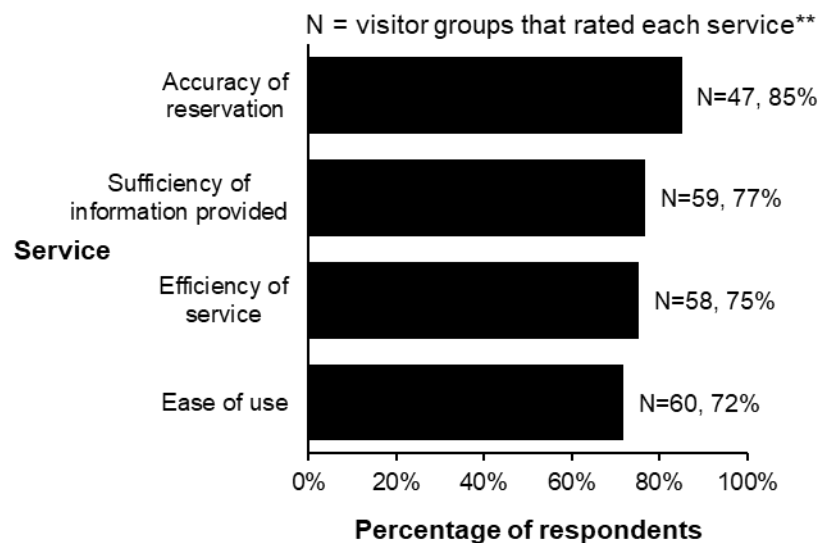


Figure 29. Quality of reservation services on Recreation.gov

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

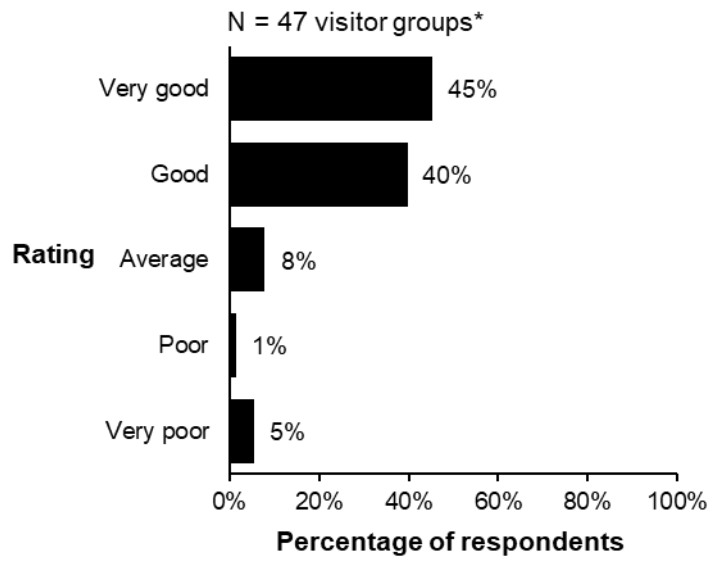


Figure 30. Accuracy of reservation

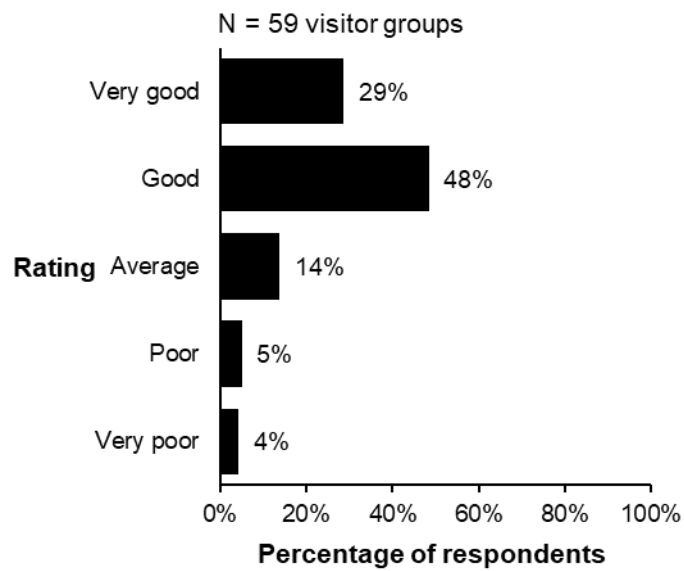


Figure 31. Sufficiency of information provided

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

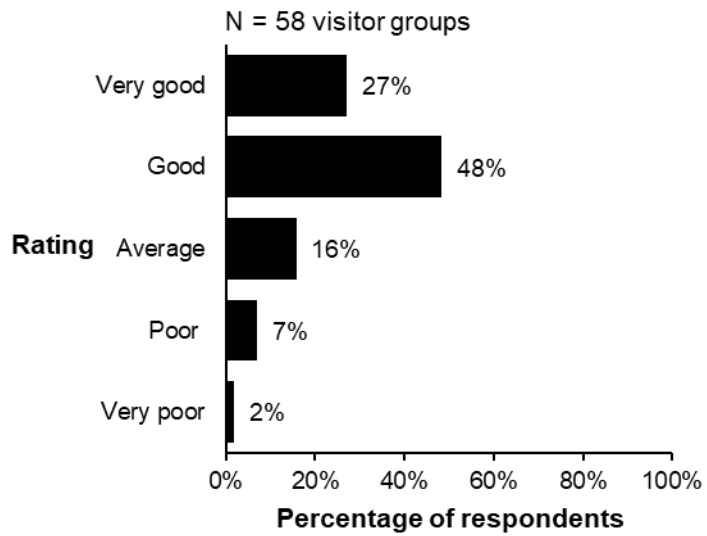


Figure 32. Efficiency of service

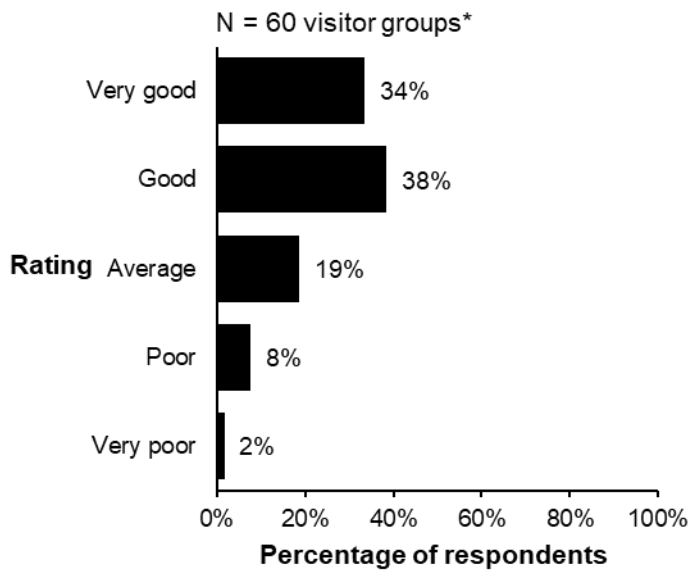


Figure 33. Ease of use

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Importance of experiences to park visit

Question 24

Below is a list of possible experiences you may want (or prefer) to have while visiting Arches National Park. For each item, please indicate how important the experience was to you on your visit to the park.

Rating choices:

- Extremely important
- Very important
- Moderately important
- Slightly important
- Not at all important

Results

- Figure 34 shows the combined proportions of “extremely important” and “very important” ratings for reasons for visiting the park.
- The reasons that receives the highest combined proportions of “extremely important” and “very important” ratings were:
 - 98% To view scenic beauty
 - 85% To be close to nature
- The reasons that received the lowest combined proportions of “extremely important” and very important” ratings were:
 - 44% To be my own boss
 - 28% To avoid the unexpected
 - 19% To be near others who could help if you needed them

Figure 35 through Figure 44 show ratings for each reason.

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

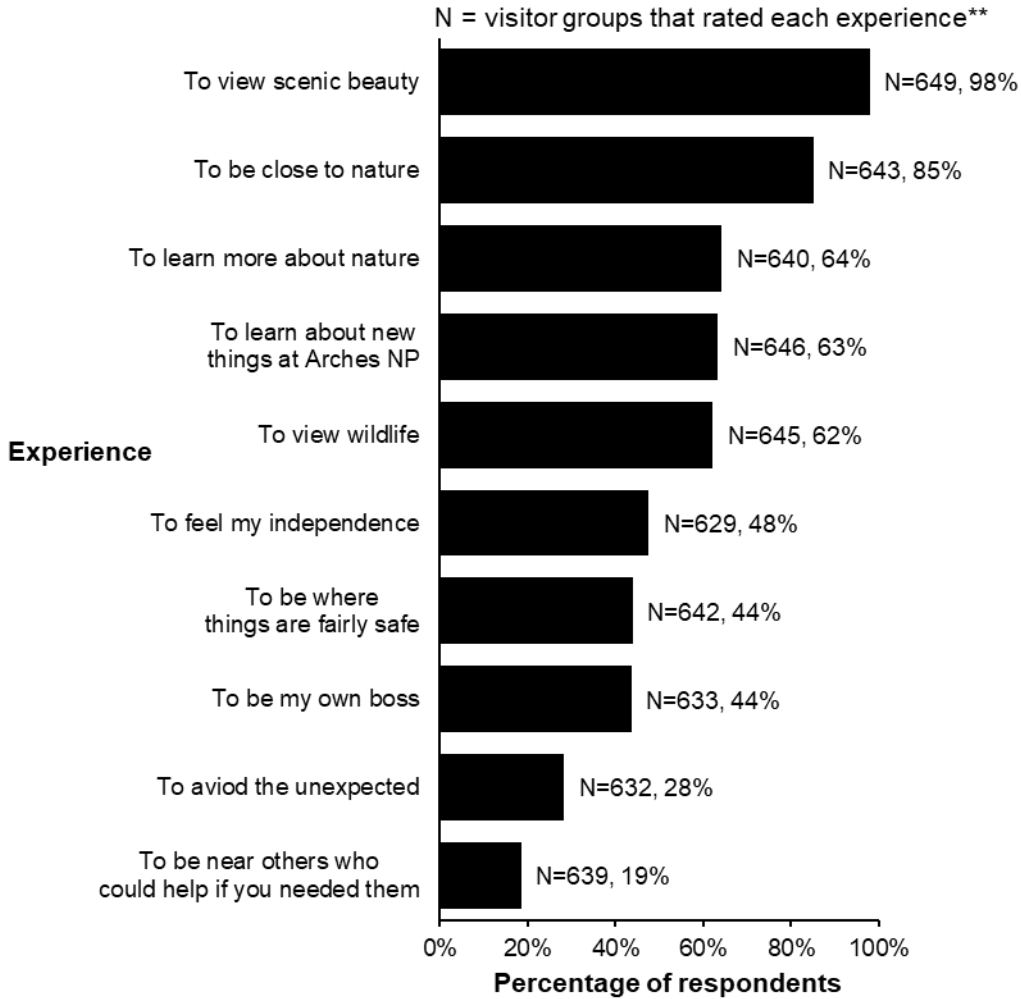


Figure 34. Importance of experiences to park visit, combined ratings of “extremely important” and “very important”

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

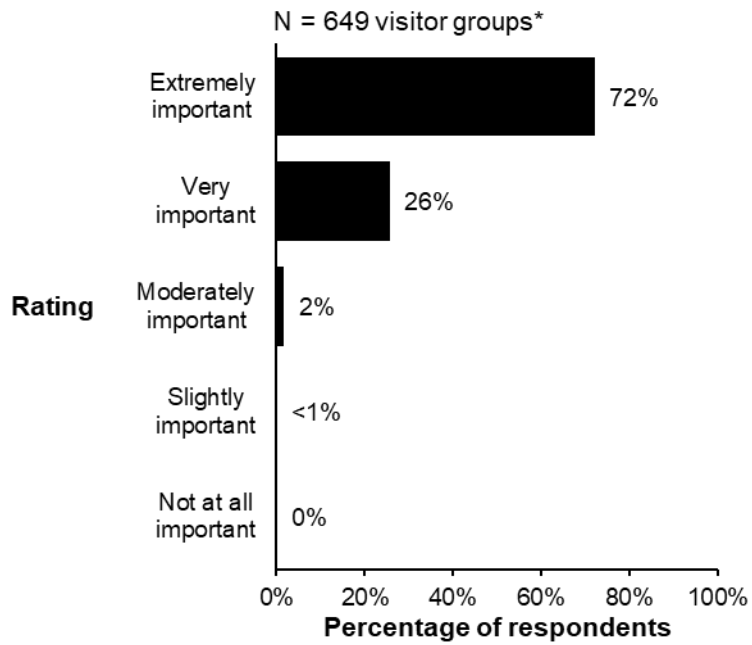


Figure 35. Importance of viewing scenic beauty

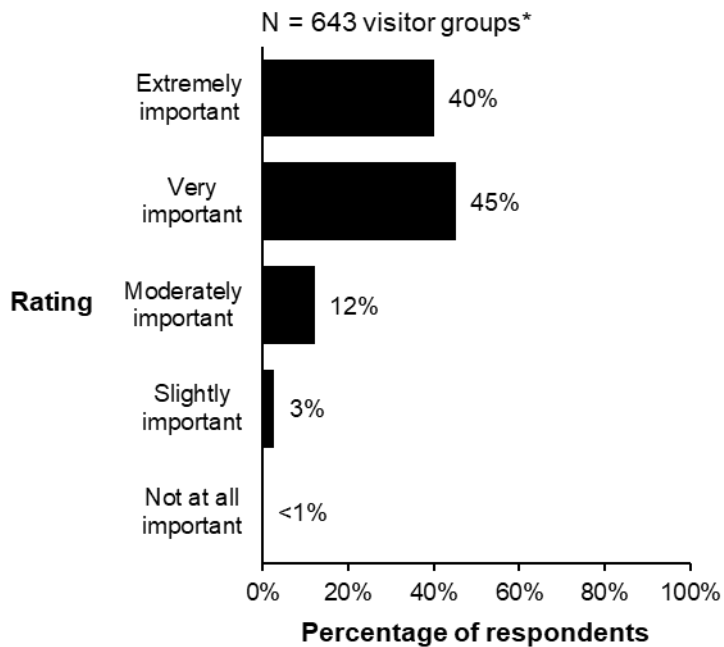


Figure 36. Importance of being close to nature

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

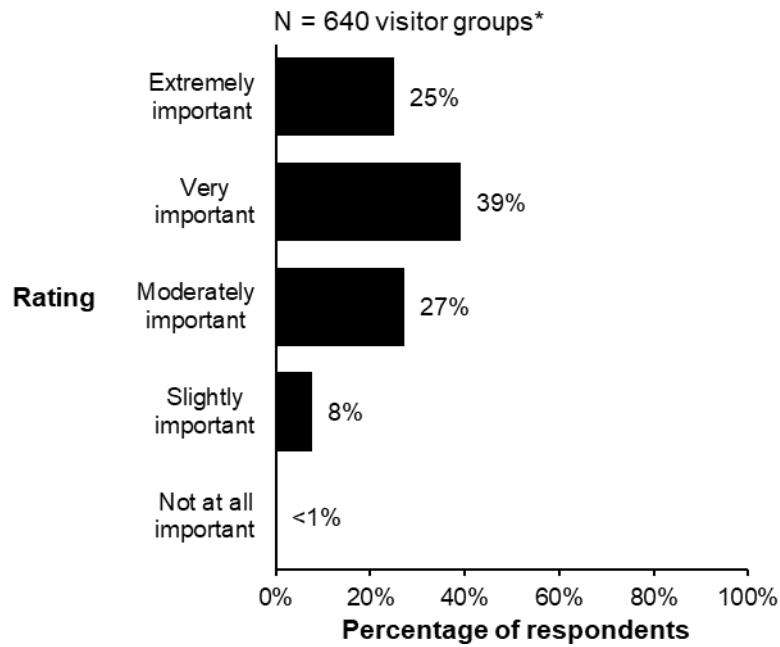


Figure 37. Importance of learning more about nature

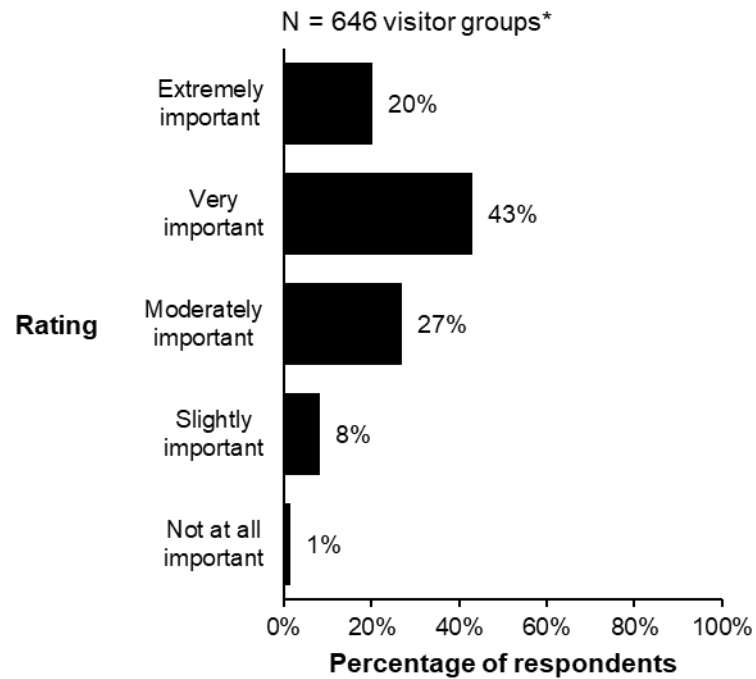


Figure 38. Importance of learning about new things at Arches National Park

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

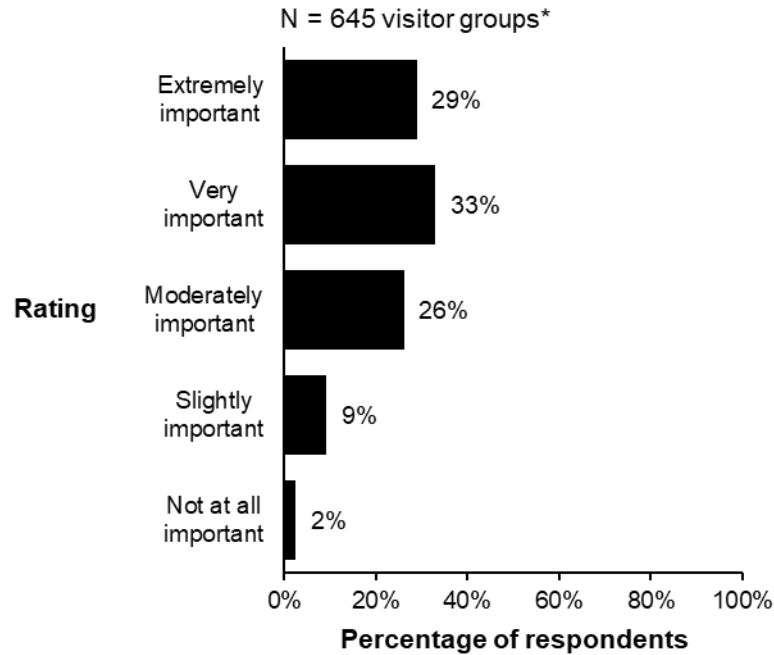


Figure 39. Importance of viewing wildlife

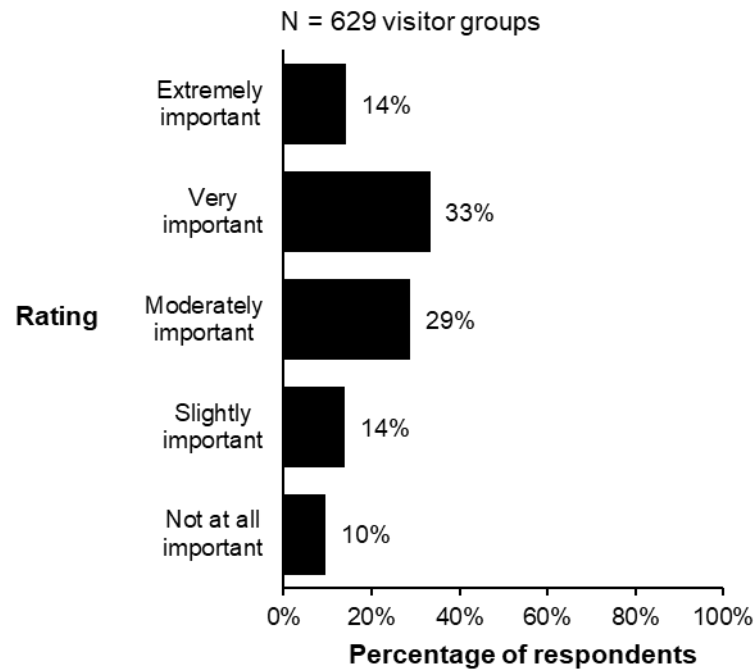


Figure 40. Importance of feeling my independence

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

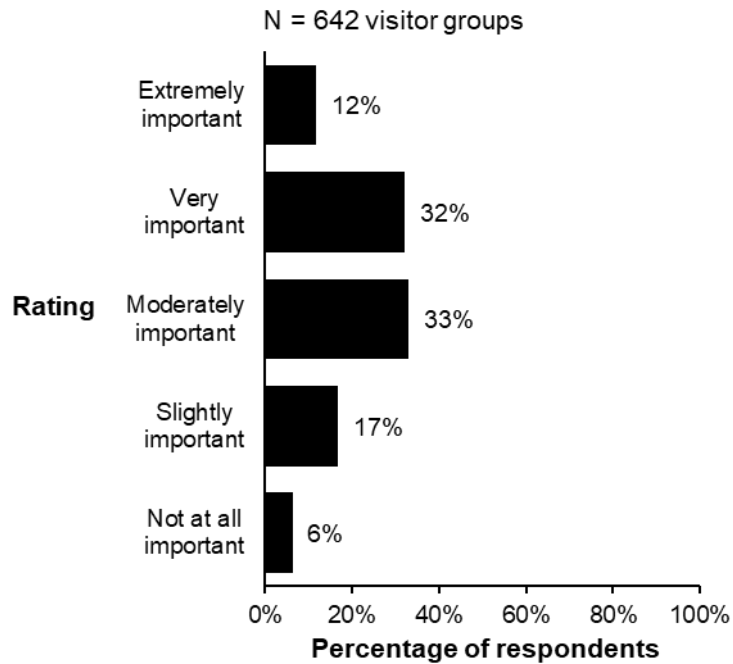


Figure 41. Importance of being where things are fairly safe

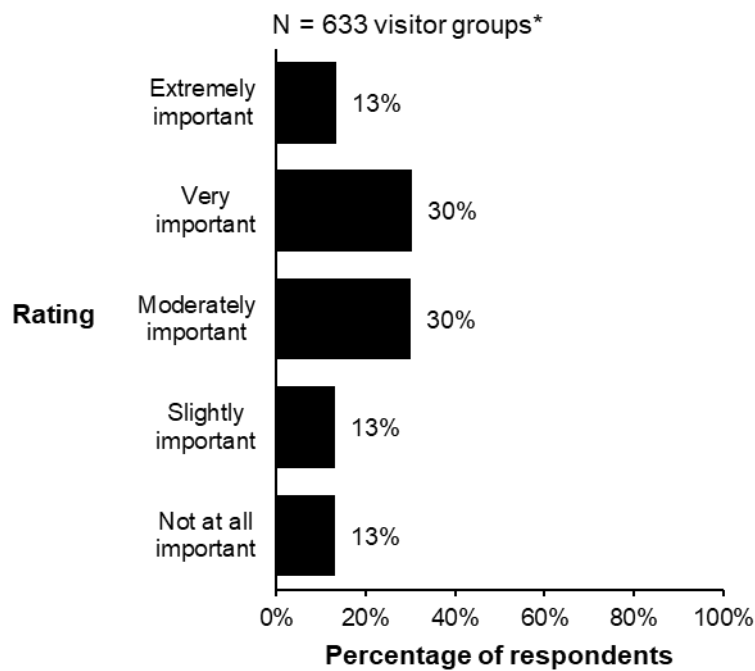


Figure 42. Importance of being my own boss

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

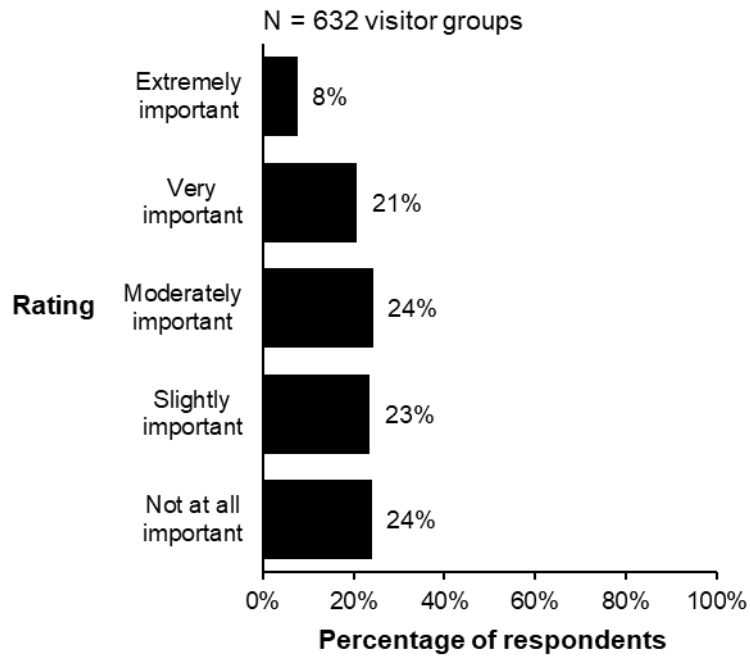


Figure 43. Importance of avoiding the unexpected

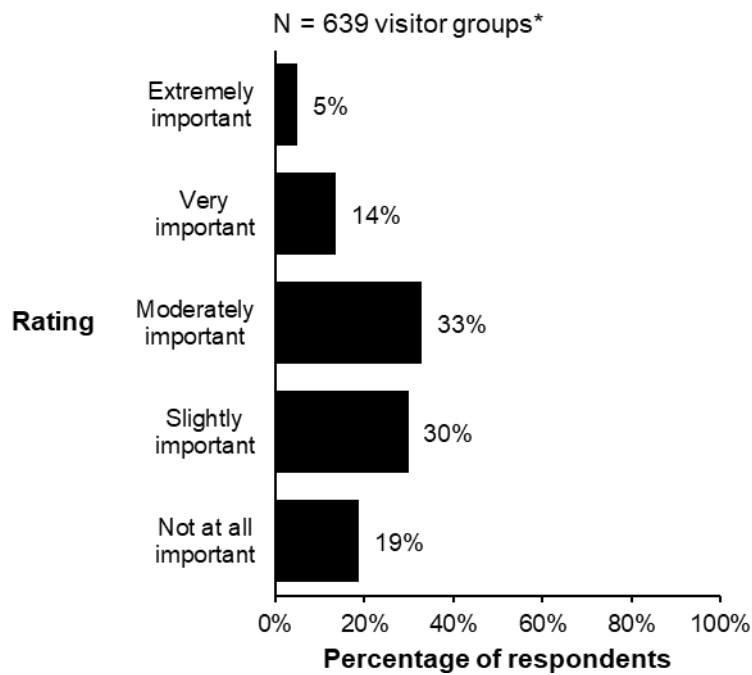


Figure 44. Importance of being near others who could help if you needed them

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Visitor Access and Transportation

Forms of transportation used

Question 11a

What forms of transportation did you and your group use to travel between your overnight accommodations or home and Arches National Park?

Results (Figure 45)

- 63% of visitor groups used a private car (car, SUV, pickup, RV, motorcycle, etc.) to travel between their overnight accommodation or home.
- 36% of visitor groups used a rental vehicle.

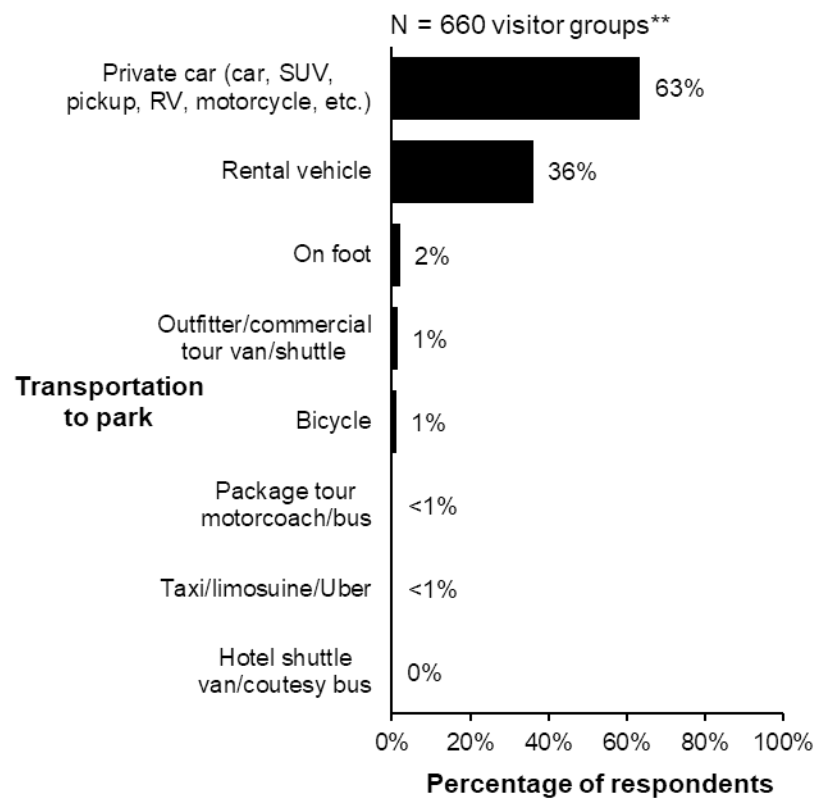


Figure 45. Transportation used to travel to park

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Number of vehicles used

Question 11b

If your group arrived at Arches National Park in private or rental vehicles, how many vehicles did you and your group use?

Results (Figure 46, Table 22)

- 96% of visitor groups used one private or rental vehicle to get to the park.

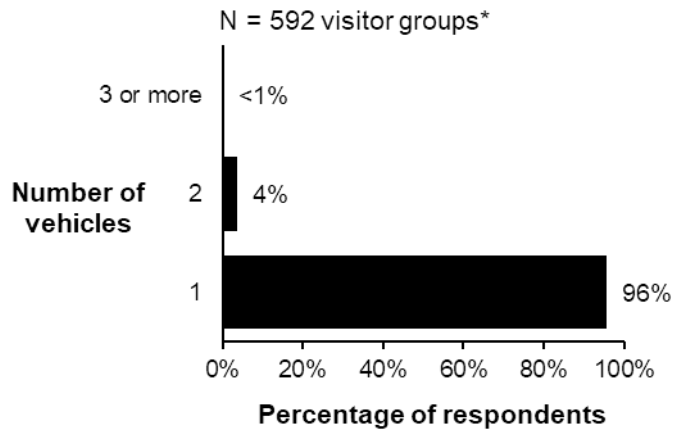


Figure 46. Number of vehicles used

Table 22. Descriptive statistics: Number of vehicles used

Statistic	Mean	Median	Std. Deviation
Number of vehicles used	1.07	1.00	0.58

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Waiting due to traffic congestion

Question 12

Approximately how long did you have to wait in traffic congestion to enter Arches National Park on this trip?

Results (Figure 47, Table 23)

- 32% of visitor groups had to wait two to five minutes to enter Arches National Park.
- 25% of visitor groups waited up to one minute.

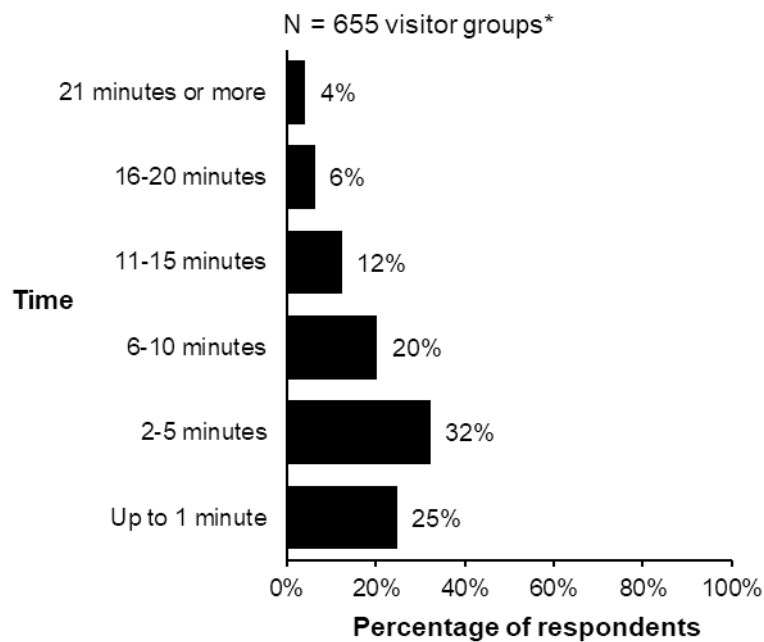


Figure 47. Wait time in traffic congestion

Table 23. Descriptive statistics: Wait time in traffic congestion

Statistic	Mean	Median	Std. Deviation
Wait time in traffic congestion	7.76	5.00	7.65

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Expectations for traffic congestion

Question 13

Overall, compared to what you expected, how much traffic congestion did you experience during your visit to Arches National Park?

Results (Figure 48)

- 29% of visitor groups experienced about the same traffic congestion as expected.
- 29% of visitor groups did not know what to expect.
- 24% of visitor group experienced less traffic congestion than expected.

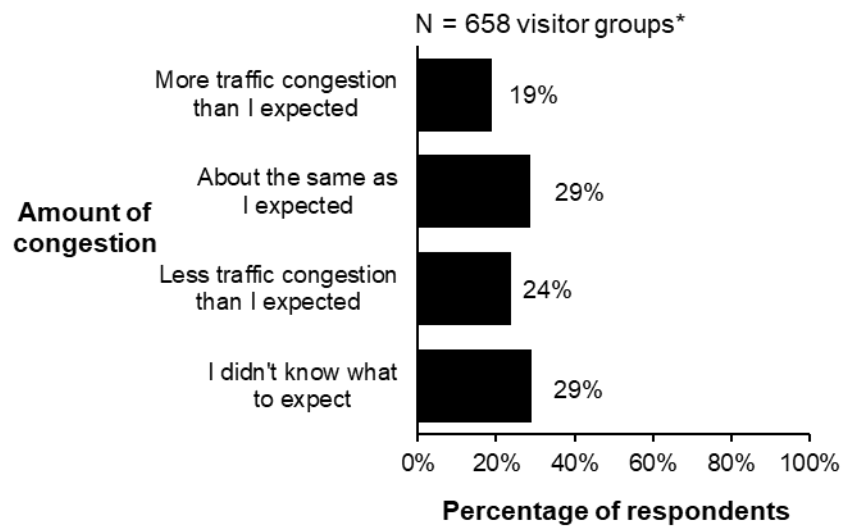


Figure 48. Expectations for traffic congestion during visit

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Experience of parking problems

Question 14a

During this visit to Arches National Park, did you experience any parking problems?

Results (Figure 49)

- 65% of visitor groups did not experience parking problems on their visit to Arches National Park.

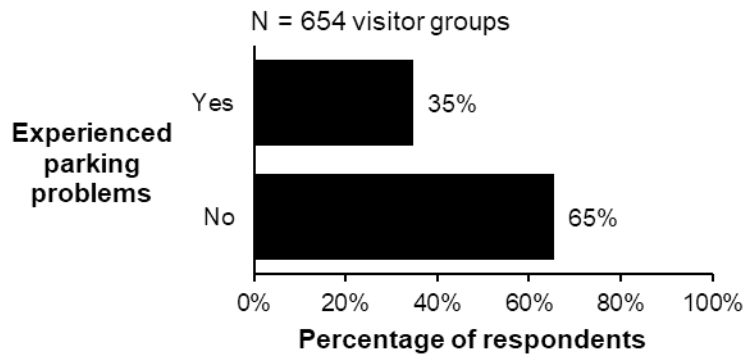


Figure 49. Visitor groups who experienced parking problems during visit

Question 14b

If YES, where did you encounter parking problems?

Results (Table 24)

- Of those who experienced parking problems, the most frequently mentioned locations were:
 - 21% The Windows
 - 17% Everywhere

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Table 24. Where visitor groups encountered parking problems. N = 288 comments, some visitor groups may have made more than one comment.

Response	Percent of valid responses
The Windows	21%
Everywhere	17%
Balanced Rock	7%
Several sites	7%
Delicate Arch	6%
Double Arch	6%
Overlooks	6%
Trailheads	4%
Not enough parking	4%
Fiery Furnace	4%
Not enough RV parking	3%
Picnic area	2%
Park Avenue	2%
Landscape Arch	1%
Not enough disabled parking	1%
Wolf Ranch	1%
Park entrance	1%
Courthouse Towers	1%
Other comments	4%

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Adequacy of signs inside the park

Question 15a

On this visit, were the signs inside Arches National Park directing you and your personal group to facilities and locations adequate?

Results (Figure 50)

- 96% of visitor groups indicated that signs directing to facilities and locations inside Arches National Park were adequate.

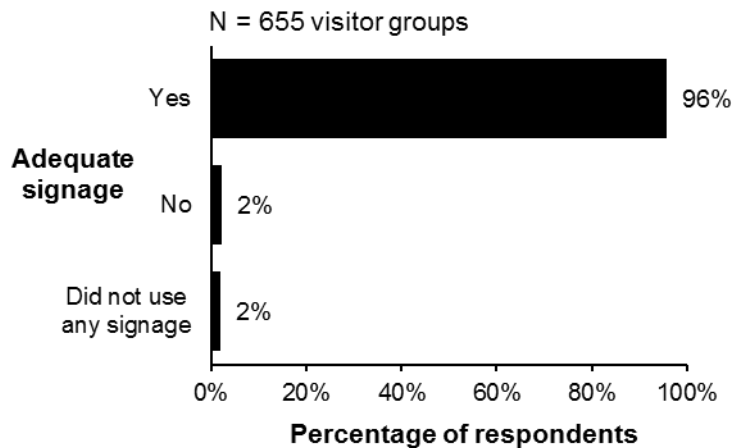


Figure 50. Adequacy of signs inside the park

Question 15b

If NO, what signage problem did you encounter?

Results (Table 25)

- Of those that encountered signage problems, the most frequently mentioned problems were:
 - 33% More signage for locations/roads/trails on map
 - 16% Hard to find destinations

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Table 25. Signage problems encountered. N = 19 comments, some visitor groups may have made more than one comment.

Response	Percent of valid responses*
More signage for locations/roads/trails on map	33%
Hard to find destinations	16%
Picnic tables aren't marked	12%
Walking distances and times could be better marked	10%
Bathrooms not well marked	6%
Didn't indicate parking problems	5%
Speed limit signs inconsistent	3%
Arches visible from road are not marked	3%
Other comments	13%

CAUTION: Number of respondents less than 30 visitor groups.

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Visitor Experience

Other local and regional attractions visited

Question 16

Which other local and regional attractions did you (or do you plan to) visit on this trip to Arches National Park?

