National Park Service
U.S. Department of the Interior

Yellowstone National Park Visitor Use Study

Summer, 2016

ON THE COVER
Photograph of Yellowstone National Park visitors
Photograph courtesy of Yellowstone National Park

Yellowstone National Park Visitor Use Study

Summer, 2016

RSG
55 Railroad Row
White River Junction, VT 05001

August 2017

This page has been left intentionally blank.

Contents

Page

Figures....vii
Tables....xvi
Appendices....xx
Executive Summary....xxi
Introduction....xxi
Summary of Methods....xxi
Summary of Results....xxi
Group and Visitor Characteristics and Motivations....xxii
Pre-Trip Planning and Information Sources....xxiii
Visitor Experience....xxiii
Visitor Access and Transportation....xxv
Services and Facilities....xxvi
Report Organization....xxvii
Acknowledgments....xxviii
List of Terms....xxviii
Introduction....1
Organization of Report....1
Presentation of the Results: Park-wide....2
Presentation of the Results: By-entrance....3
Methods....5
Survey Method....5
Sampling Effort....5
Questionnaire Design....7
Sampling Procedures....8
Sampling Results....10
Data Entry and Cleaning....10
Non-Response Bias....11
Weighting of Survey Response Data....16

Data Analysis 16
Limitations 17
Special Conditions 18
Number of adults within group 19
Results 21
Group and Visitor Characteristics 21
Visitor group size 21
Number of children in group 23
Traveled with a pet 26
Visitor age 28
Visitor age by generational category 31
Visitor gender 33
Visitor ethnicity 35
Visitor race 37
U.S. visitors' state of residence 39
International visitors' country of residence 43
Visitor level of education 47
Household income 49
Frequency of visits to park 51
Frequency of visits to other National Park Service sites 54
Pre-Trip Planning and Motivations 57
Time of decision to visit 57
Amount of planning 59
Information sources prior to or during visit 61
Number of information sources used 66
Most useful information source 69
Importance of reasons for visiting the park 72
Satisfaction with reasons for visiting the park 91
Mean scores of importance and satisfaction ratings for reasons for visiting the park 110
Most important reasons for visiting the park 111

Visitor Experience 114
Length of stay in Yellowstone NP 114
Days entered or re-entered park 122
Overnight stay 125
Nights spent in overnight accommodations 127
Importance of resources 141
Most important resources 175
Learning from park staff, programs, and/or exhibits 178
Learning about subjects on future visits 183
Problems with issues in park 188
Aspects most valued about Yellowstone NP 213
Visitor Access and Transportation 215
Airplane travel 215
Entrance of first entry 220
Entrance of last exit 222
Ability of visitors to visit all planned locations 224
Reasons preventing visitation to planned locations 226
Transportation management options 228
Services and Facilities 254
Visitors with physical conditions 254
Safety 260
Quality of facilities, services, and recreational opportunities 266
Services used 291
Importance of use of personal electronic devices 293
Quality of service required to use personal electronic devices 306
Mean scores of importance and quality ratings for use of personal electronic devices 319
Expectations for visit to Yellowstone NP 320
Visitor Comments 324
Additional comments 324
Literature Cited 328

Figures

Page

Figure 1. Example figure: park-wide results 2
Figure 2. Example figure: by-entrance results 4
Figure 3. Yellowstone National Park Entrance Stations 6
Figure 4. Number of adults within group 19
Figure 5. Number of adults within group, by entrance 20
Figure 6. Visitor group size 21
Figure 7. Visitor group size, by entrance 22
Figure 8. Number of children in group 23
Figure 9. Number of children in group, by entrance 24
Figure 10. Visitor groups traveling with a pet in Yellowstone NP 26
Figure 11. Visitor groups traveling with a pet in Yellowstone NP, by entrance 27
Figure 12. Visitor age 29
Figure 13. Visitor age by generational category 31
Figure 14. Visitor age by generational category, by entrance 32
Figure 15. Visitor gender 33
Figure 16. Visitor gender, by entrance 34
Figure 17. Visitor ethnicity 35
Figure 18. Visitor ethnicity, by entrance 36
Figure 19. Visitor race 37
Figure 20. Proportion of U.S. visitors by state of residence 41
Figure 21. Visitor level of education 47
Figure 22. Visitor level of education, by entrance 48
Figure 23. Annual household income 49
Figure 24. Annual household income, by entrance 50
Figure 25. Park visits in last 12 months 51
Figure 26. Park visits in last 12 months, by entrance 52
Figure 27. Other NPS site visits in last 12 months 54
Figure 28. Other NPS site visits in last 12 months, by entrance 55

Figure 29. Timing of decision to visit park 57
Figure 30. Timing of decision to visit park, by entrance 58
Figure 31. Amount of pre-planning for visit 59
Figure 32. Amount of pre-planning for visit, by entrance 60
Figure 33. Visitor groups that obtained information about the park prior to and during visit 61
Figure 34. Visitor groups that obtained information about the park prior to and during visit, by entrance 62
Figure 35. Information sources used prior to and during trip 63
Figure 36. Number of information sources used prior to or during visit 66
Figure 37. Number of information sources used prior to or during visit, by entrance 67
Figure 38. Most useful information sources 70
Figure 39. Importance of reasons for visiting the park, includes responses for either "extremely important" or "very important" 73
Figure 40. Importance of viewing natural scenery 75
Figure 41. Importance of viewing natural scenery, by entrance 76
Figure 42. Importance of viewing wildlife in their natural habitat 77
Figure 43. Importance of viewing wildlife in their natural habitat, by entrance 78
Figure 44. Importance of viewing geysers and other thermal features 79
Figure 45. Importance of viewing geysers and other thermal features, by entrance 80
Figure 46. Importance of experiencing a wild place 81
Figure 47. Importance of experiencing a wild place, by entrance 82
Figure 48. Importance of hearing the sounds of nature/quiet 83
Figure 49. Importance of hearing the sounds of nature/quiet, by entrance 84
Figure 50. Importance of relaxing 85
Figure 51. Importance of relaxing, by entrance 86
Figure 52. Importance of driving for pleasure 87
Figure 53. Importance of driving for pleasure, by entrance 88
Figure 54. Importance of experiencing solitude 89
Figure 55. Importance of experiencing solitude, by entrance 90
Figure 56. Satisfaction with reasons for visiting the park, includes responses for "very satisfied" or "somewhat satisfied" 92

Figure 57. Satisfaction with viewing natural scenery 94
Figure 58. Satisfaction with viewing natural scenery, by entrance 95
Figure 59. Satisfaction with viewing geysers and other thermal features 96
Figure 60. Satisfaction with viewing geysers and other thermal features, by entrance 97
Figure 61. Satisfaction with experiencing a wild place 98
Figure 62. Satisfaction with experiencing a wild place, by entrance 99
Figure 63. Satisfaction with viewing wildlife in their natural habitat 100
Figure 64. Satisfaction with viewing wildlife in their natural habitat, by entrance 101
Figure 65. Satisfaction with relaxing 102
Figure 66. Satisfaction with relaxing, by entrance 103
Figure 67. Satisfaction with hearing the sounds of nature/quiet 104
Figure 68. Satisfaction with hearing the sounds of nature/quiet, by entrance 105
Figure 69. Satisfaction with driving for pleasure 106
Figure 70. Satisfaction with driving for pleasure, by entrance 107
Figure 71. Satisfaction with experiencing solitude 108
Figure 72. Satisfaction with experiencing solitude, by entrance 109
Figure 73. Mean scores for importance and satisfaction ratings for reasons for visiting the park 110
Figure 74. Most important reasons for visiting the park 112
Figure 75. Length of visit in Yellowstone NP 114
Figure 76. Length of visit in Yellowstone NP, by entrance 115
Figure 77. Number of hours visiting the park by groups who spent less than 24 hours in the park 116
Figure 78. Number of hours visiting the park by groups who spent less than 24 hours in the park, by entrance 117
Figure 79. Number of days visiting the park by groups who spent 24 hours or more in the park 119
Figure 80. Number of days visiting the park by groups who spent 24 hours or more in the park, by entrance 120
Figure 81. Number of days entered or re-entered park 122
Figure 82. Number of days entered or re-entered park, by entrance 123
Figure 83. Visitors who stayed overnight in and/or near Yellowstone NP 125

Figure 84. Visitors who stayed overnight in and/or near Yellowstone NP, by entrance 126
Figure 85. Accommodations for nights spent in Yellowstone NP or the nearby area 127
Figure 86. Nights spent in backcountry in Yellowstone NP 129
Figure 87. Nights spent in backcountry in Yellowstone NP, by entrance 130
Figure 88. Nights spent camping in Yellowstone NP 131
Figure 89. Nights spent camping in Yellowstone NP, by entrance 132
Figure 90. Nights spent camping outside Yellowstone NP 133
Figure 91. Nights spent camping outside Yellowstone NP, by entrance 134
Figure 92. Nights spent in lodging in Yellowstone NP 135
Figure 93. Nights spent in lodging in Yellowstone NP, by entrance 136
Figure 94. Nights spent in lodging outside Yellowstone NP 137
Figure 95. Nights spent in lodging outside Yellowstone NP, by entrance 138
Figure 96. Nights in other accommodations (e.g., staying with friends/relatives) 139
Figure 97. Nights in other accommodations (e.g., staying with friends/relatives), by entrance 140
Figure 98. Ratings of the importance of resources in Yellowstone NP, includes responses for either “extremely important” or “very important” 142
Figure 99. Importance of bison 145
Figure 100. Importance of bison, by entrance 146
Figure 101. Importance of Old Faithful Geyser 147
Figure 102. Importance of Old Faithful Geyser, by entrance 148
Figure 103. Importance of elk 149
Figure 104. Importance of elk, by entrance 150
Figure 105. Importance of a largely intact ecosystem 151
Figure 106. Importance of a largely intact ecosystem, by entrance 152
Figure 107. Importance of bears 153
Figure 108. Importance of bears, by entrance 154
Figure 109. Importance of the Grand Canyon of Yellowstone 155
Figure 110. Importance of the Grand Canyon of Yellowstone, by entrance 156
Figure 111. Importance of the Grand Prismatic Hot Spring 157
Figure 112. Importance of the Grand Prismatic Hot Spring, by entrance 158

Figure 113. Importance of wolves 159
Figure 114. Importance of wolves, by entrance 160
Figure 115. Importance of photography 161
Figure 116. Importance of photography, by entrance 162
Figure 117. Importance of Yellowstone Lake 163
Figure 118. Importance of Yellowstone Lake, by entrance 164
Figure 119. Importance of birds 165
Figure 120. Importance of birds, by entrance 166
Figure 121. Importance of plants 167
Figure 122. Importance of plants, by entrance 168
Figure 123. Importance of hiking 169
Figure 124. Importance of hiking, by entrance 170
Figure 125. Importance of backcountry travel 171
Figure 126. Importance of backcountry travel, by entrance 172
Figure 127. Importance of fishing 173
Figure 128. Importance of fishing, by entrance 174
Figure 129. Resources visitor groups consider to be the most important 176
Figure 130. Visitors who learned something from park staff, programs, exhibits, and/or the park itself 178
Figure 131. Visitors who learned something from park staff, programs, exhibits, and/or the park itself, by entrance 179
Figure 132. Visitors who would like to learn about specific subjects on future visits 183
Figure 134. The degree to which visitors found an issue to be a problem during their visit, includes responses for either “big problem” or “moderate problem” 189
Figure 135. Issue of difficulty finding a parking space 191
Figure 136. Issue of difficulty finding a parking space, by entrance 192
Figure 137. Issue of too many people in the park 193
Figure 138. Issue of too many people in the park, by entrance 194
Figure 139. Issue of other visitors acting unsafe around wildlife 195
Figure 140. Issue of other visitors acting unsafe around wildlife, by entrance 196
Figure 141. Issue of traffic congestion on park roads 197
Figure 142. Issue of traffic congestion on park roads, by entrance 198