Results (Figure 51)

- Other attractions that visitor groups planned to visit on this trip include:
 - 68% Canyonlands National Park – Island in the Sky district
 - 41% Capitol Reef National Park
 - 35% Dead Horse Point State Park

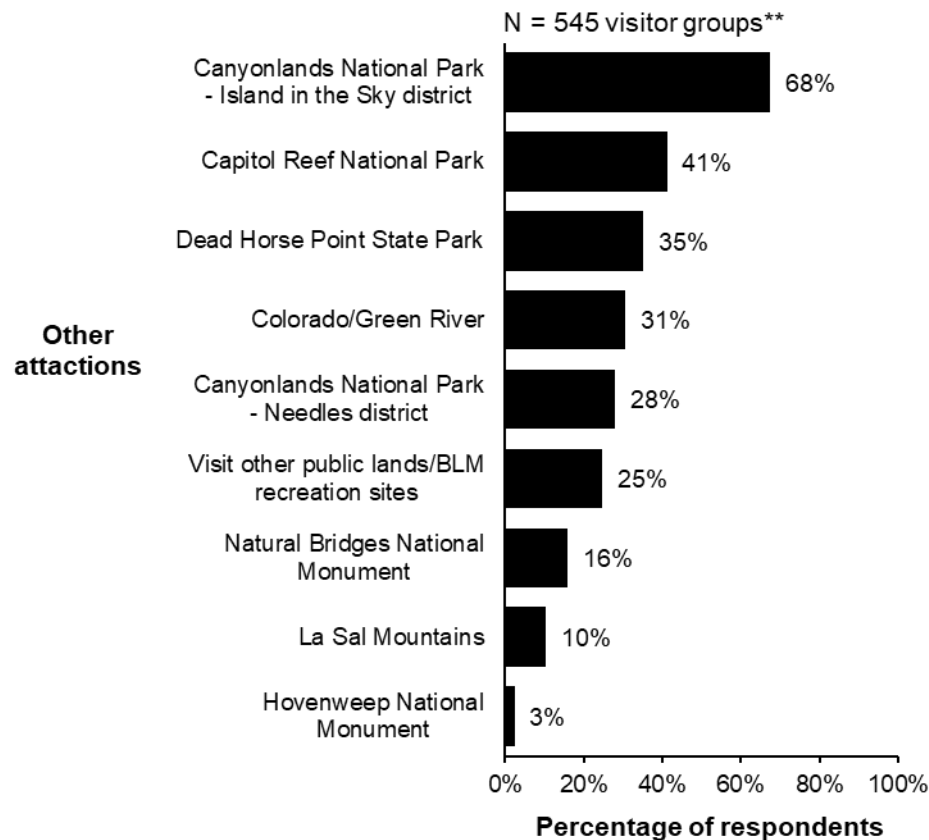


Figure 51. Other local and regional attractions visited on this trip

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Length of stay in Arches National Park

Question 7

On this trip, how much total time did you spend within Arches National Park?

Number of hours, if day trip

Results (Figure 52, Table 26)

- 57% of visitor groups spent five or more hours in the park.
- 18% of visitor groups spent four hours in the park.

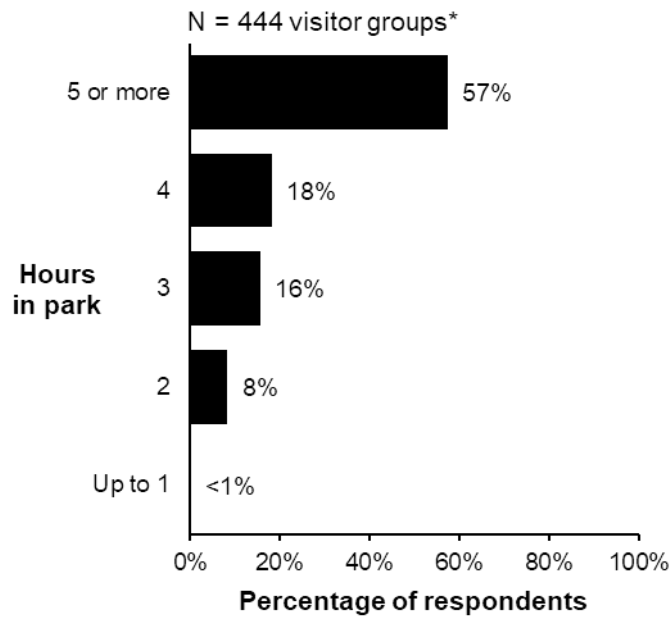


Figure 52. Number of hours visiting the park by groups who spent less than 24 hours in the park

Table 26. Descriptive statistics: Number of hours visiting park

Statistic	Mean	Median	Std. Deviation
Number of hours visiting park	5.00	5.00	2.01

Number of days, if greater than 1 day

Results (Figure 53, Table 27)

- Of those visitor groups who visited the park for more than 24 hours, 76% visited for two days.
- 13% of visitor groups visited three days.

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

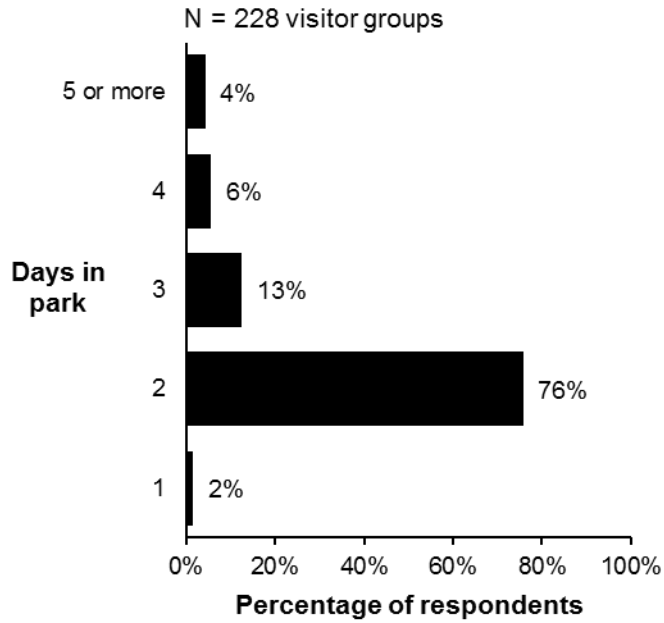


Figure 53. Number of days visiting the park by groups who spent 24 hours or more in the park

Table 27. Descriptive statistics: Number of days visiting park

Statistic	Mean	Median	Std. Deviation
Number of days visiting park	2.56	2.00	2.96

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Entrance fee applied

Question 17

On this visit, which one of the following entrance fees applied to you and your personal group?

Results (Figure 54)

- 62% of visitor groups used a pass to enter Arches National Park.
- 23% of visitor groups did not pay a fee.

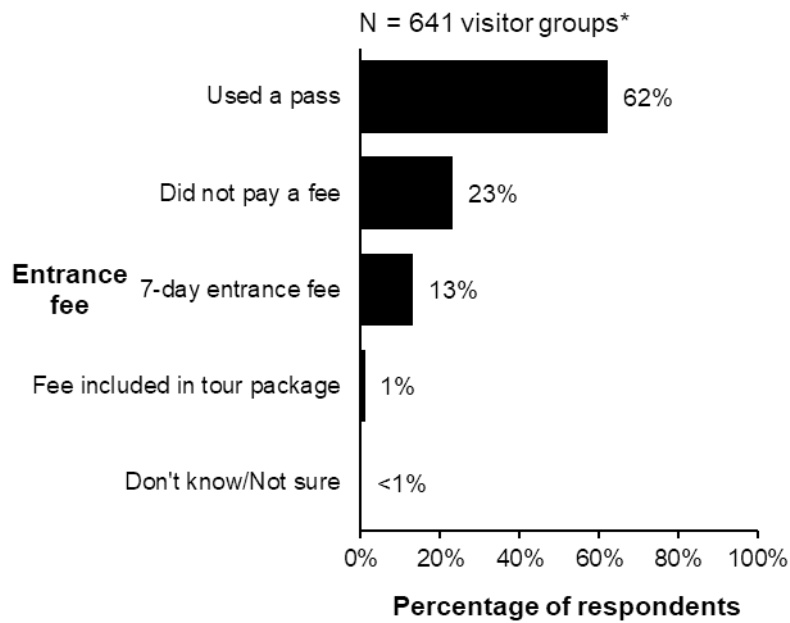


Figure 54. Entrance fees that applied to visitor groups

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Sites visited in the park

Question 21a

On the list below, please indicate the order in which you and your group visited the following sites at Arches National Park.

Results

- Figure 55 shows which sites visitor groups visited in the park. The most frequently visited sites were:
 - 72% Balanced Rock
 - 71% Visitor Center
 - 66% The Windows

- Figure 56 shows which visitor groups visited first after entering the park. The sites most frequently visited first were:
 - 62% Visitor Center
 - 11% Park Avenue

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

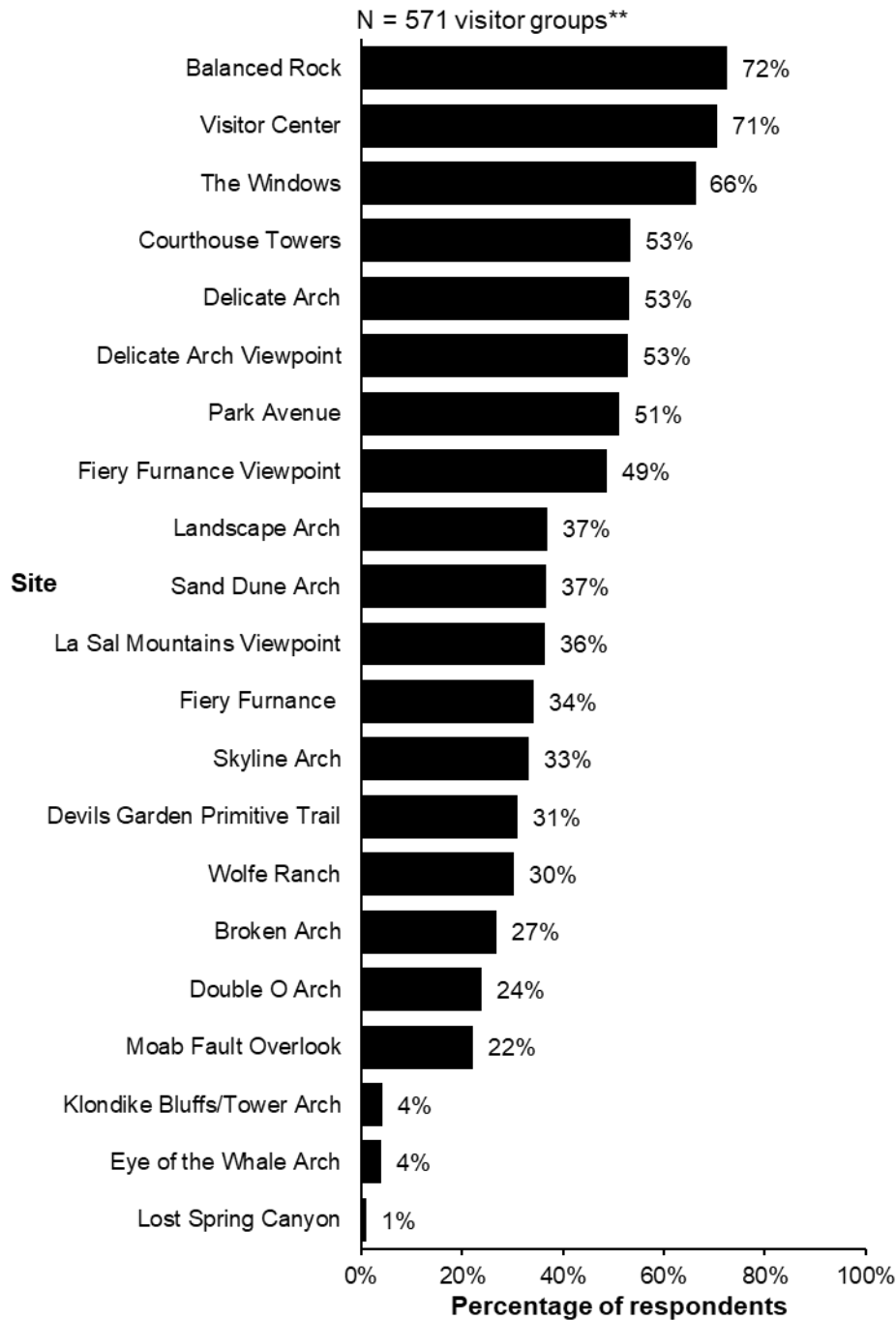


Figure 55. Sites visited in the park

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

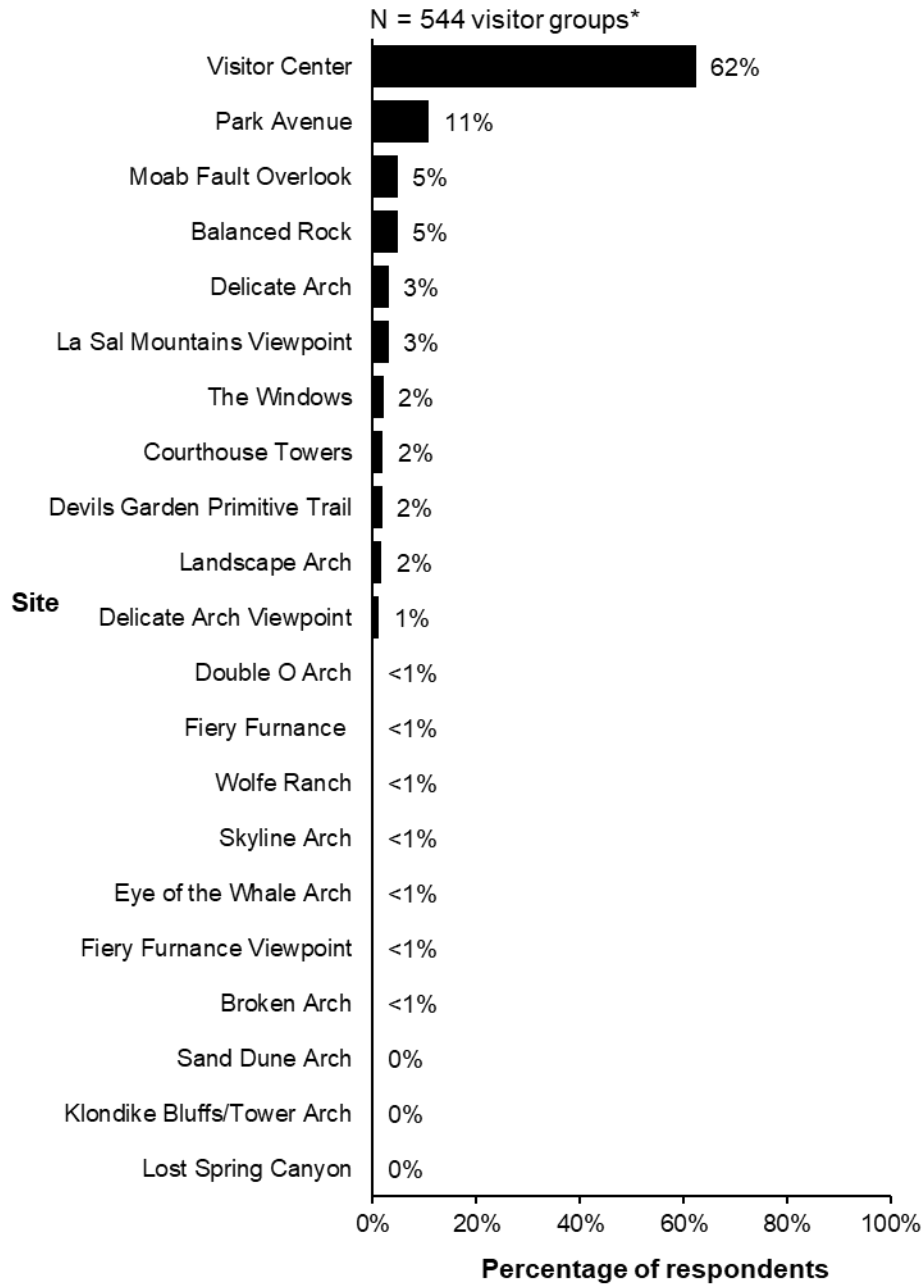


Figure 56. Sites visited first in the park

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Crowding at sites in the park

Question 21b

For the locations that you visited, how crowded did you feel at these locations?

Rating choices:

- Extremely
- Very
- Moderately
- Slightly
- Not at all

Results

- Figure 57 shows the combined proportions of “extremely” and “very” ratings for crowding at each site.
- The sites that received the highest combined proportions of “extremely” and “very” ratings were:
 - 43% The Windows
 - 38% Delicate Arch
 - 25% Devils Garden Primitive Trail
- The sites that received the lowest combined proportions of “extremely” and “very” ratings were:
 - 7% Eye of the Whale Arch
 - 6% Klondike Bluffs/Tower Arch
 - 5% Moab Fault Overlook

Figure 58 through Figure 78 show ratings for each site.

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

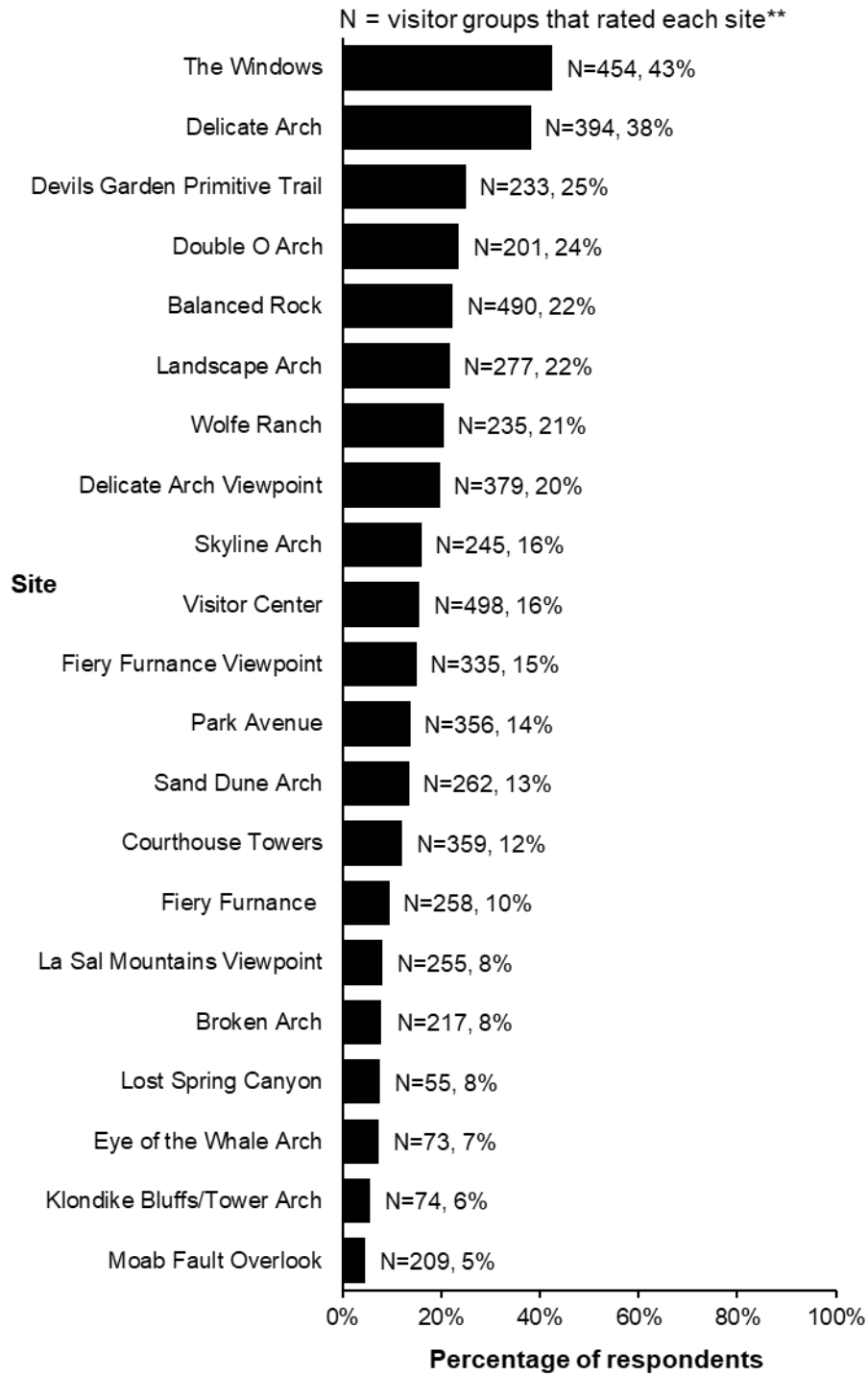


Figure 57. Crowding at sites in the park, combined ratings of “extremely” and “very”