Figure 143. Issue of not enough overnight accommodations 199
Figure 144. Issue of not enough overnight accommodations, by entrance 200
Figure 145. Issue of traffic congestion at park entrances 201
Figure 146. Issue of traffic congestion at park entrances, by entrance 202
Figure 147. Issue of other visitors acting unsafe around thermal features 203
Figure 148. Issue of other visitors acting unsafe around thermal features, by entrance 204
Figure 149. Issue of not enough restrooms 205
Figure 150. Issue of not enough restrooms, by entrance 206
Figure 151. Issue of vegetation loss along roads and trails 207
Figure 152. Issue of vegetation loss along roads and trails, by entrance 208
Figure 153. Issue of not enough park staff present 209
Figure 154. Issue of not enough park staff present, by entrance 210
Figure 155. Issue of too much noise 211
Figure 156. Issue of too much noise, by entrance 212
Figure 157. Air travel as part of trip from home to Yellowstone NP 215
Figure 158. Air travel as part of trip from home to Yellowstone NP, by entrance 216
Figure 159. Airports used by visitor groups whose trip included airplane travel 218
Figure 160. Entrance of first entry into Yellowstone NP 220
Figure 161. Entrance of first entry into Yellowstone NP, by entrance 221
Figure 162. Entrance of last exit from Yellowstone NP 222
Figure 163. Entrance of last exit from Yellowstone NP, by entrance 223
Figure 164. Visitor groups' ability to visit all planned locations 224
Figure 165. Visitor groups' ability to visit all planned locations, by entrance 225
Figure 166. Reasons preventing visit to all planned locations in Yellowstone NP 226
Figure 167. Support for transportation management options, includes responses for either "strongly support" or "slightly support" 229
Figure 168. Support for offering voluntary shuttle bus services to popular park locations during peak periods 232
Figure 169. Support for offering voluntary shuttle bus services to popular park locations during peak periods, by entrance 233
Figure 170. Support for offering voluntary park-wide shuttle bus services with parking outside the park during peak periods 234

Figure 171. Support for offering voluntary park-wide shuttle bus services with parking outside the park during peak periods, by entrance 235
Figure 172. Support for adding more pullouts at scenic views 236
Figure 173. Support for adding more pullouts at scenic views, by entrance 237
Figure 174. Support for adding more parking at park attractions 238
Figure 175. Support for adding more parking at park attractions, by entrance 239
Figure 176. Support for offering voluntary bike-share system for access to popular park locations during peak period 240
Figure 177. Support for offering voluntary bike-share system for access to popular park locations during peak period, by entrance 241
Figure 178. Support for diverting traffic away from heavily congested areas of the park 242
Figure 179. Support for diverting traffic away from heavily congested areas of the park, by entrance 243
Figure 180. Support for requiring day use reservations for vehicles entering the park during peak periods 244
Figure 181. Support for requiring day use reservations for vehicles entering the park during peak periods, by entrance 245
Figure 182. Support for limiting the number of vehicles entering the park during peak periods 246
Figure 183. Support for limiting the number of vehicles entering the park during peak periods, by entrance 247
Figure 184. Support for requiring mandatory shuttle bus service to popular park locations during peak periods 248
Figure 185. Support for requiring mandatory shuttle bus service to popular park locations during peak periods, by entrance 249
Figure 186. Support for requiring mandatory park-wide shuttle bus system with parking outside the park during peak periods 250
Figure 187. Support for requiring mandatory park-wide shuttle bus system with parking outside the park during peak periods, by entrance 251
Figure 188. Support for temporarily closing park roads when there is heavy traffic congestion 252
Figure 189. Support for temporarily closing park roads when there is heavy traffic congestion, by entrance 253
Figure 190. Visitor groups with members with physical conditions 254
Figure 191. Visitor groups with members with physical conditions, by entrance 255
Figure 192. Specific difficulties had by visitor group member(s) 258

Figure 193. Visitor groups encountering safety issues during their visit to Yellowstone NP 260
Figure 194. Visitor groups encountering safety issues during their visit to Yellowstone NP, by entrance 261
Figure 195. Quality of facilities, services, and recreational opportunities, includes responses for either “very good” or “good” 267
Figure 196. Quality of visitor center 269
Figure 197. Quality of visitor center, by entrance 270
Figure 198. Quality of outdoor recreation (sightseeing, camping, bicycling, boating, hiking, etc.) 271
Figure 199. Quality of outdoor recreation (sightseeing, camping, bicycling, boating, hiking, etc.), by entrance 272
Figure 200. Quality of learning about nature 273
Figure 201. Quality of learning about nature, by entrance 274
Figure 202. Quality of assistance from park employees 275
Figure 203. Quality of assistance from park employees, by entrance 276
Figure 204. Quality of walkways, trails, and roads 277
Figure 205. Quality of walkways, trails, and roads, by entrance 278
Figure 206. Quality of value for entrance fee paid 279
Figure 207. Quality of value for entrance fee paid, by entrance 280
Figure 208. Quality of ranger programs 281
Figure 209. Quality of ranger programs, by entrance 282
Figure 210. Quality of learning about history or culture 283
Figure 211. Quality of learning about history or culture, by entrance 284
Figure 212. Quality of campgrounds and/or picnic areas 285
Figure 213. Quality of campgrounds and/or picnic areas, by entrance 286
Figure 214. Quality of commercial services in the park 287
Figure 215. Quality of commercial services in the park, by entrance 288
Figure 216. Quality of restrooms 289
Figure 217. Quality of restrooms, by entrance 290
Figure 218. Importance of uses for a personal electronic device, includes responses for either “extremely important” or “very important” 294
Figure 219. Importance of making/receiving phone calls 296

Figure 220. Importance of making/receiving phone calls, by entrance 297
Figure 221. Importance of sending/receiving text messages 298
Figure 222. Importance of sending/receiving text messages, by entrance 299
Figure 223. Importance of searching the Internet 300
Figure 224. Importance of searching the Internet, by entrance 301
Figure 225. Importance of sharing pics/videos/audio via social media 302
Figure 226. Importance of sharing pics/videos/audio via social media, by entrance 303
Figure 227. Importance of download an NPS podcast 304
Figure 228. Importance of download an NPS podcast, by entrance 305
Figure 229. Quality of service required to use personal electronic devices 307
Figure 230 Quality of making/receiving phone calls 309
Figure 231. Quality of making/receiving phone calls, by entrance 310
Figure 232. Quality of sending/receiving text messages 311
Figure 233. Quality of sending/receiving text messages, by entrance 312
Figure 234. Quality of downloading an NPS podcast 313
Figure 235. Quality of downloading an NPS podcast, by entrance 314
Figure 236. Quality of sharing pics/videos/audio via social media 315
Figure 237. Quality of sharing pics/videos/audio via social media, by entrance 316
Figure 238. Quality of searching the Internet 317
Figure 239. Quality of searching the Internet, by entrance 318
Figure 240. Mean scores for importance and quality ratings for use of personal electronic devices 319
Figure 241. Meeting of expectations for visit on this trip 320
Figure 242. Meeting of expectations for visit on this trip, by entrance 321
Figure 248. Vehicle type 394
Figure 249. Vehicle type, by entrance 395
Figure 250. Language preference 396
Figure 251. Language preference, by entrance 397
Figure 252. Facilities, services, and recreational opportunities used by visitor groups 399

Tables

Page

Table 1. Sampling effort – North, Northeast, and East entrances 7
Table 2. Sampling effort – South and West entrances 7
Table 3. Number of English questionnaires distributed, by sampling location 9
Table 4. Number of Mandarin questionnaires distributed, by sampling location 9
Table 5. Follow-up mailing distribution 10
Table 6. Number of completed questionnaires, by sampling location 10
Table 7. Number and percentage of respondents and non-respondents with valid values for non-response variables 12
Table 8. Initial contact gender comparison between respondents and non-respondents 13
Table 9. Number of children in group comparison between respondents and non-respondents 13
Table 10. Visit length comparison between respondents and non-respondents 14
Table 11. State or country of residence comparison between respondents and non-respondents 14
Table 12. Vehicle type comparison between respondents and non-respondents 15
Table 13. Number of adult group members comparison between respondents and non-respondents 15
Table 14. Preferred language comparison between respondents and non-respondents 15
Table 15. Descriptive statistics: Number of adults in group 19
Table 16. ANOVA: Mean number of adults within group, by entrance 20
Table 17. Descriptive statistics: Number of visitors in group 21
Table 18. ANOVA: Mean visitor group size, by entrance 22
Table 19. Descriptive statistics: Number of children in group (for groups with children) 23
Table 20. ANOVA: Mean number of children in group (for groups with children), by entrance 25
Table 21. Types of pets traveled with by visitor groups 26
Table 22. Types of pets traveled with by visitor groups traveling with a pet, by entrance 27
Table 23. Descriptive statistics: Visitor age 29
Table 24. Visitor age, by entrance 30
Table 25. ANOVA: Mean visitor age, by entrance 30

Table 26. Visitor race, by entrance 38
Table 27. United States visitors by state of residence 40
Table 28. United States visitors by state of residence, by entrance 42
Table 29. International visitors by country of residence 44
Table 30. International visitors by country of residence, by entrance 46
Table 31. Descriptive statistics: Park visits in last 12 months 51
Table 32. ANOVA: Mean park visits in last 12 months, by entrance 53
Table 33. Descriptive statistics: Other NPS site visits in last 12 months 54
Table 34. ANOVA: Mean number of visits to other NPS site in last 12 months, by entrance 56
Table 35. Information sources used prior to and during trip, by entrance 65
Table 36. Descriptive statistics: Number of information sources used prior to or during visit 66
Table 37. ANOVA: Mean number of information sources used prior to or during visit, by entrance 68
Table 38. Most useful information sources, by entrance 71
Table 39. Importance of reasons for visiting the park, by entrance, includes responses for either “extremely important” or “very important” 74
Table 40. Satisfaction with reasons for visiting the park, by entrance, includes responses for either “very satisfied” or “somewhat satisfied” 93
Table 41. Most important reasons for visiting the park, by entrance 113
Table 42. Descriptive statistics: Number of hours visiting park 116
Table 43. ANOVA: Mean number of hours visiting the park by groups who spent less than 24 hours in the park, by entrance 118
Table 44. Descriptive statistics: Number of days visiting park 119
Table 45. ANOVA: Mean number of days visiting the park by groups who spent 24 hours or more in the park, by entrance 121
Table 46. Descriptive statistics: Number of days entered or re-entered park 122
Table 47. ANOVA: Mean number of days entered or re-entered park, by entrance 124
Table 48. Accommodations for nights spent in Yellowstone NP or the nearby area, by entrance 128
Table 49. Ratings of the importance of resources in Yellowstone NP, by entrance, includes responses for either “extremely important” or “very important” 144
Table 50. Resource visitor groups consider to be the most important, by entrance 177

Table 51. Subjects learned 180
Table 52. Subjects learned, by entrance 182
Table 53. Subjects visitor groups would like to learn 186
Table 54. Subjects visitor groups would like to learn, by entrance 187
Table 55. The degree to which visitors found an issue to be a problem during their visit, by entrance, includes responses for either “big problem” or “moderate problem” 190
Table 56. Aspects most valued about Yellowstone NP 213
Table 57. Aspects most valued about Yellowstone NP, by entrance 214
Table 58. Airports used by visitor groups whose trip included airplane travel, by entrance 219
Table 59. Reasons preventing visit to all planned locations in Yellowstone NP, by entrance 227
Table 60. Support for transportation management options, by entrance, includes responses for either “strongly support” or “slightly support” 231
Table 61. Activities/services/facilities difficult to participate in/access 256
Table 62. Activities/services/facilities difficult to participate in/access, by entrance 257
Table 63. Specific difficulties had by visitor group member(s), by entrance 259
Table 64. Safety issues encountered 262
Table 65. Safety issues encountered, by entrance 263
Table 66. Locations of encountered safety issues 264
Table 67. Locations of encountered safety issues, by entrance 265
Table 68. Quality of facilities, services, and recreational opportunities, by entrance, includes responses for either “very good” or “good” 268
Table 69. Services used 291
Table 70. Services used, by entrance 292
Table 71. Importance of using personal electronic devices, by entrance, includes responses for either “extremely important” or “very important” 295
Table 72. Quality of service required to use personal electronic devices, by entrance 308
Table 73. Reasons expectations were "not entirely" or “not at all” met 322
Table 74. Reasons expectations were "not entirely" or “not at all” met, by entrance 323
Table 75. Additional comments about facilities, services, or recreational opportunities 324
Table 76. Additional comments about facilities, services, or recreational opportunities, by entrance 326

Table 77. Statistical tests of vehicle type effects on key questions in Yellowstone NP survey 382

Table 78. Statistical tests of number of adult group members on key questions in the Yellowstone NP survey 386

Table 79. Statistical tests of visitors' preferred speaking languages on key questions in Yellowstone NP survey 390

Table 80. Preferred language 396

Table 81. Facilities, services, and recreational opportunities used by visitor groups, by entrance 400

Appendices

Page

Appendix 1. The Questionnaire 329

Appendix 2. The Thank You/Reminder Postcard 371

Appendix 3. The Replacement Mailing Cover Letter 373

Appendix 4. Detailed Sampling Procedures 375

Appendix 5. Non-response Bias Analysis - Effects on Survey Reponses due to Vehicle Type, Number of Adult Group Members, and Preferred Language 380

Appendix 6. Facilities, Services, and Recreational Opportunities Used by Visitor Groups 398

Executive Summary

Introduction

A visitor use study was conducted at Yellowstone National Park (NP) from August 4 through August 14, 2016, to gather information about visitor and trip characteristics, trip planning efforts, motivations for visiting, visitor perceptions of park experiences, visitor attitudes about access and transportation, and visitor satisfaction with park services and facilities. The data were collected from a park-wide sample of visitors to Yellowstone NP. The study was conducted by Resource Systems Group (RSG), with the support of the National Park Service (NPS) Social Science Program (SSP), Yellowstone NP staff, and Washington State University survey technicians.

Summary of Methods

The Yellowstone NP Visitor Use Study (VUS) was administered at Yellowstone NP 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 Yellowstone NP during the study period.

Mail-back survey packets were administered to visitor groups just after they had entered Yellowstone NP using onsite vehicle intercept methods. The park entrances were selected as the sample locations for this study because they provided the most efficient and systematic locations for contacting a random sample of park visitors, the target population for the study. The questionnaire was administered in two languages, English and Mandarin.

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. Two weeks after field survey administration concluded, all survey participants were sent a color-picture postcard thanking them for participating in the study and/or reminding them to complete and return the questionnaire. Approximately two weeks after mailing the postcards, a replacement mail-back survey packet was sent to each individual who had agreed to participate in the study but had not yet returned his or her questionnaire.

Summary of Results

During the sampling period, 2,265 visitor groups were contacted to participate in the study. Of those groups, 2,030 agreed to participate in the study by accepting a mail-back survey packet. Questionnaires were completed and returned by 1,257 visitor groups, resulting in a completion rate

of 62% among those visitor groups that agreed to participate in the study and an overall response rate of 55% for the study.

The by-entrance analysis yielded few substantial or systematic statistically significant differences by entrance. Among variables related to visitor and group characteristics, differences were observed for visitor age by generational category, ethnicity, race, state or country of residence, and educational attainment. For variables related to pre-trip planning, information sources, and motivations differences were observed for Yellowstone NP and NPS visits in the past 12 months, information use, and the importance of one reason for visiting the park. Among visitor experience variables, differences were observed for length of stay in the park, camping as an overnight accommodation, the importance of two Yellowstone NP resources, and learning among park visitors. For visitor access and transportation related questions, differences were observed for use of air travel and gate of entry and exit into the park. Finally, for variables related to services and facilities differences were observed in the quality ratings for one park facility.

Group and Visitor Characteristics and Motivations

The majority of visitor groups (91%) to Yellowstone NP included two or more group members (Figure 6, p.21), and did not contain children (60%; Figure 8, p.23). Of the 40% of visitor groups that contained children, the majority (73%) included two or more children. Seven percent of visitor groups traveled with a pet on their trip to Yellowstone NP; the majority of pets were dogs (84%; Figure 10, p.26, Table 21, p.26).

Visitor ages ranged from less than one year to greater than 85 years of age (Figure 12, p.29). Visitors in the Baby Boomer generation (aged 52 years to 70 years) visited the park in the greatest percentage, with 32% of park visitors falling into that generational category (Figure 13, p.31). Equal percentages of youth (18 years of age and younger) and visitors in the Generation X generation visited the park, 24% each respectively. Differences were found in the distribution of visitor ages by generational category by entrance, with a notable difference of visitors in the Baby Boomer generation being most likely to enter at the Northeast entrance (39%) and youth being least likely to enter at the Northeast entrance (18%; Figure 14, p.32).

Nine percent of visitor groups included at least one member with a physical condition that made it difficult to access or participate in park activities or services (Figure 190, p.254). The most commonly cited type of difficulty was mobility (Figure 192, p.258), and “walking” was the activity in which members of visitor groups that had difficulty participating in park activities or services most frequently mentioned (45%; Table 61, p.256).

Equal amounts of male and female visitors visited the park (50% each respectively; Figure 15, p.33). Seven percent of visitors were Hispanic or Latino(a) by ethnicity (Figure 17, p.35). The majority of visitors (82%) reported white as one or more of their races, while 15% reported Asian (Figure 19, p.37). Very few visitors were American Indian or Alaska Native (2%), black or African American (1%), or native Hawaiian or other Pacific Islander (<1%). Differences were found in the distribution of ethnicity and race by entrance location. Hispanic and Latino(a) visitors were more likely to enter at the East, West, or South entrances than at the Northeast or North entrance (Figure 18, p.36).

Visitors reporting Asian as one or more of their races were more likely to enter at the North, South, and West entrances than the East and Northeast entrances (Table 26, p.38). Visitors reporting Native Hawaiian or other Pacific Islander as one or more of their races were more likely to enter at the East entrance than the other entrances (Table 26, p.38).

U.S. visitors came from 50 states and the District of Columbia and comprised 83% of total visitation to the park during the study period. The greatest percentages of domestic visitors came from California (8%) and Utah (6%; Table 27, p.40). International visitors were from 25 countries and comprised 17% of total visitation to the park during the study period. Forty-nine percent of international visitors came from Europe, 34% came from China, and 10% came from Canada (Table 29, p.44). Differences were found in the distribution of visitor country of origin by entrance. Notably, visitors from China were most likely to enter at the South entrance (26%), followed by the West (17%) and North (16%) entrances (Table 30, p.46). The majority of visitors (89%) preferred to use English while in the park (Table 14, p.15). Six percent of visitors indicated that they preferred to use Mandarin while in the park (Table 14, p.15).

Visitor groups indicated that viewing natural scenery (96%), viewing wildlife in their natural habitat (83%), viewing geysers and other thermal features (78%), experiencing a wild place (72%), and hearing the sounds of nature/quiet (52%) were extremely important or very important reasons for visiting Yellowstone NP (Figure 39, p.73). Of the listed reasons for visiting Yellowstone NP, visitor groups indicated that viewing wildlife in their natural habitat (29%) and viewing natural scenery (29%) were the most important reasons for visiting Yellowstone NP (Figure 74, p.112)

Pre-Trip Planning and Information Sources

Most visitor groups (87%) to Yellowstone NP had only visited the park once (the visit during which they were contacted for the study) during the past 12 months (Figure 25, p.51). Few visitor groups (2%) had visited the park five or more times in the past 12 months (Figure 25, p.51). Seventy-six percent of visitor groups had visited at least one other NPS unit in the past 12 months (Figure 27, p.54).

Most visitor groups (93%) engaged in some degree of pre-planning prior to their visit to Yellowstone NP and 91% of visitors obtained information about Yellowstone NP prior to or during their visit (Figure 31, p.59, and Figure 33, p.61, respectively). The majority of visitors indicated that their trip was either “carefully planned” (31%) or they engaged in “some pre-planning” (41%) prior to their visit to the park. The information sources reported as most useful by visitor groups included the Yellowstone NP website (22% of visitor groups), the Yellowstone NP park map (21% of visitor groups), and travel guides/tour books (17% of visitor groups; Figure 38, p.70).

Visitor Experience

Thirty-four percent of visitor groups spent less than one day visiting Yellowstone NP and 66% of visitor groups visited the park for one or more days (Figure 75, p.114). Eighty-one percent of visitor groups reported staying overnight either inside Yellowstone NP or in the nearby area on their trip to the park (Figure 83, p.125). Of these visitor groups, the majority stayed in lodging outside the park (50%) or camped outside the park (18%).

Visitor groups reported the following Yellowstone NP resources to be either "extremely important" or "very important" to them (note, reported percentages are the combined sum of "extremely important" and "very important" ratings; resources listed received 50% or greater combined rating): bison (82%), Old Faithful Geyser (78%), elk (77%), a largely intact ecosystem (75%), bears (75%), the Grand Canyon of Yellowstone (72%), Grand Prismatic Hot Spring (68%), wolves (68%), photography (65%), Yellowstone Lake (57%), birds (55%), and plants (52%; Figure 98, p.142). Differences were found in the level of importance by entrance for two resources, Old Faithful Geyser and hiking (Table 49, p.144). Eighty-four percent of visitor groups entering at the South entrance rated Old Faithful Geyser as either an extremely or very important park resource. Comparatively, 78% of visitor groups entering at the Northeast entrance selected one of those ratings for Old Faithful Geyser as a park resource. Fifty-nine percent of visitor groups entering at the South entrance indicated hiking was an extremely or very important park resource whereas 42% of visitor groups entering at the East entrance and 40% of groups entering at the West entrance selected one of those ratings for hiking as a park resource, with other entrances falling in between.

Visitor groups indicated the following park issues to be either a "big problem" or "moderate problem" during their visit to Yellowstone NP (note, reported percentages are the combined sum of "big problem" and "moderate problem" ratings; issues listed received 30% or greater combined rating): difficulty finding a parking space (67%), too many people in the park (57%), other visitors acting unsafe around wildlife (55%), traffic congestion on park roads (55%), traffic congestion at park entrances (41%), not enough overnight accommodations (35%), and other visitors acting unsafe around thermal features (32%; Figure 134, p.189).