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

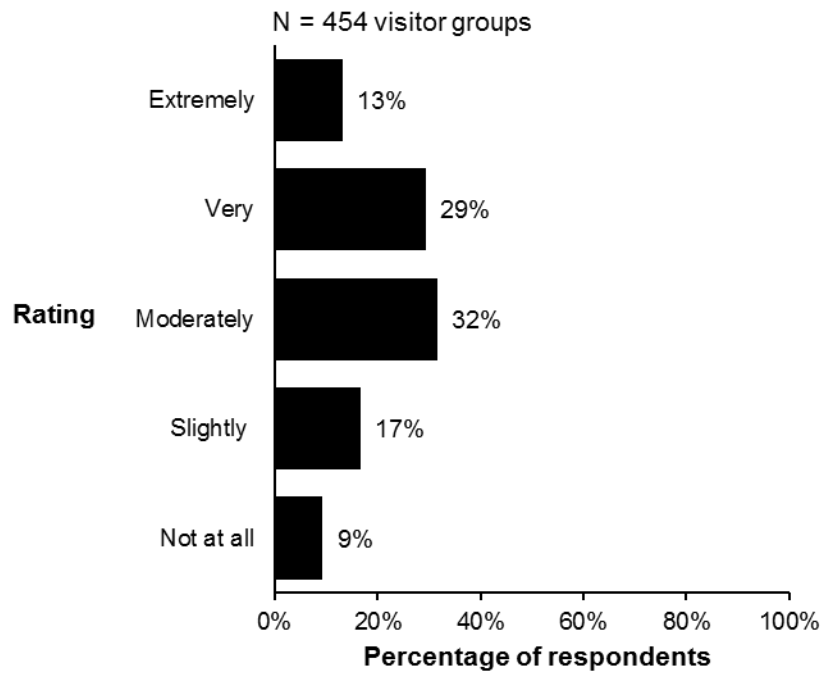


Figure 58. Crowding at the Windows

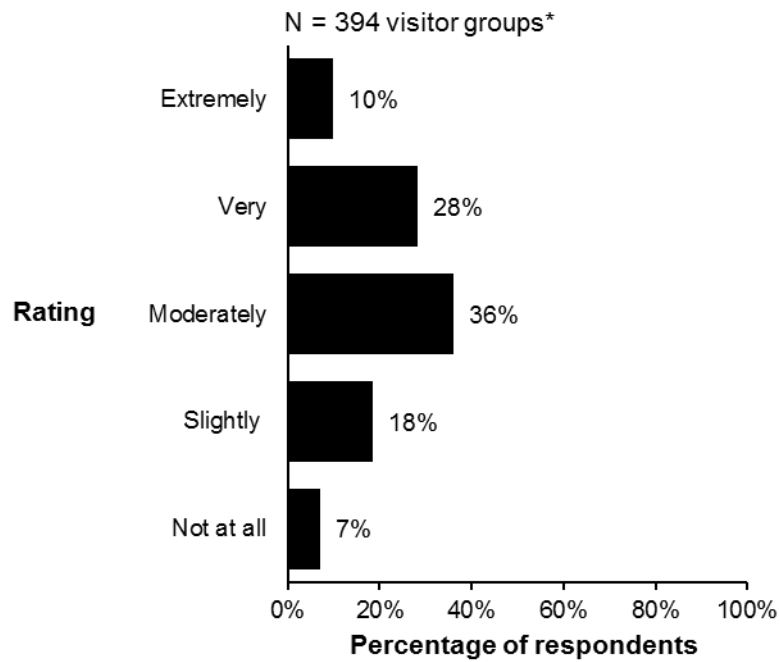


Figure 59. Crowding at Delicate Arch

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

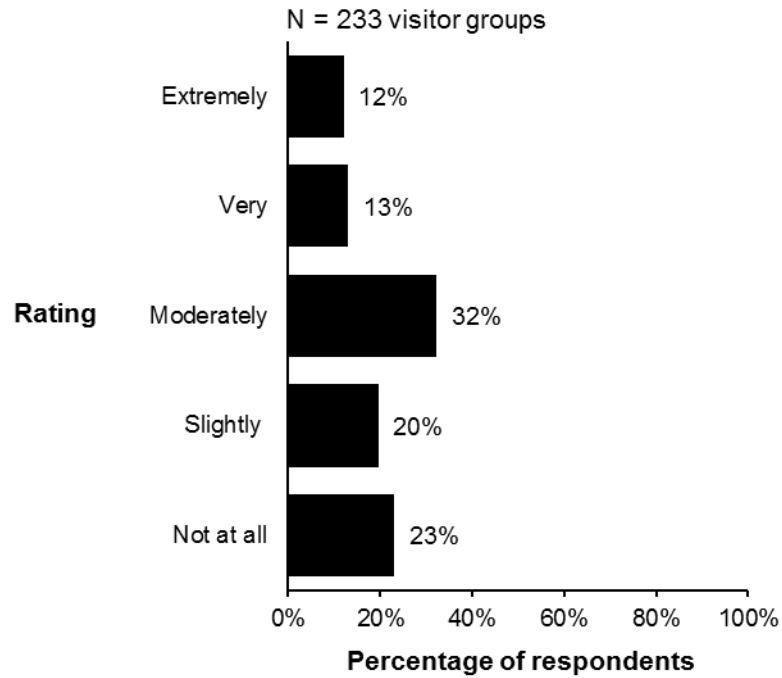


Figure 60. Crowding at Devils Garden Primitive Trail

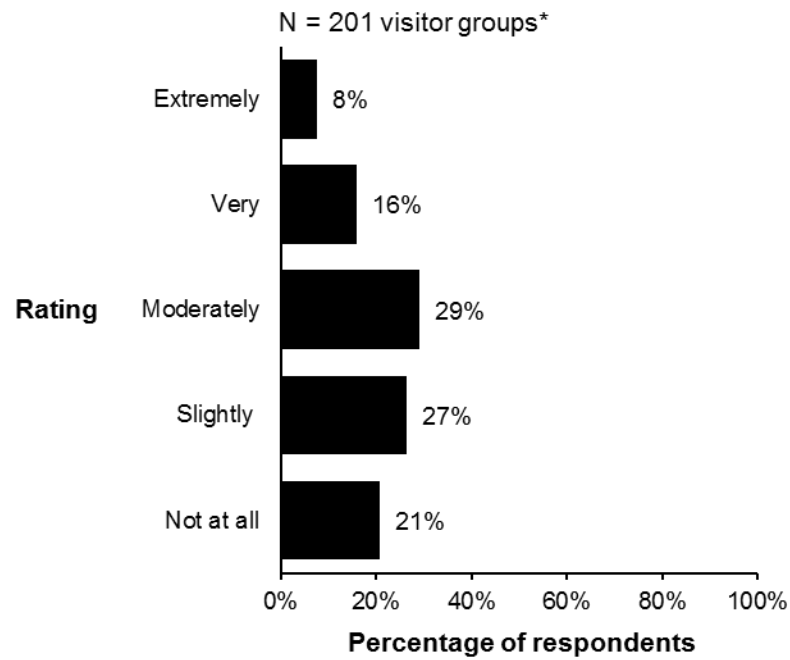


Figure 61. Crowding at Double O Arch

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

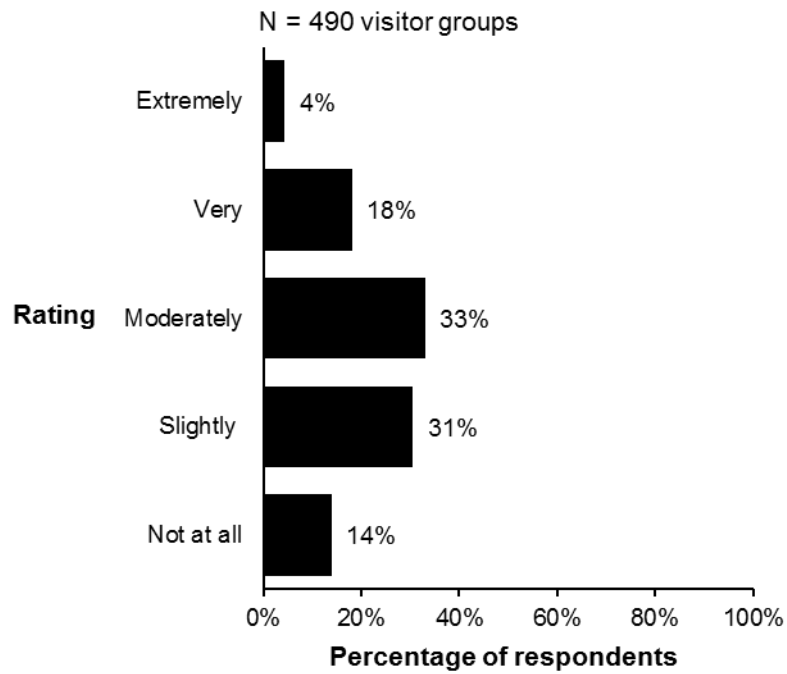


Figure 62. Crowding at Balanced Rock

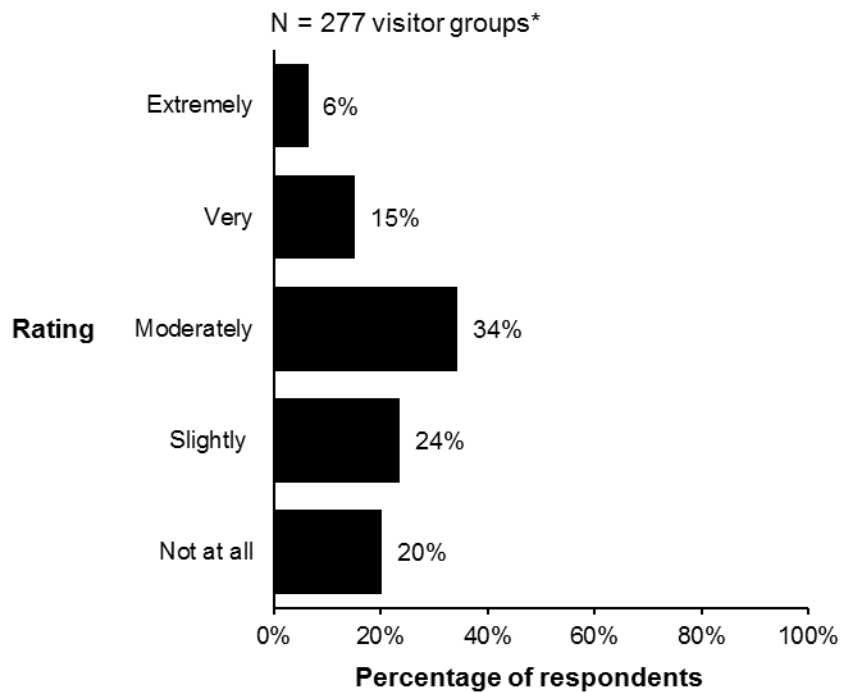


Figure 63. Crowding at Landscape Arch

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

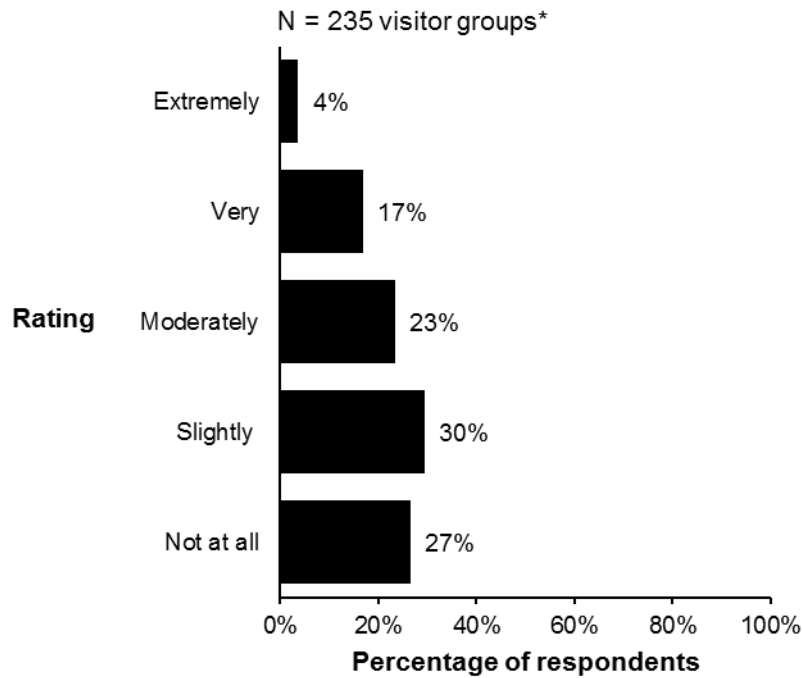


Figure 64. Crowding at Wolfe Ranch

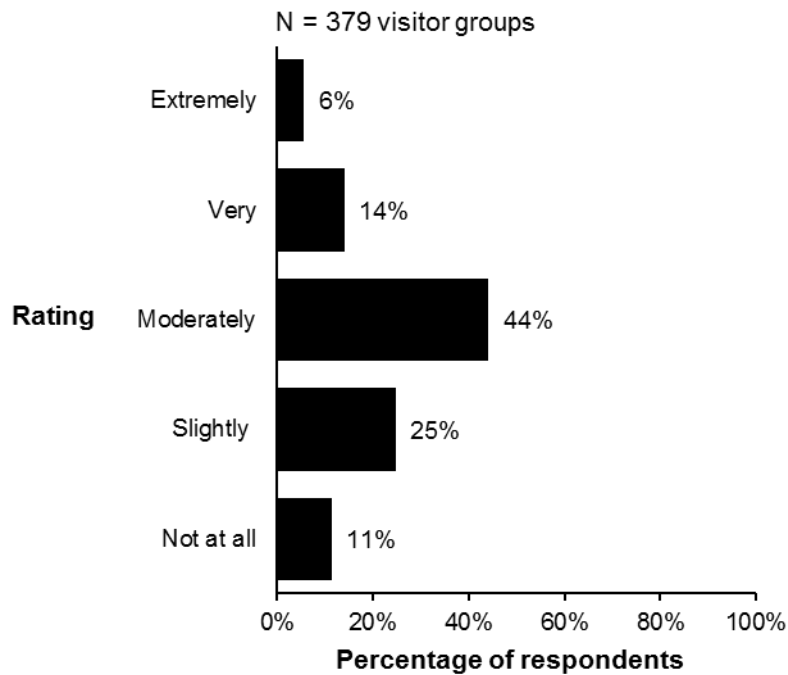


Figure 65. Crowding at Delicate Arch Viewpoint

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

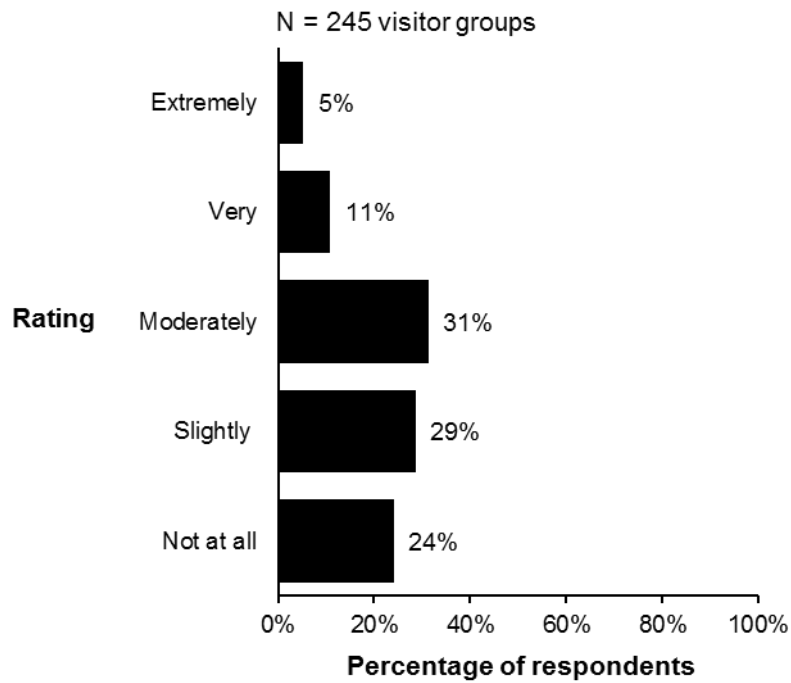


Figure 66. Crowding at Skyline Arch

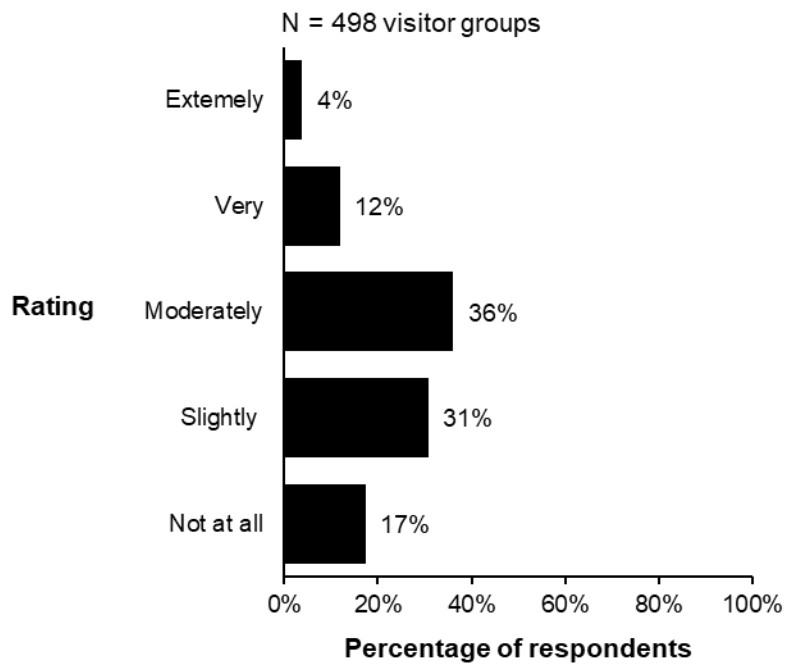


Figure 67. Crowding at Visitor Center

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

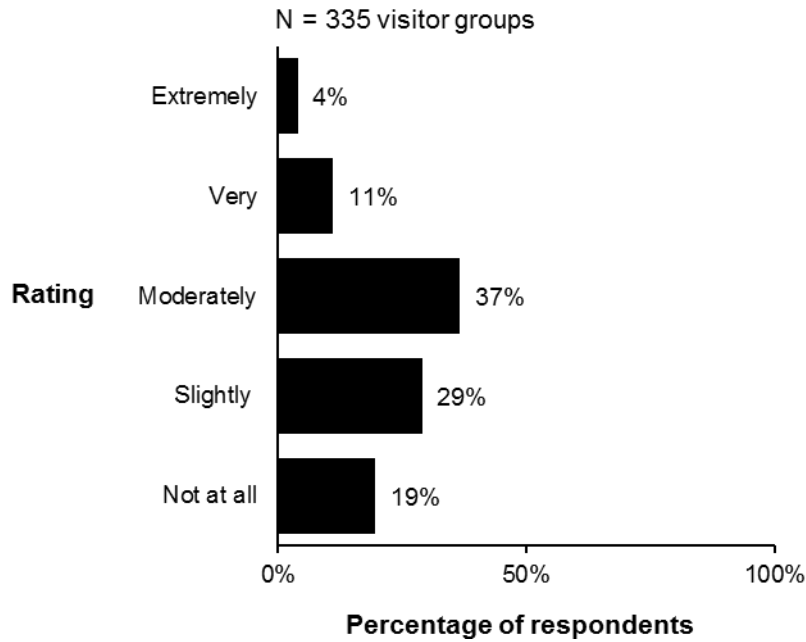


Figure 68. Crowding at Fiery Furnace Viewpoint

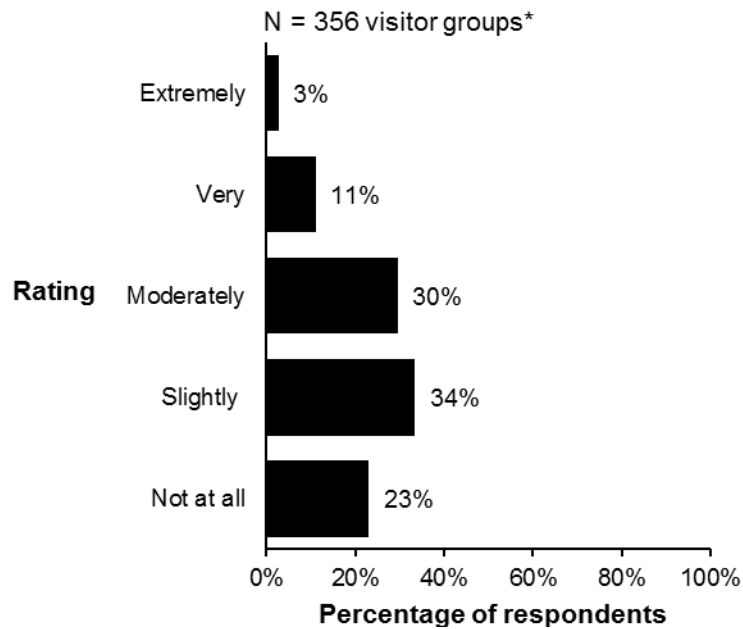


Figure 69. Crowding at Park Avenue

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

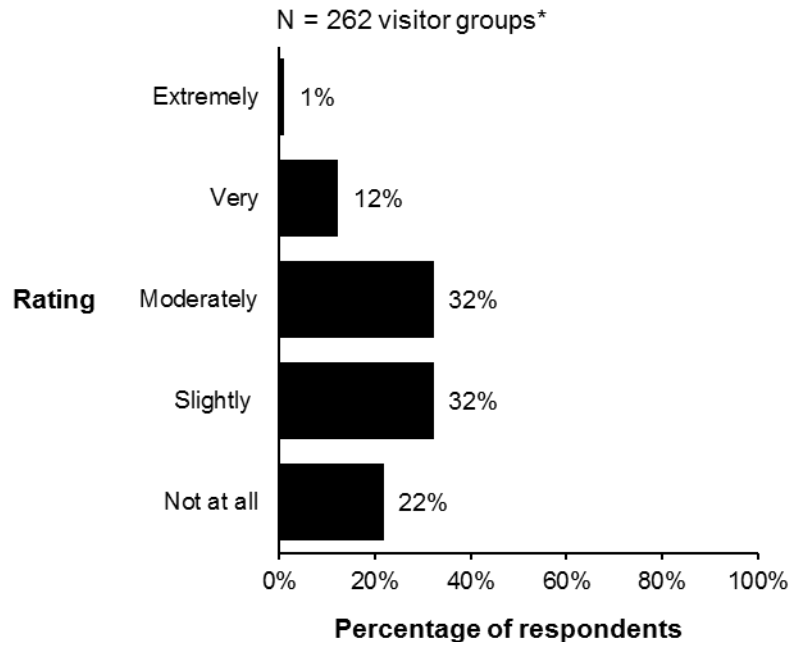


Figure 70. Crowding at Sand Dune Arch

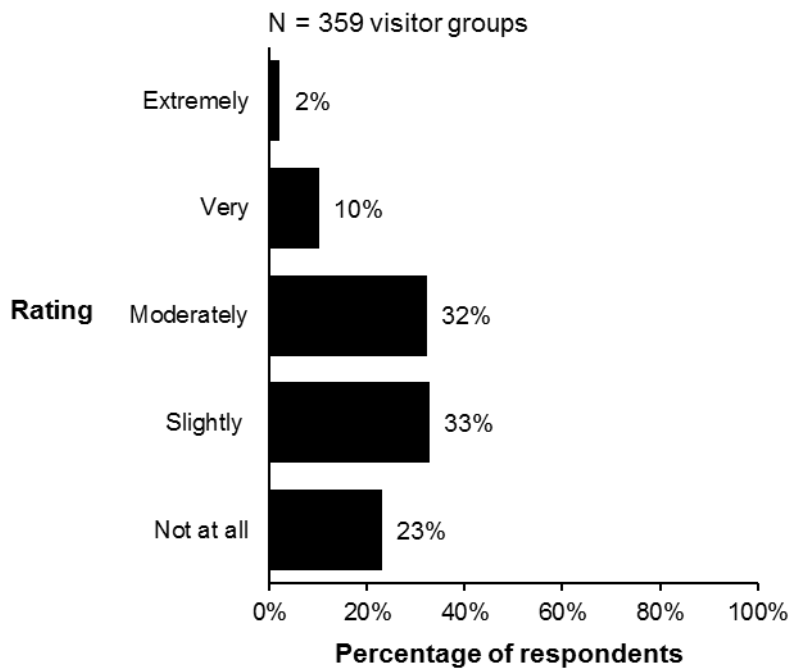


Figure 71. Crowding at Courthouse Towers

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

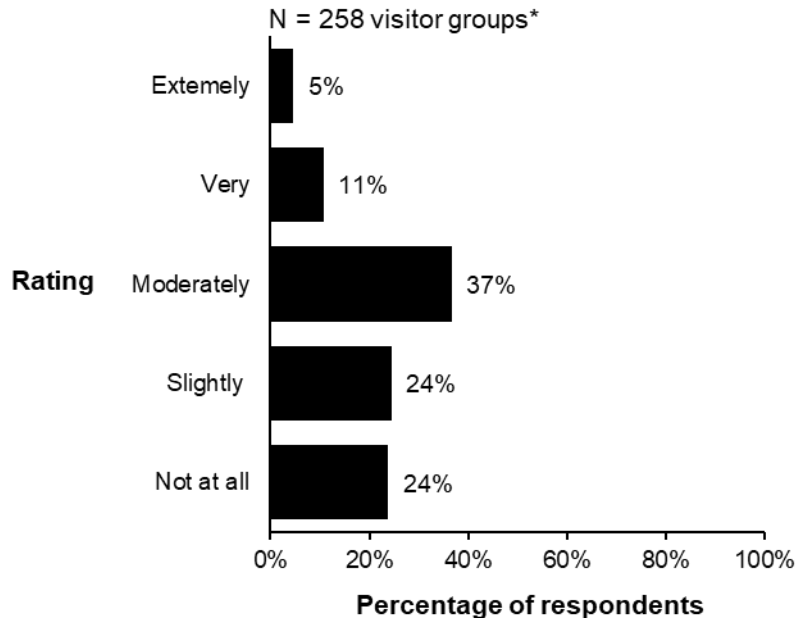


Figure 72. Crowding at Fiery Furnace

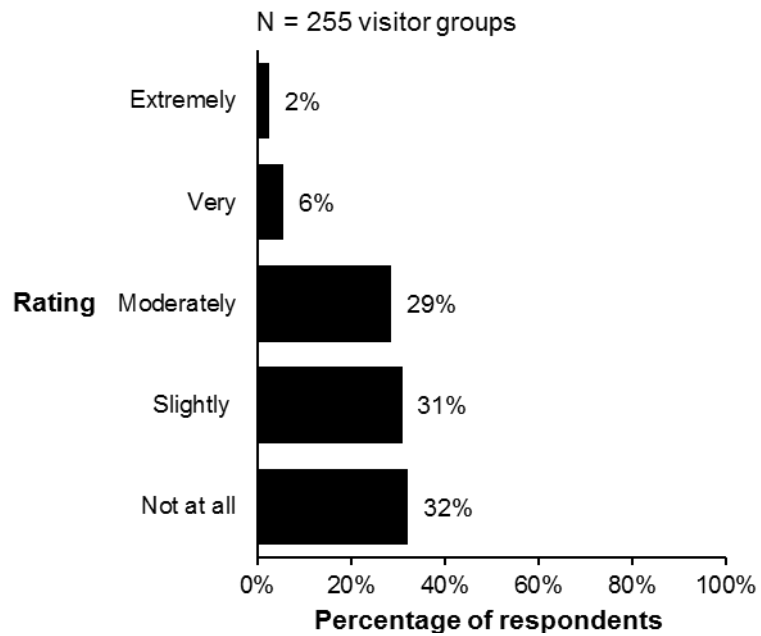


Figure 73. Crowding at La Sal Mountains Viewpoint

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

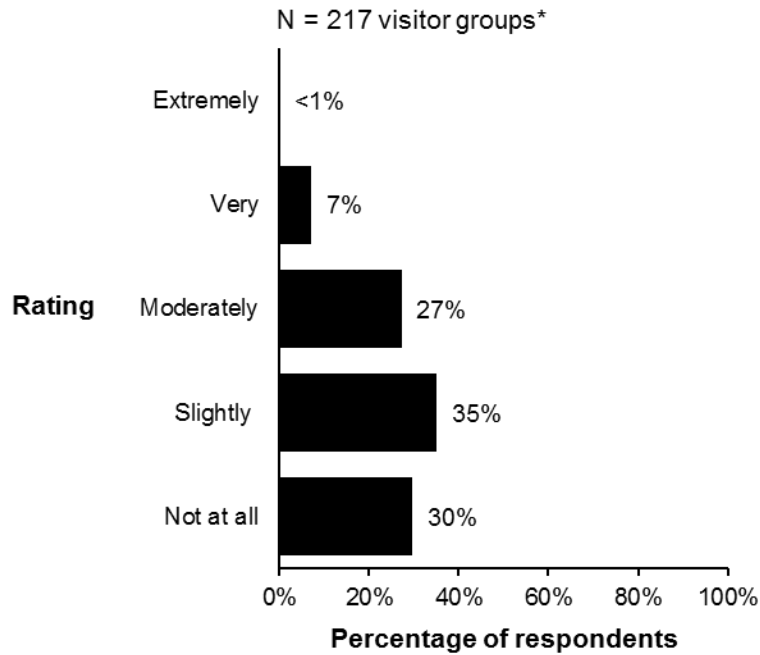


Figure 74. Crowding at Broken Arch

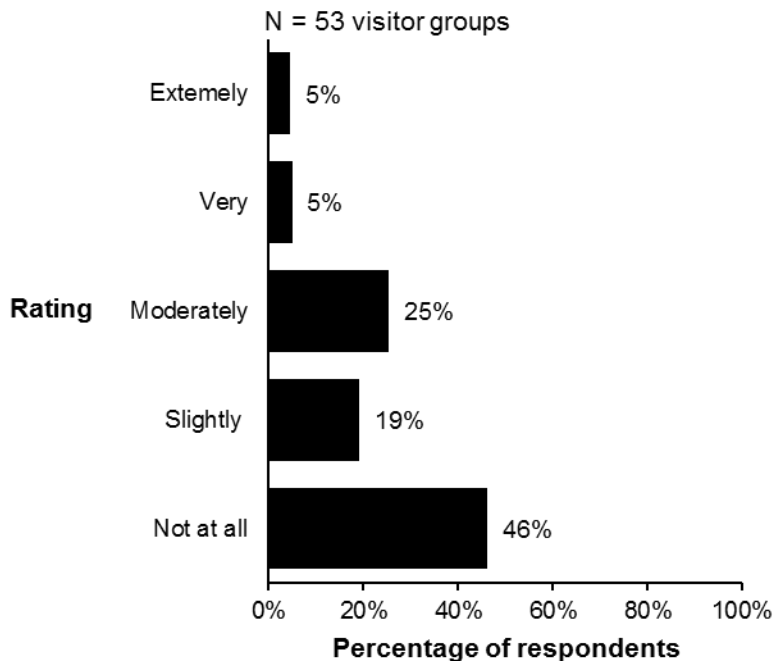


Figure 75. Crowding at Lost Spring Canyon

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

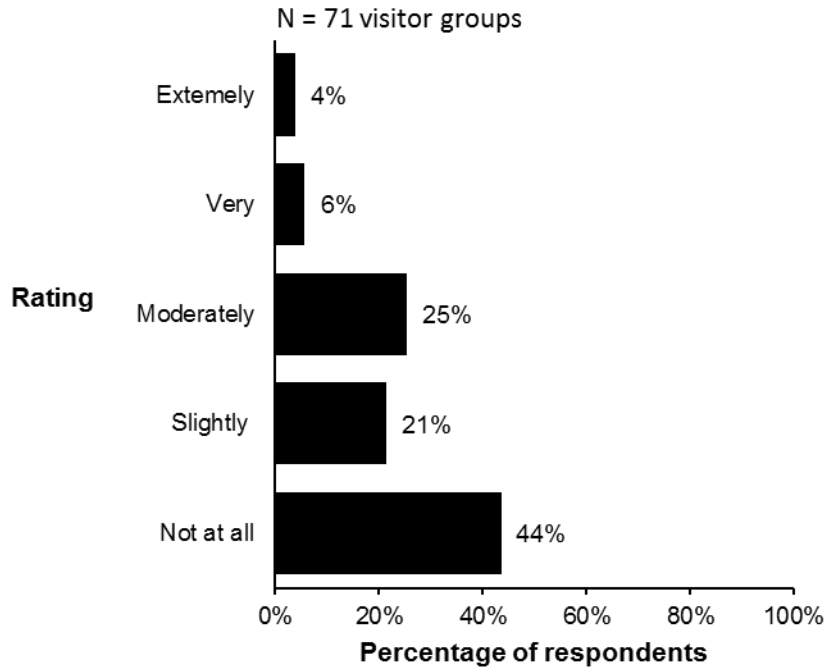


Figure 76. Crowding at Eye of the Whale Arch

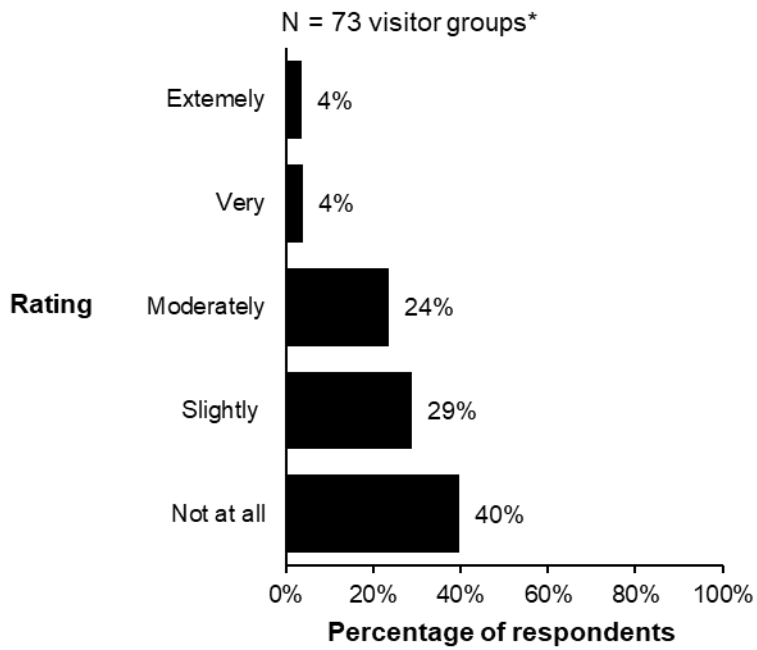


Figure 77. Crowding at Klondike Bluffs/Tower Arch

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

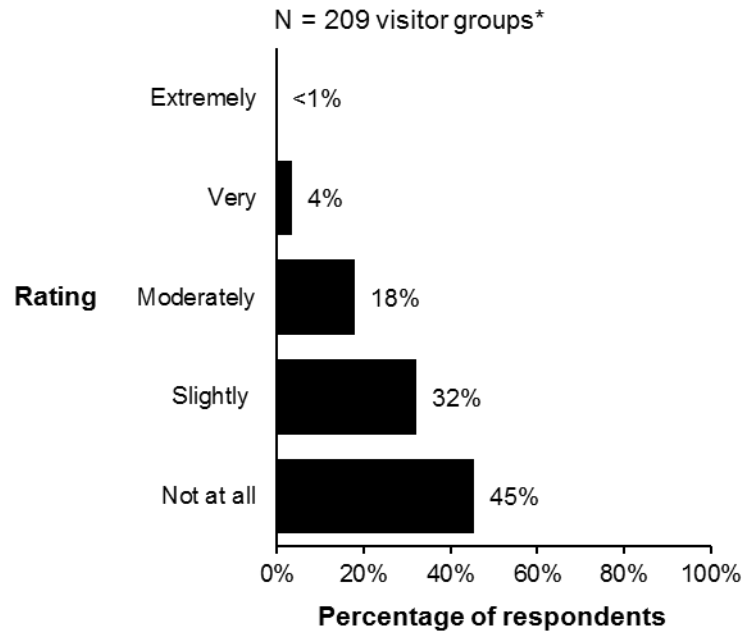


Figure 78. Crowding at Moab Fault Overlook

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Solitude in the Fiery Furnace

Question 30

Please mark only one response that indicates your level of agreement with this statement:

The number of other people I saw during my hike in the Fiery Furnace today interfered with my sense of solitude.

Results (Figure 79)

- 74% of visitor groups did not hike in the Fiery Furnace.
- Of visitor groups who hiked in the Fiery Furnace, 48% neither agreed nor disagreed with this statement, 19% disagreed with this statement, and 18% agreed with this statement.

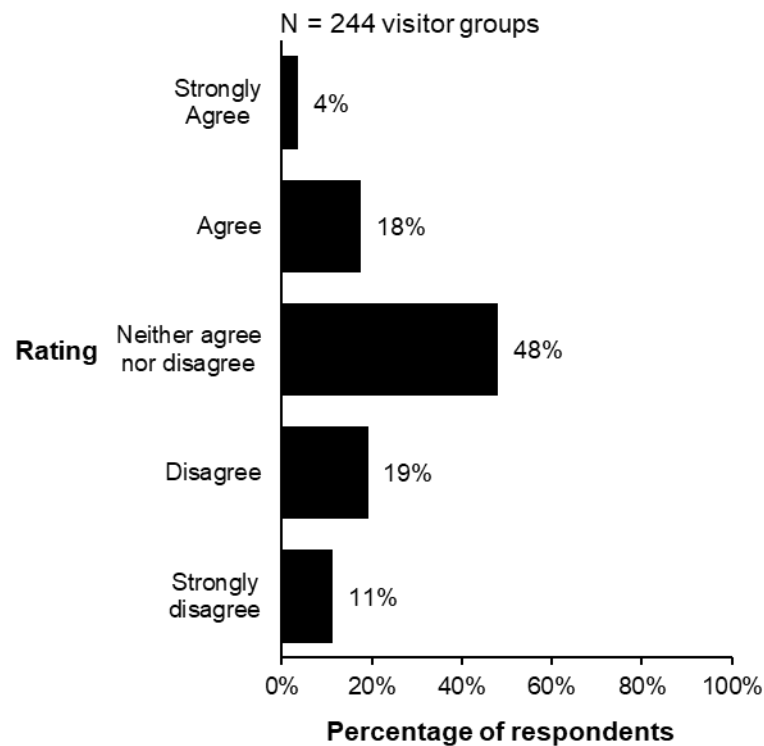


Figure 79. Extent of agreement or disagreement with statement on solitude in the Fiery Furnace

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Activity participation on this visit

Question 22a

On this visit, in which activities did you and your personal group participate?

Results (Figure 80)

- The most common activities in which visitor groups participated were:
 - 84% Walking/hiking
 - 83% Photography/painting/drawing
 - 80% Auto-touring/sightseeing
 - 70% Visiting the Visitor Center

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

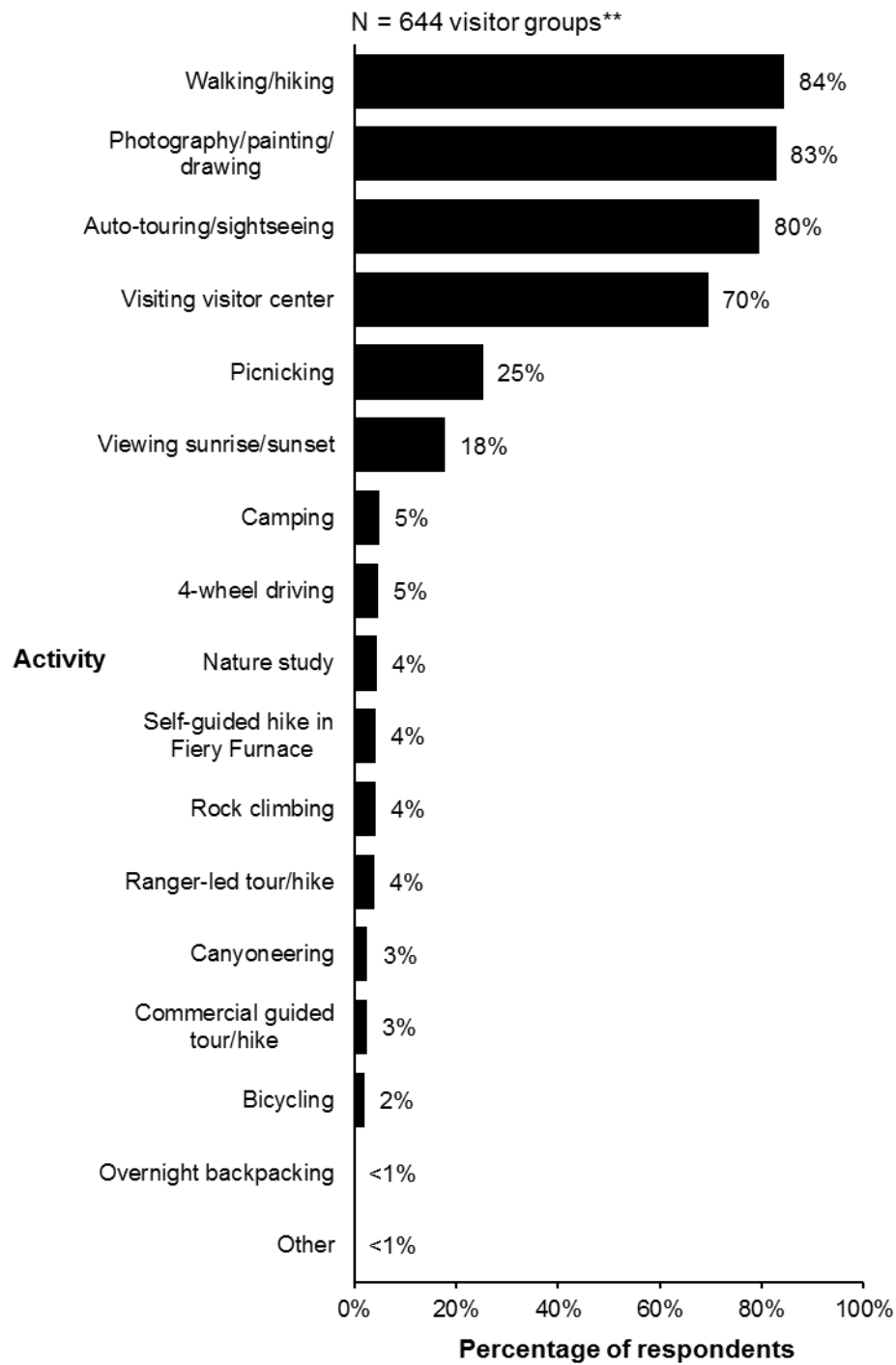


Figure 80. Participation in activities on this trip

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Activity participation on a future visit

Question 22b

If you were to visit in the future, in which activities would you and your personal group participate?

Results (Figure 81)

- The most common activity in which groups would like to participate in on a future visit were:
 - 49% Walking/hiking
 - 42% Photography/painting/drawing
 - 41% Auto-touring/sightseeing
 - 40% Viewing sunrise/sunset

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

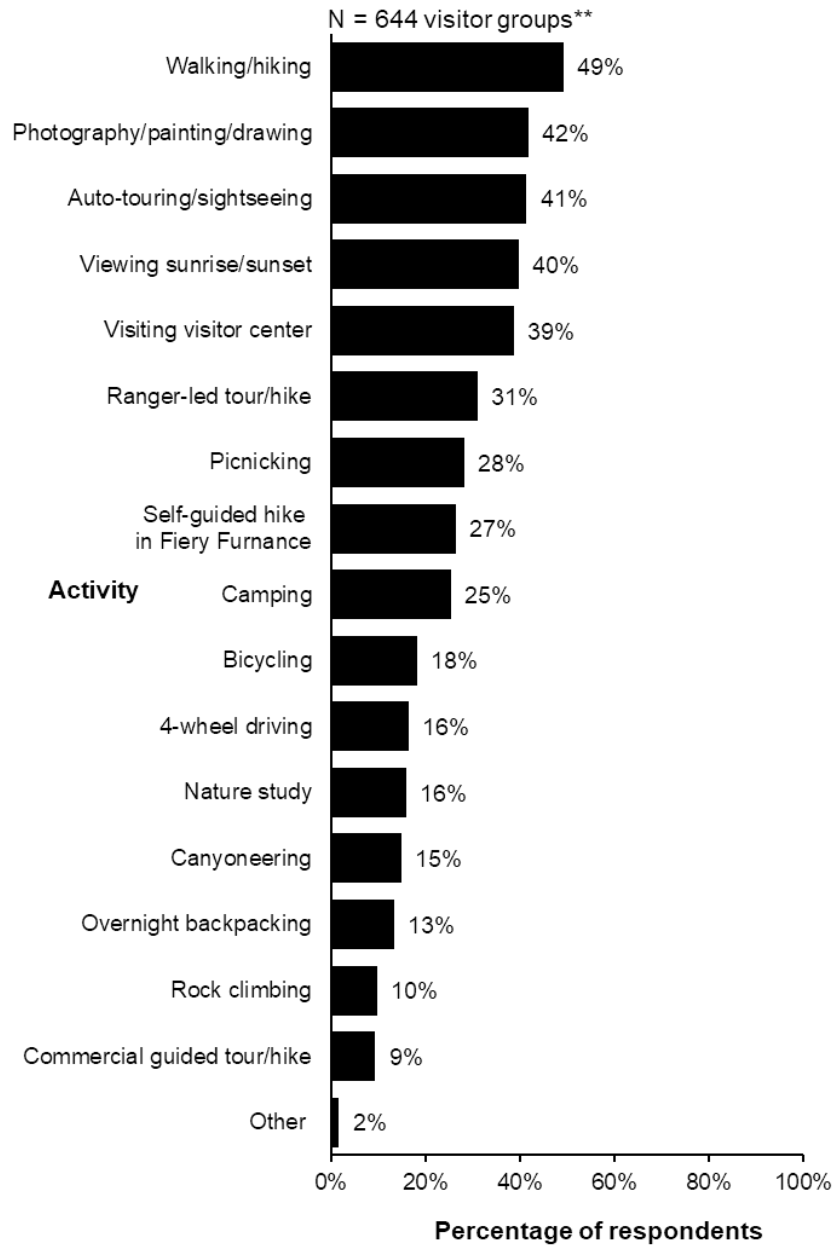


Figure 81. Participation in activities on a future visit

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Amount of hiking in the park

Question 28

Approximately how far did you go hiking during this visit to Arches National Park?

Results (Figure 82)

- 13% of visitor groups did not hike in the park.
- 33% of visitor groups hiked between two and five miles during their visit to Arches National Park.
- 20% hiked between one and two miles.

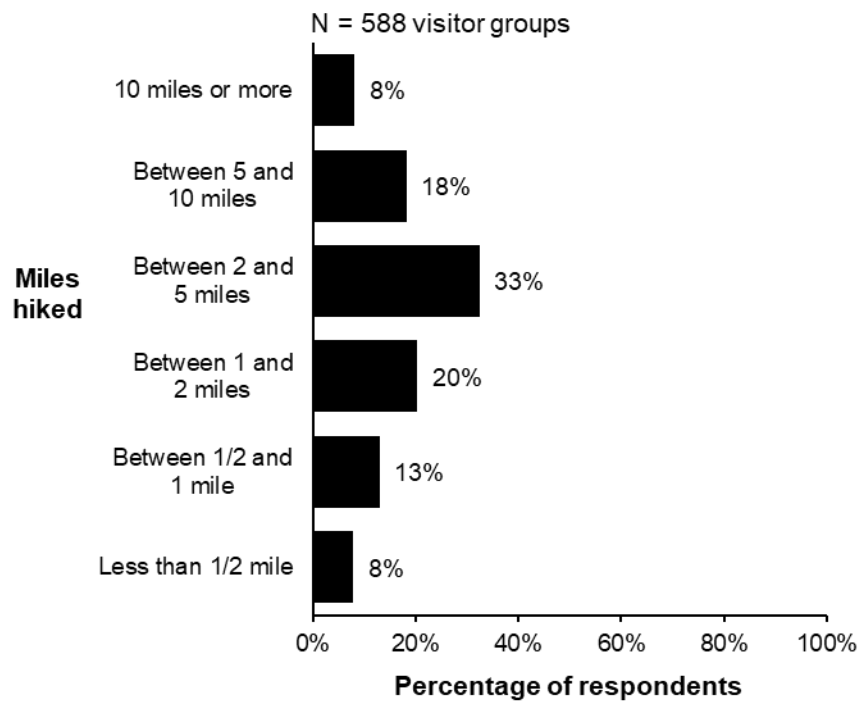


Figure 82. Miles hiked in the park

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Accessing the park's backcountry

Question 29a

On this visit, did you and your personal group desire to explore the backcountry of Arches National Park (defined here as at least two miles down a trail, or at least one-half mile from an improved road, if not on a trail)?

Results (Figure 83)

- 67% of visitor groups did not desire to explore the backcountry.

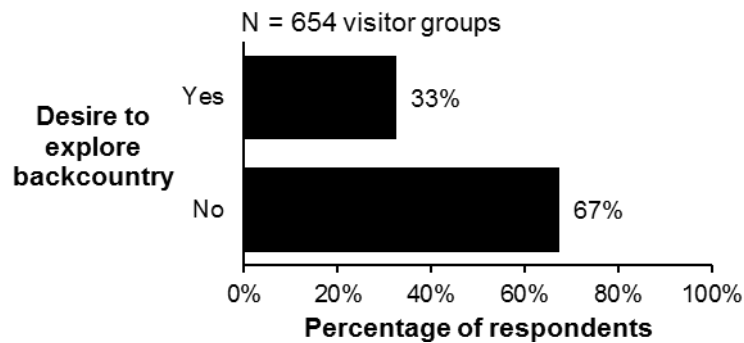


Figure 83. Visitor groups who desired to explore the backcountry

Question 29b

If YES, were you able to access the backcountry?

Results (Figure 84)

- Of those visitor groups who desired to explore the backcountry, 70% were able to access it.

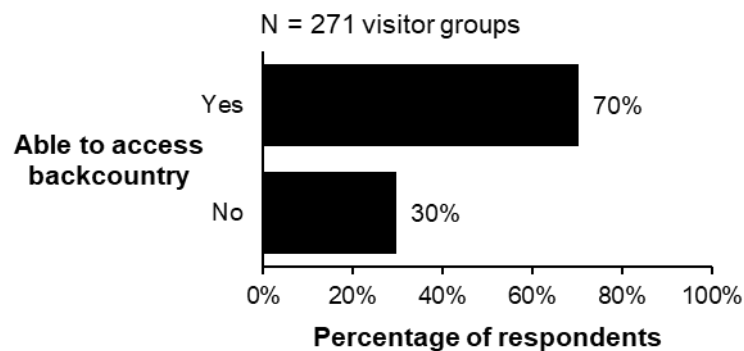


Figure 84. Visitor groups who were able to access the backcountry

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Question 29b

If NO, what prevented you from accessing the backcountry?

Results (Table 28)

- Of those groups who indicated that would like to explore the backcountry but were not able to, the most frequently mentioned reasons were:
 - 44% Not enough time
 - 8% Disabled
 - 7% Not having four-wheel drive

Table 28. Reasons why visitor groups could not access backcountry. N = 91 comments, some visitor groups may have made more than one comment.

Response	Percent of valid responses*
Not enough time	44%
Disabled	8%
Not having four-wheel drive	7%
Did not plan ahead of time	6%
Injured/sick	5%
Wanted to stay on trails	4%
Elderly	4%
Heat	4%
Parking	3%
Dogs	3%
Not prepared	3%
Bad weather	2%
Deep sand	1%
Other comments	7%

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Importance of backcountry and wilderness characteristics as reasons to use park trails

Question 25

The following is a list of characteristics commonly associated with backcountry and wilderness areas. Please indicate how important each of the items listed below was to you as a reason to use the trails in Arches National Park.

Rating choices:

- Extremely important
- Very important
- Moderately important
- Slightly important
- Not at all important

Results

- Figure 85 shows the combined proportions of “extremely important” and “very important” ratings for reasons to use the trails in Arches National Park.
- The reasons that received the highest combined proportions of “extremely important” and “very important” ratings were:
 - 75% Pristine natural environment
 - 58% Fostering immersion in nature
 - 57% Fostering a sense of humility toward nature
- The reasons that received the lowest combined proportions of “extremely important” and “very important” ratings were:
 - 14% Unconfined recreation/free from rules/regulations
 - 17% Physically challenging/demanding
 - 17% Primitive recreation/few facilities

Figure 86 through Figure 95 show ratings for each reason.

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

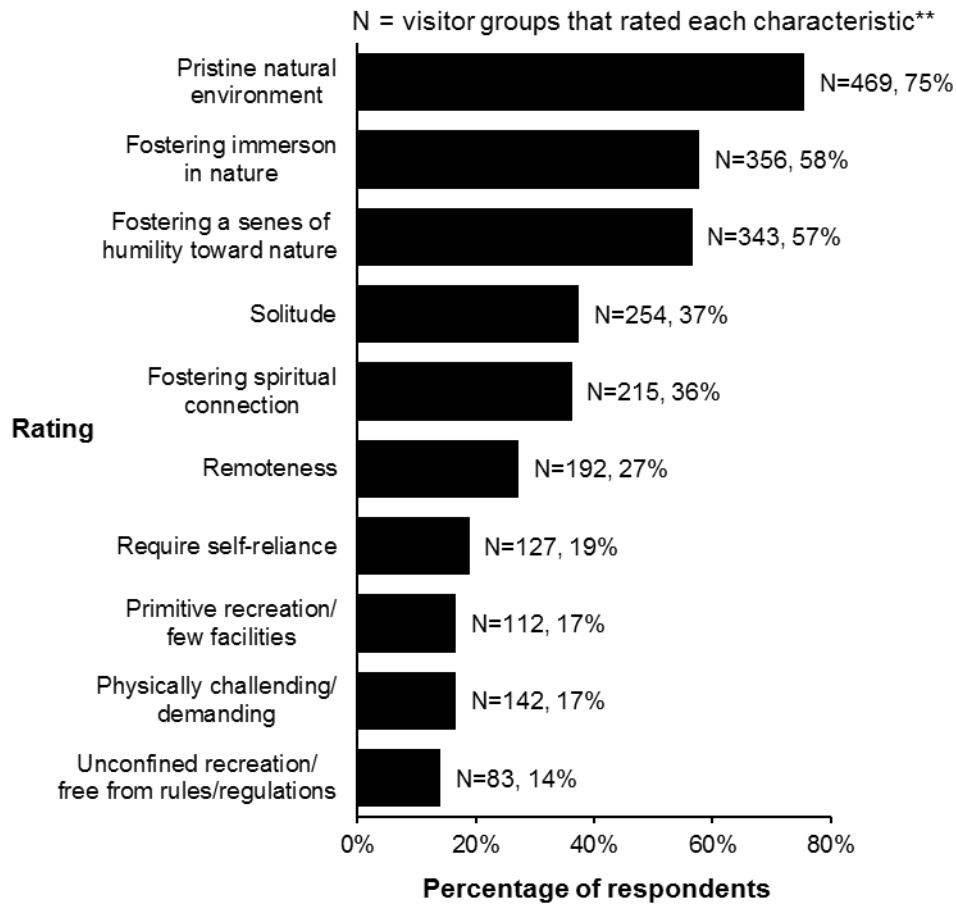


Figure 85. Importance of backcountry and wilderness characteristics as reasons to use park trails, combined ratings of “extremely important” and “very important”