Fifty-five percent of visitor groups reported being able to visit all planned locations (Figure 164, p.224). For those visitor groups that were unable to visit all planned locations, top reasons preventing their visit included not enough time (64%), travel time inside the park greater than expected (34%), could not find a place to park (34%), and traffic inside the park (18%; Figure 166, p.226).

Fifty-six percent of visitor groups learned something from park staff, programs, exhibits, and/or the park itself about American history, nature, and/or culture (Figure 130, p.178). The most commonly mentioned subjects that visitor groups learned about were park history (16%), thermal features (10%), and geysers (8%; Table 51, p.180). Differences were observed by entrance for whether or not visitor groups reported learning something during their trip (Figure 131, p.179). Visitor groups entering at the South (58%) and North (56%) entrances were more likely to report learning from staff, programs, exhibits, or the park itself during their visit than visitor groups entering at the West (51%), East (47%), and Northeast (44%) entrances. Forty-four percent of visitor groups had subjects they wanted to learn more about (Figure 132, p.183). These subjects include wildlife generally (13%), park history (10%), and geology (10%; Table 53, p.186).

When asked in an open-ended question about what aspects of Yellowstone NP that they valued most, wildlife (21%), natural beauty (12%), and thermal features (9%) were the most common responses among visitor groups (Table 56, p.213).

Visitor Access and Transportation

Seventy-eight percent of visitor groups entered the park in an automobile, 13% entered in a tour bus, 6% entered in an RV, 2% entered on a motorcycle, and less than one percent entered on either a bicycle or via another type of vehicle (Table 12, p.15). Thirty-five percent of visitors traveled on an airplane as part of their trip to Yellowstone NP (Figure 157, p.215). Differences in use of airplane travel were observed, with visitor groups entering at the East entrance being the least likely to use airplane travel as part of their trip to Yellowstone NP and visitor groups entering at the South (38%) and West (35%) entrances being the most likely to use airplane travel as part of their trip to the park (Figure 158, p.216). The most popular airports for arrival prior to entering Yellowstone NP were Jackson Hole Airport (21%), Salt Lake City International Airport (20%), Bozeman Yellowstone International Airport (14%), and Denver International Airport (12%; Figure 159, p.218).

The West and South entrances saw the highest percentages of entries, with 36% and 28% of entries respectively occurring at these entrances (Figure 160, p.220). These entrances also saw the highest percentages of last exit from the park, with 35% of visitor groups exiting via the South entrance and 34% of visitor groups existing via the West entrance (Figure 162, p.222).

Visitor groups were presented with eleven potential transportation management options to address issues of traffic congestion and parking shortages that can occur in Yellowstone NP. Of the listed options, the following five received support (either "strongly support" or "slightly support") from at least 50% of visitor groups (Figure 167, p.229):

- Offer voluntary shuttle bus service to popular park locations during peak periods (87%)
- Offer voluntary park-wide shuttle bus service with parking outside the park during peak periods (75%)
- Add more pullouts at scenic views (74%)
- Add more parking at park attractions (68%)
- Offer voluntary bike-share system for access to popular park locations during peak periods (53%)

Of the listed options, the following six received less than 50% support from visitor groups:

- Divert visitor traffic away from heavily congested areas of the park (39%)
    - 37% of visitor groups strongly or slightly opposed this option (Figure 178, p.242)
- Require day use reservations for vehicles to enter the park during peak periods (38%)
    - 45% of visitor groups strongly or slightly opposed this option (Figure 180, p.244)
- Limit the number of vehicles entering the park during peak periods (35%)
    - 46% of visitor groups strongly or slightly opposed this option (Figure 182, p.246)
- Require mandatory shuttle bus service to popular park locations during peak periods (33%)
    - 48% of visitor groups strongly or slightly opposed this option (Figure 184, p.248)

- Require mandatory park-wide shuttle bus system with parking outside the park during peak periods (31%)
    - 52% of visitor groups strongly or slightly opposed this option (Figure 186, p.250)
- Temporarily close park roads when there is heavy traffic congestion (17%)
    - 61% of visitor groups strongly or slightly opposed this option (Figure 188, p.252)

Services and Facilities

Visitor groups indicated that they were either very or somewhat satisfied with viewing natural scenery (99%), viewing geysers and other thermal features (94%), experiencing a wild place (89%), viewing wildlife in their natural habitat (85%), relaxing (78%), and hearing the sounds of nature/quiet (72%; Figure 56, p.92).

Eighty-four percent of visitor groups indicated that their visit to Yellowstone NP met their expectations (Figure 241, p.320). For those groups whose expectations were not entirely met, reasons cited include wanting to see more wildlife, the park being too crowded, not enough available parking, and traffic (Table 73, p.322).

The facilities, services, and activities that received the highest combined quality ratings of either "very good" or "good" from visitor groups included the visitor center(s) (97%), outdoor recreation (92%), learning about nature (89%), and assistance from park employees (89%; Figure 195, p.267). The facilities, services, and activities that received the lowest combined quality ratings of either "very good" or "good" from visitor groups included campground and picnic areas (76%), commercial services in the park (69%), and restrooms (69%; Figure 195). Differences in the distribution of combined quality ratings of either "very good" or "good" were found for walkways, trails, and roads (Table 68, p.268). Ninety-four percent of visitor groups entering at the South entrance selected either very good or good quality ratings for this facility. Comparatively, only 83% of visitor groups entering at the West entrance selected either very good or good quality ratings for this facility. It should be noted, that all facilities, services, and activities listed received a combined quality rating of "very good" or "good" above 50%. Additionally, some visitor groups did not select a rating for each facility, service, or recreational opportunity, and visitors may have selected responses only for those listed items with which they had direct experience. For more information on use of services and facilities by visitors, see Appendix 6 (Figure 251, p.397, and Table 81, p.400).

Less than a third of visitor groups indicated that making/receiving a cell phone call (32%) and sending/receiving text messages (30%) were important uses of personal electronic devices in the park (Figure 218, p.294). Twenty-one percent of visitor groups rated the quality of service in Yellowstone NP required to make/receive a cell phone call as "very good" or "good" and 21% of visitor groups rated the quality of service required to send/receive a text message as "very good" or "good" (Figure 229, p.307).

Report Organization

This report describes the results of the 2016 Yellowstone VUS. The report is organized into three sections: methods, results, and appendices. The methods section discusses the procedures, limitations, and special conditions that may affect the results of this study. The results section presents results of the park-wide and by-entrance analysis of the survey data. Most of the results are presented in graphs and frequency tables. For open-ended questions, summaries of visitor comments are included in the body of the report. Verbatim comments for all questions where respondents were provided the opportunity to write in a response are included in the *Visitor Comments Appendix* (bound separately). Chi-square tests of independence and analysis of variance (ANOVA) tests were used to perform a by-entrance comparative analysis of survey responses received from respondents entering at each of Yellowstone NP's five entrance locations. Report appendices provide detailed information on the questionnaire, mail-back materials, sampling procedures, and additional non-response bias analyses.

Note: Appendix 5 contains additional non-response bias analyses and the by-entrance analysis results of two survey contact log form variables: vehicle type (Figure 249, p.395) and language preference (Figure 251, p.397). This information that was collected during the initial, in-person contact at Yellowstone NP to use in the non-response bias analysis and was not included as part of the mail-back survey questionnaire. Detailed park-wide results for vehicle type (Table 12, p.15) and language preferences (Table 14, p.15) are included as part of the explanation of non-response bias in the Methods section.

Acknowledgments

We thank the staff of Yellowstone 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

NP	National Park
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 conducted at Yellowstone National Park (NP) from August 4 through August 14, 2016. The study was conducted by RSG on behalf of Yellowstone NP and the National Park Service (NPS) Social Science Program (SSP). Results are presented for Yellowstone NP as a whole (park-wide analysis); additionally, responses are compared by the entrance location of the respondent on the day they were contacted to participate in the study (by-entrance analysis).

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, onsite, and post-trip stages of park visits. The park-wide and by-entrance summary figures and tables are organized by question, with the park-wide figure or table presented first followed by the by-entrance figure or table.

Section 3: **Appendices**

Appendix 1. *The Questionnaire*. A copy of the English and Mandarin questionnaires distributed to visitor groups.

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

Appendix 3. *The Replacement Mailing Cover Letter*. A copy of the English and Mandarin replacement mailing cover letters 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 Reponses due to Vehicle Type, Number of Adult Group Members, and Preferred Language.* Results of statistical tests of vehicle type, number of adult group members, and preferred language on key questions in the Yellowstone VUS survey instrument.

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

Presentation of the Results: Park-wide

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

SAMPLE ONLY (PARK-WIDE)

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

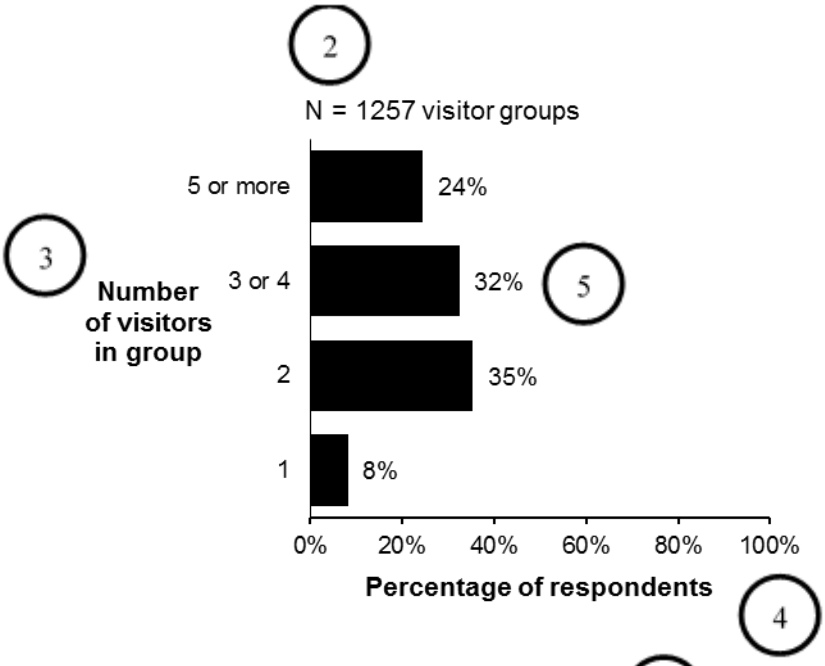


Figure 1. Example figure: park-wide results 1

Presentation of the Results: By-entrance

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

SAMPLE ONLY (BY-ENTRANCE)

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.
3. Vertical information (y-axis) describes the response categories, color coded by the entrance through which the respondent entered on the day they were contacted to participate in the study.
4. Horizontal information (x-axis) shows the percentage of responses in each category.
5. The proportion of visitor groups/visitors who responded to each category.
6. Test statistic for the chi-square test of independence used to test to statistically significant differences in the distribution of responses across the range of response categories for a given question.

   [1] appears when 20% or more of the cells have expected counts of less than 5. Chi-square test may not be applicable.