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

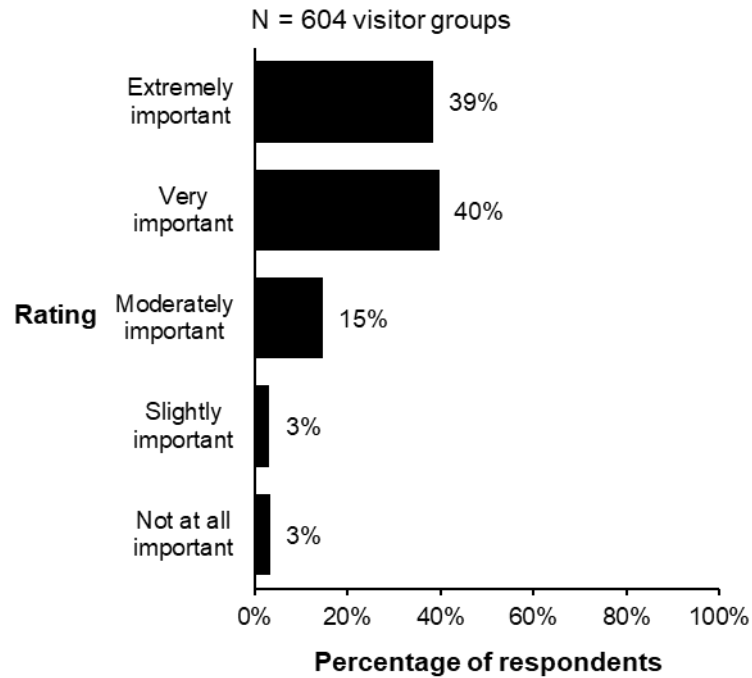


Figure 86. Importance of pristine natural environment

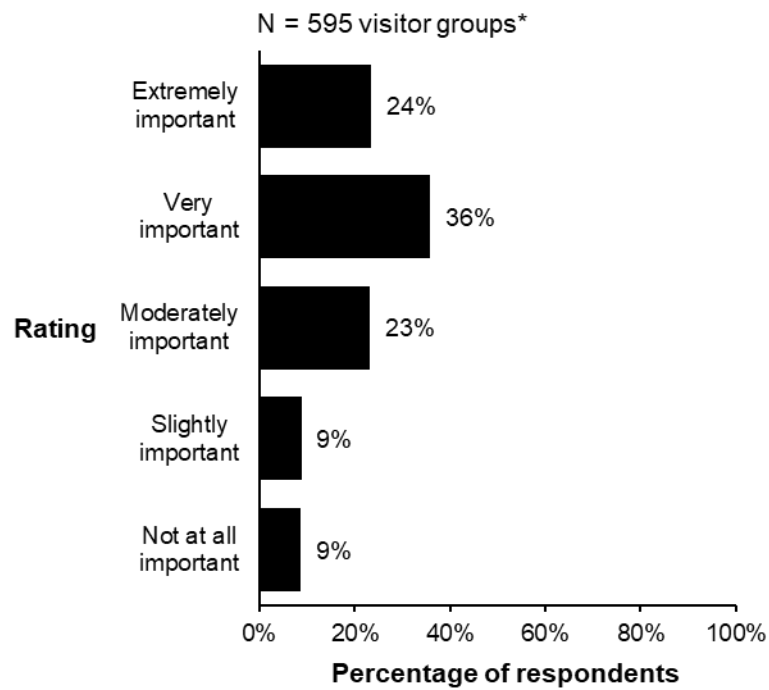


Figure 87. Importance of fostering immersion in nature

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

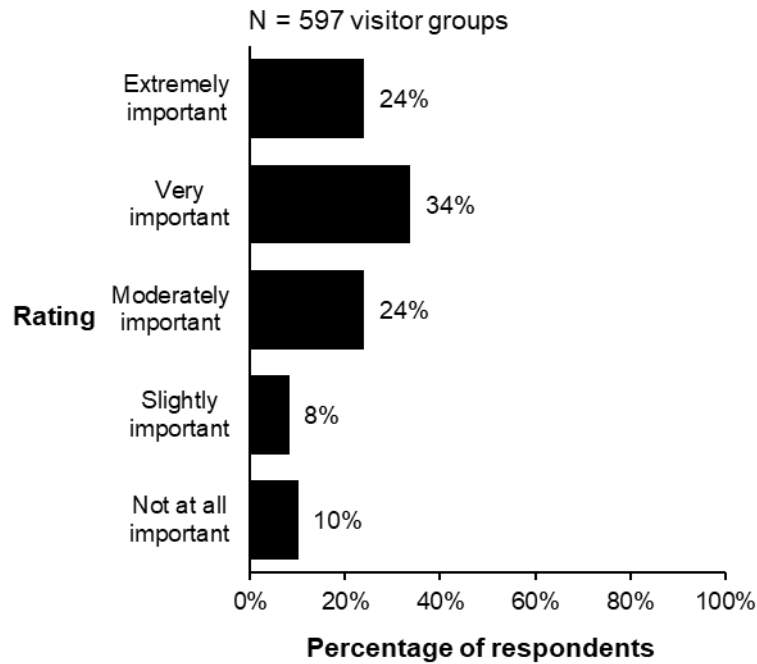


Figure 88. Importance of fostering a sense of humility towards nature

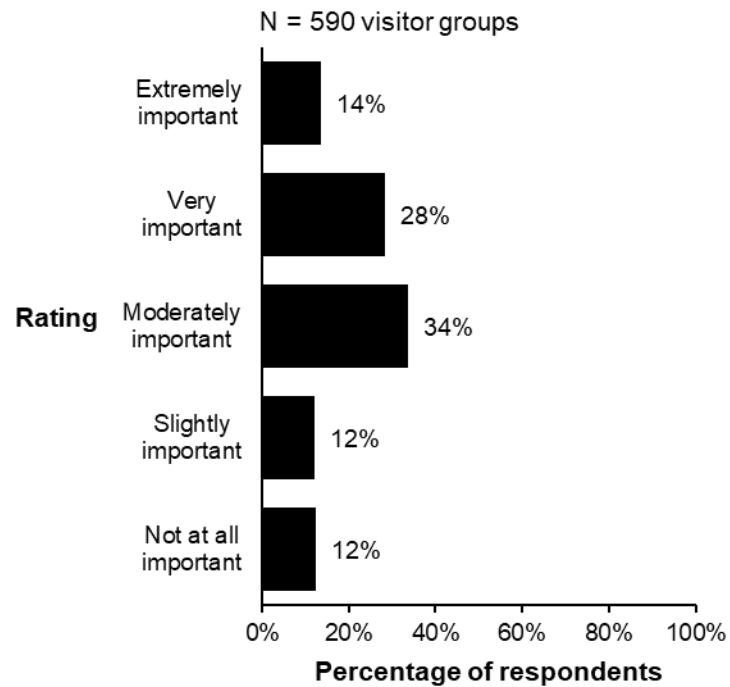


Figure 89. Importance of solitude

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

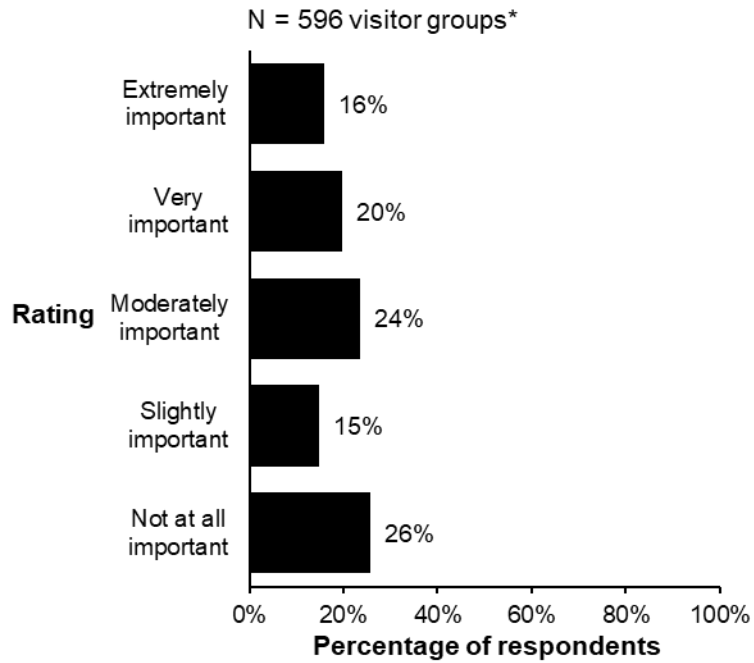


Figure 90. Importance of fostering spiritual connection

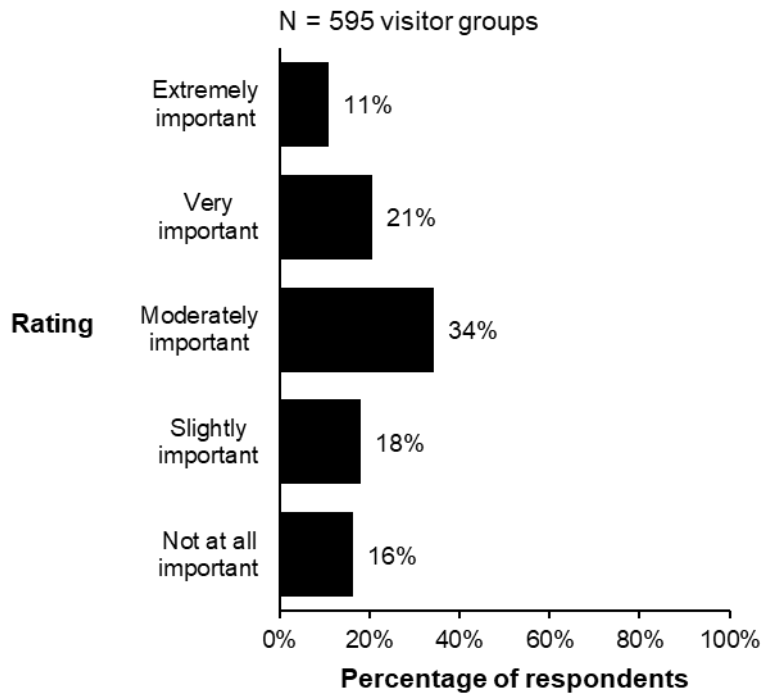


Figure 91. Importance of remoteness

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

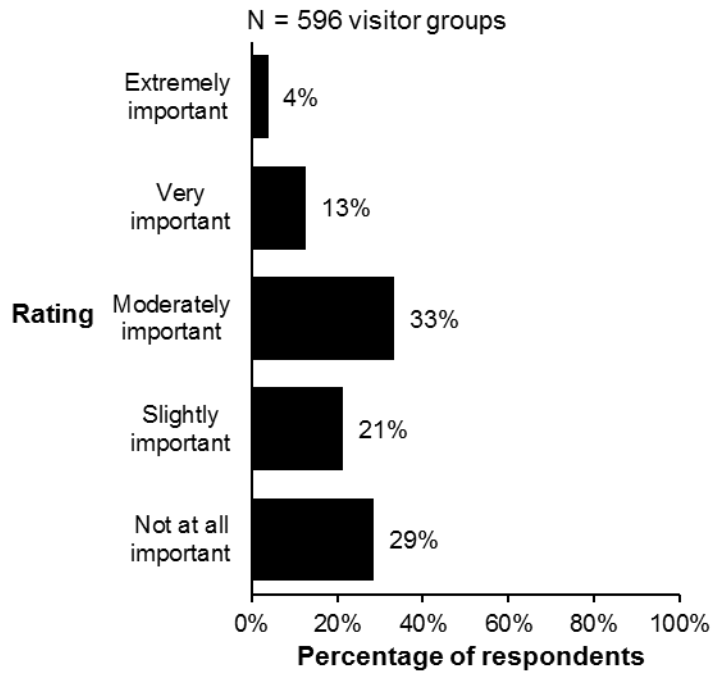


Figure 92. Importance of physically challenging/demanding

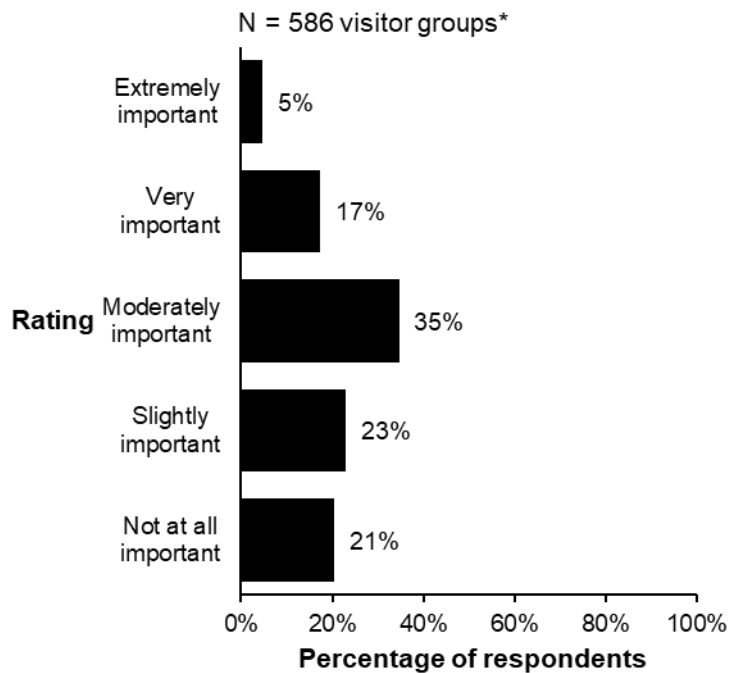


Figure 93. Importance of requiring self-reliance

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

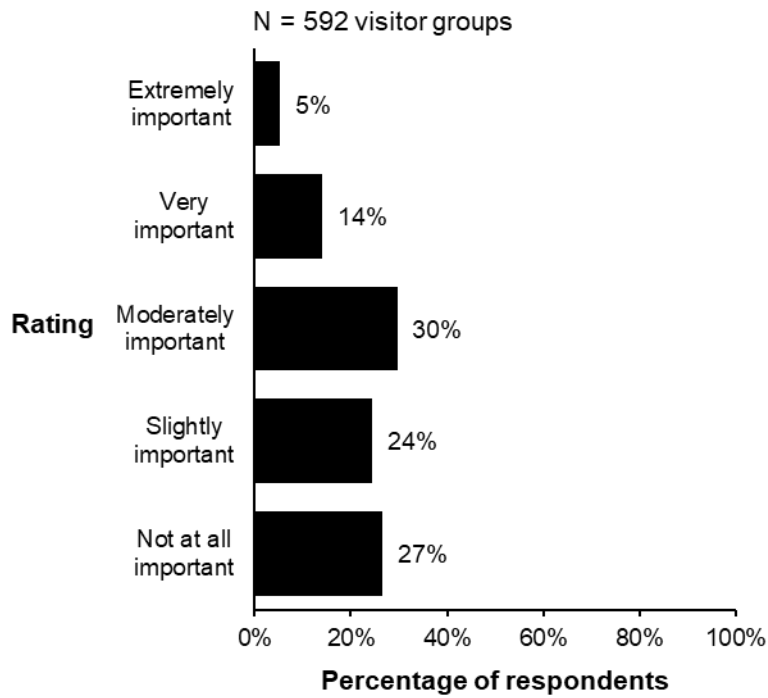


Figure 94. Importance of primitive recreation/few facilities

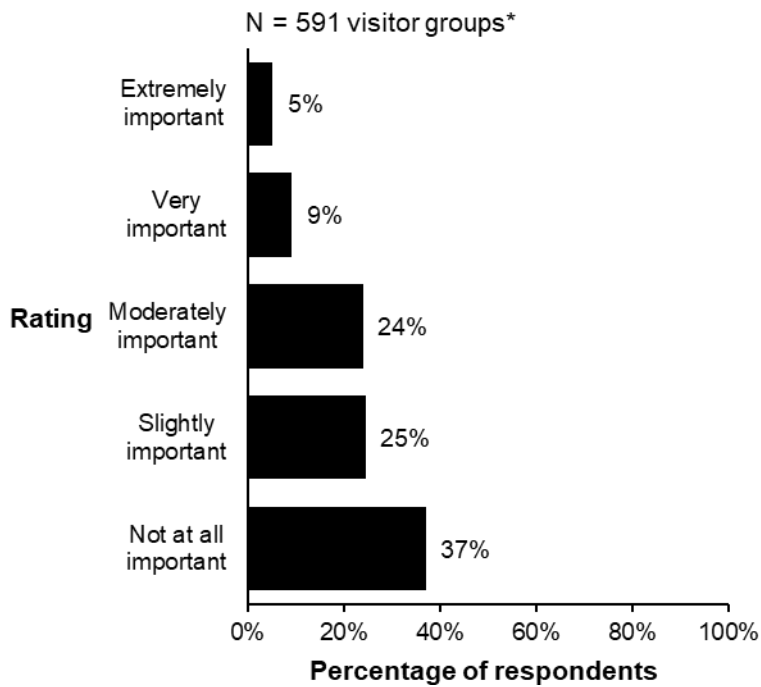


Figure 95. Importance of unconfined recreation/free from rules/regulations

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Ranger-led activities/programs or interpretive program attendance

Question 18a

On this visit, did you and your personal group attend any of the following ranger-led activities/programs or interpretive programs?

Fiery Furnace guided hike

Results (Figure 96)

- 95% of visitor groups did not attend a Fiery Furnace guided hike on this visit.

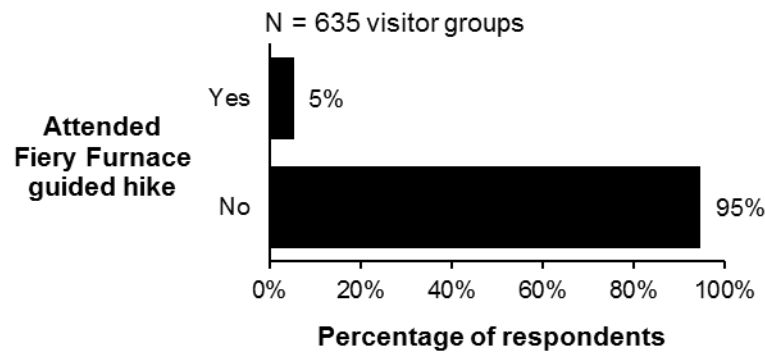


Figure 96. Visitor groups who attended Fiery Furnace guided hike

Question 18b

If NO, why not?

Results (Table 29)

- Of those groups that did not attend a Fiery Furnace guided hike, the most frequently mentioned reasons were:
 - 22% Not enough time
 - 17% Preferred to be on own
 - 12% Didn't know about it
 - 10% Fully booked

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Table 29. Reasons why visitor groups did not attend Fiery Furnace guided hike. N = 288 comments, some visitor groups may have made more than one comment.

Response	Percent of valid responses
Not enough time	23%
Preferred to be on own	17%
Didn't know about it	12%
Fully booked	10%
Not interested	7%
Timing did not fit schedule	7%
Had private tour	5%
Difficulty hiking/climbing	3%
Just passing through	3%
Have already been to park	2%
Did not hike	2%
Disabled	2%
Spent time doing other activities	1%
Too crowded	1%
Too far	1%
Other comments	4%

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Windows guided hike

Results (Figure 97)

- 99% of visitor groups did not attend a Windows guided hike.

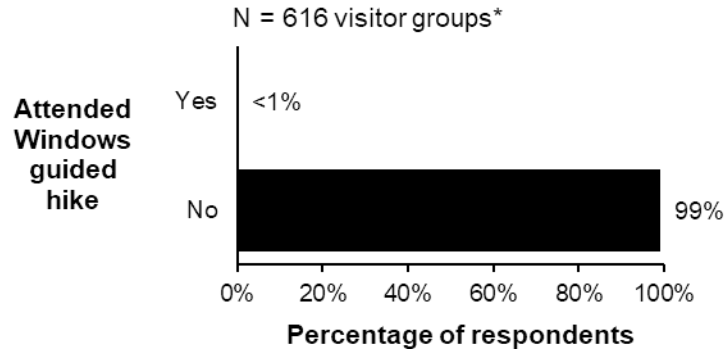


Figure 97. Visitor groups who attended Windows guided hike

Question 18b

If NO, why not?

Results (Table 30)

- Of those groups that did not attend a Windows guided hike, the most frequently mentioned reasons were:
 - 29% Not enough time
 - 20% Preferred to be on own
 - 17% Didn't know about it
 - 10% No interest

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Table 30. Reasons why visitor groups did not attend Windows guided hike. N = 450 comments, some visitor groups may have made more than one comment.

Response	Percent of valid responses*
Not enough time	29%
Preferred to be on own	20%
Didn't know about it	17%
No interest	10%
Timing did not fit schedule	7%
Difficulty hiking/climbing	5%
Did not hike	2%
No availability	1%
Hiking elsewhere	1%
Had own guide	1%
Weather	1%
Multi language group	<1%
Parking	<1%
Other comments	5%

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Balanced Rock geology talk

Results (Figure 98)

- 99% of visitor groups did not attend a geology talk at Balanced Rock.

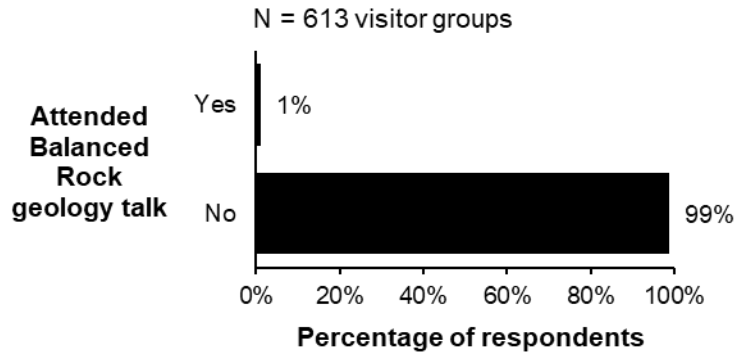


Figure 98. Visitor groups who attended Balanced Rock geology talk

Question 18b

If NO, why not?

Results (Table 31)

- Of those groups that did not attend a Balanced Rock geology talk, the most frequently mentioned reasons were:
 - 33% Not enough time
 - 19% Did not know about it
 - 15% Preferred to be on own
 - 13% No interest

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Table 31. Reasons why visitor groups did not attend Balanced Rock geology talk. N = 439 comments, some visitor groups may have made more than one comment.

Response	Percent of valid responses*
Not enough time	33%
Did not know about it	19%
Preferred to be on own	15%
No interest	13%
Timing did not fit schedule	5%
Disabled	3%
Have already been to park	2%
Just drove through park	1%
Too crowded	1%
Weather	1%
Other comments	8%

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Junior Ranger Station (at Visitor Center)

Results (Figure 99)

- 99% of visitor groups did not attend a Junior Ranger Station.

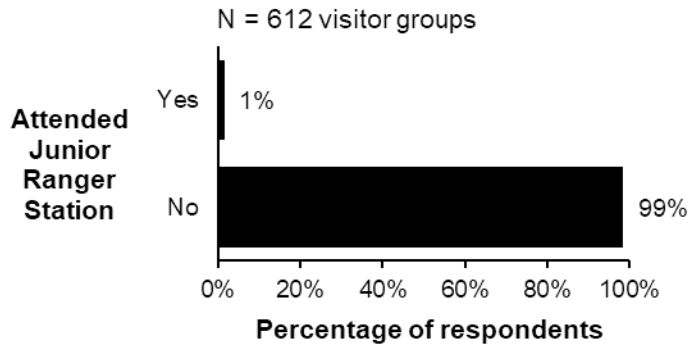


Figure 99. Visitor groups who attended Junior Ranger Station

Question 18b

If NO, why not?

Results (Table 32)

- Of those groups that did not attend a Junior Ranger Station, the most frequently mentioned reasons were:
 - 26% Not enough time
 - 21% No kids
 - 14% No interest

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Table 32. Reasons why visitor groups did not attend Junior Ranger Station. N = 410 comments, some visitor groups may have made more than one comment.

Response	Percent of valid responses*
Not enough time	26%
No kids	21%
No interest	14%
Preferred to be on own	10%
Did not know about it	10%
Timing did not fit schedule	6%
Spent time doing other activities	5%
Disabled	2%
Have already been to park	1%
Too crowded	1%
Weather	<1%
Other comments	5%

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Campground evening program

Results (Figure 100)

- 99% of visitor groups did not attend a campground evening program.

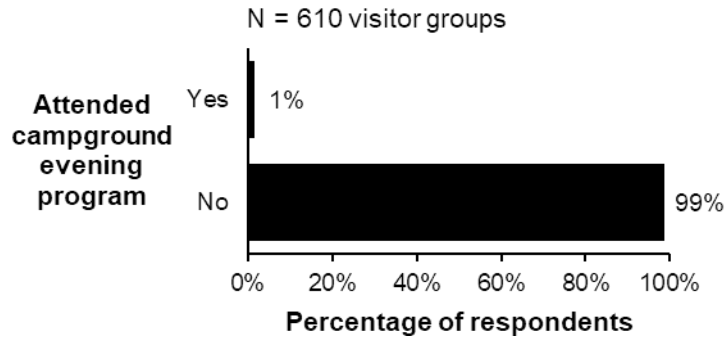


Figure 100. Visitor groups who attended campground evening program

Question 18b

If NO, why not?

Results (Table 33)

- Of those groups that did not attend a campground evening program, the most frequently mentioned reasons were:
 - 25% Did not camp
 - 24% Not enough time
 - 9% No interest
 - 9% Preferred to be on own

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Table 33. Reasons why visitor groups did not attend campground evening program. N = 395 comments, some visitor groups may have made more than one comment.

Response	Percent of valid responses
Did not camp	25%
Not enough time	24%
No interest	9%
Preferred to be on own	9%
Did not know about it	8%
Spent time doing other activities	5%
Timing did not fit schedule	5%
Day trip	4%
Disabled	2%
Weather	1%
Too tired	1%
Have already been to park	1%
Too far to drive	1%
Too crowded	1%
Other comments	4%

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Informal ranger contact on a trail

Results (Figure 101)

- 82% of visitor groups did not have informal contact with a ranger on a trail.

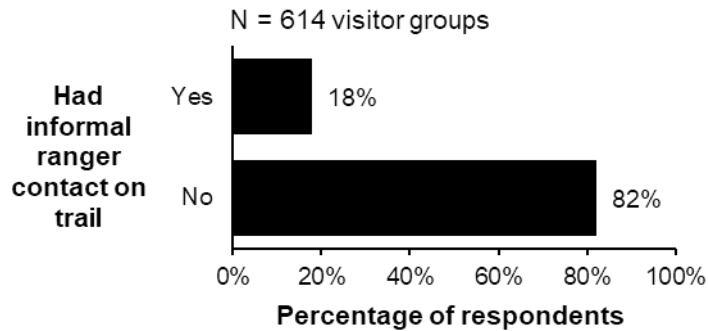


Figure 101. Visitor groups who had informal ranger contact on a trail

Question 18b

If NO, why not?

Results (Table 34)

- Of those groups that did not have informal ranger contact on a trail, the most frequently mentioned reasons were:
 - 26% Not enough time
 - 16% Did not see a ranger
 - 13% No interest/need
 - 11% Preferred to be on own

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Table 34. Reasons why visitor groups did not have informal ranger contact on a trail. N = 306 comments, some visitor groups may have made more than one comment.

Response	Percent of valid responses*
Not enough time	26%
Did not see a ranger	16%
No interest/need	13%
Preferred to be on own	11%
Did not know about it	7%
Did not interact with ranger	6%
Did not hike	4%
Timing did not fit schedule	4%
Spent time doing other activities	4%
Disabled	2%
Interacted with ranger	2%
Weather	<1%
Other comment	5%

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Informal interactions with park rangers

Question 23a

During this visit to Arches National Park, did you and your personal group have any personal interaction with a park ranger other than on a ranger-led tour program?

Results (Figure 102)

- 66% of visitor groups did not interact with a park ranger.

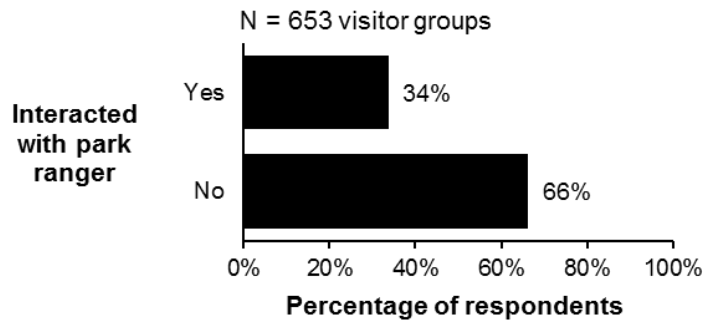


Figure 102. Visitor groups who interacted with a ranger other than on a ranger-led tour program

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Question 23b

If YES, where did you interact with a park ranger?

Results (Figure 103)

- Of those visitor groups that interacted with a park ranger, 42% interacted with them at the Visitor Center.
- 40% of visitor groups interacted with them on the trail.



Figure 103. Locations where visitor groups interacted with a ranger other than on a ranger-led tour program

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Guided ranger-led tour on a future visit

Question 19a

If you were to visit Arches National Park in the future, would you be interested in taking a guided ranger-led tour?

Results (Figure 104)

- 53% of visitor groups would not be interested in a guided ranger-led tour in the future.

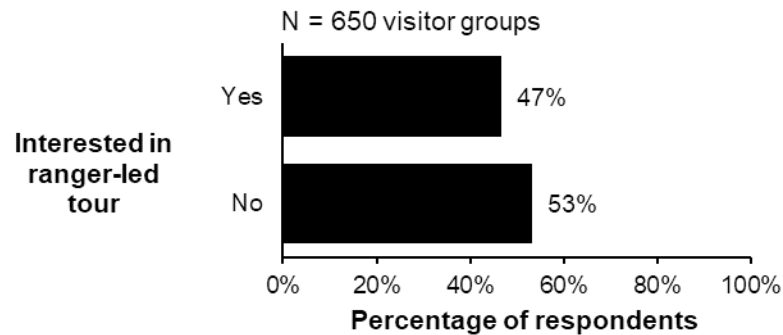


Figure 104. Visitor groups who would be interested in taking a guided ranger-led tour on a future visit

Question 19b

If YES, where would you and your group like to take a guided ranger-led tour?

Results (Table 35)

- Of those groups that are interested in taking a guided ranger-led tour, the most frequently mentioned sites were:
 - 35% Fiery Furnace
 - 10% Any available
 - 10% The Windows

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Table 35. Locations where visitor groups would like to take a guided ranger-led tour on a future visit. N = 305 comments, some visitor groups may have made more than one comment.

Response	Percent of valid responses
Fiery Furnace	35%
Any available	10%
The Windows	10%
Don't know/unsure	7%
Balanced Rock	5%
Delicate Arch	5%
Devil's Garden	4%
Geology talk	3%
Double O Arch	2%
All available	2%
Night sky	1%
Sand Arch	1%
Arches	1%
Other comments	14%

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Independent guided tour on a future visit

Question 20a

If you were to visit Arches National Park in the future, would you be interested in taking an independent guided (not a park ranger) tour?

Results (Figure 105)

- 82% of visitor groups would not be interested in taking an independent guided tour in the future.

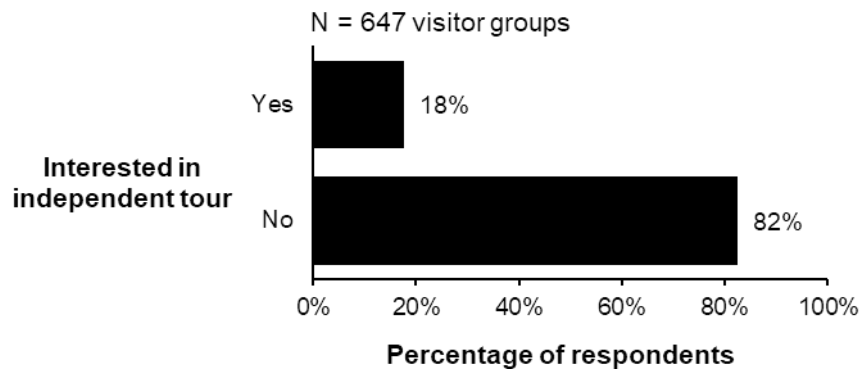


Figure 105. Visitor groups who would be interested in taking an independent guided tour on a future visit

Question 20b

If YES, where would you and your personal group like to take an independent guided (not park ranger) tour?

Results (Table 36)

- Of those groups that are interested in taking an independent guided tour, the most frequently mentioned sites were:
 - 18% Don't know/unsure
 - 17% Anywhere
 - 16% Fiery Furnace

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Table 36. Locations where visitor groups would like to take an independent tour on a future visit. N = 117 comments, some visitor groups may have made more than one comment.

Response	Percent of valid responses*
Don't know/unsure	18%
Anywhere	17%
Fiery Furnace	16%
The Windows	11%
Devils Garden	3%
Balanced Rock	3%
Delicate Arch	2%
Other comments	31%

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Question 20c

If YES, what subjects would you and your group like to learn about during the tour?

Results (Table 37)

- Of those groups that are interested in an independent tour, the most frequently mentioned subjects groups would like to learn about were:
 - 29% Geology
 - 14% History
 - 11% Flora
 - 11% Wildlife

Table 37. Subjects visitor groups would like to learn about on an independent tour on a future visit. N = 166 comments, some visitor groups may have made more than one comment.

Response	Percent of valid responses
Geology	29%
History	14%
Flora	11%
Wildlife	11%
Formations	9%
Not sure	5%
Photography/painting	3%
Climate change	3%
Astronomy	2%
Safety	1%
Everything	1%
Other comments	11%

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Aspects most liked about visit

Question 26

What did you like most about your visit to Arches National Park?

Results (Table 38)

- Table 38 shows the aspects visitor groups liked most about their visit. The most frequently mentioned aspects were:
 - 17% Beauty
 - 15% Scenery
 - 8% Rock formations

Table 38. Aspects most liked about visit. N = 954 comments, some visitor groups may have made more than one comment.

Aspect	Percent of valid responses*
Beauty	17%
Scenery	15%
Rock formations	8%
Trails	6%
Nature	6%
Fiery Furnace	6%
Arches	4%
Accessibility	4%
Delicate Arch	4%
Uniqueness	3%
Fiery Furnace ranger tour	2%
Primitive Trail	1%
Cleanliness	1%
Devil's Garden	1%
Park Avenue	1%
Good weather	1%
Double Arch	1%
Sightseeing	1%
Well maintained	1%
Great experience	1%

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Table 38 (continued). Aspects most liked about visit. N = 954 comments, some visitor groups may have made more than one comment.

Aspect	Percent of valid responses*
Quiet	1%
Not crowded	1%
Everything	1%
Fiery Furnace guided tour	1%
Conservation	1%
Driving	1%
Landscape Arch	1%
Windows	1%
Visitor Center	1%
Signage	1%
Helpful and friendly staff	1%
Camping	1%
Photography	1%
Balanced Rock	<1%
Wildlife	<1%
Spending time with friends/family	<1%
Other comments	6%

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Aspects least liked about visit

Question 27

What did you like least about your visit to Arches National Park?

Results (Table 39)

- Table 39 shows the aspects visitor groups liked least about their visit. The most frequently mentioned aspects were:
 - 35% Crowded
 - 11% Parking
 - 6% People breaking rules and disrespecting nature

Table 39. Aspects least liked about visit. N = 523 comments, some visitor groups may have made more than one comment.

Aspect	Percent of valid responses*
Crowded	35%
Parking	11%
People breaking rules and disrespecting nature	6%
Not enough time	5%
Poorly maintained	5%
Traffic	5%
Bad weather	4%
Heat	4%
Difficult trails	4%
More restrooms	3%
More campsites	2%
Trouble navigating	1%
More drinking water stations	1%
Visitor Center	1%
Not pet friendly	1%
Expensive trip	1%
Better access for disabled people	1%
Can't book campground ahead of time	1%
Add shuttle bus system	1%

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Table 39 (continued). Aspects least liked about visit. N = 523 comments, some visitor groups may have made more than one comment.

Aspect	Percent of valid responses*
Backcountry permits were not available	1%
Distance to get there	<1%
No showers	<1%
More ranger-led events/tours	<1%
Other comments	8%

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Park Management

Importance of resources, attributes, and visitor experiences

Question 32

It is the National Park Service's responsibility to protect this park's natural and cultural resources/attributes and visitor experiences that depend on these resources or attributes. How important is the protection of the following to you and your personal group?

Rating choices:

- Extremely important
- Very important
- Moderately important
- Slightly important
- Not at all important

Results

- Figure 106 shows the combined proportions of “extremely important” and “very important” ratings for park resources, attributes, and visitor experiences.
- The resources/attributes/visitor experiences that received the highest combined proportions of “extremely important” and “very important” ratings were:
 - 97% Scenic views
 - 94% Clean air
 - 90% Clean water
 - 88% Wildlife
 - 87% Native plants
 - 84% Natural quiet/sounds of nature
- The resources/attributes/visitor experiences that received the lowest combined proportions of “extremely important” and “very important” ratings were:
 - 44% Interpretive/information programs
 - 42% Campground
 - 42% Recreational opportunities

Figure 107 through Figure 128 show ratings for each resource.

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

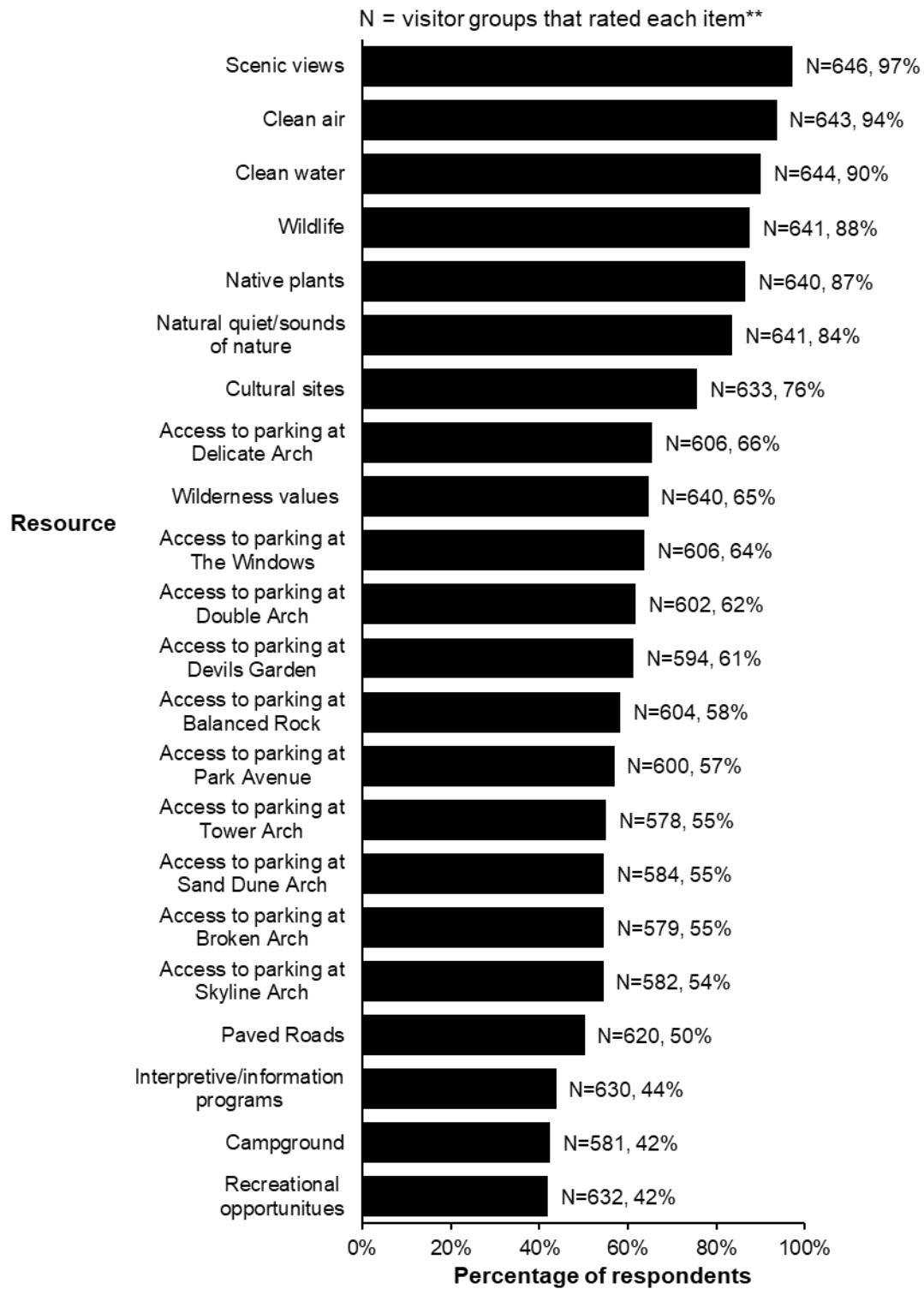


Figure 106. Importance of resources, attributes, and visitor experiences in Arches National Park, combined responses for “extremely important” and “very important”