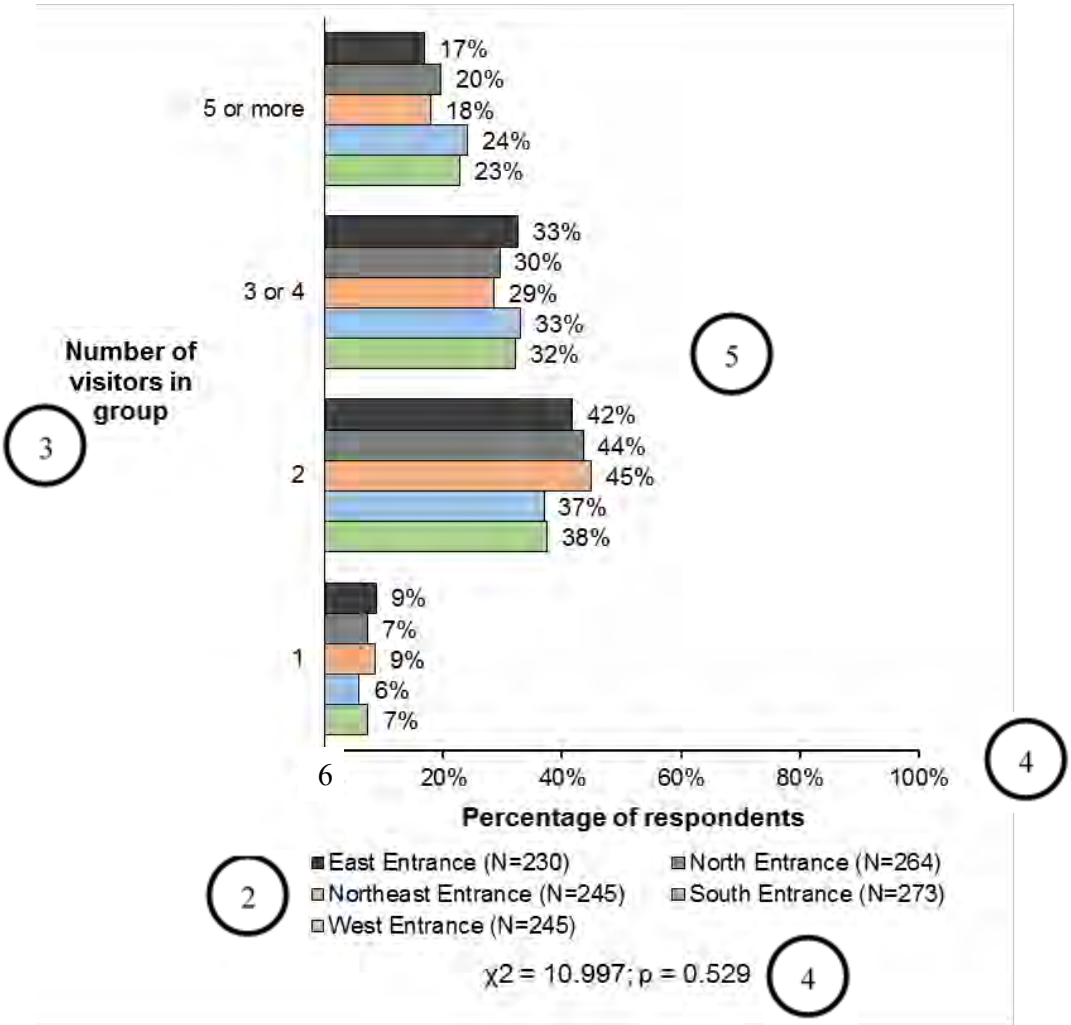


Figure 2. Example figure: by-entrance results

Methods

Survey Method

The Yellowstone NP Visitor Use Study (VUS) was administered at Yellowstone NP 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 Yellowstone NP during the study period. The target margin of error for summary statistics, by entrance gate, of no greater than +/- 5% (Fowler 1993) was used to establish the target sample size at 400 distributed questionnaires per entrance gate (2,000 questionnaires overall).

Sampling Effort

The Yellowstone VUS survey was administered at Yellowstone NP from August 4 through August 14, 2016. The survey administration dates were selected to target the peak summer use season at the park. The peak summer use season months were identified using the monthly visitation data for Yellowstone NP available from the NPS Public Use Statistics Office. Within the identified peak summer use season months (June-August), park-provided entrance data were explored for July and August to determine if daily arrivals to the park were commensurate across entrance locations and days of the week between the two months. Arrival volumes between July and August were comparable, and August was confirmed as the sample month to best accommodate sampling logistics. Within August, the survey administration dates were selected to include both weekdays and weekend days. It should be noted that during the study period, visitor volumes did not vary substantially between weekdays and weekend days.

Yellowstone NP contains the following five entrances that provide visitor access to the park: North entrance, Northeast entrance, East entrance, South entrance, and West entrance (Figure 3). The vast majority of park visitors must pass through one of these five entrances to access the park. Therefore, the park entrances were selected as the sample locations for this study because they provided the most efficient and systematic locations for contacting a random sample of park visitors, the target population for this visitor use study. At each entrance, the location of administration was selected through consideration of previous survey research sampling efforts at the park and in consultation with park staff.

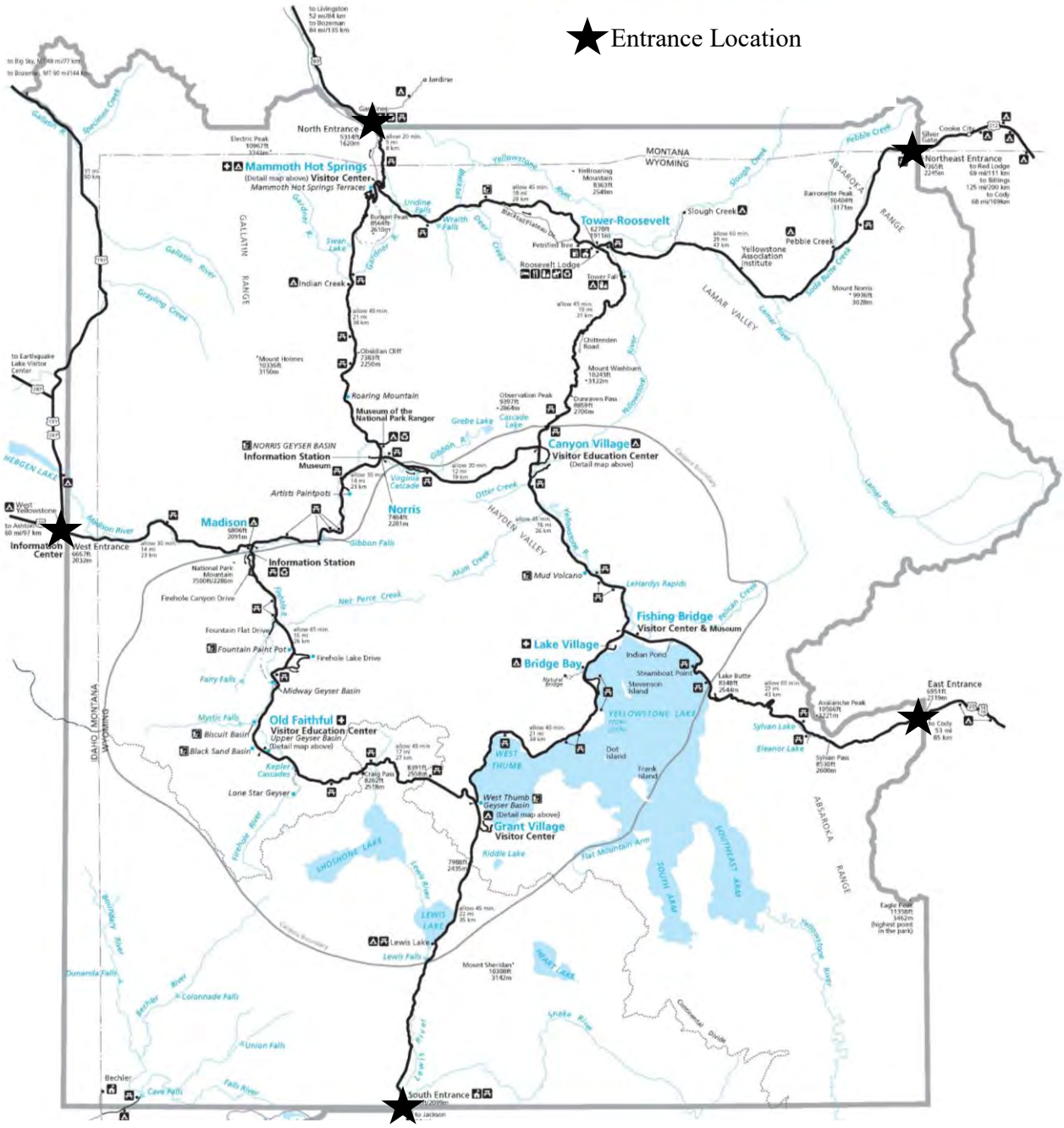


Figure 3. Yellowstone National Park Entrance Stations

At the park's request, the Yellowstone NP visitor survey was administered in two languages: English and Mandarin. The West entrance intercept was staffed with two survey administrators, an English-speaking administrator and a Mandarin-speaking administrator. This was done because the West entrance was anticipated to have the highest volume of Mandarin speaking visitors passing through that entrance location. Due to higher than anticipated volumes of Mandarin speaking visitors entering at other entrance locations, Mandarin surveys were distributed to all survey administrators at all

entrances on Sunday, August 7th for distribution to potential survey participants that preferred a Mandarin questionnaire over an English questionnaire.

The Yellowstone NP visitor survey was administered for a select 8-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. The hours of survey administration varied among sampling days to capture a broad range of user types at Yellowstone NP and generally coincided with entrance staff operating hours. The sampling effort is presented in Table 1 and Table 2.

Table 1. Sampling effort – North, Northeast, and East entrances

Date	North Entrance	Northeast Entrance	East Entrance
Thursday, August 4	7:00AM-3:30PM	8:00AM-4:30PM	10:00AM-6:30PM
Friday, August 5	10:00AM-6:30PM	9:00AM-5:30PM	7:00AM-3:30PM
Saturday, August 6	9:00AM-5:30PM	10:00AM-6:30PM	8:00AM-4:30PM
Sunday, August 7	8:00AM-4:30AM	7:00AM-3:30PM	10:00AM-6:30PM
Monday, August 8	10:00AM-6:30PM	9:00AM-5:30PM	7:00AM-3:30PM
Tuesday, August 9	7:00AM-3:30PM	8:00AM-4:30PM	9:00AM-5:30PM
Wednesday, August 10	8:00AM-4:30PM	10:00AM-6:30PM	9:00AM-5:30PM
Thursday, August 11	9:00AM-5:30PM	7:00AM-3:30PM	8:00AM-4:30PM
Friday, August 12	9:00AM-5:30PM	10:00AM-6:30PM	8:00AM-4:30PM
Saturday, August 13	10:00AM-6:30PM	8:00AM-4:30PM	7:00AM-3:30PM
Sunday, August 14	7:00AM-3:30AM	8:00AM-4:30PM	9:00AM-5:30PM

Table 2. Sampling effort – South and West entrances

Date	South Entrance	West Entrance
Thursday, August 4	10:00AM-6:30PM	9:00AM-5:30PM
Friday, August 5	8:00AM-4:30PM	7:00AM-3:30PM
Saturday, August 6	7:00AM-3:30PM	8:00AM-4:30PM
Sunday, August 7	9:00AM-5:30PM	10:00AM-6:30PM
Monday, August 8	8:00AM-4:30PM	7:00AM-3:30PM
Tuesday, August 9	10:00AM-6:30PM	9:00AM-5:30PM
Wednesday, August 10	9:00AM-5:30PM	10:00AM-6:30PM
Thursday, August 11	7:00AM-3:30PM	8:00AM-4:30PM
Friday, August 12	7:00AM-3:30PM	8:00AM-4:30PM
Saturday, August 13	8:00AM-4:30PM	7:00AM-3:30PM
Sunday, August 14	10:00AM-6:30PM	9:00AM-5:30PM

Questionnaire Design

The Yellowstone NP VUS questionnaire was developed through a collaborative process including Yellowstone NP staff, NPS SSP staff, and RSG staff. The instrument was designed to gather information about visitor and trip characteristics, trip planning efforts, motivations for visiting, visitor perceptions of park experiences, visitor attitudes about access and transportation, and visitor

satisfaction with park services and facilities. All of the 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 two languages, English and Mandarin, at the request of Yellowstone NP staff (Appendix 1).

Sampling Procedures

Mail-back survey packets were administered to visitor groups just after they had entered Yellowstone NP using onsite vehicle intercept methods. 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. For additional information on the method and location of visitor selection at each sample location, see Appendix 4.

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 in order 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 3 and Table 4 summarize the survey effort by sampling location and language of questionnaire.

Table 3. Number of English questionnaires distributed, by sampling location

	Sample date											Total questionnaires distributed	
Sampling site	**8/4**	**8/5**	**8/6**	**8/7**	**8/8**	**8/9**	**8/10**	**8/11**	**8/12**	**8/13**	**8/14**	**N**	**%**
North Entrance	41	40	40	40	39	38	33	32	32	24	33	392	19%
Northeast Entrance	40	39	38	33	39	39	31	32	32	37	37	397	20%
East Entrance	35	41	39	40	41	38	30	32	30	40	30	396	20%
South Entrance	39	42	39	31	43	40	33	34	32	39	31	403	20%
West Entrance	38	37	37	31	38	39	24	29	29	44	35	381	19%
All sites	**193**	**199**	**193**	**175**	**200**	**194**	**151**	**159**	**155**	**184**	**166**	**1969**	**97%**

Table 4. Number of Mandarin questionnaires distributed, by sampling location

	Sample date*											Total questionnaires distributed	
Sampling site	**8/4**	**8/5**	**8/6**	**8/7**	**8/8**	**8/9**	**8/10**	**8/11**	**8/12**	**8/13**	**8/14**	**N**	**%**
North Entrance	N/A	N/A	N/A	0	1	0	0	1	0	0	0	2	<1%
Northeast Entrance	N/A	N/A	N/A	0	1	1	1	0	0	1	2	6	<1%
East Entrance	N/A	N/A	N/A	0	0	3	2	0	2	0	0	7	<1%
South Entrance	N/A	2	2	4	0	0	3	2	0	2	1	16	1%
West Entrance	2	2	3	4	2	1	2	3	3	4	4	30	1%
All sites	**2**	**4**	**5**	**8**	**4**	**5**	**8**	**6**	**5**	**7**	**7**	**61**	**3%**

* Sample dates with N/A indicate that Mandarin questionnaires were not available at the sample location on the date.

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 5). Approximately two weeks after mailing the postcards, a replacement mail-back survey packet was sent to each individual 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. All follow-up mailing materials were provided to participants in the language (English or Mandarin) of the originally distributed survey questionnaire.

Table 5. Follow-up mailing distribution

Mailing	Date	U.S.	International	Total
Postcards	August 31, 2016	1753	275	2028
Replacement Mailing	September 19, 2016	1275	175	1450

Sampling Results[1]

During the sampling period, 2,265 visitor groups were contacted to participate in the survey. Of these groups, 2,030 agreed to participate in the study by accepting a mail-back survey packet (90% cooperation rate) (Table 3 and Table 4). Questionnaires were completed and returned by 1,257 visitor groups (Table 6), resulting in a completion rate of 62% among those visitor groups that agreed to participate in the study and an overall response rate of 55% for the study.

Table 6. Number of completed questionnaires, by sampling location

Sampling site	N	Percent
North Entrance	264	21%
Northeast Entrance	245	19%
East Entrance	230	18%
South Entrance	273	22%
West Entrance	245	19%
Total	**1257**	**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.

[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 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.

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, was conducted with all contacted visitor groups regardless of whether or not 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 language would you prefer to use in the park? English, Mandarin, Spanish, German, or another language?
4. How long is this trip to Yellowstone NP in total, from beginning to end?
5. What is the ZIP code of your home mailing address (U.S. visitors) or what is your country of residence (international visitors)?

In addition to the five, pre-selected non-response bias questions, the vehicle type (automobile, RV, motorcycle, bicycle, tour bus, or other vehicle type) and the gender of the person in the group who was first contacted by the survey administrator were 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 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 in order to adequately characterize the populations on a given non-response variable.[2] There were at least 70% or more valid values among respondents and non-respondents for each of the seven non-response bias variables. Correspondingly, all seven variables were used for non-response bias analysis.

Table 7. Number and percentage of respondents and non-respondents with valid values for non-response variables

	Respondents (N = 1257)		Non-Respondents (N = 1008)	
Variable	Valid N	Valid Percent	Valid N	Valid Percent
Initial contact gender	1256	100%	881	87%
Vehicle type	1256	100%	967	96%
Number of adults	1257	100%	849	84%
Number of children	1257	100%	849	84%
Preferred language	1257	100%	841	83%
Visit length	1256	100%	826	82%
State or country of residence	1251	100%	826	82%

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 seven 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.

For those questions where the originally collected data were continuous (i.e., numeric) rather than categorical (i.e., response option provided) the continuous data were divided into categories for use

[2]The 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).

in the chi-square analyses. Values for the number of adult group members were collapsed into the following four categories: groups with 1 adult, groups with 2 adults, groups with 3 or 4 adults, and groups with 5 or more adults. Values for the number of children in the visitor group were collapsed into three categories: groups with no children, groups with 1 child, groups with 2 or more children. Values for visit length were collapsed into the following four categories: 1 to 14 hours, 24 hours, 48 hours, 72 to 96 hours, 120 to 168 hours, greater than 168 hours. 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 seven 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 0.007 are assumed to be statistically significant.

The results of the chi-square tests in Table 8 through Table 11 suggest that respondents and non-respondents do not differ significantly with respect to initial contact gender ($p = 0.590$), number of children in the group ($p = 0.141$), visit length ($p = 0.347$), or state or country of residence ($p = 0.907$). These results provide no compelling evidence of non-response bias related to the initial contact gender, the number of children in visitor groups, the visit length, or the state or country of residence within the survey sample.

Table 8. Initial contact gender comparison between respondents and non-respondents

	Respondents (n=1256)		Non-Respondents (n=881)	
Response	**N**	**Percent**	**N**	**Percent**
Male	933	74%	646	73%
Female	323	26%	236	27%
p-value (chi-square) [1]	0.590			

[1] $\alpha = 0.05$, $p \leq 0.007$ 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

	Respondents (n=1257)		Non-Respondents (n=849)	
Response	**N**	**Percent**	**N**	**Percent**
No children	748	60%	495	58%
1 child	191	15%	111	13%
2 or more children	317	25%	243	29%
p-value (chi-square) [1]	0.141			

[1] $\alpha = 0.05$, $p \leq 0.007$ indicates significant result following Bonferroni correction to account for multiple non-response bias statistical tests.

Table 10. Visit length comparison between respondents and non-respondents

	Respondents (n=1256)		Non-Respondents (n=826)	
Response	**N**	**Percent**	**N**	**Percent**
1 to 14 hours	219	17%	174	21%
24 hours	139	11%	98	12%
48 hours	306	24%	189	23%
72 to 96 hours	345	27%	213	26%
120 to 168 hours	207	16%	127	15%
Greater than 168 hours	40	3%	25	3%
p-value (chi-square) [1]	0.397			

[1] $\alpha = 0.05$, $p \leq 0.007$ 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

	Respondents (n=1251)		Non-Respondents (n=826)	
Response	**N**	**Percent**	**N**	**Percent**
In state visitor	124	10%	86	10%
Out of state visitor	920	74%	608	74%
International visitor	206	17%	132	16%
p-value (chi-square) [1]	0.907			

[1] $\alpha = 0.05$, $p \leq 0.007$ indicates significant result following Bonferroni correction to account for multiple non-response bias statistical tests.

The results of the chi-square tests in Table 12 through Table 14 suggest respondents and non-respondents differed significantly, with respect to vehicle type ($p < 0.001$), number of adults group members ($p < 0.001$), and preferred language ($p = 0.001$); thus, there is evidence of potential non-response bias related to vehicle type, number of adult group members, and preferred language within the survey's sample. Specifically, groups on tour buses and groups using recreational vehicles were more likely to respond to the survey than groups entering the park in other types of vehicles, groups with one, two, or five or more adults were more likely to respond to the survey than groups with three or four adults, and groups that preferred to use English in the park were more likely to respond to the survey than groups that preferred to use other languages in the park.

The potential impact of non-response bias, with respect to vehicle type, number of adults group members, and preferred language, on the results of the survey was further explored (Appendix 5). In particular, statistical tests of vehicle type, number of adult group members, and preferred language effects on key questions in the survey instrument were performed. Statistically significant effects of vehicle type on survey responses were observed for 41 of the 61 questions that were assessed ($\alpha = 0.05$, $p \leq 0.0008$ indicates significant result following Bonferroni adjustment). Statistically significant effects of number of adult group members on survey responses were observed for 30 of the 61 questions that were assessed ($\alpha = 0.05$, $p \leq 0.0008$ indicates significant result following Bonferroni adjustment). Statistically significant effects of visitors' preferred language on survey

responses were observed for 42 of the 61 questions that were assessed ($\alpha = 0.05$, $p \leq 0.0008$ indicates significant result following Bonferroni adjustment).

Table 12. Vehicle type comparison between respondents and non-respondents

	Respondents (n=1256)		Non-Respondents (n=967)	
Response	**N**	**Percent**	**N**	**Percent**
Automobile	984	78%	809	84%
Bicycle	1	<1%	3	<1%
Motorcycle	26	2%	44	5%
Recreational vehicle (RV)	78	6%	40	4%
Tour bus	165	13%	68	7%
Another type of vehicle	2	<1%	2	<1%
p-value (chi-square) [1]		< 0.001		

[1] $\alpha = 0.05$, $p \leq 0.007$ indicates significant result following Bonferroni correction to account for multiple non-response bias statistical tests.

Table 13. Number of adult group members comparison between respondents and non-respondents

	Respondents (n=1257)		Non-Respondents (n=849)	
Response	**N**	**Percent**	**N**	**Percent**
1 adult	140	11%	73	9%
2 adults	740	59%	466	55%
3 or 4 adults	245	19%	232	27%
5 or more adults	132	11%	77	9%
p-value (chi-square) [1]		< 0.001		

[1] $\alpha = 0.05$, $p \leq 0.007$ indicates significant result following Bonferroni correction to account for multiple non-response bias statistical tests.

Table 14. Preferred language comparison between respondents and non-respondents

	Respondents (n=1257)		Non-Respondents (n=841)	
Response	**N**	**Percent**	**N**	**Percent**
English	1124	89%	711	85%
Mandarin	71	6%	83	10%
Spanish	16	1%	6	1%
German	9	1%	5	1%
Another language	37	3%	36	4%
p-value (chi-square) [1]		0.001		

[1] $\alpha = 0.05$, $p \leq 0.007$ 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 using tour buses and recreational vehicles, groups with

one, two, or five or more adults, and groups preferring to use English while in the park. 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, the survey data were weighted using vehicle volume data collected at each entrance by Yellowstone NP entrance station staff. A record for each vehicle entering the park during entrance station hours of operation is recorded in a database by entrance staff. It should be noted, these data are collected by park staff as part of routine operations and were provided to RSG for use in weighting the survey data by probability of selection. The results presented for park-wide analysis were generated using weighted survey response data. The park-wide survey data were weighted to account for differences in the probability of selection between entrances due to differences in the volumes of visitors entering among the entrances. The results presented for the by-entrance analysis were generated using unweighted survey response data, as differences in selection probability among the entrances were not applicable to this analysis.