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

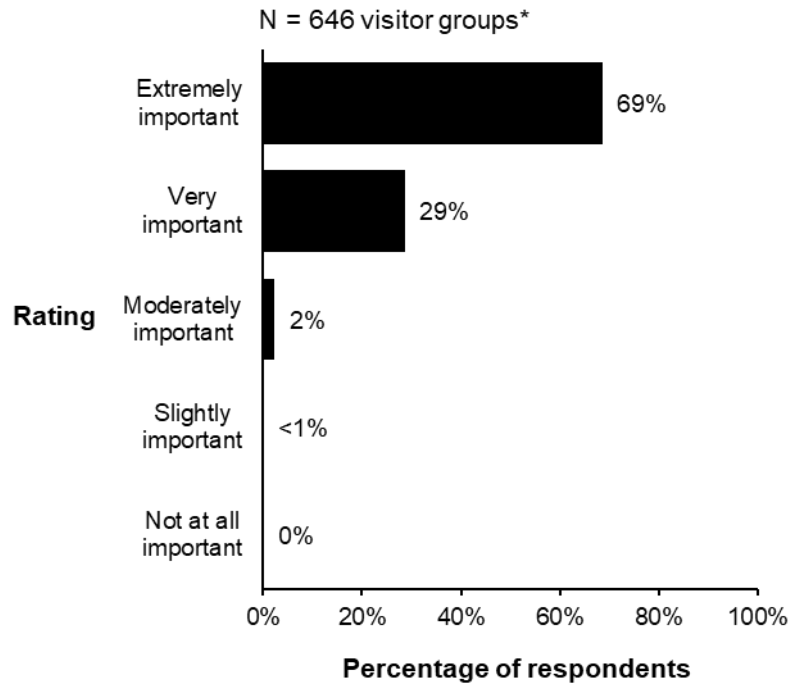


Figure 107. Importance of scenic views

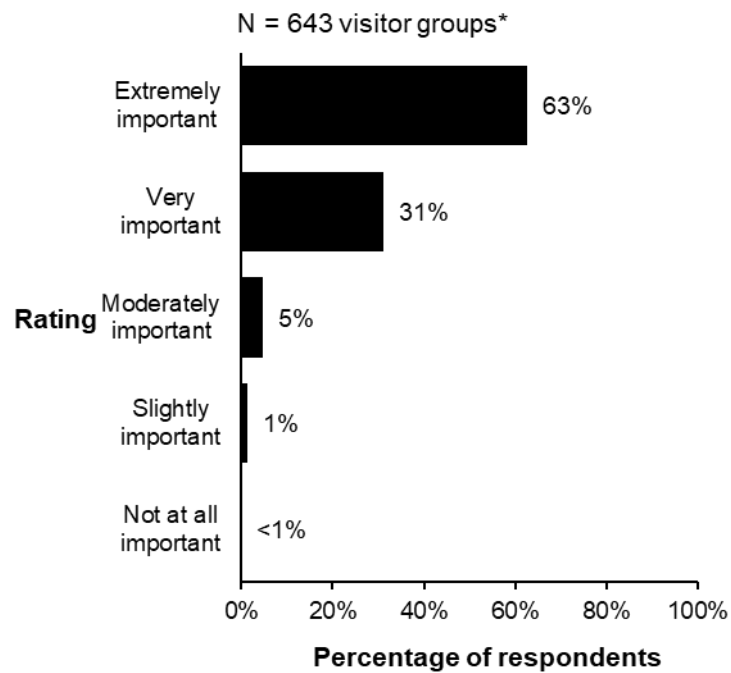


Figure 108. Importance of clean air

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

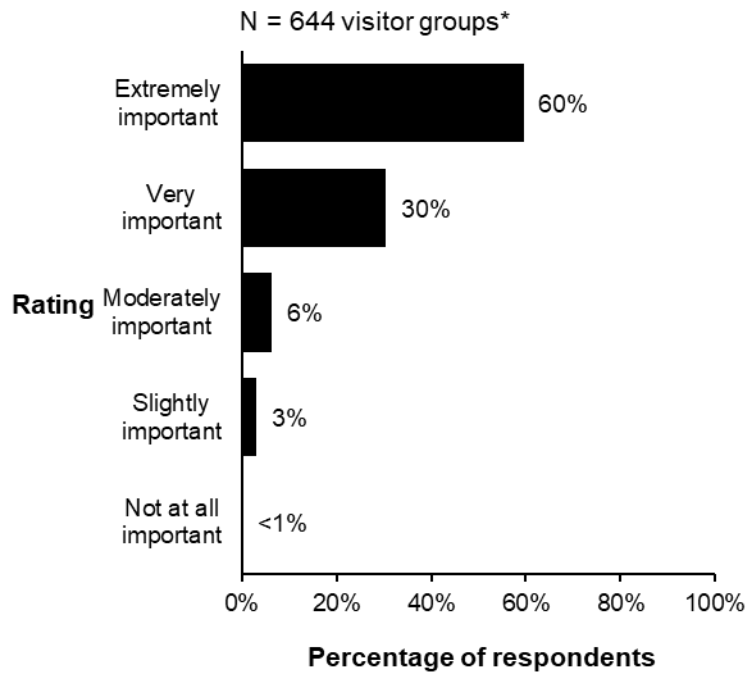


Figure 109. Importance of clean water

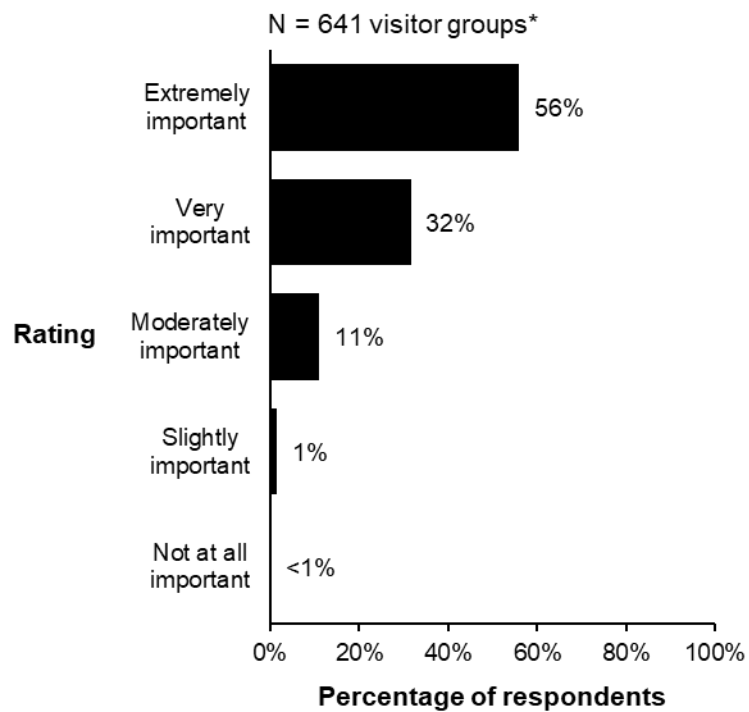


Figure 110. Importance of wildlife

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

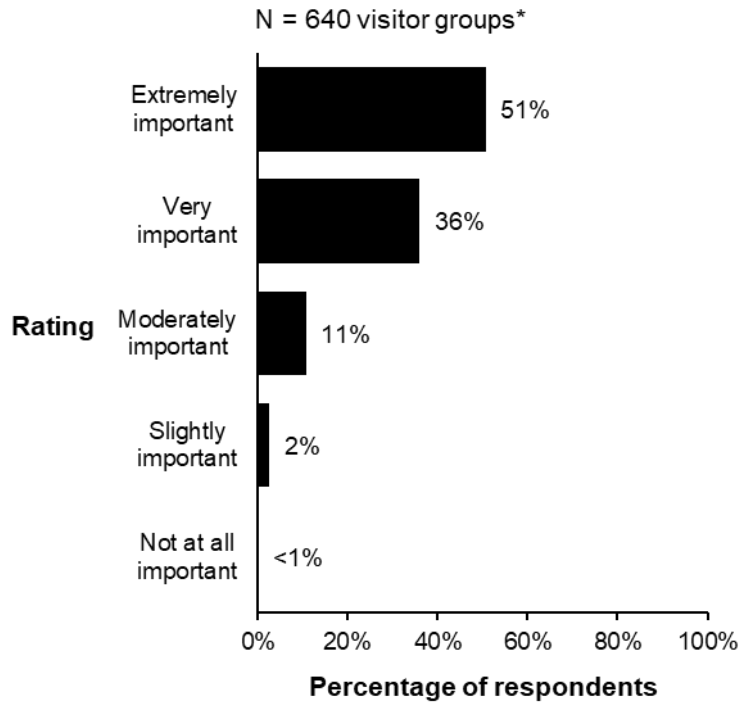


Figure 111. Importance of native plants

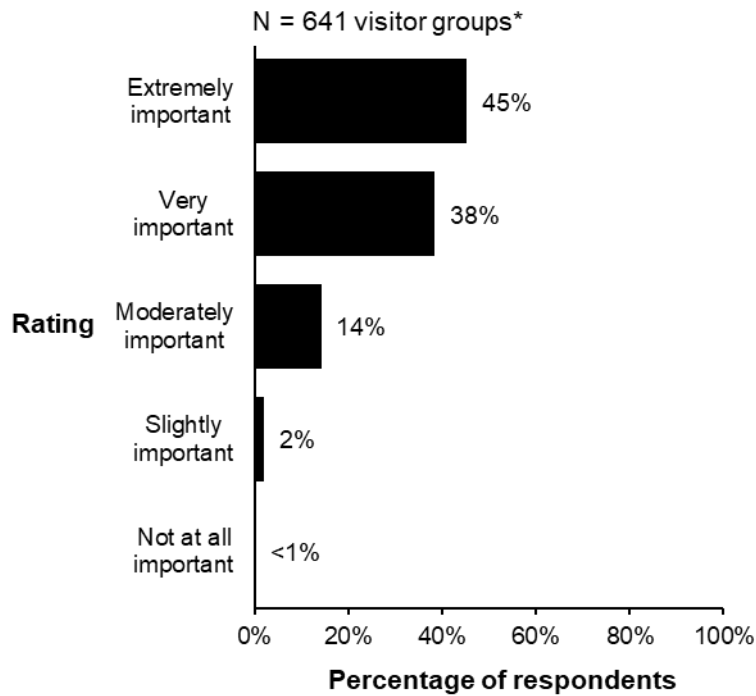


Figure 112. Importance of natural quiet/sounds of nature

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

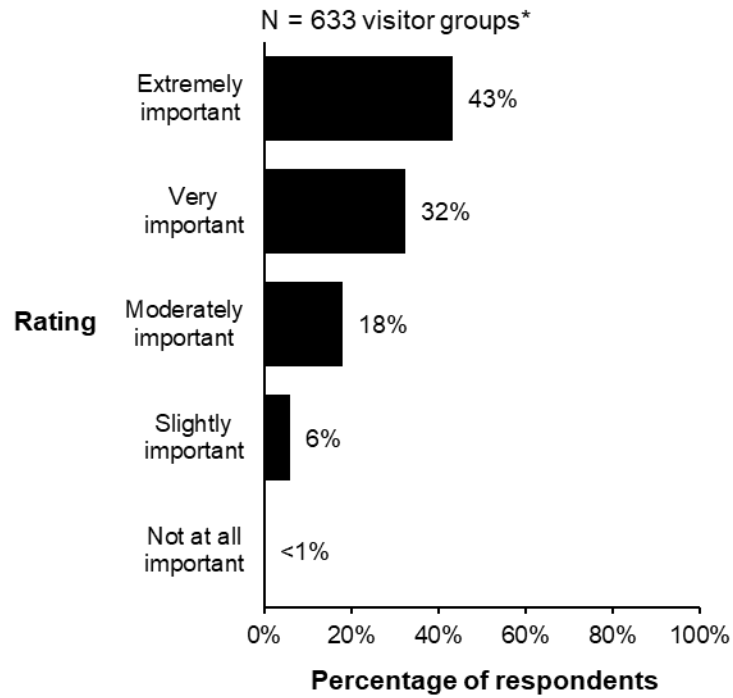


Figure 113. Importance of cultural sites

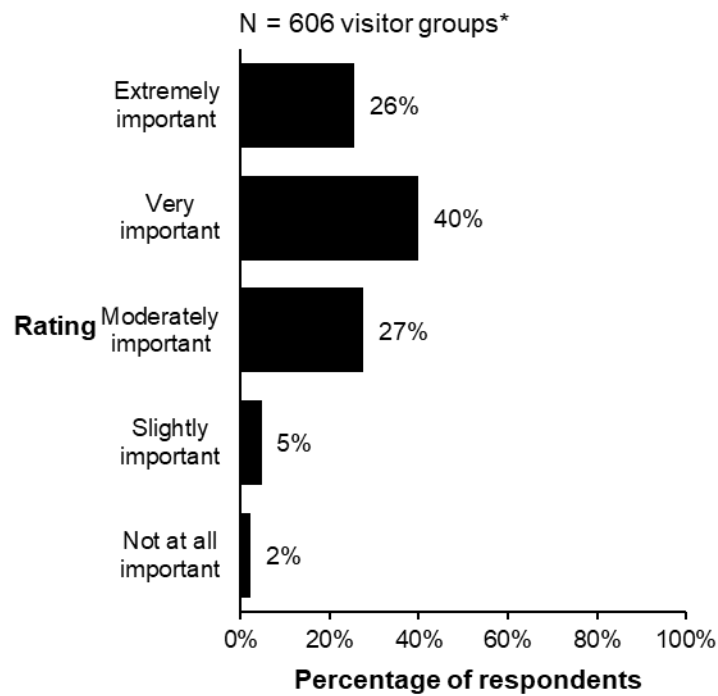


Figure 114. Importance of access to parking at Delicate Arch

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

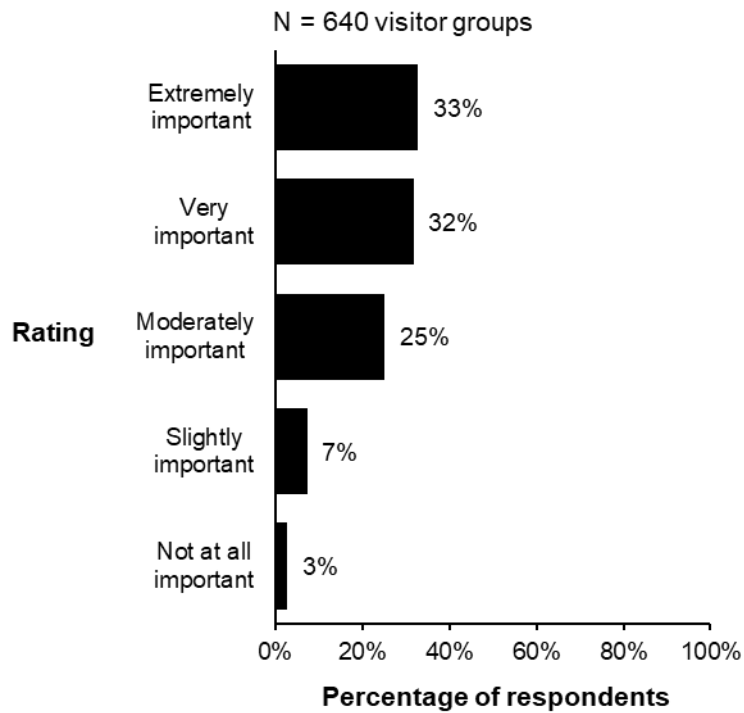


Figure 115. Importance of wilderness values (solitude, primitive/remote recreation, self-reliance)

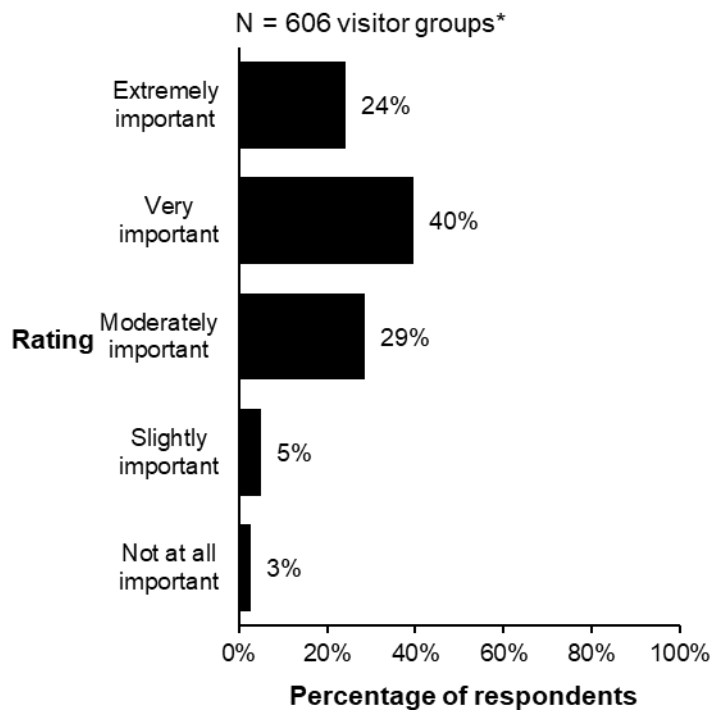


Figure 116. Importance of access to parking at the Windows

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

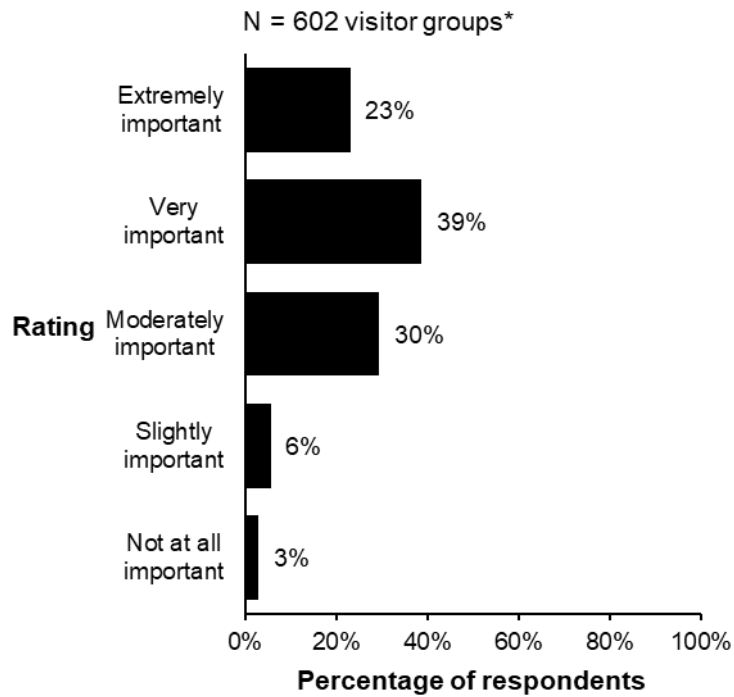


Figure 117. Importance of access to parking at Double Arch

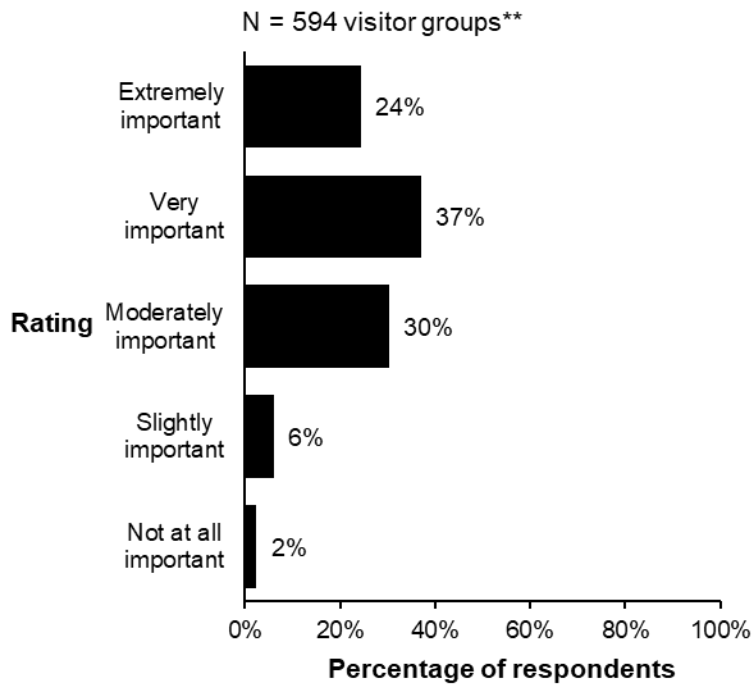


Figure 118. Importance of access to parking at Devils Garden

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

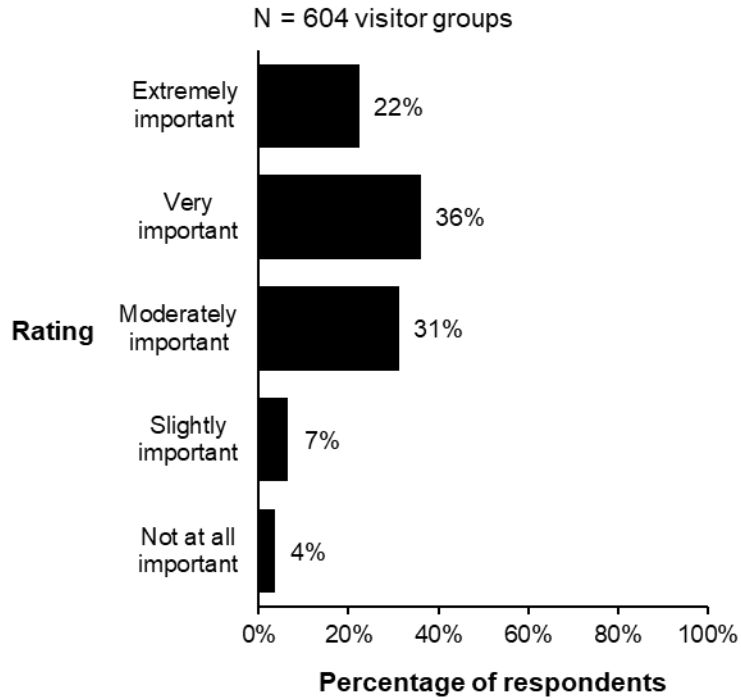


Figure 119. Importance of access to parking at Balanced Rock

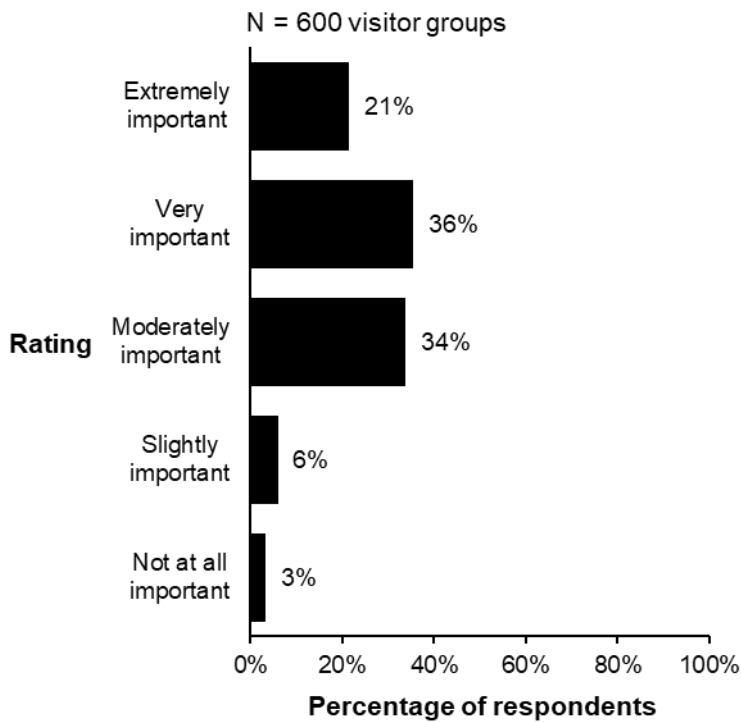


Figure 120. Importance of access to parking at Park Avenue

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

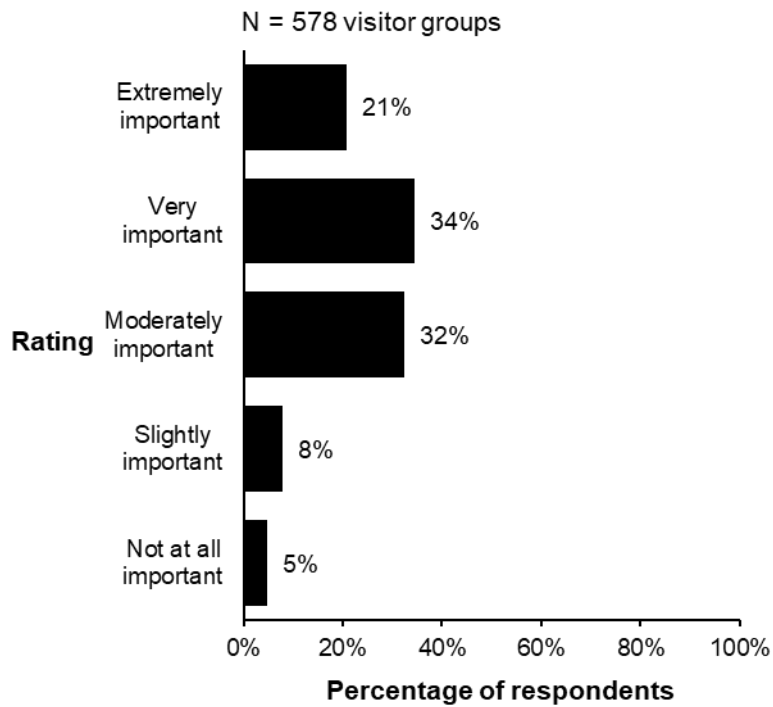


Figure 121. Importance of access to parking at Tower Arch

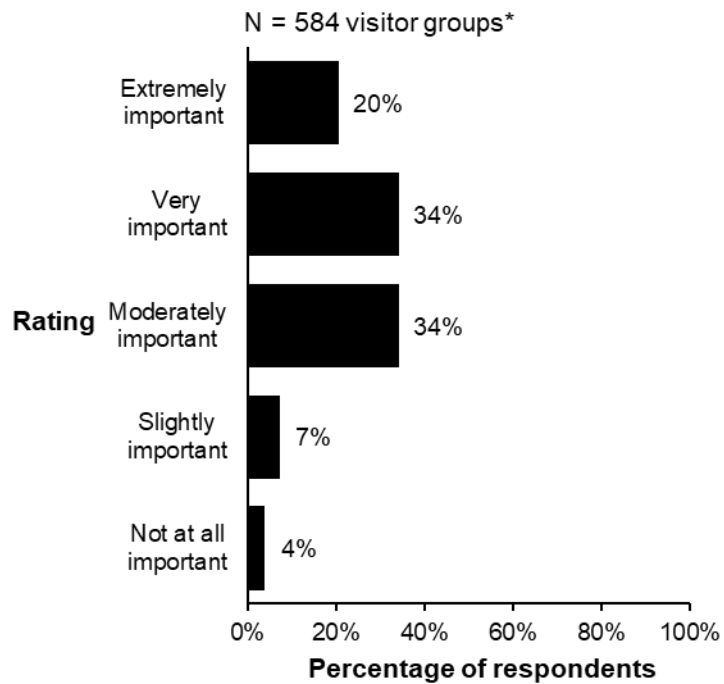


Figure 122. Importance of access to parking at Sand Dune Arch

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

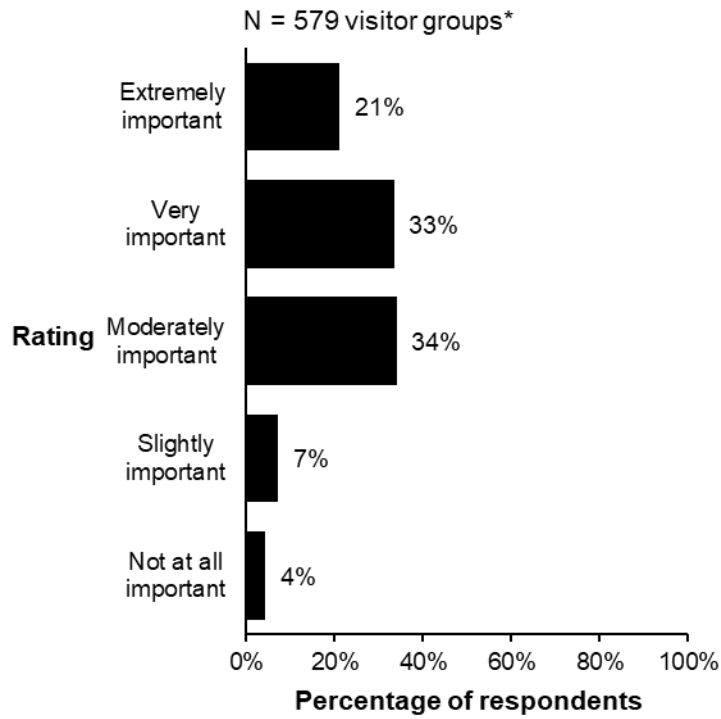


Figure 123. Importance of access to parking at Broken Arch

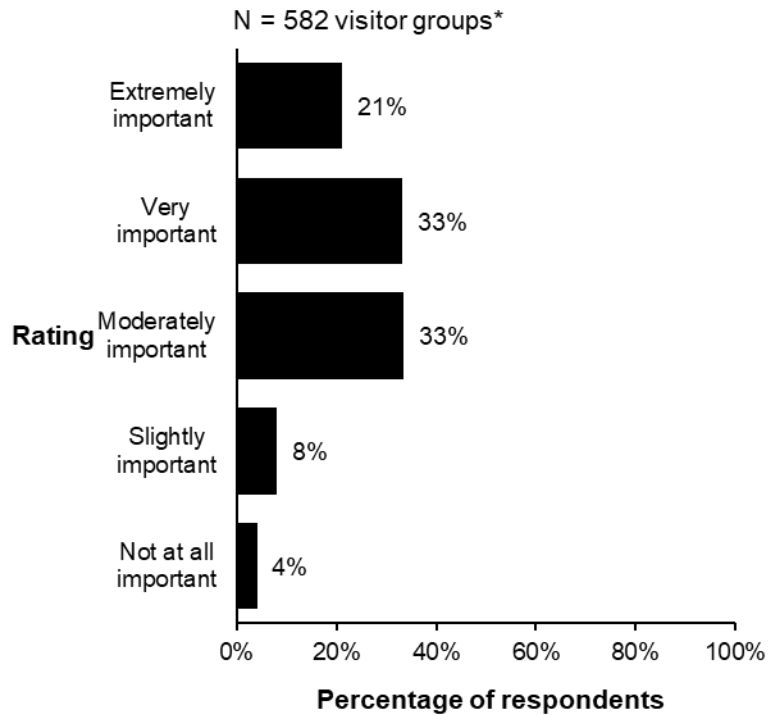


Figure 124. Importance of access to parking at Skyline Arch

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

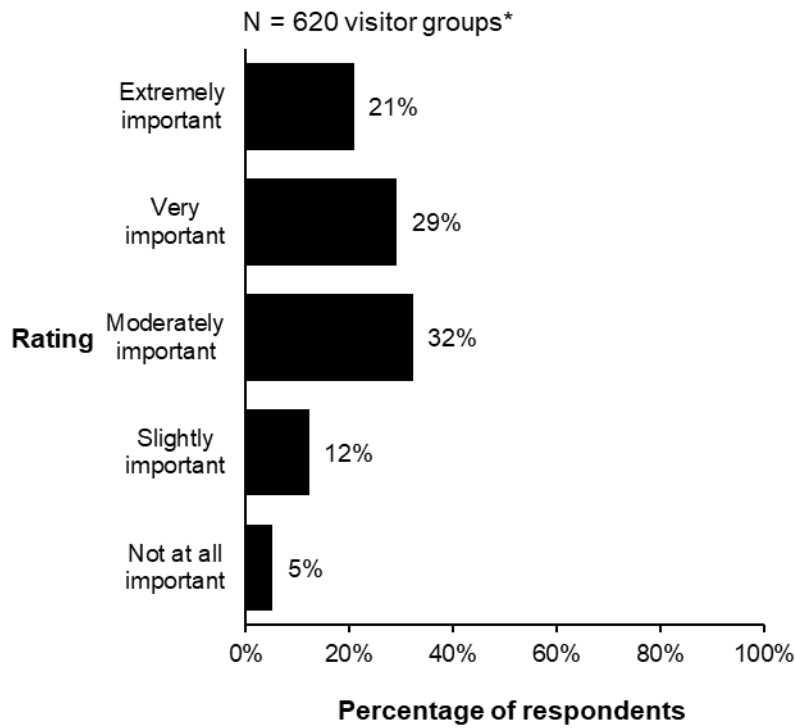


Figure 125. Importance of paved roads

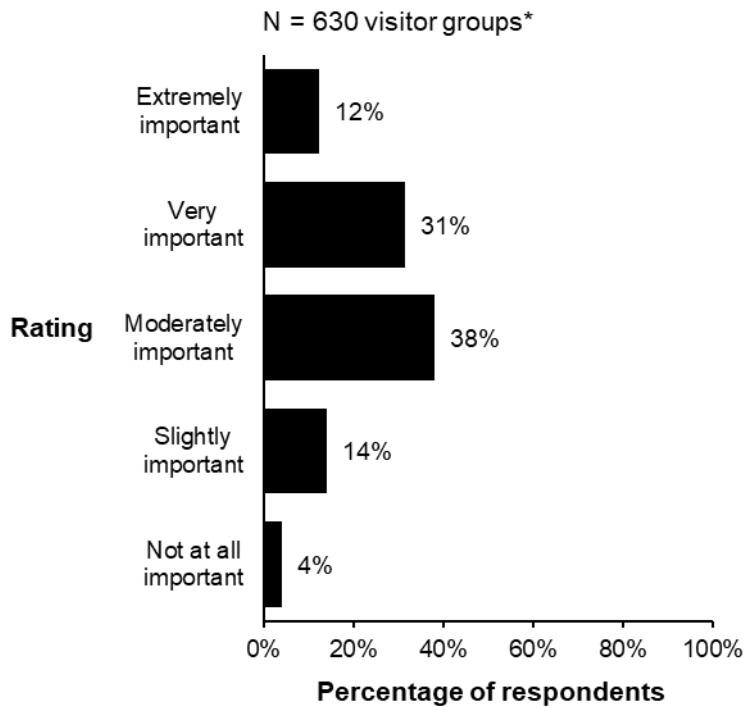


Figure 126. Importance of interpretive/information programs

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

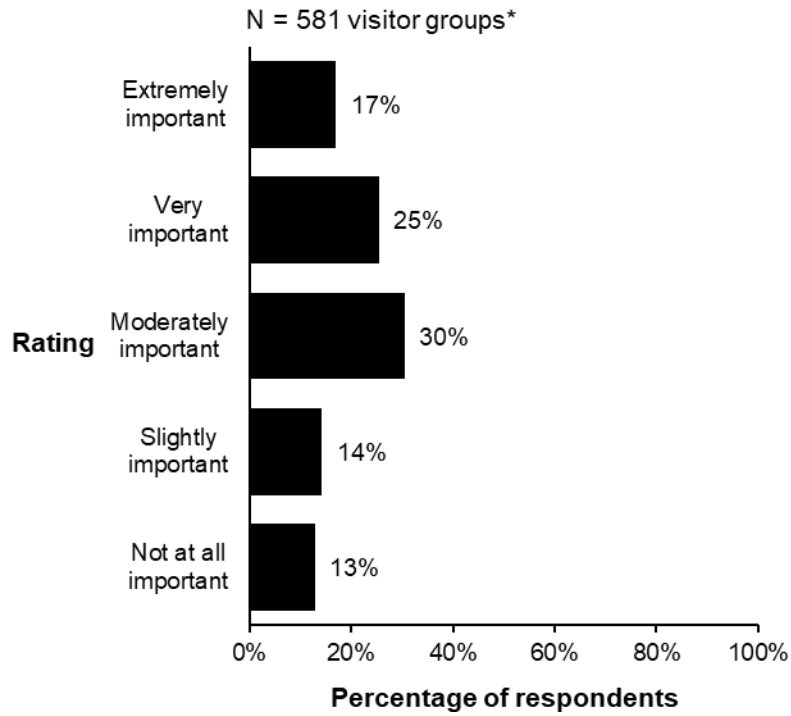


Figure 127. Importance of campground

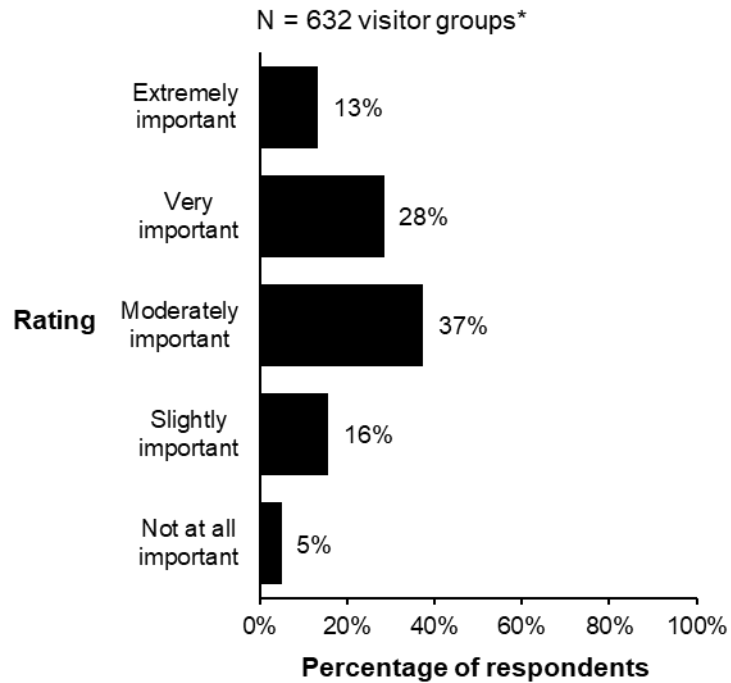


Figure 128. Importance of recreational opportunities

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Potential management options

Question 31

Please indicate the extent to which you and your personal group would support or oppose each of the following potential management actions at Arches National Park.

Rating choices:

- Strongly support
- Support
- Neither
- Oppose
- Strongly oppose
- Don't know/no opinion

Results

- Figure 129 shows the combined proportions of “strongly support” and “support” ratings for the listed management options.
- The management options that received the highest combined proportions of “strongly support” and “support” ratings were:
 - 71% Manage commercial tour buses to reduce traffic congestion and crowding
 - 62% Implement limits on commercial recreation activities in wilderness areas
- The management options that received the lowest combined proportions of “strongly support” and “support” ratings were:
 - 33% Implement trail limits to protect park resources
 - 29% Timed entry to the park to reduce crowding

Figure 130 through Figure 135 show ratings for each action.

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

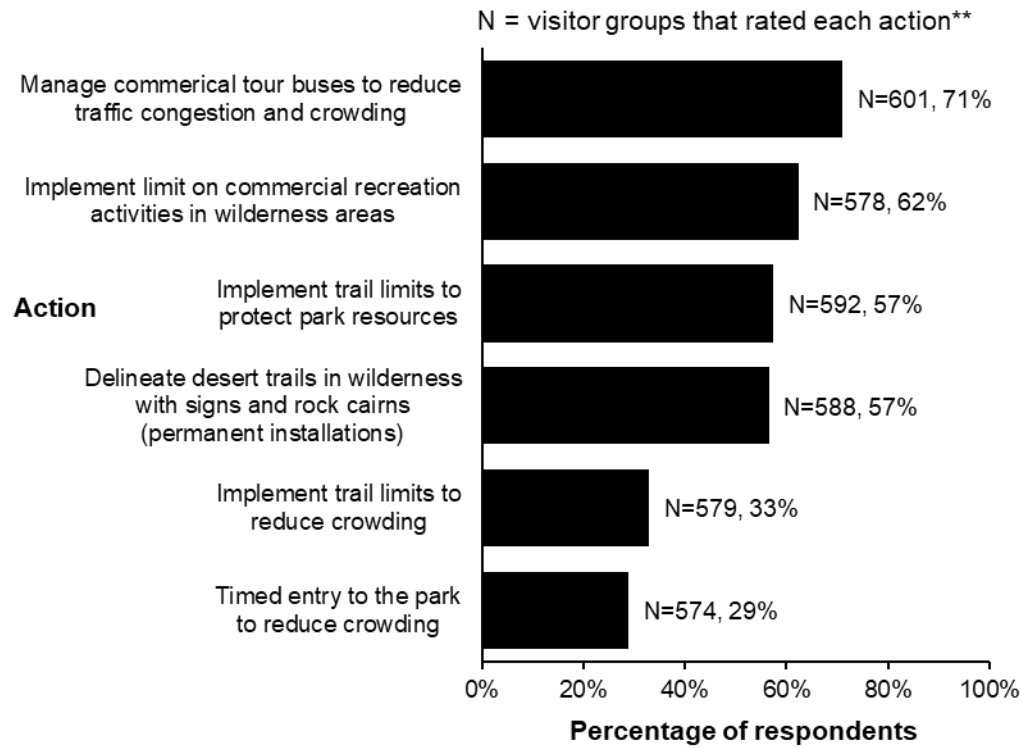


Figure 129. Support for potential management options, combined responses for “strongly support” and “support”

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

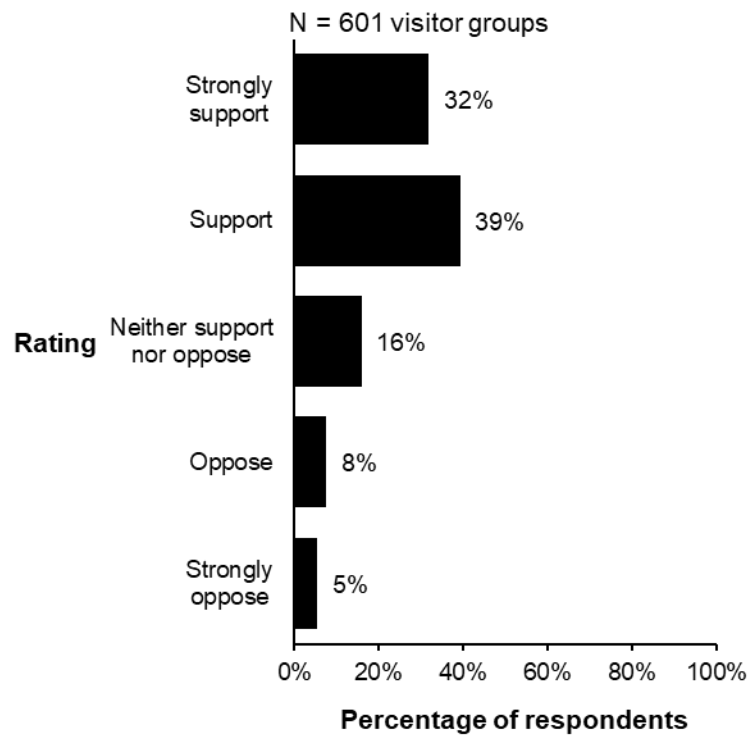


Figure 130. Support for managing commercial tour buses to reduce traffic congestion and crowding

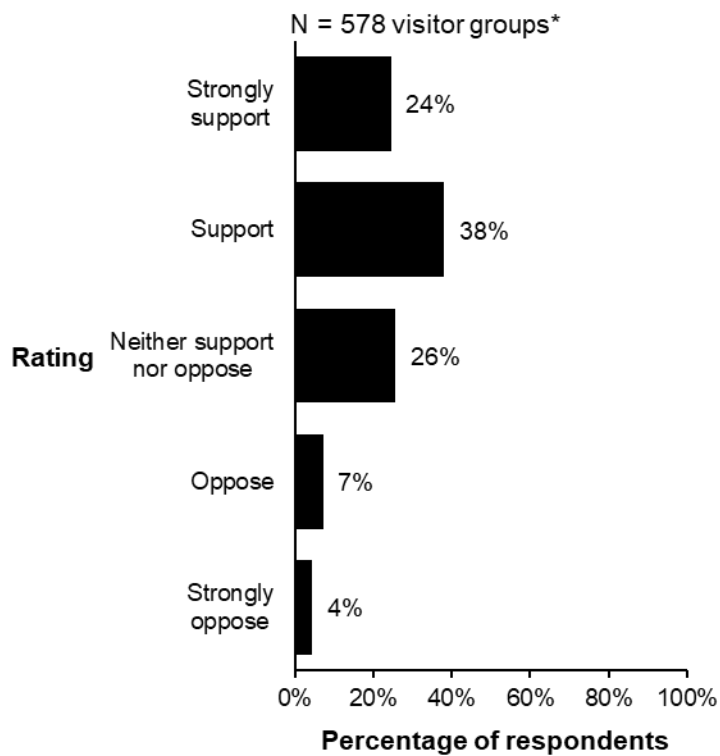


Figure 131. Support for implementing limits on commercial recreation activities in wilderness areas

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

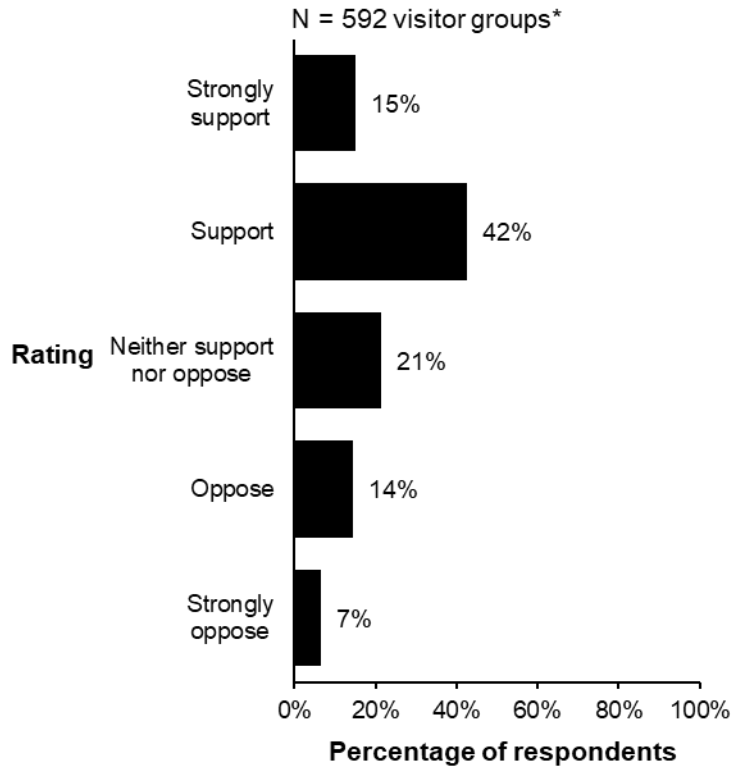


Figure 132. Support for implementing trail limits to protect park resources

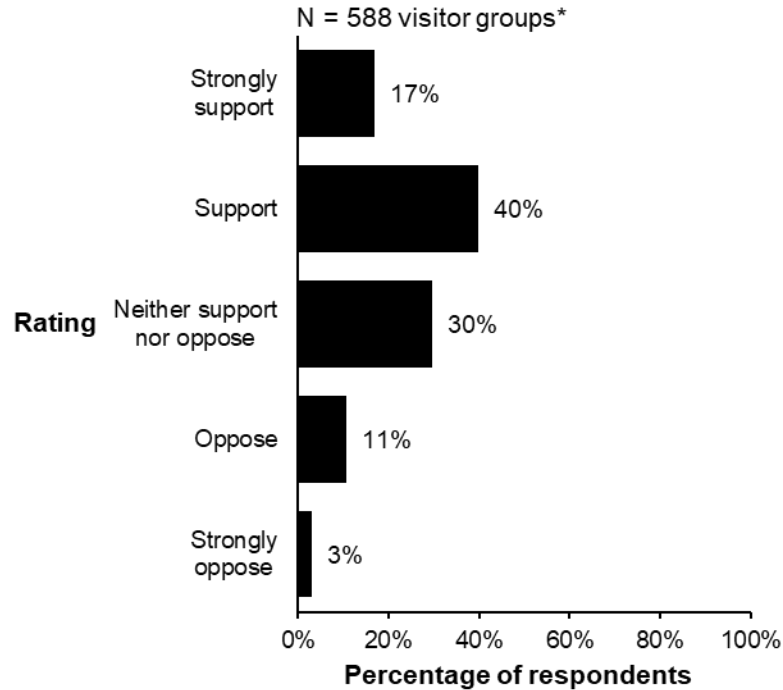


Figure 133. Support for delineating desert trails in wilderness with signs and rock cairns (permanent installations)

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

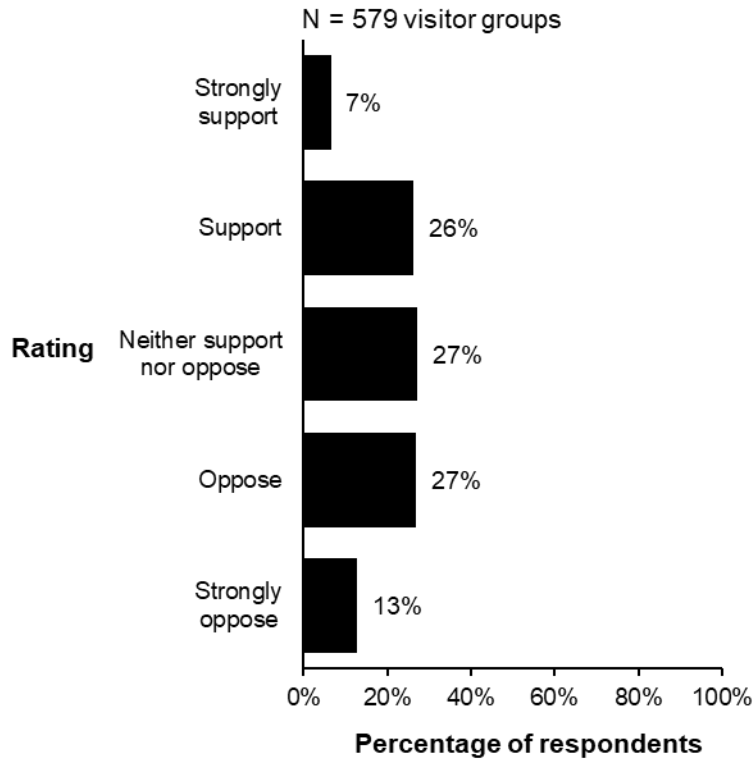


Figure 134. Support for implementing trail limits to reduce crowding

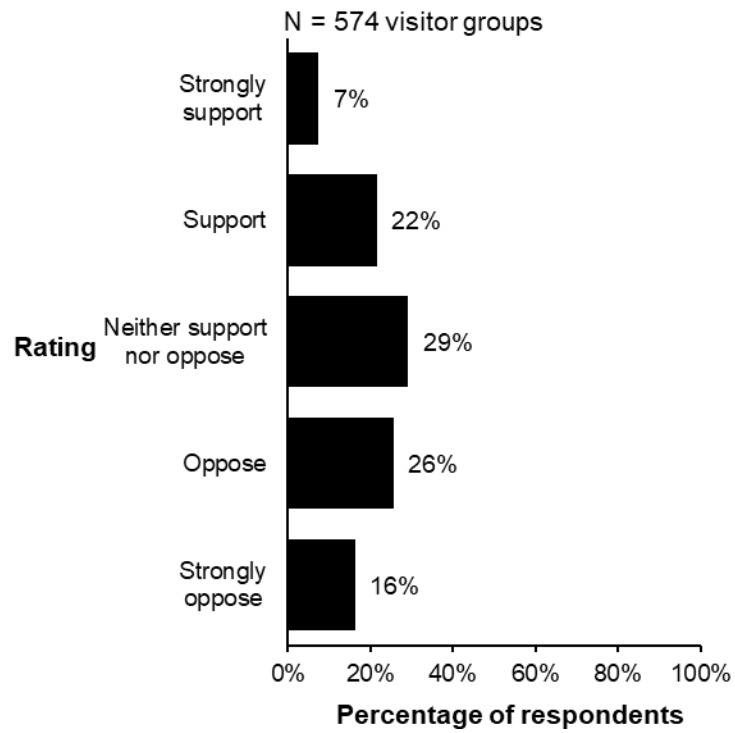


Figure 135. Support for timed entry to the park to reduce crowding

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Interpretive programs/information services desired on a future visit

Question 38

On a future visit to Arches National Park, what interpretive programs/information services would you and your group like to have available at the park?

Results (Figure 136)

- 51% of visitor groups would like to have roving rangers available to answer questions on a future visit to Arches National Park.
- 39% of visitor groups would like to have night sky programs available on a future visit.

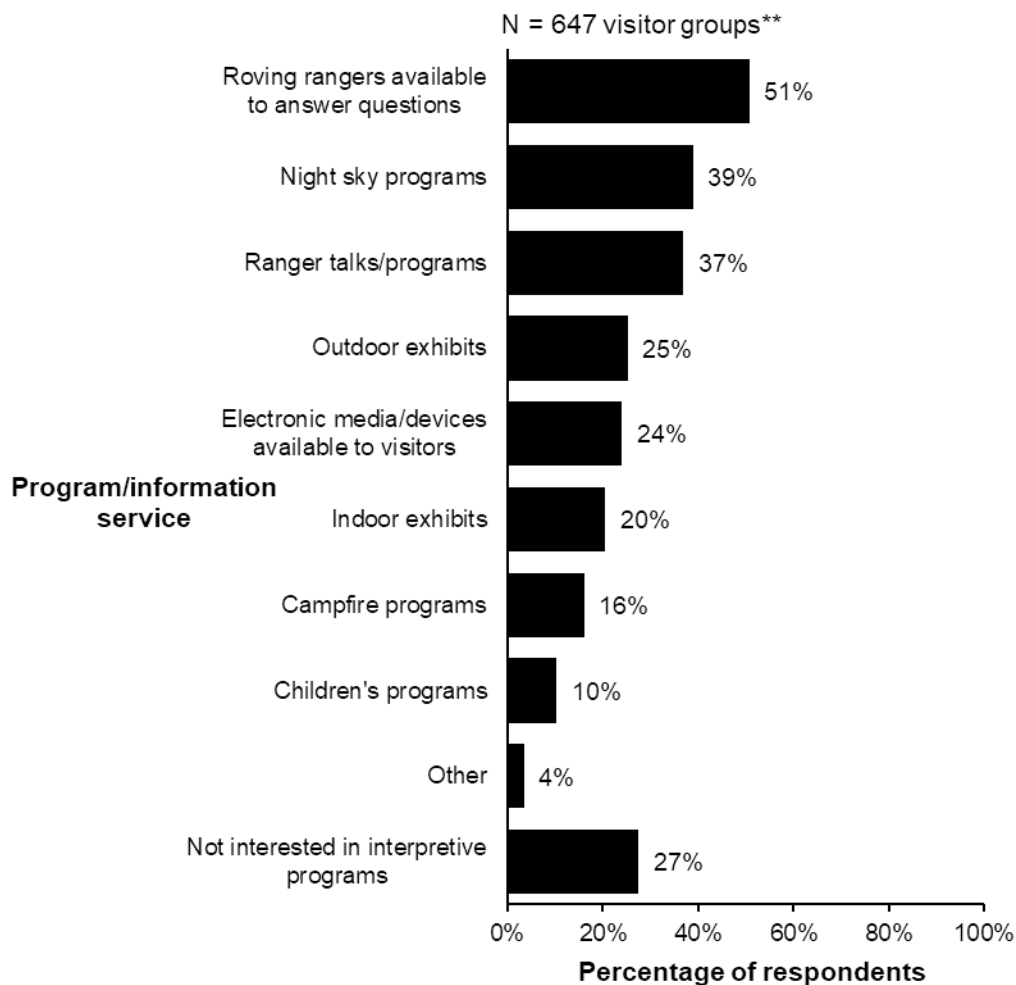


Figure 136. Interpretive programs/information services desired on a future visit

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Additional languages for information about programs and services

Question 39a

Would you or any member of your personal group prefer to receive information about Arches National Park programs and services in languages other than English?

Results (Figure 137)

- 94% of visitor groups do not prefer to receive information about Arches National Park in another language other than English.

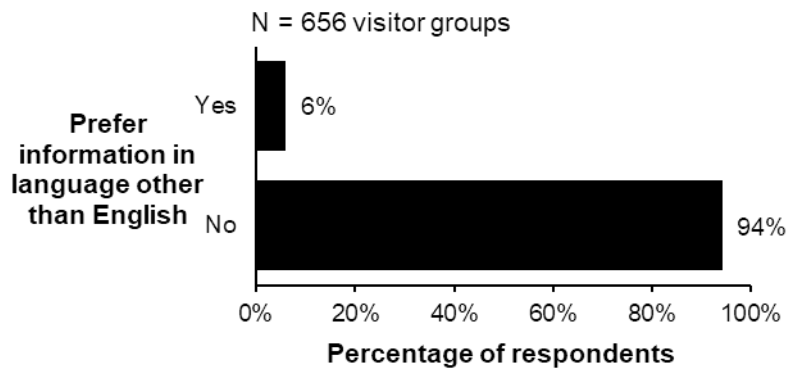


Figure 137. Visitor groups who would prefer information in other languages

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Question 39b

If YES, which language(s)?

Results (Table 40)

- Of those groups that were interested in receiving information in another language, the most frequently mentioned languages were:
 - 41% German
 - 19% French

Table 40. Languages in which visitor groups would prefer to receive information. N = 40 comments, some visitor groups may have made more than one comment.

Language	Percent of valid responses
German	41%
French	19%
Dutch	7%
Russian	6%
Chinese	5%
Spanish	5%
Tamil	3%
Serbo-Croatian	3%
Polish	3%
Ukrainian	2%
Welsh	2%
Bulgarian	2%
Japanese	2%

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Question 39c

If YES, which programs or services would you prefer to receive information in languages other than English?

Results (Table 41)

- Of those groups that were interested in receiving information in another language, the most frequently mentioned programs or services were:
 - 23% Park brochure
 - 23% Ranger programs/tours
 - 11% Electronic media

Table 41. Programs or services visitor groups would prefer to receive information about in other languages. N = 30 comments, some visitor groups may have made more than one comment.

Program or service	Percent of valid responses
Park brochure	23%
Ranger programs/tours	23%
Electronic media	11%
Everything	10%
Signs	8%
Safety information	6%
Geology	6%
Maps	6%
Other comments	8%

CAUTION: Number of respondents less than 30 visitor groups.

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Visitor Comments

Additional comments

Question 40

Is there anything else you would like to tell us about your visit to Arches National Park?

Results (Table 42)

- Table 42 shows the percent of valid responses for categories of additional comments provided by visitor groups. Verbatim visitor comments can be found in the *Visitor Comments Appendix*, a separate volume from this report.
- For the most part, comments were positive:
 - 31% Enjoyed visit
 - 7% Thank you
 - 6% Beautiful park

Table 42. Additional comments about facilities, services, or recreational opportunities. N = 647 comments, some visitor groups may have made more than one comment.

Category	Comment	Percent of valid responses*
PERSONNEL	Great interactions with rangers and staff	3%
	More ranger presence on trail	1%
POLICIES/MANAGEMENT	Appreciate conservation efforts	2%
	Keep Fiery Furnace limited access	1%
INTERPRETIVE AND INFORMATION SERVICES	Enjoyed private tour	2%
	Enjoyed Visitor Center	2%
FACILITIES AND MAINTENANCE	Add a shuttle system	2%
	Well organized park	2%
	More parking	1%
	Well maintained	1%
	Need more campsites	1%
	More signage on trails	1%
	Accessible	<1%
Trouble navigating	<1%	

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Table 42 (continued). Additional comments about facilities, services, or recreational opportunities. N = 647 comments, some visitor groups may have made more than one comment.

Category	Comment	Percent of valid responses*
GENERAL COMMENTS	Enjoyed visit	31%
	Thank you	7%
	Beautiful park	6%
	Plan to return	5%
	Crowded	3%
	Loved it	3%
	Not enough time	2%
	Keep up the great work	1%
	A favorite NPS park	1%
	People breaking rules	<1%
	Other comments	<1%

*total percentages do not equal 100 due to rounding

**total percentages do not equal 100 because visitors could select more than 1 answer

Literature Cited

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Appendix 1. The Questionnaire



National Park Service
U.S. Department of the Interior

Arches National Park Visitor Study



2016

OMB Approval #1024-0224
Expiration Date: 05/31/2019



United States Department of the Interior

NATIONAL PARK SERVICE

Arches National Park
P.O. Box 907
Moab, UT 84532



Fall 2016

Dear Visitor:

Thank you for participating in this important study. We want to learn about the expectations, opinions, and interests of visitors to Arches National Park. This information will help us improve our management of this site and better serve you, our visitor.

This questionnaire will be given to only a few visitors, so your participation is very important! It should only take about 25 minutes after your visit to complete.

When your visit is over, please complete the questionnaire. Seal it with the stickers provided on the last page and drop it in any U.S. mailbox.

If you have any questions, please contact Ellen Rovelstad, Study Coordinator, Resource System Group, Inc. , 1515 SW 5th Avenue Suite 1030, Portland, OR 97201, 802-295-4999 (phone), ellen.rovelstad@rsginc.com (email).

We appreciate your help.

Sincerely,

Kate Cannon
Superintendent

DIRECTIONS

At the end of your visit:

1. Please have the person with the next birthday (at least 18 years old) complete this questionnaire. That will help give us a statistically reliable sample.
2. Answer the questions carefully since each question is different.
3. For questions that use circles (O), please mark your answer by filling in the circle with **black or blue ink**.

Like this: Not like this:

4. Seal it in the postage-paid envelope provided.
5. Drop it in a U.S. mailbox.

Paperwork Reduction Act Statement: The Paperwork Reduction Act requires us to tell you why we are collecting this information, how we will use it, and whether or not you have to respond. This information will be used by the National Park Service as authorized by 54 U.S.C. 170001. We will use this information to evaluate visitor experiences and expectations at Arches National park in order to better manage the resources in the park. Your response is voluntary. Your name and contact information have been requested for follow-up mailing purposes only. When analysis of the questionnaire is completed, all name and address files will be destroyed and will in no way be connected with the results of this survey. A Federal agency may not conduct or sponsor, and you are not required to respond to, a collection of information unless it displays a currently valid OMB Control Number.

We estimate that it will take about 25 minutes to complete this questionnaire. You may send comments concerning the burden estimates or any aspect of this information collection to: Ellen Rovelstad, Study Coordinator, RSG, 1515 SW 5th Avenue Suite 1030, Portland, OR 97201, 802-295-4999 (phone), ellen.rovelstad@rsginc.com (email)

Please go on to the next page →

Your Visit to Arches National Park

1. a) Prior to this trip, how did you obtain information such as directions, accommodations, availability of activities, etc. to plan your visit to Arches National Park? Please mark (●) **all that apply in column (a)**.
- b) Specifically, how did you obtain information about safety measures such as exposure to sun, heat, staying hydrated, flash floods, proper footwear, staying on trails, etc.). Please mark (●) **all that apply in column (b)**.

Source of information	a) Trip information	b) Safety information
Did not obtain information prior to this visit	<input type="radio"/>	<input type="radio"/>
Previous visits	<input type="radio"/>	<input type="radio"/>
Friends/relatives/word of mouth	<input type="radio"/>	<input type="radio"/>
Inquiry to park via phone, mail, or email	<input type="radio"/>	<input type="radio"/>
Arches National Park website (nps.gov/arch)	<input type="radio"/>	<input type="radio"/>
Other website (Please specify)	<input type="radio"/>	<input type="radio"/>
Moab Information Center	<input type="radio"/>	<input type="radio"/>
Cable TV Visitor Channel-Moab hotels	<input type="radio"/>	<input type="radio"/>
Grand County Travel Council	<input type="radio"/>	<input type="radio"/>
Local businesses (hotels, motels, restaurants, etc.)	<input type="radio"/>	<input type="radio"/>
Maps/brochures	<input type="radio"/>	<input type="radio"/>
Newspaper/magazine articles	<input type="radio"/>	<input type="radio"/>
Other units of the National Park System (NPS)	<input type="radio"/>	<input type="radio"/>
School class/program	<input type="radio"/>	<input type="radio"/>
Social media (such as Facebook, Twitter, etc.)	<input type="radio"/>	<input type="radio"/>
Utah Travel Council	<input type="radio"/>	<input type="radio"/>
Television/radio programs/DVDs	<input type="radio"/>	<input type="radio"/>
Travel guides/tour books (such as AAA, etc.)	<input type="radio"/>	<input type="radio"/>
Other (Please specify): _____	<input type="radio"/>	<input type="radio"/>

2. If you used the park website nps.gov/arch prior to or during this visit, please rate how helpful the website was in planning your visit. Please mark (●) **only one response**.

Did not use	Not at all helpful	Slightly helpful	Moderately helpful	Very helpful	Extremely helpful
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3. On this visit, did you and your personal group feel prepared for common safety situations (such as exposure to sun, heat, access to drinking water, flash floods, use of proper footwear, etc.) that you encountered in Arches National Park? Please mark (●) **only one response**.

- No
- Yes
- Other (please explain) _____

4. a) During this visit, did you and your personal group encounter safety information in Arches National Park? Please mark (●) **only one response**.

- No → **Go on to Question 5**
- Yes

- b) If Yes, where did you encounter safety information in the park?

5. To your knowledge, does Arches National Park have any rules/regulations regarding climbing on arches, staying on trails, graffiti, collection of park resources, or pets in the park? Please mark (●) **only one response**.

- No → **Go on to Question 6**
- Yes → Please explain how you became aware of the rules/regulations prior to this visit.

6. a) On this visit, did you and your personal group take a tour with an independent guide (not a park ranger)? Please mark (●) **only one response**.
- No → **Go on to Question 7**
- Yes
- b) If you took a tour with an independent guide, did they explain the park rules and regulations to you and your personal group? Please mark (●) **only one response**.
- No
- Yes
7. On this trip, how much total time did you spend within Arches National Park?
- _____ Number of hours, if a day trip
- _____ Number of days, if greater than 1 day
8. a) Were you aware of the following reservation systems at Arches National Park, prior to your visit? Please mark (●) **only one response** for each type of reservation system.

Reservation system	Aware	Not aware
Fiery Furnace Tour	<input type="radio"/>	<input type="radio"/>
Campground	<input type="radio"/>	<input type="radio"/>

- b) On this visit to Arches National Park, how did you and your personal group make a tour or campground reservation? Please mark (●) **all that apply** for each type of reservation.

	Tour reservation	Campground reservation
Did not make reservation	<input type="radio"/>	<input type="radio"/>
Called the toll-free telephone number	<input type="radio"/>	<input type="radio"/>
Reserved online via the National Park Service reservation site	<input type="radio"/>	<input type="radio"/>
Other (Please specify):	<input type="radio"/>	<input type="radio"/>

9. a) On this visit did you and your personal group use Recreation.gov? Please mark (●) **only one response**.

- No → **Go on to Question 10**
- Yes

b) If Yes, please rate the quality of the reservation services. Please mark (●) **one** for each item.

	Very poor	Poor	Average	Good	Very good
Sufficiency of information provided	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Efficiency of service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ease of use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Accuracy of reservation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

10. When did you make the decision to visit Arches National Park? Please mark (●) **only one response**.

- On the same day of the visit
- Couple of days before the visit
- A week before the visit
- 1 month before the visit
- 2-6 months before the visit
- More than 6 months but less than a year before the visit
- A year or more before the visit
- Don't know/can't recall

11. a) What forms of transportation did you and your group use to travel between your overnight accommodations or home and Arches National Park? Please mark (●) **all that apply**.

- Private vehicle (car, SUV, pickup, RV, motorcycle, etc.)
- Rental vehicle
- Taxi/limousine/Uber
- Bicycle
- On foot
- Hotel shuttle van/courtesy bus
- Package tour motorcoach/bus
- Outfitter/commercial tour van/shuttle
- Other (Please specify) _____

- b) If your group arrived at Arches National Park in **private or rental** vehicles, how many **vehicles** did you and your group use?

_____ Number of vehicles

12. Approximately how long did you have to wait in traffic congestion to enter Arches National Park on this trip?

_____ Number of minutes

13. Overall, compared to what you expected, how much traffic congestion did you experience during your visit to Arches National Park? Please mark (●) **only one response**.

- I didn't know what to expect
- Less traffic congestion than I expected
- About the same as I expected
- More traffic congestion than I expected

14. a) During this visit to Arches National Park, did you experience any parking problems? Please mark (●) **only one response**.

- No → **Go on to Question 15**
- Yes

b. If Yes, where did you encounter parking problems?

15. a) On this visit, were the signs inside Arches National Park directing you and your personal group to facilities and locations adequate? Please mark (●) **only one response**.

- Did not use any signage → **Go on to Question 16**
- Yes → **Go on to Question 16**
- No

b. If No, what signage problem did you encounter?

-
16. Which other local and regional attractions did you (or do you plan to) visit on this trip to Arches National Park? Please mark (●) **all that apply**.
- Canyonlands National Park – Island in the Sky district
 - Canyonlands National Park – Needles district
 - Dead Horse Point State Park
 - Colorado/Green River
 - Visit other public lands/BLM recreation sites
 - La Sal Mountains
 - Hovenweep National Monument
 - Natural Bridges National Monument
 - Capitol Reef National Park
17. On this visit, which one of the following entrance fees applied to you and your personal group? Please mark (●) **only one response**.
- Did not pay a fee
 - 7-day entrance fee (\$25/vehicle, \$10/individual, \$15/motorcycle)
 - Used a pass (Federal Recreational Lands passes, Annual Southeast Utah Group pass, Military pass, Every Kid in the Park- 4th grader)
 - Fee included in a tour package
 - Don't know

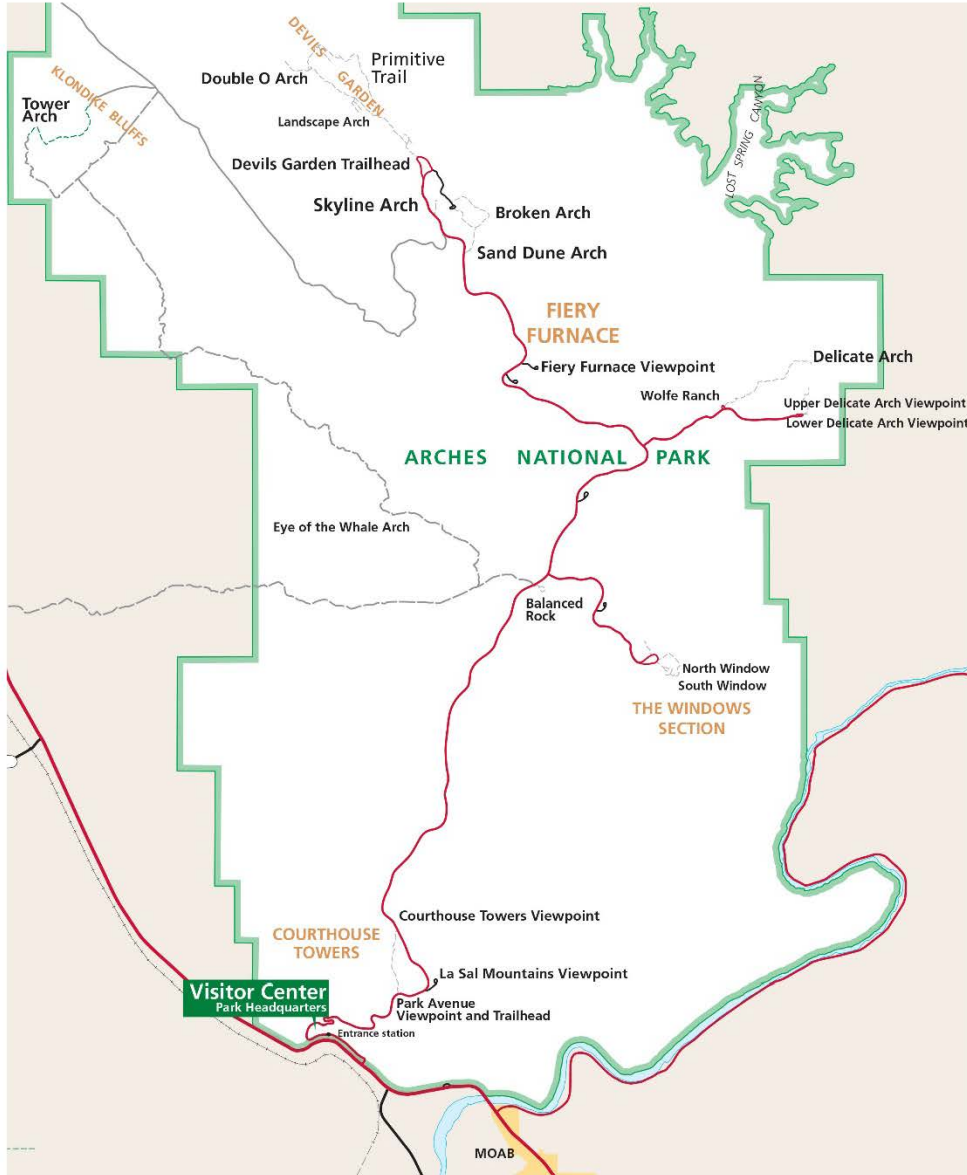
18. a) On this visit, did you and your personal group attend any of the following ranger-led activities/programs or interpretive programs? Please mark (●) Yes or No for each activity/program.
 b) If No, why not? Please be specific.

Activity/Program	Yes	No	If No, why not?
Fiery Furnace guided hike	<input type="radio"/>	<input type="radio"/>	
Windows guided hike	<input type="radio"/>	<input type="radio"/>	
Balanced Rock geology talk	<input type="radio"/>	<input type="radio"/>	
Junior Ranger Station (at Visitor Center)	<input type="radio"/>	<input type="radio"/>	
Campground evening program	<input type="radio"/>	<input type="radio"/>	
Informal ranger contact on a trail	<input type="radio"/>	<input type="radio"/>	

19. a) If you were to visit Arches National Park in the future, would you be interested in taking a guided ranger-led tour? Please mark (●) **only one response.**
 No → **Go on to Question 20**
 Yes
 b) If Yes, where would you and your group like to take a guided ranger-led tour?

20. a) If you were to visit Arches National Park in the future, would you be interested in taking an independent guided (not a park ranger) tour? Please mark (●) **only one response.**
 No → **Go on to Question 21**
 Yes
 b) If Yes, where would you and your group like to take an independent guided (not a park ranger) tour?

- c) If Yes, what subjects would you and your group like to learn about during the tour?



21. a) On the list below, please list the order in which you and your group visited the following sites at Arches National Park. Please use the map on the previous page to help you locate the site. If you did not visit a site, please **write 0** in the “**Order of visit**” column.
- b) For the locations that you **visited**, how crowded did you feel at these locations? Please mark (●) **one for each location**

Site	Order of visit	How crowded?				
		Not at all	Slightly	Moderately	Very	Extremely
Visitor Center		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Moab Fault Overlook		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Park Avenue		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
La Sal Mountains Viewpoint		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Courthouse Towers		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Balanced Rock		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Windows		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Delicate Arch		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wolfe Ranch		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Delicate Arch Viewpoint		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fiery Furnace Viewpoint		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fiery Furnace		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sand Dune Arch		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Broken Arch		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Skyline Arch		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Devils Garden Primitive Trail		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Landscape Arch		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Double O Arch		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Klondike Bluffs/Tower Arch		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Eye of the Whale Arch		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lost Spring Canyon		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

22. Below is a list of activities available at Arches National Park.

- a) On this visit, in which activities did you and your personal group participate? Please mark (●) **all that apply in column (a)**.
- b) If you were to visit in the future, in which activities would you and your personal group participate? Please mark (●) **all that apply in column (b)**.

Activity	a) Participated on this visit	b) Future visit
Walking/hiking	<input type="radio"/>	<input type="radio"/>
Photography/painting/drawing	<input type="radio"/>	<input type="radio"/>
Auto-touring/sightseeing	<input type="radio"/>	<input type="radio"/>
Overnight backpacking	<input type="radio"/>	<input type="radio"/>
Rock climbing	<input type="radio"/>	<input type="radio"/>
Canyoneering	<input type="radio"/>	<input type="radio"/>
Ranger-led tour/hike	<input type="radio"/>	<input type="radio"/>
Commercial guided tour/hike	<input type="radio"/>	<input type="radio"/>
4-wheel driving	<input type="radio"/>	<input type="radio"/>
Visiting visitor center	<input type="radio"/>	<input type="radio"/>
Viewing sunrise/sunset	<input type="radio"/>	<input type="radio"/>
Bicycling	<input type="radio"/>	<input type="radio"/>
Camping	<input type="radio"/>	<input type="radio"/>
Picnicking	<input type="radio"/>	<input type="radio"/>
Nature study	<input type="radio"/>	<input type="radio"/>
Self-guided hike in Fiery Furnace	<input type="radio"/>	<input type="radio"/>
Other (please specify)	<input type="radio"/>	<input type="radio"/>

23. a) During this visit to Arches National Park, did you and your personal group have any personal interaction with a park ranger other than on a ranger-led tour program? Please mark (●) **only one response**.

- No → **Go on to Question 24**
- Yes

b) If Yes, where did you interact with a park ranger? Please mark (●) **only one response.**

- On trail
- At the Visitor Center
- Other location (please specify)

24. Below is a list of possible experiences you may want (or prefer) to have while visiting Arches National Park. For each item please *indicate how important the experience is* to you on your visit to the park. Please mark (●) **one for each item.**

Experience	How important?				
	Not at all important	Slightly important	Moderately important	Very important	Extremely important
To be close to nature	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To be my own boss	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To be where things are fairly safe	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To avoid the unexpected	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To learn about new things at Arches National Park	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To view scenic beauty	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To be near others who could help if you needed them	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To feel my independence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To view wildlife	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To learn more about nature	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

25. The following is a list of characteristics commonly associated with backcountry and wilderness areas. Please indicate how important each of the items listed below was to you as a reason to use the trails in Arches National Park. Please mark (●) **one for each item**.

Wilderness/ backcountry characteristics	How important?				
	Not at all important	Slightly important	Moderately important	Very important	Extremely important
Remoteness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Solitude	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Primitive recreation/ few facilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pristine natural environment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Physically challenging/ demanding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Unconfined recreation/free from rules/regulations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Require self-reliance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fostering a sense of humility toward nature	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fostering spiritual connection	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fostering immersion in nature	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

26. What did you like most about your visit to Arches National Park?

27. What did you like least about your visit to Arches National Park?

28. Approximately how far did you go hiking during this visit to Arches National Park? Please mark (●) **only one response** for your entire visit.

- Did not hike on this visit
- Less than 1/2 mile
- Between 1/2 and 1 mile
- Between 1 and 2 miles
- Between 2 and 5 miles
- Between 5 and 10 miles
- 10 miles or more

29. a) On this visit, did you and your personal group desire to explore the backcountry of Arches National Park (defined here as at least 2 miles down a trail, or at least 1/2 mile from an improved road if not on a trail)? Please mark (●) **only one response**.

- No → **Go on to Question 30**
- Yes

b) If Yes, were you able to access the backcountry? Please mark (●) **only one response**.

- Yes
- No → What prevented you from accessing the backcountry?

30. Please mark (●) **only one response** that indicates your level of agreement with this statement: *“The number of other people I saw during my hike in the Fiery Furnace today interfered with my sense of solitude.”*

Did not hike in the Fiery Furnace	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

31. Please indicate the extent to which you and your personal group would support or oppose each of the following potential management actions at Arches National Park. Please mark (●) **one response** for each management action.

Management action	Strongly support	Support	Neither support nor oppose	Oppose	Strongly oppose	Don't know/ no opinion
Timed entry to the park to reduce crowding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Implement trail limits to reduce crowding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Implement trail limits to protect park resources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Manage commercial tour buses to reduce traffic congestion and crowding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Implement limit on commercial recreation activities in wilderness areas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Delineate desert trails in wilderness with signs and rock cairns (permanent installations)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

32. It is the National Park Service’s responsibility to protect this park’s natural and cultural resources/attributes and visitor experiences that depend on these resources or attributes. How important is the protection of the following to you and your personal group? Please mark (●) **one** answer for each resource/attribute/experience.

Resource/attribute/experience	Not at all important	Slightly important	Moderately important	Very important	Extremely important
Clean water	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clean air	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Scenic views	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Natural quiet/sounds of nature	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wilderness values (solitude, primitive/remote recreation, self-reliance)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Native plants	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wildlife	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cultural sites	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recreational opportunities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interpretive/information programs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Access to parking at hiking trails					
Park Avenue	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Balanced Rock	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Windows	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Double Arch	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Delicate Arch	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sand Dune Arch	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Broken Arch	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Skyline Arch	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Devils Garden	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tower Arch	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Campground	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Paved roads	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

33. Including yourself, how many people were in your personal group during your visit to Arches National Park on the day you were contacted for this survey?

_____ Number of adults (18 years or older)

_____ Number of children (under 18 years)

34. On this visit to Arches National Park, which one of the following best describes your personal group? Please mark (●) **only one response**.

- Myself (alone)
- Myself with family (including spouse/partner and/or other family members/relatives)
- Myself with friends
- Myself with family and friends
- Other (Please specify): _____

35. On this visit to Arches National Park, were you and your personal group with the following type of organized group? Please mark (●) Yes or No for each group type.

Group type	Yes	No
Commercial guided tour group	<input type="radio"/>	<input type="radio"/>
Club/special interest organization	<input type="radio"/>	<input type="radio"/>
School/educational group	<input type="radio"/>	<input type="radio"/>
Other organized group (scouts, business group, church group, etc.)	<input type="radio"/>	<input type="radio"/>

36. For your personal group during your visit to Arches National Park on the day you were contacted for this survey, please provide the following information. (If you don't know the answer, enter "DK.")