Data Analysis

Data were analyzed for Yellowstone NP as a whole (park-wide analysis) and for each of Yellowstone NP's five entrances (by-entrance 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.*

For each question, the by-entrance analysis was performed using chi-square tests of independence to test for statistically significant differences in the distribution of responses across the range of response categories for each of Yellowstone NP's five entrances. 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 reports 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. Any test that results in a p-value equal to or less than 0.05 is considered statistically significant. A p-value of 0.05 or less indicates that there is a 95% or greater chance the differences in the distribution of response options among entrances are not due to chance alone.

For those variables with continuous data for which measures of central tendency were computed in the park-wide analysis, an analysis of variance test (ANOVA) was used to determine whether statistically significant differences exist in the mean response values by entrance. Each ANOVA test is accompanied by three components: the mean values for each variable by entrance, the test statistic, and the p-value. The ANOVA value (F) presents the test statistic used to determine the p-value. The p-value (p) presents the likelihood that differences in mean values among entrance gates are due to chance alone. Any test that results in a p-value equal to or less than 0.05 is considered statistically significant. A p-value of 0.05 or less indicates that there is a 95% or greater chance the differences in the mean values among entrances are not due to chance alone. For ANOVA tests with p-values equal to or less than 0.05, superscripts are used to report the results of a Tukey's HSD post hoc test, denoting which entrances have statistically significant differences in mean response values.

As noted, results of statistical tests are presented throughout the report for each variable for the by entrance analysis. Two important concepts for interpreting the results of statistical tests presented in the report are statistical significance and practical significance:

- **Statistical significance** refers to the probability that the relationship among two or more variables is due to chance alone. The smaller the likelihood an observed relationship is due to chance the more confident one can be that there is a systematic relationship among the variables tested. A numerical estimate called a "p-value" is presented for each statistical test in this report and is the probability the observed relationship between the tested variables is due to chance alone. Statistical tests with p-values less than or equal to 0.05 are interpreted in this study as being statistically significant, meaning there is a systematic relationship among the variables tested.
- **Practical significance** refers to the judgement one makes about whether or not the relationship among two or more variables is substantive or practically meaningful, whether or not it is statistically significant. Statistical significance is directly related to sample size; correspondingly, for statistical tests with relatively low sample sizes, there may be practically significant but not statistically significant relationships among the variables tested. Similarly, in cases of statistical tests with particularly large sample sizes, there may be statistically but not practically significant or substantive relationships among the variables tested.

It is important for readers of this report to distinguish in their interpretations of the study results between statistical and practical significance to avoid overlooking potentially substantive relationships in cases of tests without statistical significance and/or making the assumption that all statistically significant relationships are practically significant or substantive.

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 August 4 through August 14, 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 question 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 using tour buses and recreational vehicles, groups with one, two, or five or more adults, and groups preferring to use English while in the park. 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 overcast skies, rain, and wind. High temperatures were consistently in the mid-60s to mid-70s. Brief periods of sampling on August 6 and August 7, 2016, were missed due to heavy rain, strong winds, and/or the presence of thunder and lightning.

Brief periods of sampling were also missed at the West entrance sample location due to wildlife-related road closures and traffic jams. At times, Yellowstone NP rangers directed study administrators at the West entrance intercept location to suspend sampling activities until vehicles could be cleared from the congested roadway area.

A fire located outside the park to the east produced heavy smoke and overcast conditions near the East entrance sampling location August 4 through August 7, 2016. These conditions may have had some unknown effects on visitor use volumes or patterns at the East entrance during these dates.

Number of adults within group

Question 1

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

Number of adults (18 years and older).

Results (Figure 4, Table 15, Figure 5, Table 16)

- 55% of visitor groups contained two adults.
- 21% of visitor groups contained three or four adults.

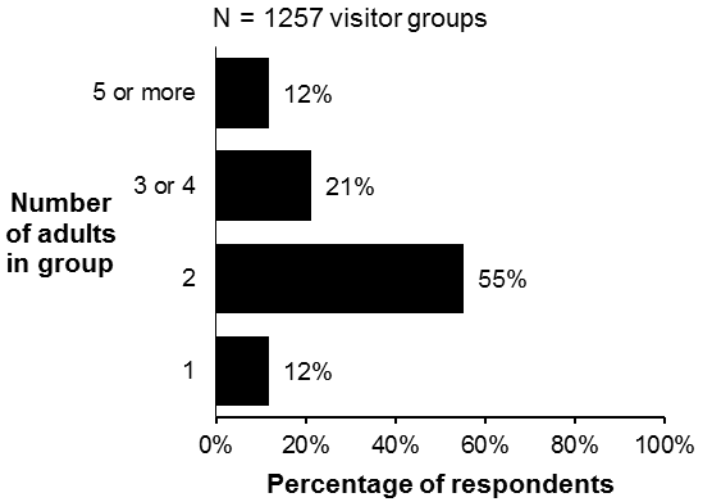


Figure 4. Number of adults within group

Table 15. Descriptive statistics: Number of adults in group

	Mean	Median	Std. Deviation
Number of adults in group	3.48	2.00	4.90

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The distribution of the number of adults within each group did not significantly differ by entrance ($X^2 = 10.805$; $p = 0.546$).
- The mean number of adults within each group did not significantly differ by entrance ($F = 0.280$; $p = 0.891$).

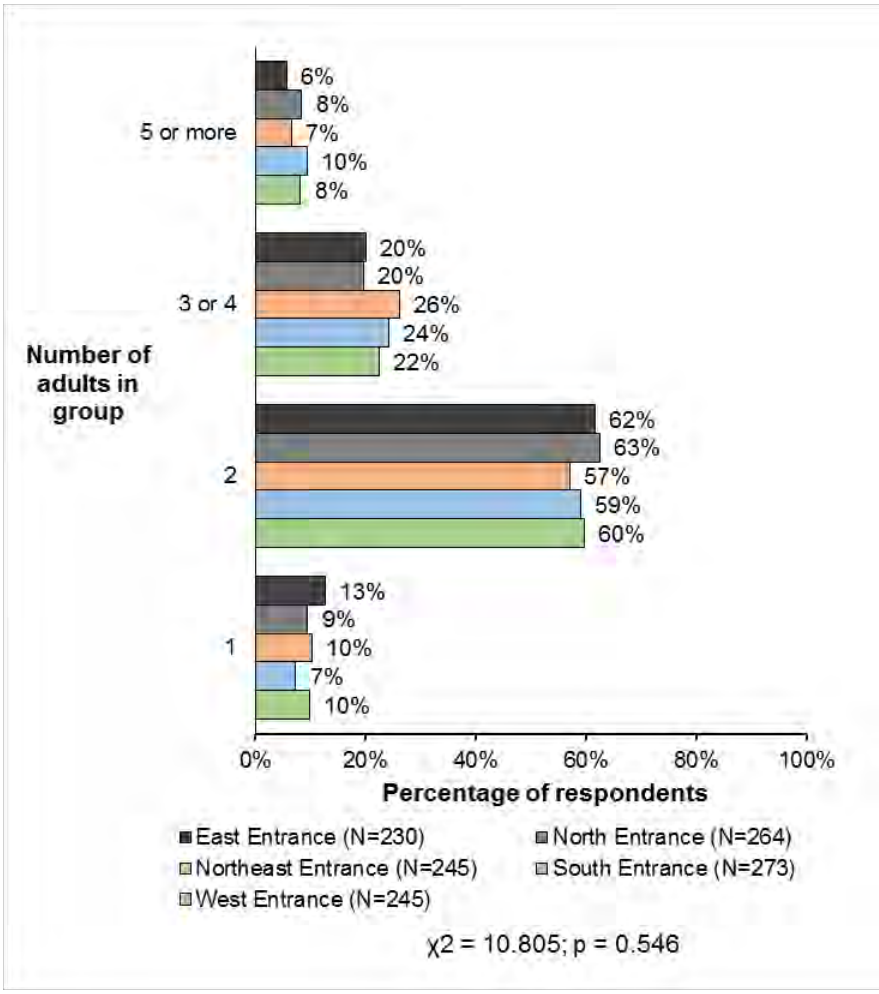


Figure 5. Number of adults within group, by entrance

Table 16. ANOVA: Mean number of adults within group, by entrance

Entrance	Mean (SD)	Median
East Entrance	2.69 (3.21)	2.00
North Entrance	2.54 (1.36)	2.00
Northeast Entrance	2.62 (1.44)	2.00
South Entrance	2.67 (1.42)	2.00
West Entrance	2.68 (1.80)	2.00
$F = 0.280$, $p = 0.891$		

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Results

Group and Visitor Characteristics

Visitor group size

Question 1

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

Results (Figure 6, Table 17, Figure 7, Table 18)

- 35% of visitor groups consisted of two members.
- 56% of visitor groups consisted of three or more members.

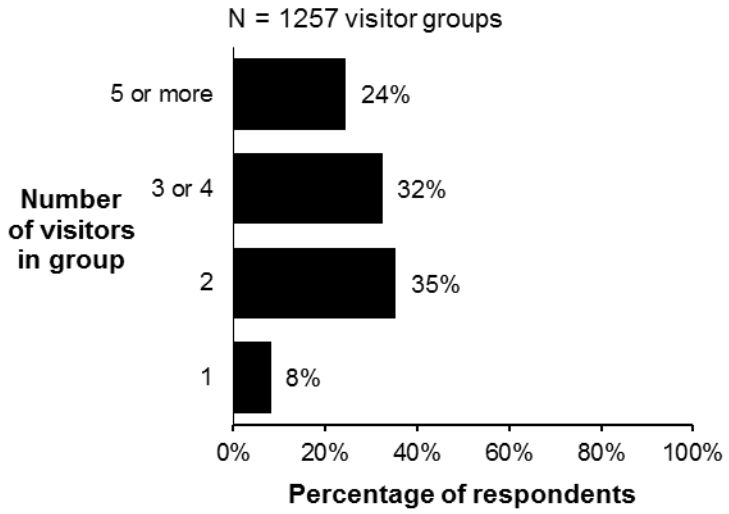


Figure 6. Visitor group size

Table 17. Descriptive statistics: Number of visitors in group

	Mean	Median	Std. Deviation
Number of visitors in group	4.52	3.00	5.76

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The distribution of the total number of people within each group did not significantly differ by entrance ($X^2 = 10.997$; $p = 0.529$).
- The mean group size did not differ significantly by entrance ($F = 1.264$; $p = 0.282$).