	Current age	U.S. ZIP code or name of country other than U.S.	Number of visits to Arches NP in last 12 months, including this trip	Number of visits to Arches NP in your lifetime, including this trip
Yourself				
Member #2				
Member #3				
Member #4				
Member #5				
Member #6				
Member #7				

37. What is the highest level of formal education you have completed? Please mark (●) **only one response**.

- Less than high school
- Some high school, no diploma
- High school graduate/GED
- Vocational/trade school certificate
- Some college, no degree
- Two-year college degree
- Four-year college degree or Bachelor's degree
- Master's degree (or Graduate degree)
- Ph.D., M.D., J.D., or equivalent

38. On a future visit to Arches National Park, what interpretive programs/information services would you and your group like to have available at the park? Please mark (●) **all that apply**.
- Not interested in interpretive programs → **Go on to Question 39**
 - Roving rangers available to answer questions
 - Ranger talks/programs
 - Campfire programs
 - Night sky programs
 - Indoor exhibits
 - Children's programs
 - Outdoor exhibits
 - Electronic media/devices available to visitors (downloadable digital files, podcasts, cell phone tours/apps, interactive computer tours, audio, etc.)
 - Other (Please specify):

39. a) Would you or any member of your personal group prefer to receive information about Arches National Park programs and services in languages other than English? Please mark (●) **only one response**.
- No → **Go on to Question 40**
 - Yes

b) If Yes, which language(s):

c) If Yes, which programs or services you would prefer to receive information in languages other than English?

40. Is there anything else you would like to tell us about your visit to Arches National Park?

Thank you for your help! Please seal the questionnaire with the stickers provided and drop it in any U.S. mailbox.



Printed on recycled paper

SURVEY ID NUMBER:



Appendix 2. The Thank You/Reminder Postcard

ARCHES NATIONAL PARK



Dear Arches National Park Visitor,

About two weeks ago we contacted you to participate in a survey about your recent trip to Arches National Park. If you are one of the many people who have already responded, thank you!

However, if you have not yet had the opportunity to complete the survey, please do so. A select number of people were contacted for this study, so your opinions are very important! Please complete and return the questionnaire booklet at your earliest convenience. If you have lost the survey, another one will be mailed to you in approximately two weeks.

Kate Cannon
Superintendent
Arches National Park



OMB approval # 1024-0224
Expiration date: 05/31/2019

Appendix 3. The Replacement Mailing Cover Letter



UNITED STATES DEPARTMENT OF THE INTERIOR

ARCHES NATIONAL PARK

P.O. Box 907.
Moab, UT 84532



Dear [Name],

About a month ago, on your recent trip to Arches National Park, we asked you to participate in a visitor survey. The National Park Service would like to thank you for agreeing to participate in this visitor study. We selected only a small number of visitors to participate in this study; therefore, the return of each questionnaire is very important. The information you provide will help us better manage Arches National Park, and better serve you, our visitor.

If you have already returned your questionnaire, we would like to thank you. However, if you have not, we are asking you to please return it by mail today. Since we have not received yours as of the date we mailed this letter, we have included a replacement questionnaire for your convenience, along with a postage paid envelope.

If you have any questions regarding your questionnaire, please contact Ellen Rovelstad, Study Coordinator, RSG, 1515 SW 5th Avenue, Suite 1030, Portland, OR 97201, 802-295-4999 (phone), ellen.rovelstad@rsginc.com (email).

Thank you for your help with this important study. Your opinions matter, and we appreciate you sharing them with us. They will help us improve the management of Arches National Park.

Sincerely,

Kate Cannon
Superintendent
Arches National Park

OMB # 1024-0224
Expiration date: 05/31/2019

Appendix 4. Detailed Sampling Procedures

Site Schematics

As noted, the visitor survey was administered at two locations in Arches National Park. A specific survey administration point was identified at each sampling location, based on analysis of aerial site photos, onsite scoping, and recommendations from the Arches National Park point of contact for this study. The survey administration point for each location was denoted with a yellow star in a site schematic provided to the survey administrator assigned to the site (Figure 138 and Figure 139). A red line was used in each site schematic to denote the boundary or point at which visitor groups traveling were considered to have entered the survey area and were intercepted for the survey. A red arrow was used in each site schematic to denote the direction of travel in which visitor groups were intercepted.

Timed-Interval Sampling Procedures

At the Entrance sampling location, visitor groups were sampled using a timed-interval approach (i.e., attempt to sample one visitor group every N minutes of the sampling day, where N is the time interval); interval times were designed in advance of onsite administration to ensure that there was a sufficient number of questionnaires to administer to visitor groups during all hours of each sampling day and each day of the sampling period. The timed-interval approach involved having the survey administrator intercept the first vehicle to enter the survey area at the start of the sampling period. Each day, traffic cones and sandwich boards were set up along the roadside by survey administrators before the sample period began to provide advanced notice of the survey to oncoming vehicles. Traffic cones were also set up to denote a pull-over location for intercepted vehicles. During the sample period, survey administrators used hand-held stop/slow signs and large, commanding arm motions to intercept and direct moving vehicles into the pre-identified pull-over location for survey administration.

Once the vehicle was safely stopped, the survey administrator briefly introduced the study to the driver and asked the visitor group to participate in the survey. If the group agreed to participate, they were handed the mail-back questionnaire packet, asked to complete the address card, and asked to answer the non-response bias questions. If the group refused to participate, they were asked to complete the non-response bias questions and then thanked for their time. After completing a contact with a refusal group, the survey administrator intercepted the next vehicle to enter the survey area and asked them to participate in the survey. The survey administrator continued this process until a visitor group agreed to participate.

Once a participating group was administered the survey, the survey administrator waited until the start of the next time interval to intercept a new vehicle. At the start of the next time interval, the survey administrator intercepted the first vehicle to enter the survey area and asked the visitor group to participate in the survey. If the next time interval started before the survey administrator could recruit a visitor group to participate in the survey for the previous time interval, he/she advanced to the next time interval simply by intercepting the next arriving vehicle. Once a visitor group agreed to

participate, the survey administrator then waited until the start of the next time interval to continue. The survey administrator repeated this sequence of steps throughout the sampling period.

If a tour bus or tour van entered the study area as the next arriving vehicle at the start of the timed interval, survey administrators intercepted the tour vehicle entering the study area. In the same manner as other vehicles were intercepted, survey administrators used hand-held stop/slow signs and large, commanding arm motions to intercept and direct moving tour vehicles into the pre-identified pull-over location for survey administration. Once the tour vehicle was safely stopped, the survey administrator briefly introduced the study to the tour vehicle operator and requested permission to administer the survey.

For tour buses, the survey administrator asked for additional permission to board the bus. If given permission, the survey administrator entered the bus, contacted the visitor group seated in the second row behind the tour bus operator on the driver's side of the bus, and asked them to participate in the survey. If the group agreed to participate, they were handed the mail-back questionnaire packet, asked to complete the address card, and asked to answer the non-response bias questions. If the group refused to participate, they were asked to complete the non-response bias questions and then thanked for their time. After completing a single contact with a visitor group, the survey administrator exited the tour bus. If the intercept completed on a tour bus resulted in a refusal, the next vehicle to enter the survey area was intercepted and the study administrator asked them to participate in the survey. The survey administrator continued this process until a visitor group agreed to participate.

For tour vans, the survey administrator contacted the visitor group seated in the second row behind the tour van operator on the driver's side of the vehicle, and asked them to participate in the survey. If the group agreed to participate, they were handed the mail-back questionnaire packet, asked to complete the address card, and asked to answer the non-response bias questions. If the group refused to participate, they were asked to complete the non-response bias questions and then thanked for their time. After completing a single contact with a visitor group, the survey administrator let the tour van proceed out of the study area. If the intercept completed on a tour van resulted in a refusal, the next vehicle to enter the survey area was intercepted and the study administrator asked them to participate in the survey. The survey administrator continued this process until a visitor group agreed to participate.

Occasionally, the survey administrator was unable to stop the next arriving vehicle entering the study area during the timed interval. In these instances, the identified vehicle did not pull over but rather continued driving past the survey intercept location, despite the study administrator's direction to pull over. These "drive-by refusal" survey intercepts were recorded as refusals without non-response bias questions on the contact log form. After completing a contact with a refusal group, the survey administrator intercepted the next vehicle to enter the survey area and asked them to participate in the survey. The survey administrator continued this process until a visitor group agreed to participate.

Other Sampling Procedures

At the Fiery Furnace, visitor groups were sampled using a first-after-last sampling approach. The first-after-last sampling approach involved the survey administrator contacting the first visitor group

to return to the parking area after completing their visit to the Fiery Furnace. If the first group contacted agreed to participate, they were administered the survey; if the group refused to participate, they were asked to complete the non-response bias questions and then thanked for their time. After completing the contact, the survey administrator contacted the next visitor group returning to the parking area and asked them to participate in the survey. The survey administrator repeated this sequence of steps throughout the sampling period. It should be noted, many visitor groups to the Fiery Furnace visited the area on a ranger-led tour or commercially-guided tour, which resulted in several visitor groups returning to the parking area at one time at the completion of their tours. In these instances, the survey administrator completed the sequence of steps noted to contact as many of the visitor groups in the tour as possible, before they departed the Fiery Furnace parking area.



Figure 138. Park Entrance vehicle stop sampling location



Figure 139. Fiery Furnace sampling location

Appendix 5. Non-response Bias Analysis - Effects on Survey Responses due to Number of Adults, Number of Children, Group Type, and State or Country of Residence

This study used answers to five, pre-selected non-response bias questions and one observable characteristics (initial contact gender) of contacted visitors to compare respondents with non-respondents and check for non-response bias. Results of a chi-square test for independence with $\alpha = 0.05$ and $p \leq 0.0005$ (following Bonferroni correction) suggest that groups who responded to the Arches National Park survey do differ significantly from non-respondents, with respect to number of adult group members ($\chi^2 = 19.276$; $p < 0.001$), number of child group members ($\chi^2 = 23.671$; $p = 0.001$), visitor group type ($\chi^2 = 26.787$; $p < 0.001$), and state or country of residence ($\chi^2 = 23.364$; $p < 0.001$). Specifically, respondents were more likely than non-respondents to be in groups of two adults, while non-respondents were more likely than respondents to be in groups of one or five or more adults. Respondents were more likely than non-respondents to have no children in their group. Respondents were more likely than non-respondents to have visited the park with family, while non-respondents were more likely to have visited alone, with friends, or with family and friends. Respondents were more likely than non-respondents to have visited the park from out of state, while non-respondents were more likely to have visited from Utah or from a foreign country

The potential impact of this non-response bias on the results of the Arches National Park survey was further explored. Specifically, effects due to number of adult group members, number of child group members, visitor group type, and state or country of residence were examined for 103 key questions in the Arches National Park survey. These key questions assessed use of information sources for trip planning, motivations for visiting Arches National Park, the extent to which issues were a problem during their visit, and preferences for management. A Bonferroni correction was applied to account for the fact that 103 simultaneous statistical tests were conducted with the same data set. The Bonferroni correction minimizes the likelihood of concluding from the results of the statistical tests that there are differences between respondents and non-respondents, when there actually are no differences (i.e., minimizes the probability of making a Type I error). With the Bonferroni correction applied in this analysis, statistical test results with p-values of less than 0.0005 are assumed to be statistically significant.

Very few statistically significant effects of number of adult group members, number of child group members, and visitor group type on survey responses were observed: effects of number of adults were observed for two questions (Table 43), effects of number of children were also observed for two questions (Table 44), and effects of visitor group type were observed for just one question (Table 45). Statistically significant effects of state or country of residence on survey responses were observed for six of the 103 questions that were assessed (Table 46). Statistically significant effects for all questions tested are emphasized in bold text in the tables below. Results of these statistical tests comparing respondents to non-respondents (i.e., non-response bias analysis) suggest that, for some questions, the survey results may over-represent opinions, evaluations, or behaviors from

visitor groups with two adults, groups with no children, families, and groups visiting the park from out of state.

Where statistical differences were found between respondent subgroups, results by subgroup are reported in this Appendix to document the effects of these differences (Figure 140 through Figure 150). The format of these figures is as follows:

1. The figure title describes the graph's information.
2. Listed below the graph, the "N" shows the number of individuals or visitor groups responding to the question for each group. The phrase "**CAUTION!**" is shown on the graph to indicate the results are unreliable due to low sample size ($N < 30$).

* appears when total percentages do not equal 100 due to rounding.
3. Vertical information (y-axis) describes the response category.
4. Horizontal information (x-axis) percentage of responses in each category.
5. The proportion of visitor groups/visitors who responded to each category.

Table 43. Statistical tests of Number of Adults effects on key questions in Arches National Park survey

Question; Response scale	Sub-Question	N	Chi-square; p-value
Prior to this trip, how did you obtain information about Arches NP? Please mark all that apply. (Q1) ; 0 = No 1 = Yes	Did not obtain information prior to this visit	654	$\chi^2 = 1.872$; $p = 0.599$
	Previous visits	655	$\chi^2 = 13.731$; $p = 0.003$
	Friends/relatives/word of mouth	656	$\chi^2 = 8.333$; $p = 0.040$
	Inquiry to park via phone, mail, or email	655	$\chi^2 = 3.830$; $p = 0.280$
	Arches NP website	655	$\chi^2 = 3.604$; $p = 0.307$
	Other website	656	$\chi^2 = 0.799$; $p = 0.850$
	Moab Information Center	656	$\chi^2 = 2.768$; $p = 0.429$
	Cable TV Visitor Channel-Moab hotels	655	$\chi^2 = 0.642$; $p = 0.887$
	Grand County Travel Council	654	$\chi^2 = 0.821$; $p = 0.844$
	Local businesses (hotels, motels, restaurants, etc.)	656	$\chi^2 = 2.395$; $p = 0.495$
	Maps/brochures	655	$\chi^2 = 1.020$; $p = 0.796$
	Newspaper/magazine articles	654	$\chi^2 = 10.182$; $p = 0.017$
	Other units of the National Park System	655	$\chi^2 = 3.709$; $p = 0.295$
	School class/program	654	$\chi^2 = 0.410$; $p = 0.938$
	Social media (such as Facebook, Twitter, etc.)	654	$\chi^2 = 2.888$; $p = 0.409$
Utah Travel Council	656	$\chi^2 = 0.732$; $p = 0.866$	
Television/radio programs/DVDs	654	$\chi^2 = 1.178$; $p = 0.758$	
Overall, compared to what you expected, how much traffic congestion did you experience during your visit to Arches NP? (Q13) ;	Overall, compared to what you expected, how much traffic congestion did you experience during your visit to Arches NP?	659	$\chi^2 = 19.089$; $p = 0.024$
1 = Didn't know what to expect 2 = Less than expected 3 = About the same 4 = More than expected			

Table 43 (continued). Statistical tests of Number of Adults effects on key questions in Arches National Park survey

Question; Response scale	Sub-Question	N	Chi-square; p-value
During your trip to Arches NP, did you experience any parking problems? (Q14); 0 = No 1 = Yes	During your trip to Arches NP, did you experience any parking problems?	653	$\chi^2 = 0.399;$ $p = 0.953$
On this visit, did you and your personal group attend any of the following ranger-led activities/programs or interpretive programs in Arches NP? (Q18); 0 = No 1 = Yes	Fiery Furnace guided hike	636	$\chi^2 = 3.790;$ $p = 0.285$
	Windows guided hike	615	$\chi^2 = 3.806;$ $p = 0.283$
	Balanced Rock geology talk	612	$\chi^2 = 0.938;$ $p = 0.816$
	Junior Ranger Station (at Visitor Center)	612	$\chi^2 = 7.753;$ $p = 0.051$
	Campground evening program	610	$\chi^2 = 1.243;$ $p = 0.743$
	Informal ranger contact on a trail	614	$\chi^2 = 0.223;$ $p = 0.974$
For the locations that you visited, how crowded did you feel at these locations? (Q21); 0 = No 1 = Yes	Visitor Center	498	$\chi^2 = 7.445;$ $p = 0.827$
	Moab Fault Overlook	209	$\chi^2 = 4.548;$ $p = 0.971$
	Park Avenue	355	$\chi^2 = 6.309;$ $p = 0.900$
	La Sal Mountains Viewpoint	255	$\chi^2 = 12.342;$ $p = 0.419$
	Courthouse Towers	358	$\chi^2 = 3.819;$ $p = 0.986$
	Balanced Rock	491	$\chi^2 = 11.223;$ $p = 0.510$
	The Windows	455	$\chi^2 = 22.301;$ $p = 0.034$
	Delicate Arch	393	$\chi^2 = 14.373;$ $p = 0.278$
	Wolfe Ranch	235	$\chi^2 = 15.113;$ $p = 0.235$
	Delicate Arch Viewpoint	380	$\chi^2 = 17.060;$ $p = 0.147$
	Fiery Furnace	258	$\chi^2 = 6.144;$ $p = 0.909$
	Fiery Furnace Viewpoint	335	$\chi^2 = 19.213;$ $p = 0.084$
	Sand Dune Arch	265	$\chi^2 = 10.228;$ $p = 0.596$

Table 43 (continued). Statistical tests of Number of Adults effects on key questions in Arches National Park survey

Question; Response scale	Sub-Question	N	Chi-square; p-value
For the locations that you visited, how crowded did you feel at these locations? (Q21, continued); 0 = No 1 = Yes	Broken Arch	218	$\chi^2 = 7.727$ $p = 0.806$
	Skyline Arch	246	$\chi^2 = 10.655$; $p = 0.559$
	Devils Garden Primitive Trail	234	$\chi^2 = 15.178$; $p = 0.232$
	Landscape Arch	279	$\chi^2 = 21.796$; $p = 0.040$
	Double O Arch	201	$\chi^2 = 13.910$; $p = 0.307$
	Klondike Bluffs/Tower Arch	73	$\chi^2 = 5.875$; $p = 0.922$
	Eye of the Whale Arch	75	$\chi^2 = 9.388$; $p = 0.669$
	Lost Spring Canyon	56	$\chi^2 = 10.351$; $p = 0.585$
On this visit, in which activities did you and your personal group participate in Arches NP? (Q22); 0 = No 1 = Yes	Walking/hiking	643	$\chi^2 = 5.624$; $p = 0.131$
	Photography/painting/drawing	644	$\chi^2 = 2.076$; $p = 0.557$
	Auto-touring/sightseeing	643	$\chi^2 = 1.464$; $p = 0.691$
	Overnight backpacking	644	$\chi^2 = 4.962$; $p = 0.175$
	Rock climbing	643	$\chi^2 = 2.884$; $p = 0.410$
	Canyoneering	644	$\chi^2 = 3.044$; $p = 0.385$
	Ranger-led tour/hike	644	$\chi^2 = 5.112$; $p = 0.164$
	Commercial guided tour/hike	643	$\chi^2 = 4.830$; $p = 0.185$
	4-wheel driving	644	$\chi^2 = 3.544$; $p = 0.315$
	Visiting visitor center	644	$\chi^2 = 0.596$; $p = 0.897$
	Viewing sunrise/sunset	645	$\chi^2 = 11.539$; $p = 0.009$
	Bicycling	644	$\chi^2 = 26.756$; $p < 0.0001$
	Camping	643	$\chi^2 = 0.951$; $p = 0.813$
Picnicking	644	$\chi^2 = 1.921$; $p = 0.589$	

Table 43 (continued). Statistical tests of Number of Adults effects on key questions in Arches National Park survey

Question; Response scale	Sub-Question	N	Chi-square; p-value
On this visit, in which activities did you and your personal group participate in Arches NP? (Q22, continued) ; 0 = No 1 = Yes	Nature Study	644	$\chi^2 = 2.888$; $p = 0.409$
	Self-guided hike in fiery furnace	643	$\chi^2 = 4.095$; $p = 0.251$
For each item, please indicate how important the experience is to you on your visit to Arches NP. (Q24) ; 1 = Not important at all to 5 = Extremely important	To be close to nature	641	$\chi^2 = 22.291$; $p = 0.034$
	To be my own boss	633	$\chi^2 = 35.797$; $p < 0.0001$
	To be where things are fairly safe	643	$\chi^2 = 22.006$; $p = 0.037$
	To avoid the unexpected	632	$\chi^2 = 17.890$; $p = 0.119$
	To learn about new things at Arches NP	647	$\chi^2 = 13.784$; $p = 0.315$
	To view scenic beauty	650	$\chi^2 = 9.299$; $p = 0.410$
	To be near others who could help if you needed them	639	$\chi^2 = 13.157$; $p = 0.358$
	To feel my independence	626	$\chi^2 = 18.599$; $p = 0.099$
	To view wildlife	645	$\chi^2 = 10.805$; $p = 0.546$
On this visit to Arches NP, did you and your personal group desire to explore the backcountry? (Q29) ; 0 = No 1 = Yes	On this visit to Arches NP, did you and your personal group desire to explore the backcountry?	655	$\chi^2 = 4.619$; $p = 0.202$
	If yes, were you able to access the backcountry?	271	$\chi^2 = 3.807$; $p = 0.283$
Please indicate to extent to which you and your personal group would support to oppose each of the following potential management actions at Arches NP. (Q31) ; 1 = Strongly support to 5 = Strongly oppose	Times entry to the park to reduce crowding	638	$\chi^2 = 16.536$; $p = 0.347$
	Implement trail limits to reduce crowding	632	$\chi^2 = 17.648$; $p = 0.292$
	Implement trail limits to protect park resources	632	$\chi^2 = 27.198$; $p = 0.027$
	Manage commercial tour buses to reduce traffic congestion and crowding	638	$\chi^2 = 37.147$; $p = 0.001$
	Implement limit on commercial recreation activities in wilderness areas	635	$\chi^2 = 21.637$; $p = 0.118$

Table 43 (continued). Statistical tests of Number of Adults effects on key questions in Arches National Park survey

Question; Response scale	Sub-Question	N	Chi-square; p-value
Please indicate to extent to which you and your personal group would support to oppose each of the following potential management actions at Arches NP. (Q31, continued) ; 1 = Strongly support to 5 = Strongly oppose	Delineate desert trails in wilderness with signs and rock cairns (permanent installations)	629	$\chi^2 = 10.532$; $p = 0.785$
	Clean Water	644	$\chi^2 = 20.223$; $p = 0.063$
How important is the protection of the following to you and your personal group? (Q32) ; 1 = Not important at all to 5 = Extremely important	Clean Air	642	$\chi^2 = 15.761$; $p = 0.202$
	Scenic views	646	$\chi^2 = 12.320$; $p = 0.196$
	Natural quiet/sounds of nature	641	$\chi^2 = 3.266$; $p = 0.993$
	Wilderness values (solitude, primitive/remote recreation, self-reliance)	640	$\chi^2 = 31.034$; $p = 0.002$
	Native plants	639	$\chi^2 = 8.150$; $p = 0.773$
	Wildlife	641	$\chi^2 = 13.907$; $p = 0.307$
	Cultural sites	633	$\chi^2 = 7.649$; $p = 0.812$
	Recreational opportunities	630	$\chi^2 = 9.013$; $p = 0.702$
	Interpretive/information programs	630	$\chi^2 = 4.264$; $p = 0.978$
	Park Avenue	600	$\chi^2 = 4.192$; $p = 0.980$
	Balance Rock	603	$\chi^2 = 14.547$; $p = 0.267$
	The Windows	605	$\chi^2 = 6.129$; $p = 0.909$
	Double Arch	602	$\chi^2 = 8.409$; $p = 0.752$
	Delicate Arch	605	$\chi^2 = 4.462$; $p = 0.974$
Sand Dune Arch	584	$\chi^2 = 11.232$; $p = 0.509$	
Broken Arch	578	$\chi^2 = 8.688$; $p = 0.729$	

Table 43 (continued). Statistical tests of Number of Adults effects on key questions in Arches National Park survey

Question; Response scale	Sub-Question	N	Chi-square; p-value
How important is the protection of the following to you and your personal group? (Q32, continued) ; 1 = Not important at all to 5 = Extremely important	Skyline Arch	583	$\chi^2 = 5.621$; $p = 0.934$
	Devils Garden	593	$\chi^2 = 9.215$; $p = 0.684$
	Tower Arch	579	$\chi^2 = 7.750$; $p = 0.804$
	Campground	582	$\chi^2 = 8.433$; $p = 0.750$
	Paved roads	618	$\chi^2 = 9.630$; $p = 0.648$

Table 44. Statistical tests of Number of Children effects on key questions in Arches National Park survey

Question; Response Scale	Sub-Question	N	Chi-square; p-value
Prior to this trip, how did you obtain information about Arches NP? Please mark all that apply. (Q1); 0 = No 1 = Yes	Did not obtain information prior to this visit	655	$\chi^2 = 0.471$; $p = 0.790$
	Previous visits	656	$\chi^2 = 15.978$; $p < 0.0001$
	Friends/relatives/word of mouth	654	$\chi^2 = 0.245$; $p = 0.885$
	Inquiry to park via phone, mail, or email	655	$\chi^2 = 0.298$; $p = 0.862$
	Arches NP website	656	$\chi^2 = 2.103$; $p = 0.349$
	Other website	655	$\chi^2 = 4.045$; $p = 0.132$
	Moab Information Center	654	$\chi^2 = 2.854$; $p = 0.240$
	Cable TV Visitor Channel-Moab hotels	655	$\chi^2 = 0.242$; $p = 0.886$
	Grand County Travel Council	655	$\chi^2 = 0.096$; $p = 0.953$
	Local businesses (hotels, motels, restaurants, etc.)	655	$\chi^2 = 1.509$; $p = 0.470$
	Maps/brochures	655	$\chi^2 = 3.876$; $p = 0.144$
	Newspaper/magazine articles	655	$\chi^2 = 0.560$; $p = 0.756$
	Other units of the National Park System	654	$\chi^2 = 1.141$; $p = 0.565$
	School class/program	655	$\chi^2 = 0.048$; $p = 0.976$
	Social media (such as Facebook, Twitter, etc.)	656	$\chi^2 = 0.876$; $p = 0.645$
	Utah Travel Council	655	$\chi^2 = 1.567$; $p = 0.457$
Television/radio programs/DVDs	655	$\chi^2 = 0.990$; $p = 0.609$	
Overall, compared to what you expected, how much traffic congestion did you experience during your visit to Arches NP? (Q13); 1 = Didn't know what to expect 2 = Less than expected 3 = About the same 4 = More than expected	Overall, compared to what you expected, how much traffic congestion did you experience during your visit to Arches NP?	659	$\chi^2 = 12.313$; $p = 0.055$

Table 44 (continued). Statistical tests of Number of Children effects on key questions in Arches National Park survey

Question; Response Scale	Sub-Question	N	Chi-square; p-value
During your trip to Arches NP, did you experience any parking problems? (Q14); 0 = No 1 = Yes	During your trip to Arches NP, did you experience any parking problems?	654	$\chi^2 = 3.823;$ $p = 0.148$
On this visit, did you and your personal group attend any of the following ranger-led activities/programs or interpretive programs in Arches NP? (Q18); 0 = No 1 = Yes	Fiery Furnace guided hike	637	$\chi^2 = 3.949;$ $p = 0.139$
	Windows guided hike	615	$\chi^2 = 0.311;$ $p = 0.856$
	Balanced Rock geology talk	613	$\chi^2 = 0.364;$ $p = 0.833$
	Junior Ranger Station (at Visitor Center)	611	$\chi^2 = 31.727;$ $p < 0.0001$
	Campground evening program	609	$\chi^2 = 0.420;$ $p = 0.811$
	Informal ranger contact on a trail	613	$\chi^2 = 0.569;$ $p = 0.753$
For the locations that you visited, how crowded did you feel at these locations? (Q21); 0 = No 1 = Yes	Visitor Center	498	$\chi^2 = 6.162;$ $p = 0.629$
	Moab Fault Overlook	207	$\chi^2 = 9.546;$ $p = 0.298$
	Park Avenue	355	$\chi^2 = 6.812;$ $p = 0.557$
	La Sal Mountains Viewpoint	253	$\chi^2 = 4.965;$ $p = 0.761$
	Courthouse Towers	359	$\chi^2 = 7.188;$ $p = 0.516$
	Balanced Rock	491	$\chi^2 = 4.170;$ $p = 0.841$
	The Windows	453	$\chi^2 = 2.800;$ $p = 0.946$
	Delicate Arch	393	$\chi^2 = 9.977;$ $p = 0.267$
	Wolfe Ranch	234	$\chi^2 = 6.392;$ $p = 0.603$
	Delicate Arch Viewpoint	380	$\chi^2 = 7.357;$ $p = 0.499$
	Fiery Furnace	258	$\chi^2 = 3.998;$ $p = 0.857$
	Fiery Furnace Viewpoint	334	$\chi^2 = 4.441;$ $p = 0.815$
	Sand Dune Arch	263	$\chi^2 = 5.977;$ $p = 0.650$

Table 44 (continued). Statistical tests of Number of Children effects on key questions in Arches National Park survey

Question; Response Scale	Sub-Question	N	Chi-square; p-value
For the locations that you visited, how crowded did you feel at these locations? (Q21, continued); 0 = No 1 = Yes	Broken Arch	217	$\chi^2 = 2.437$ $p = 0.656$
	Skyline Arch	246	$\chi^2 = 10.898$; $p = 0.208$
	Devils Garden Primitive Trail	232	$\chi^2 = 19.154$; $p = 0.014$
	Landscape Arch	278	$\chi^2 = 7.562$; $p = 0.477$
	Double O Arch	201	$\chi^2 = 5.950$; $p = 0.653$
	Klondike Bluffs/Tower Arch	73	$\chi^2 = 1.605$; $p = 0.991$
	Eye of the Whale Arch	73	$\chi^2 = 1.793$; $p = 0.987$
	Lost Spring Canyon	55	$\chi^2 = 0.849$; $p = 0.932$
On this visit, in which activities did you and your personal group participate in Arches NP? (Q22); 0 = No 1 = Yes	Walking/hiking	644	$\chi^2 = 1.255$; $p = 0.534$
	Photography/painting/drawing	644	$\chi^2 = 2.294$; $p = 0.318$
	Auto-touring/sightseeing	644	$\chi^2 = 6.684$; $p = 0.035$
	Overnight backpacking	644	$\chi^2 = 0.095$; $p = 0.954$
	Rock climbing	645	$\chi^2 = 1.406$; $p = 0.495$
	Canyoneering	644	$\chi^2 = 0.528$; $p = 0.768$
	Ranger-led tour/hike	644	$\chi^2 = 3.235$; $p = 0.198$
	Commercial guided tour/hike	645	$\chi^2 = 0.965$; $p = 0.617$
	4-wheel driving	645	$\chi^2 = 7.265$; $p = 0.026$
	Visiting visitor center	644	$\chi^2 = 4.683$; $p = 0.096$
	Viewing sunrise/sunset	644	$\chi^2 = 0.623$; $p = 0.732$
	Bicycling	644	$\chi^2 = 0.724$; $p = 0.696$
	Camping	644	$\chi^2 = 0.357$; $p = 0.837$
Picnicking	644	$\chi^2 = 0.220$; $p = 0.896$	

Table 44 (continued). Statistical tests of Number of Children effects on key questions in Arches National Park survey

Question; Response Scale	Sub-Question	N	Chi-square; p-value
On this visit, in which activities did you and your personal group participate in Arches NP? (Q22, continued) ; 0 = No 1 = Yes	Nature Study	644	$\chi^2 = 0.730$; $p = 0.694$
	Self-guided hike in fiery furnace	644	$\chi^2 = 0.011$; $p = 0.995$
For each item, please indicate how important the experience is to you on your visit to Arches NP. (Q24) ; 1 = Not important at all to 5 = Extremely important	To be close to nature	643	$\chi^2 = 5.147$; $p = 0.742$
	To be my own boss	633	$\chi^2 = 11.429$; $p = 0.179$
	To be where things are fairly safe	644	$\chi^2 = 6.633$; $p = 0.577$
	To avoid the unexpected	632	$\chi^2 = 4.949$; $p = 0.763$
	To learn about new things at Arches NP	646	$\chi^2 = 16.945$; $p = 0.031$
	To view scenic beauty	650	$\chi^2 = 3.034$; $p = 0.805$
	To be near others who could help if you needed them	638	$\chi^2 = 7.569$; $p = 0.477$
	To feel my independence	628	$\chi^2 = 9.878$; $p = 0.274$
	To view wildlife	645	$\chi^2 = 5.158$; $p = 0.741$
	To learn more about nature	642	$\chi^2 = 5.658$; $p = 0.685$
On this visit to Arches NP, did you and your personal group desire to explore the backcountry? (Q29) ; 0 = No 1 = Yes	On this visit to Arches NP, did you and your personal group desire to explore the backcountry?	654	$\chi^2 = 2.493$; $p = 0.288$
	If yes, were you able to access the backcountry?	270	$\chi^2 = 2.291$; $p = 0.318$
Please indicate to extent to which you and your personal group would support or oppose each of the following potential management actions at Arches NP (Q31) ; 1 = Strongly support To 5 = Strongly oppose	Times entry to the park to reduce crowding	635	$\chi^2 = 19.910$; $p = 0.030$
	Implement trail limits to reduce crowding	631	$\chi^2 = 18.611$; $p = 0.045$
	Implement trail limits to protect park resources	636	$\chi^2 = 9.793$; $p = 0.459$
	Manage commercial tour buses to reduce traffic congestion and crowding	637	$\chi^2 = 15.984$; $p = 0.100$

Table 44 (continued). Statistical tests of Number of Children effects on key questions in Arches National Park survey

Question; Response Scale	Sub-Question	N	Chi-square; p-value
Please indicate to extent to which you and your personal group would support or oppose each of the following potential management actions at Arches NP (Q31, continued); 1 = Strongly support To 5 = Strongly oppose	Implement limit on commercial recreation activities in wilderness areas	635	$\chi^2 = 10.987$; $p = 0.358$
	Delineate desert trails in wilderness with signs and rock cairns (permanent installations)	630	$\chi^2 = 11.616$; $p = 0.312$
How important is the protection of the following to you and your personal group? (Q32); 1 = Not important at all to 5 = Extremely important	Clean Water	644	$\chi^2 = 27.130$; $p = 0.001$
	Clean Air	644	$\chi^2 = 20.189$; $p = 0.010$
	Scenic views	646	$\chi^2 = 3.375$; $p = 0.761$
	Natural quiet/sounds of nature	642	$\chi^2 = 4.662$; $p = 0.793$
	Wilderness values (solitude, primitive/remote recreation, self-reliance)	641	$\chi^2 = 8.544$; $p = 0.382$
	Native plants	641	$\chi^2 = 7.619$; $p = 0.472$
	Wildlife	641	$\chi^2 = 3.777$; $p = 0.877$
	Cultural sites	636	$\chi^2 = 9.370$; $p = 0.312$
	Recreational opportunities	631	$\chi^2 = 10.194$; $p = 0.252$
	Interpretive/information programs	630	$\chi^2 = 6.021$; $p = 0.645$
	Park Avenue	598	$\chi^2 = 7.289$; $p = 0.506$
	Balance Rock	603	$\chi^2 = 7.437$; $p = 0.490$
	The Windows	605	$\chi^2 = 9.799$; $p = 0.279$
Double Arch	601	$\chi^2 = 9.294$; $p = 0.318$	
Delicate Arch	607	$\chi^2 = 8.972$; $p = 0.345$	
Sand Dune Arch	583	$\chi^2 = 6.564$; $p = 0.584$	
Broken Arch	578	$\chi^2 = 6.671$; $p = 0.572$	

Table 44 (continued). Statistical tests of Number of Children effects on key questions in Arches National Park survey

Question; Response Scale	Sub-Question	N	Chi-square; p-value
How important is the protection of the following to you and your personal group? (Q32, continued) ; 1 = Not important at all to 5 = Extremely important	Skyline Arch	579	$\chi^2 = 8.941$; $p = 0.347$
	Devils Garden	593	$\chi^2 = 9.235$; $p = 0.323$
	Tower Arch	576	$\chi^2 = 6.508$; $p = 0.590$
	Campground	579	$\chi^2 = 9.849$; $p = 0.276$
	Paved roads	621	$\chi^2 = 9.426$; $p = 0.308$

Table 45. Statistical tests of Group Type effects on key questions in Arches National Park survey

Question; Response Scale	Sub-Question	N	Chi-square; p-value
Prior to this trip, how did you obtain information about Arches NP? Please mark all that apply. (Q1) ; 0 = No 1 = Yes	Did not obtain information prior to this visit	665	$\chi^2 = 5.864$; $p = 0.118$
	Previous visits	654	$\chi^2 = 7.145$; $p = 0.067$
	Friends/relatives/word of mouth	654	$\chi^2 = 9.219$; $p = 0.027$
	Inquiry to park via phone, mail, or email	655	$\chi^2 = 7.761$; $p = 0.051$
	Arches NP website	654	$\chi^2 = 3.950$; $p = 0.267$
	Other website	657	$\chi^2 = 0.966$; $p = 0.810$
	Moab Information Center	656	$\chi^2 = 4.931$; $p = 0.177$
	Cable TV Visitor Channel-Moab hotels	655	$\chi^2 = 3.245$; $p = 0.355$
	Grand County Travel Council	655	$\chi^2 = 12.277$; $p = 0.006$
	Local businesses (hotels, motels, restaurants, etc.)	655	$\chi^2 = 4.444$; $p = 0.217$
	Maps/brochures	655	$\chi^2 = 0.306$; $p = 0.959$
	Newspaper/magazine articles	655	$\chi^2 = 1.190$; $p = 0.755$
	Other units of the National Park System	656	$\chi^2 = 1.257$; $p = 0.739$
	School class/program	655	$\chi^2 = 6.129$; $p = 0.106$
	Social media (such as Facebook, Twitter, etc.)	655	$\chi^2 = 5.526$; $p = 0.137$
Utah Travel Council	655	$\chi^2 = 4.475$; $p = 0.215$	
Television/radio programs/DVDs	655	$\chi^2 = 2.192$; $p = 0.533$	
Overall, compared to what you expected, how much traffic congestion did you experience during your visit to Arches NP. (Q13) ;	Overall, compared to what you expected, how much traffic congestion did you experience during your visit to Arches NP?	658	$\chi^2 = 14.137$; $p = 0.118$
1 = Didn't know what to expect 2 = Less than expected 3 = About the same 4 = More than expected			

Table 45 (continued). Statistical tests of Group Type effects on key questions in Arches National Park survey

Question; Response Scale	Sub-Question	N	Chi-square; p-value
During your trip to Arches NP, did you experience any parking problems? (Q14); 0 = No 1 = Yes	During your trip to Arches NP, did you experience any parking problems?	654	$\chi^2 = 1.190$; $p = 0.755$
On this visit, did you and your personal group attend any of the following ranger-led activities/programs or interpretive programs in Arches NP? (Q18); 0 = No 1 = Yes	Fiery Furnace guided hike	636	$\chi^2 = 5.755$; $p = 0.124$
	Windows guided hike	616	$\chi^2 = 2.109$; $p = 0.550$
	Balanced Rock geology talk	613	$\chi^2 = 2.717$; $p = 0.437$
	Junior Ranger Station (at Visitor Center)	612	$\chi^2 = 7.769$; $p = 0.051$
	Campground evening program	610	$\chi^2 = 1.851$; $p = 0.604$
	Informal ranger contact on a trail	613	$\chi^2 = 0.573$; $p = 0.903$
For the locations that you visited, how crowded did you feel at these locations? (Q21); 0 = No 1 = Yes	Visitor Center	500	$\chi^2 = 9.389$; $p = 0.669$
	Moab Fault Overlook	507	$\chi^2 = 8.709$; $p = 0.728$
	Park Avenue	355	$\chi^2 = 11.267$; $p = 0.506$
	La Sal Mountains Viewpoint	255	$\chi^2 = 20.551$; $p = 0.057$
	Courthouse Towers	360	$\chi^2 = 11.422$; $p = 0.493$
	Balanced Rock	490	$\chi^2 = 9.765$; $p = 0.637$
	The Windows	453	$\chi^2 = 11.547$; $p = 0.483$
	Delicate Arch	393	$\chi^2 = 12.364$; $p = 0.417$
	Wolfe Ranch	234	$\chi^2 = 14.901$; $p = 0.247$
	Delicate Arch Viewpoint	380	$\chi^2 = 22.600$; $p = 0.031$
	Fiery Furnace	335	$\chi^2 = 12.817$; $p = 0.382$
	Fiery Furnace Viewpoint	256	$\chi^2 = 9.638$; $p = 0.648$
	Sand Dune Arch	262	$\chi^2 = 10.015$; $p = 0.615$

Table 45 (continued). Statistical tests of Group Type effects on key questions in Arches National Park survey

Question; Response Scale	Sub-Question	N	Chi-square; p-value
For the locations that you visited, how crowded did you feel at these locations? (Q21, continued); 0 = No 1 = Yes	Broken Arch	217	$\chi^2 = 10.874$ $p = 0.540$
	Skyline Arch	244	$\chi^2 = 9.957$; $p = 0.620$
	Devils Garden Primitive Trail	231	$\chi^2 = 20.231$; $p = 0.063$
	Landscape Arch	276	$\chi^2 = 11.428$; $p = 0.493$
	Double O Arch	201	$\chi^2 = 20.918$; $p = 0.052$
	Klondike Bluffs/Tower Arch	75	$\chi^2 = 8.301$; $p = 0.761$
	Eye of the Whale Arch	73	$\chi^2 = 5.275$; $p = 0.948$
	Lost Spring Canyon	54	$\chi^2 = 3.771$; $p = 0.987$
On this visit, in which activities did you and your personal group participate in Arches NP? (Q22); 0 = No 1 = Yes	Walking/hiking	644	$\chi^2 = 0.951$; $p = 0.813$
	Photography/painting/drawing	644	$\chi^2 = 0.605$; $p = 0.895$
	Auto-touring/sightseeing	643	$\chi^2 = 2.256$; $p = 0.521$
	Overnight backpacking	644	$\chi^2 = 2.213$; $p = 0.529$
	Rock climbing	644	$\chi^2 = 3.960$; $p = 0.266$
	Canyoneering	645	$\chi^2 = 3.202$; $p = 0.362$
	Ranger-led tour/hike	643	$\chi^2 = 10.090$; $p = 0.018$
	Commercial guided tour/hike	644	$\chi^2 = 6.897$; $p = 0.075$
	Four-wheel driving	645	$\chi^2 = 4.039$; $p = 0.257$
	Visiting visitor center	643	$\chi^2 = 1.236$; $p = 0.744$
	Viewing sunrise/sunset	643	$\chi^2 = 14.941$; $p = 0.002$
	Bicycling	646	$\chi^2 = 24.275$; $p < 0.0001$
	Camping	643	$\chi^2 = 4.319$; $p = 0.229$
Picnicking	645	$\chi^2 = 5.652$; $p = 0.130$	

Table 45 (continued). Statistical tests of Group Type effects on key questions in Arches National Park survey

Question; Response Scale	Sub-Question	N	Chi-square; p-value
On this visit, in which activities did you and your personal group participate in Arches NP? (Q22, continued) ; 0 = No 1 = Yes	Nature Study	644	$\chi^2 = 0.971$; $p = 0.808$
	Self-guided hike in fiery furnace	660	$\chi^2 = 14.091$; $p = 0.029$
For each item, please indicate how important the experience is to you on your visit to Arches NP. (Q24) ; 1 = Not important at all to 5 = Extremely important	To be close to nature	642	$\chi^2 = 25.644$; $p = 0.012$
	To be my own boss	631	$\chi^2 = 25.329$; $p = 0.013$
	To be where things are fairly safe	641	$\chi^2 = 27.693$; $p = 0.006$
	To avoid the unexpected	633	$\chi^2 = 15.959$; $p = 0.193$
	To learn about new things at Arches NP	645	$\chi^2 = 16.190$; $p = 0.183$
	To view scenic beauty	649	$\chi^2 = 9.025$; $p = 0.435$
	To be near others who could help if you needed them	641	$\chi^2 = 16.679$; $p = 0.162$
	To feel my independence	628	$\chi^2 = 12.385$; $p = 0.415$
	To view wildlife	647	$\chi^2 = 15.165$; $p = 0.233$
On this visit to Arches NP, did you and your personal group desire to explore the backcountry? (Q29) ; 0 = No 1 = Yes	On this visit to Arches NP, did you and your personal group desire to explore the backcountry?	656	$\chi^2 = 3.998$; $p = 0.262$
	If yes, were you able to access the backcountry?	271	$\chi^2 = 4.004$; $p = 0.261$
Please indicate to extent to which you and your personal group would support or oppose each of the following potential management actions at Arches NP (Q31) ; 1 = Strongly support to 5 = Strongly oppose	Times entry to the park to reduce crowding	636	$\chi^2 = 21.308$; $p = 0.127$
	Implement trail limits to reduce crowding	634	$\chi^2 = 19.111$; $p = 0.209$
	Implement trail limits to protect park resources	634	$\chi^2 = 12.018$; $p = 0.678$
	Manage commercial tour buses to reduce traffic congestion and crowding	637	$\chi^2 = 12.539$; $p = 0.638$
	Implement limit on commercial recreation activities in wilderness areas	635	$\chi^2 = 11.438$; $p = 0.721$

Table 45 (continued). Statistical tests of Group Type effects on key questions in Arches National Park survey

Question; Response Scale	Sub-Question	N	Chi-square; p-value
Please indicate to extent to which you and your personal group would support or oppose each of the following potential management actions at Arches NP (Q31, continued); 1 = Strongly support to 5 = Strongly oppose	Delineate desert trails in wilderness with signs and rock cairns (permanent installations)	631	$\chi^2 = 13.339$; $p = 0.576$
	How important is the protection of the following to you and your personal group? (Q32); 1 = Not important at all to 5 = Extremely important	Clean Water	643
	Clean Air	644	$\chi^2 = 11.926$; $p = 0.452$
	Scenic views	646	$\chi^2 = 6.467$; $p = 0.692$
	Natural quiet/sounds of nature	641	$\chi^2 = 3.464$; $p = 0.991$
	Wilderness values (solitude, primitive/remote recreation, self-reliance)	640	$\chi^2 = 23.755$; $p = 0.022$
	Native plants	639	$\chi^2 = 6.758$; $p = 0.873$
	Wildlife	640	$\chi^2 = 6.475$; $p = 0.890$
	Cultural sites	633	$\chi^2 = 5.927$; $p = 0.920$
	Recreational opportunities	661	$\chi^2 = 21.537$; $p = 0.043$
	Interpretive/information programs	628	$\chi^2 = 12.563$; $p = 0.395$
	Park Avenue	599	$\chi^2 = 16.147$; $p = 0.185$
	Balance Rock	606	$\chi^2 = 17.542$; $p = 0.130$
	The Windows	606	$\chi^2 = 20.588$; $p = 0.057$
	Double Arch	604	$\chi^2 = 20.726$; $p = 0.055$
	Delicate Arch	606	$\chi^2 = 13.067$; $p = 0.364$
	Sand Dune Arch	583	$\chi^2 = 28.859$; $p = 0.008$
	Broken Arch	577	$\chi^2 = 23.873$; $p = 0.021$

Table 45 (continued). Statistical tests of Group Type effects on key questions in Arches National Park survey

Question; Response Scale	Sub-Question	N	Chi-square; p-value
How important is the protection of the following to you and your personal group? (Q32, continued) ; 1 = Not important at all to 5 = Extremely important	Skyline Arch	580	$\chi^2 = 19.482$; $p = 0.078$
	Devils Garden	596	$\chi^2 = 15.895$; $p = 0.196$
	Tower Arch	579	$\chi^2 = 20.184$; $p = 0.664$
	Campground	583	$\chi^2 = 5.318$; $p = 0.947$
	Paved roads	618	$\chi^2 = 20.736$; $p = 0.054$

Table 46. Statistical tests of State or Country of Residence effects on key questions in Arches National Park survey

Question; Response Scale	Sub-Question	N	Chi-square; p-value
Prior to this trip, how did you obtain information about Arches NP? Please mark all that apply. (Q1) ; 0 = No 1 = Yes	Did not obtain information prior to this visit	655	$\chi^2 = 0.465$; $p = 0.792$
	Previous visits	655	$\chi^2 = 20.489$; $p < 0.0001$
	Friends/relatives/word of mouth	655	$\chi^2 = 2.943$; $p = 0.230$
	Inquiry to park via phone, mail, or email	655	$\chi^2 = 11.796$; $p = 0.003$
	Arches NP website	655	$\chi^2 = 1.267$; $p = 0.531$
	Other website	656	$\chi^2 = 0.987$; $p = 0.611$
	Moab Information Center	655	$\chi^2 = 7.818$; $p = 0.020$
	Cable TV Visitor Channel-Moab hotels	655	$\chi^2 = 3.755$; $p = 0.153$
	Grand County Travel Council	655	$\chi^2 = 9.981$; $p = 0.007$
	Local businesses (hotels, motels, restaurants, etc.)	655	$\chi^2 = 2.368$; $p = 0.306$
	Maps/brochures	655	$\chi^2 = 0.018$; $p = 0.991$
	Newspaper/magazine articles	655	$\chi^2 = 3.258$; $p = 0.196$
	Other units of the National Park System	655	$\chi^2 = 1.636$; $p = 0.441$
	School class/program	654	$\chi^2 = 21.619$; $p < 0.0001$
	Social media (such as Facebook, Twitter, etc.)	655	$\chi^2 = 2.832$; $p = 0.243$
	Utah Travel Council	655	$\chi^2 = 9.759$; $p = 0.008$
Television/radio programs/DVDs	655	$\chi^2 = 3.898$; $p = 0.142$	
Overall, compared to what you expected, how much traffic congestion did you experience during your visit to Arches NP? (Q13) ;	Overall, compared to what you expected, how much traffic congestion did you experience during your visit to Arches NP?	658	$\chi^2 = 8.127$; $p = 0.229$
1 = Didn't know what to expect 2 = Less than expected 3 = About the same 4 = More than expected			

Table 46 (continued). Statistical tests of State or Country of Residence effects on key questions in Arches National Park survey

Question; Response Scale	Sub-Question	N	Chi-square; p-value
During your trip to Arches NP, did you experience any parking problems? (Q14); 0 = No 1 = Yes	During your trip to Arches NP, did you experience any parking problems?	654	$\chi^2 = 0.272$; $p = 0.873$
On this visit, did you and your personal group attend any of the following ranger-led activities/programs or interpretive programs in Arches NP? (Q18); 0 = No 1 = Yes	Fiery Furnace guided hike	637	$\chi^2 = 2.251$; $p = 0.324$
	Windows guided hike	614	$\chi^2 = 1.415$; $p = 0.493$
	Balanced Rock geology talk	613	$\chi^2 = 6.160$; $p = 0.046$
	Junior Ranger Station (at Visitor Center)	612	$\chi^2 = 3.635$; $p = 0.162$
	Campground evening program	609	$\chi^2 = 0.700$; $p = 0.705$
	Informal ranger contact on a trail	614	$\chi^2 = 6.097$; $p = 0.047$
For the locations that you visited, how crowded did you feel at these locations? (Q21); 0 = No 1 = Yes	Visitor Center	499	$\chi^2 = 10.477$; $p = 0.233$
	Moab Fault Overlook	208	$\chi^2 = 8.785$; $p = 0.361$
	Park Avenue	355	$\chi^2 = 8.159$; $p = 0.418$
	La Sal Mountains Viewpoint	255	$\chi^2 = 2.372$; $p = 0.967$
	Courthouse Towers	358	$\chi^2 = 18.706$; $p = 0.017$
	Balanced Rock	491	$\chi^2 = 12.979$; $p = 0.113$
	The Windows	456	$\chi^2 = 9.997$; $p = 0.265$
	Delicate Arch	394	$\chi^2 = 6.707$; $p = 0.569$
	Wolfe Ranch	235	$\chi^2 = 12.915$; $p = 0.115$
	Delicate Arch Viewpoint	378	$\chi^2 = 7.680$; $p = 0.465$
	Fiery Furnace	337	$\chi^2 = 5.907$; $p = 0.658$
	Fiery Furnace Viewpoint	257	$\chi^2 = 13.180$; $p = 0.106$
	Sand Dune Arch	262	$\chi^2 = 4.962$; $p = 0.762$

Table 46 (continued). Statistical tests of State or Country of Residence effects on key questions in Arches National Park survey

Question; Response Scale	Sub-Question	N	Chi-square; p-value
For the locations that you visited, how crowded did you feel at these locations? (Q21, continued); 0 = No 1 = Yes	Broken Arch	218	$\chi^2 = 4.293$ $p = 0.830$
	Skyline Arch	243	$\chi^2 = 10.030$; $p = 0.263$
	Devils Garden Primitive Trail	235	$\chi^2 = 7.518$; $p = 0.482$
	Landscape Arch	278	$\chi^2 = 8.017$; $p = 0.432$
	Double O Arch	202	$\chi^2 = 13.221$; $p = 0.104$
	Klondike Bluffs/Tower Arch	73	$\chi^2 = 6.056$; $p = 0.641$
	Eye of the Whale Arch	73	$\chi^2 = 5.381$; $p = 0.716$
	Lost Spring Canyon	54	$\chi^2 = 7.103$; $p = 0.526$
On this visit, in which activities did you and your personal group participate in Arches NP? (Q22); 0 = No 1 = Yes	Walking/hiking	644	$\chi^2 = 2.940$; $p = 0.230$
	Photography/painting/drawing	644	$\chi^2 = 3.018$; $p = 0.221$
	Auto-touring/sightseeing	643	$\chi^2 = 44.891$; $p < 0.0001$
	Overnight backpacking	643	$\chi^2 = 1.253$; $p = 0.535$
	Rock climbing	644	$\chi^2 = 13.471$; $p = 0.001$
	Canyoneering	645	$\chi^2 = 5.423$; $p = 0.066$
	Ranger-led tour/hike	645	$\chi^2 = 3.766$; $p = 0.152$
	Commercial guided tour/hike	644	$\chi^2 = 2.544$; $p = 0.280$
	Four-wheel driving	644	$\chi^2 = 1.283$; $p = 0.526$
	Visiting visitor center	645	$\chi^2 = 8.539$; $p = 0.014$
	Viewing sunrise/sunset	645	$\chi^2 = 2.796$; $p = 0.247$
	Bicycling	644	$\chi^2 = 28.620$; $p < 0.001$
	Camping	644	$\chi^2 = 9.575$; $p = 0.008$
Picnicking	644	$\chi^2 = 6.302$; $p = 0.043$	

Table 46 (continued). Statistical tests of State or Country of Residence effects on key questions in Arches National Park survey

Question; Response Scale	Sub-Question	N	Chi-square; p-value
On this visit, in which activities did you and your personal group participate in Arches NP? (Q22, continued) ; 0 = No 1 = Yes	Nature Study	644	$\chi^2 = 2.173$; $p = 0.337$
	Self-guided hike in fiery furnace	644	$\chi^2 = 10.493$; $p = 0.005$
For each item, please indicate how important the experience is to you on your visit to Arches NP. (Q24) ; 1 = Not important at all to 5 = Extremely important	To be close to nature	645	$\chi^2 = 11.091$; $p = 0.197$
	To be my own boss	634	$\chi^2 = 13.878$; $p = 0.085$
	To be where things are fairly safe	640	$\chi^2 = 18.260$; $p = 0.019$
	To avoid the unexpected	634	$\chi^2 = 2.654$; $p = 0.954$
	To learn about new things at Arches NP	648	$\chi^2 = 10.690$; $p = 0.220$
	To view scenic beauty	650	$\chi^2 = 6.489$; $p = 0.371$
	To be near others who could help if you needed them	638	$\chi^2 = 15.231$; $p = 0.055$
	To feel my independence	628	$\chi^2 = 13.617$; $p = 0.092$
	To view wildlife	645	$\chi^2 = 6.849$; $p = 0.553$
On this visit to Arches NP, did you and your personal group desire to explore the backcountry? (Q29) ; 0 = No 1 = Yes	On this visit to Arches NP, did you and your personal group desire to explore the backcountry?	655	$\chi^2 = 3.234$; $p = 0.198$
	If yes, were you able to access the backcountry?	271	$\chi^2 = 4.914$; $p = 0.086$
Please indicate to extent to which you and your personal group would support or oppose each of the following potential management actions at Arches NP (Q31) ; 1 = Strongly support to 5 = Strongly oppose	Times entry to the park to reduce crowding	635	$\chi^2 = 8.787$; $p = 0.552$
	Implement trail limits to reduce crowding	633	$\chi^2 = 16.716$; $p = 0.081$
	Implement trail limits to protect park resources	633	$\chi^2 = 13.396$; $p = 0.202$
	Manage commercial tour buses to reduce traffic congestion and crowding	638	$\chi^2 = 33.077$; $p < 0.0001$
	Implement limit on commercial recreation activities in wilderness areas	636	$\chi^2 = 15.406$; $p = 0.118$

Table 46 (continued). Statistical tests of State or Country of Residence effects on key questions in Arches National Park survey

Question; Response Scale	Sub-Question	N	Chi-square; p-value
Please indicate to extent to which you and your personal group would support or oppose each of the following potential management actions at Arches NP (Q31, continued); 1 = Strongly support to 5 = Strongly oppose	Delineate desert trails in wilderness with signs and rock cairns (permanent installations)	630	$\chi^2 = 32.544$; $p < 0.0001$
How important is the protection of the following to you and your personal group? (Q32); 1 = Not important at all to 5 = Extremely important	Clean Water	643	$\chi^2 = 7.451$; $p = 0.489$
	Clean Air	642	$\chi^2 = 9.019$; $p = 0.341$
	Scenic views	647	$\chi^2 = 9.421$; $p = 0.151$
	Natural quiet/sounds of nature	642	$\chi^2 = 5.125$; $p = 0.744$
	Wilderness values (solitude, primitive/remote recreation, self-reliance)	639	$\chi^2 = 7.016$; $p = 0.535$
	Native plants	641	$\chi^2 = 9.520$; $p = 0.300$
	Wildlife	642	$\chi^2 = 3.969$; $p = 0.860$
	Cultural sites	633	$\chi^2 = 18.103$; $p = 0.020$
	Recreational opportunities	633	$\chi^2 = 24.422$; $p = 0.002$
	Interpretive/information programs	631	$\chi^2 = 7.280$; $p = 0.507$
	Park Avenue	599	$\chi^2 = 14.734$; $p = 0.064$
	Balance Rock	605	$\chi^2 = 12.008$; $p = 0.151$
	The Windows	604	$\chi^2 = 13.116$; $p = 0.108$
	Double Arch	602	$\chi^2 = 14.500$; $p = 0.070$
Delicate Arch	608	$\chi^2 = 5.601$; $p = 0.692$	
Sand Dune Arch	583	$\chi^2 = 13.321$; $p = 0.101$	
Broken Arch	579	$\chi^2 = 10.915$; $p = 0.207$	

Table 46 (continued). Statistical tests of State or Country of Residence effects on key questions in Arches National Park survey

Question; Response Scale	Sub-Question	N	Chi-square; p-value
How important is the protection of the following to you and your personal group? (Q32, continued) ; 1 = Not important at all to 5 = Extremely important	Skyline Arch	583	$\chi^2 = 18.829$; $p = 0.016$
	Devils Garden	593	$\chi^2 = 9.101$; $p = 0.334$
	Tower Arch	578	$\chi^2 = 10.616$; $p = 0.224$
	Campground	582	$\chi^2 = 17.389$; $p = 0.026$
	Paved roads	619	$\chi^2 = 11.051$; $p = 0.199$

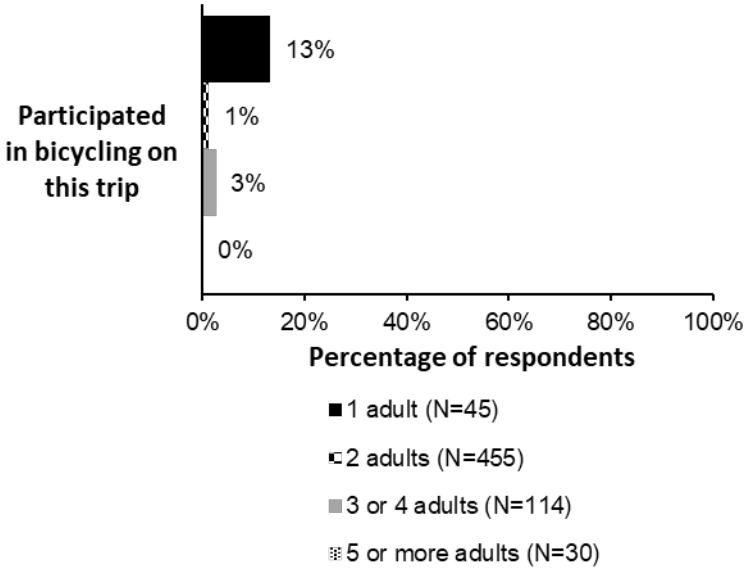


Figure 140. Participated in bicycling on this trip, by Number of Adults in group

*total percentages do not equal 100 due to rounding

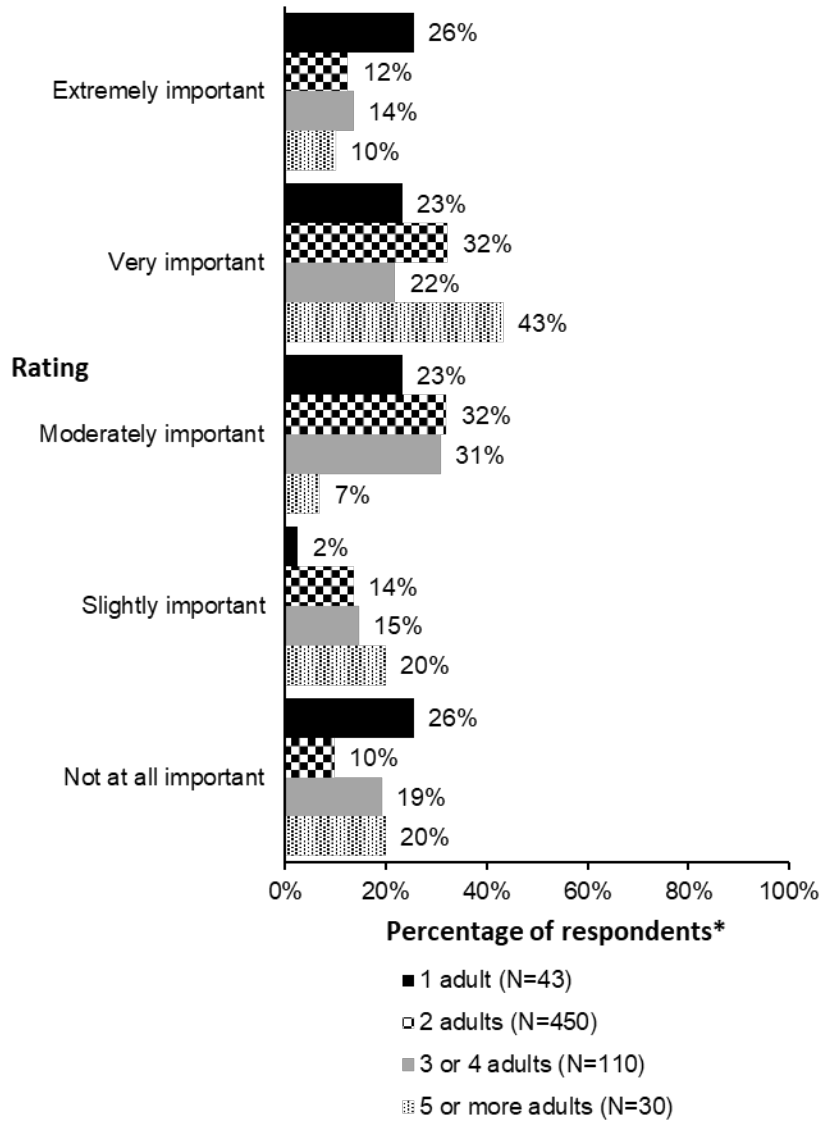


Figure 141. Importance of being own boss, by Number of Adults in group

*total percentages do not equal 100 due to rounding

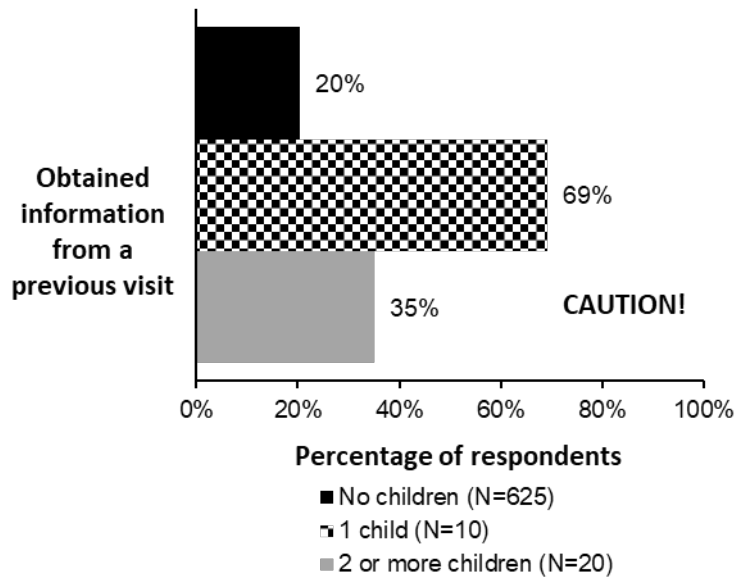


Figure 142. Obtained information from a previous visit, by Number of Children in group

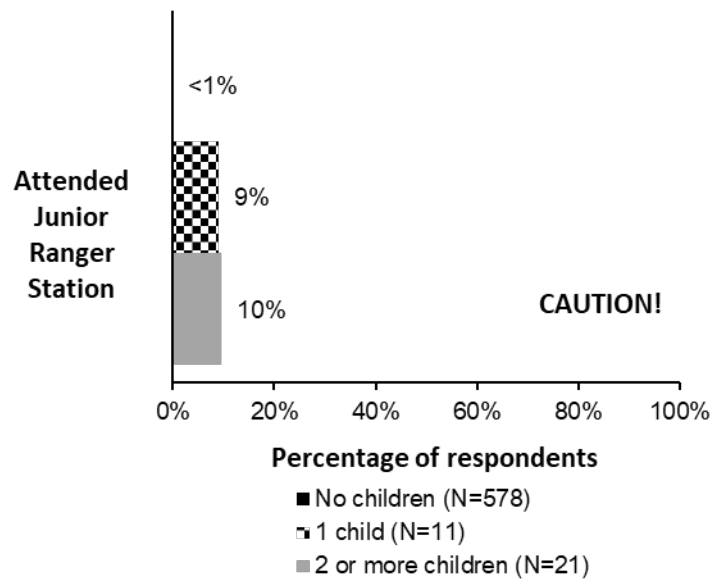


Figure 143. Attended Junior Ranger Station ranger-led activity, by Number of Children in group

*total percentages do not equal 100 due to rounding

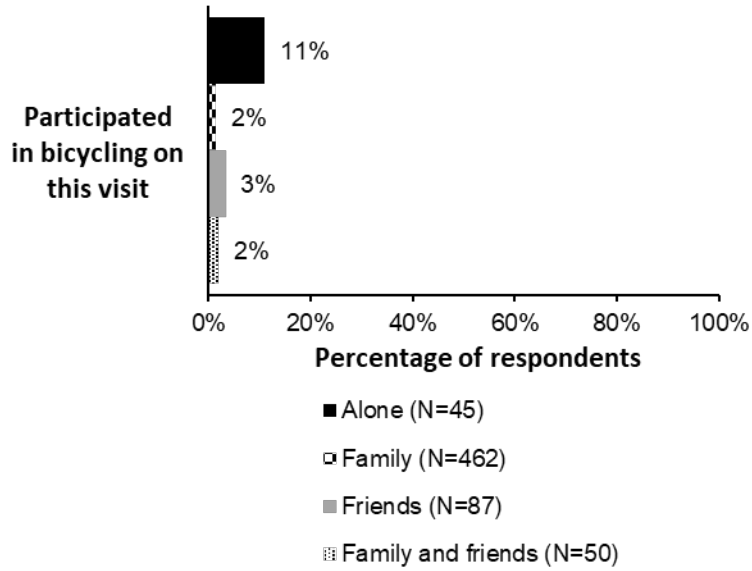


Figure 144. Participated in bicycling on this visit, by Group Type

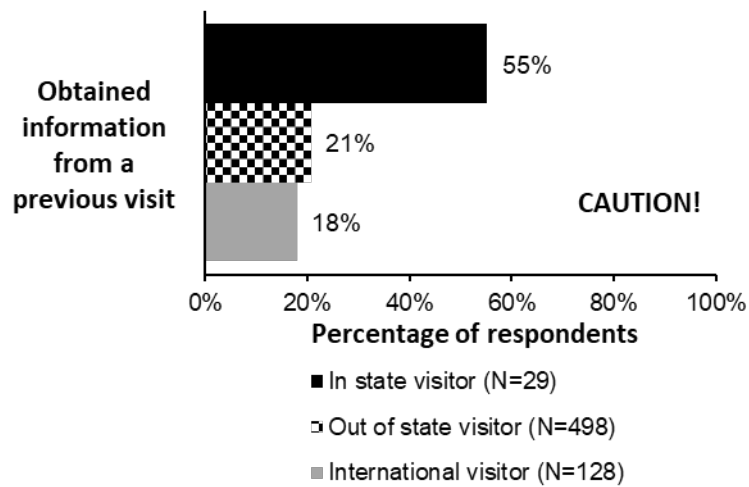


Figure 145. Obtained information from a previous visit, by State or Country of Residence

*total percentages do not equal 100 due to rounding

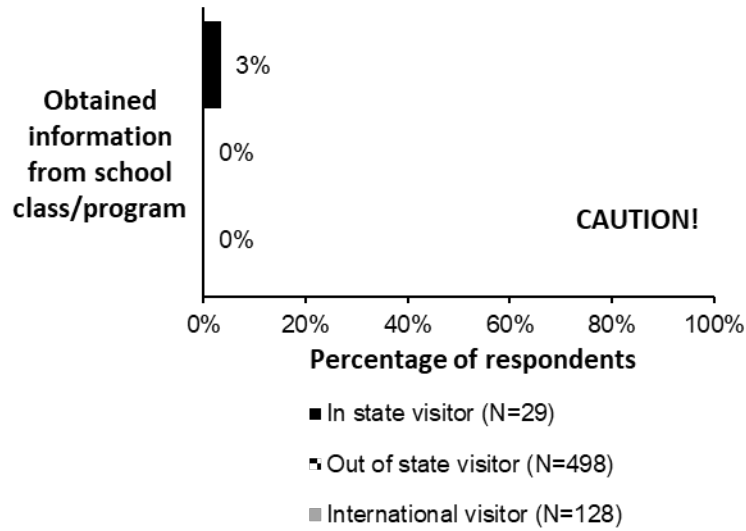


Figure 146. Obtained information from a school class/program, by State or Country of Residence

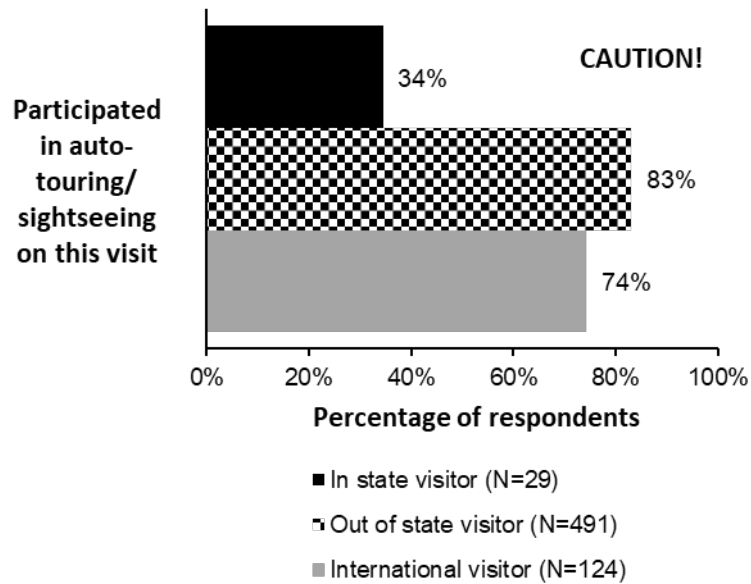


Figure 147. Participated in auto-touring/sightseeing on this visit, by State or Country of Residence

*total percentages do not equal 100 due to rounding

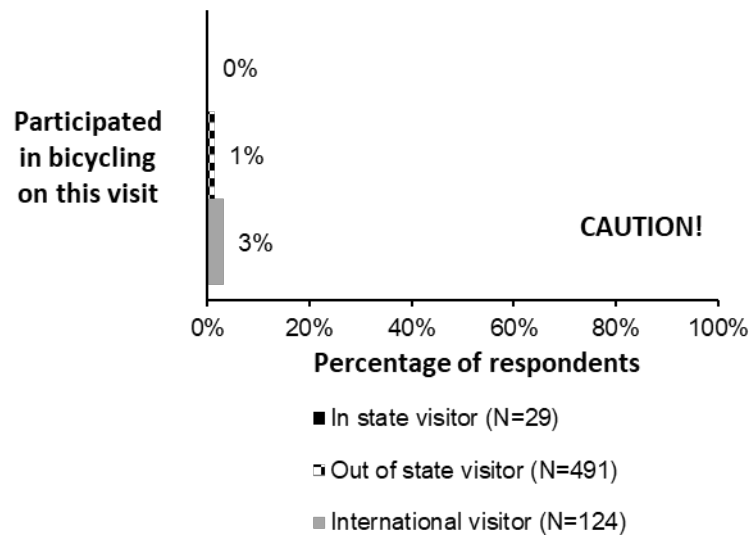


Figure 148. Participated in bicycling on this visit, by State or Country of Residence

*total percentages do not equal 100 due to rounding

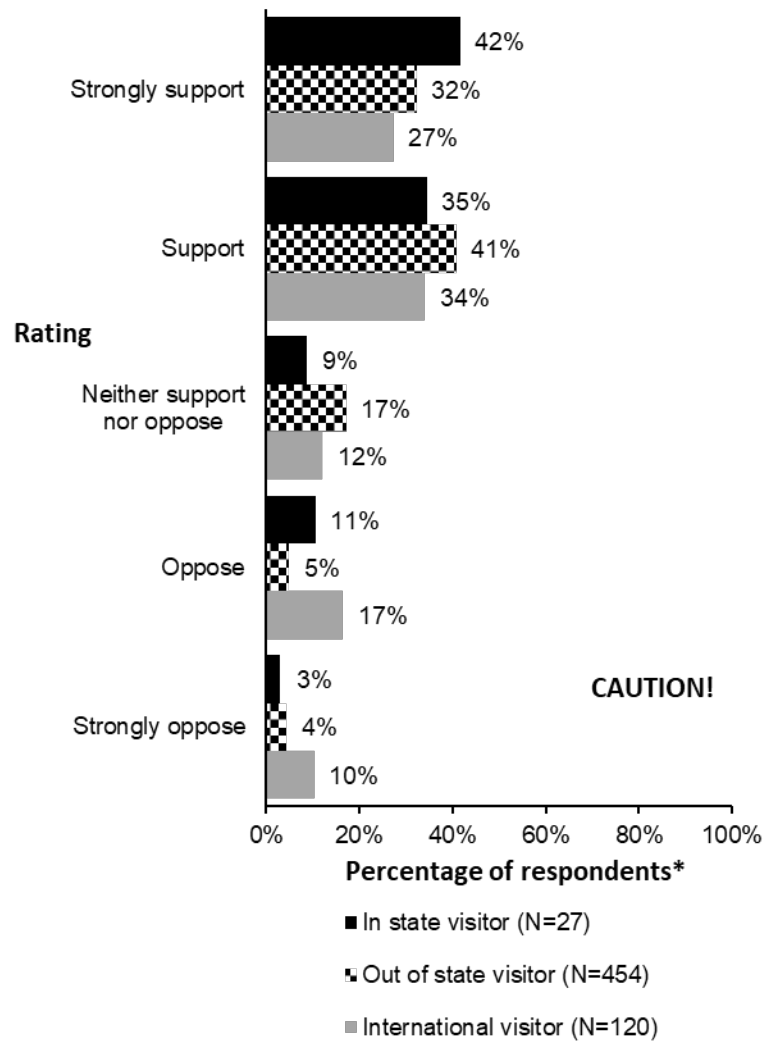


Figure 149. Level of support for management of commercial tour buses, by State or Country of Residence

*total percentages do not equal 100 due to rounding

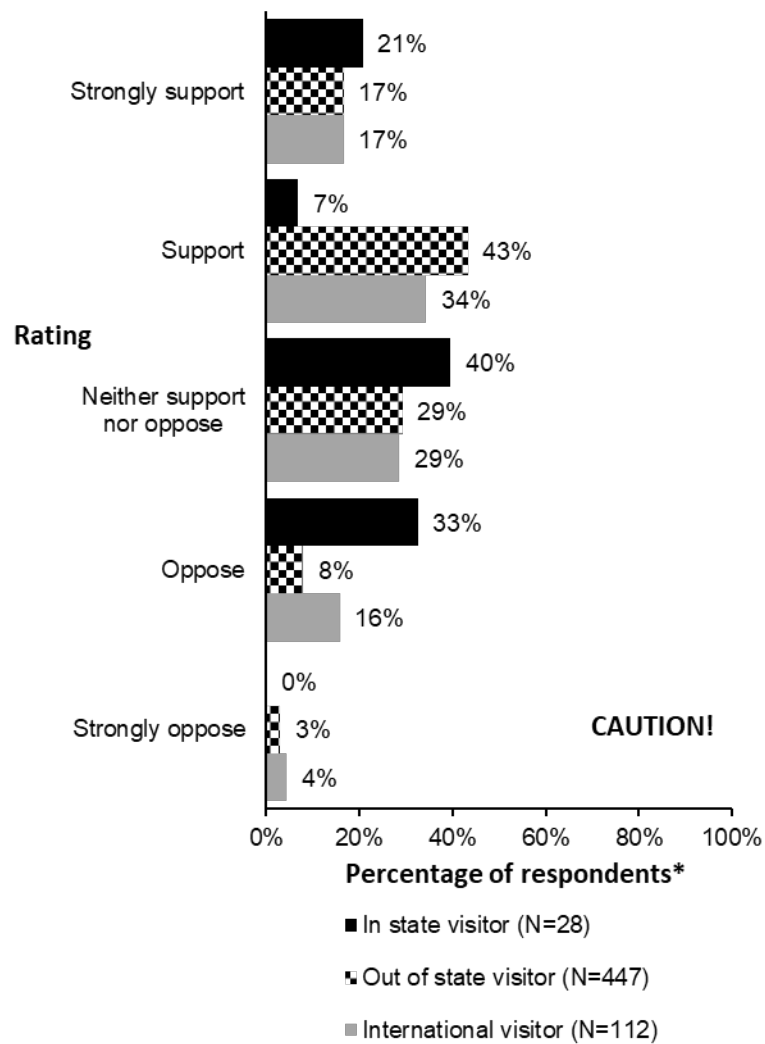


Figure 150. Level of support for wilderness signs and rock cairns, by State or Country of Residence

*total percentages do not equal 100 due to rounding

The Department of the Interior protects and manages the nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its special responsibilities to American Indians, Alaska Natives, and affiliated Island Communities.

NPS 138/147359, August 2018

National Park Service
U.S. Department of the Interior



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