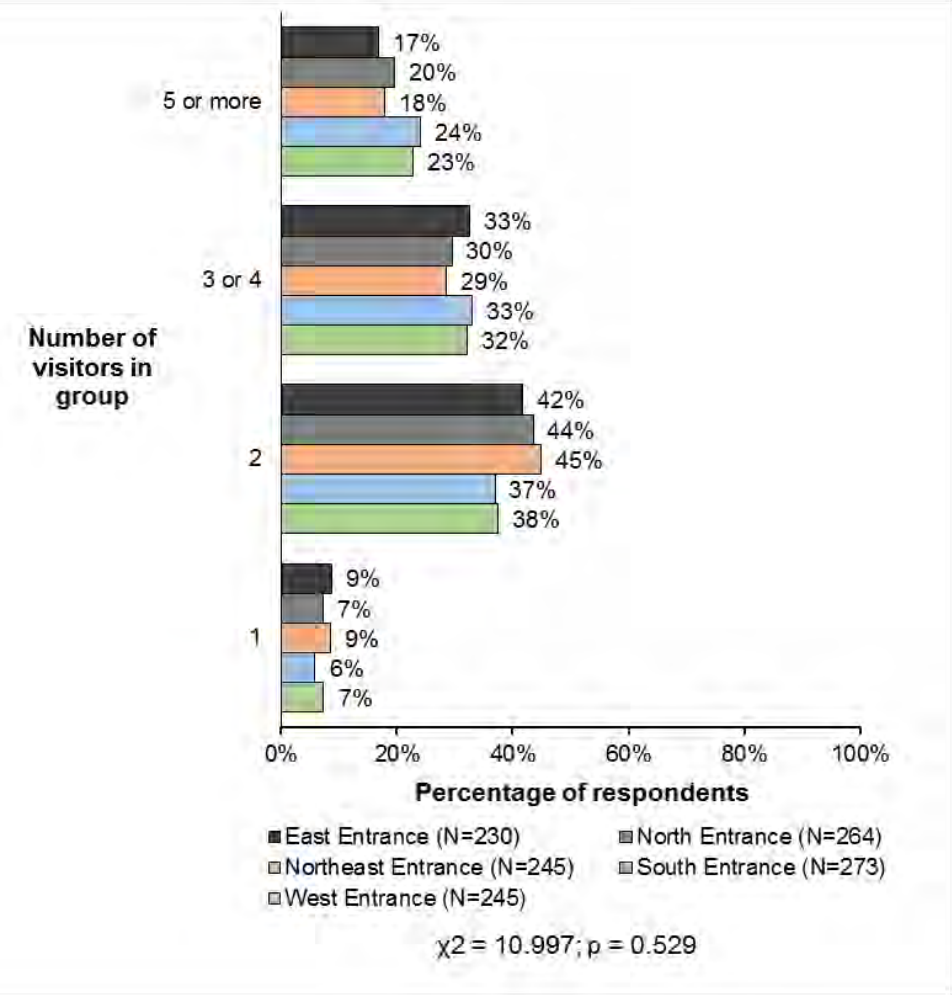


Figure 7. Visitor group size, by entrance

Table 18. ANOVA: Mean visitor group size, by entrance

Entrance	Mean (SD)	Median
East Entrance	3.47 (3.83)	2.00
North Entrance	3.36 (2.37)	2.00
Northeast Entrance	3.20 (1.96)	2.00
South Entrance	3.49 (2.06)	3.00
West Entrance	3.73 (3.05)	3.00
$F = 1.264$, $p = 0.282$		

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*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 1

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

Number of children (under 18 years).

Results (Figure 8, Table 19, Figure 9, Table 20)

- The majority of visitor groups (60%) did not contain children.
- Of those visitor groups that contained children (n = 509), 73% of visitor groups contained two or more children.

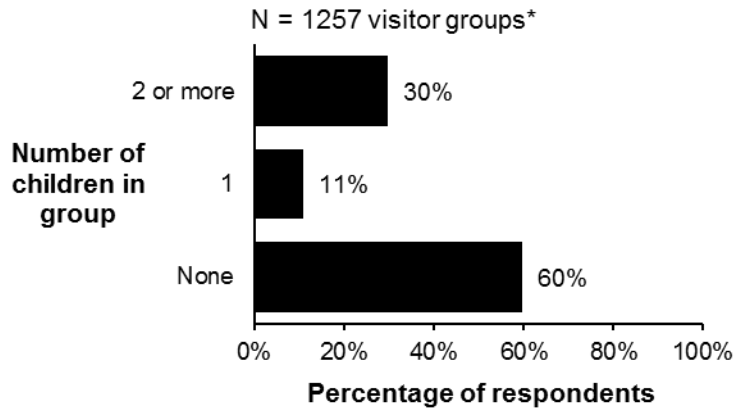


Figure 8. Number of children in group

Table 19. Descriptive statistics: Number of children in group (for groups with children)

	Mean	Median	Std. Deviation
Number of children in group	2.58	2.00	1.65

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The distribution of the number of children within each group did not significantly differ by entrance ($X^2 = 10.330$; $p = 0.243$).
- For groups with children, the mean number of children within each group varied by entrance location ($F = 3.722$; $p = 0.006$), with visitor groups entering at the North and West entrances having, on average, a higher mean number of children. It should be noted, the median number of children across entrance locations remained constant, $M = 2$.

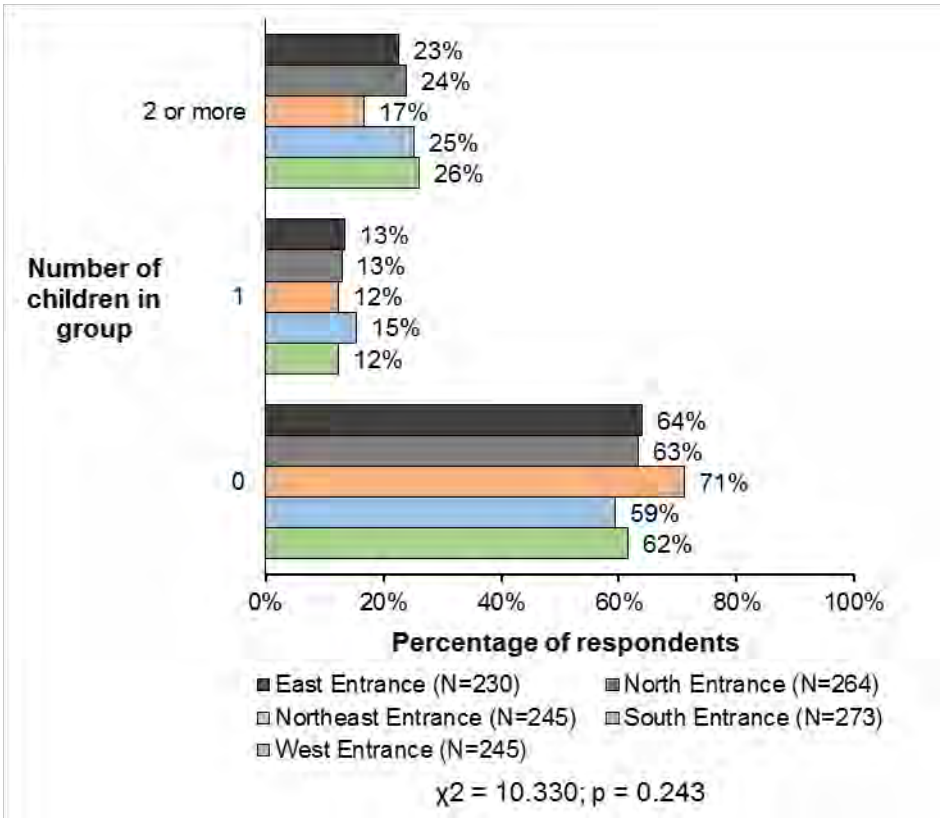


Figure 9. Number of children in group, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*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. ANOVA: Mean number of children in group (for groups with children), by entrance

Entrance	Mean (SD)	Median
East Entrance	2.16 (1.54)[ac]	2.00
North Entrance	2.25 (1.58)[ab]	2.00
Northeast Entrance	2.10 (1.06)[a]	2.00
South Entrance	2.01 (1.12)[a]	2.00
West Entrance	2.74 (2.05)[b]	2.00
$F = 3.722$, $p = 0.006$		

Note: means for number of children in group that have no superscript in common are significantly different from each other at α = 0.05.

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Traveled with a pet

Question 2

On this trip, did you and your personal group travel with a pet in Yellowstone NP?

Results (Figure 10, Table 21, Figure 11, Table 22)

- 7% of visitor groups traveled with a pet in Yellowstone NP.
- Of those visitor groups that traveled with a pet (N = 83), 84% reported traveling with one or more dogs.

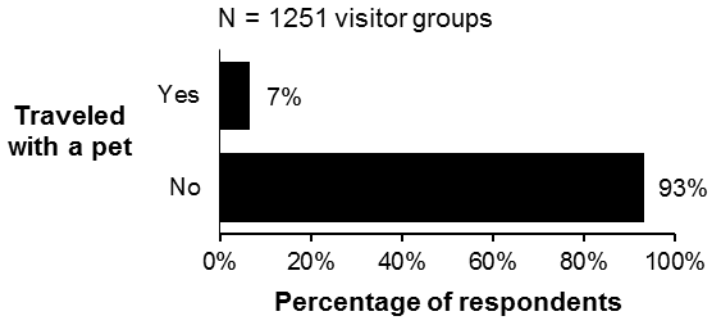


Figure 10. Visitor groups traveling with a pet in Yellowstone NP

Table 21. Types of pets traveled with by visitor groups

N = 83 visitor groups traveled with a pet(s) Some visitor groups traveled with more than one pet type.	
Pet type	**Percent of valid responses**
Dog	84%
Cat	7%
Bird	1%

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The distribution of the number of groups that traveled with a pet did not significantly differ by entrance ($X^2 = 3.656$; $p = 0.455$).
- Across all entrance locations, the vast majority (91% or greater) of visitor groups did not travel with a pet.

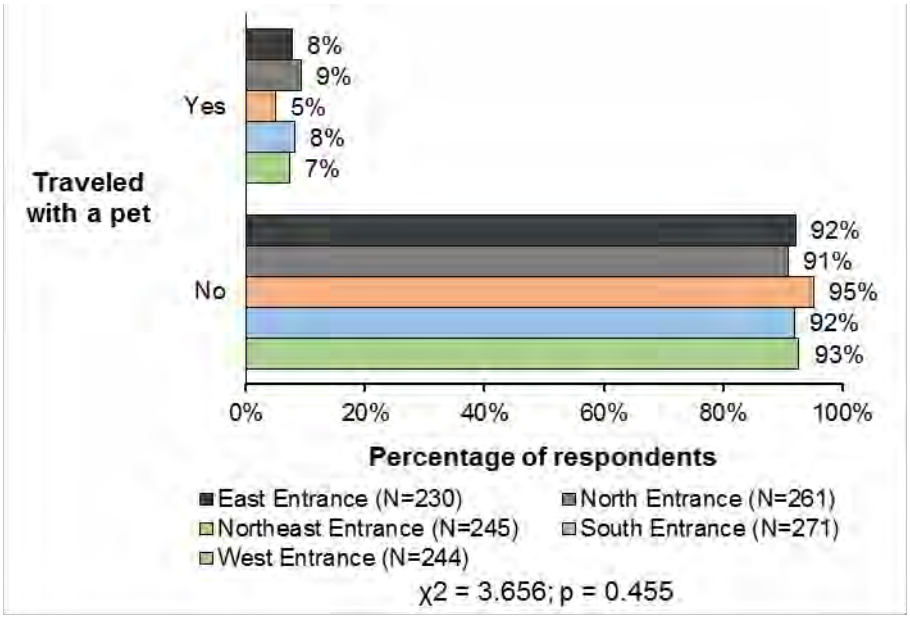


Figure 11. Visitor groups traveling with a pet in Yellowstone NP, by entrance

Table 22. Types of pets traveled with by visitor groups traveling with a pet, by entrance

	Percent of valid responses				
CAUTION!	**East**	**North**	**Northeast**	**South**	**West**
Pet type	*n = 17**	*n = 21**	*n = 12**	*n = 21**	*n = 17**
Dog	94%	86%	100%	81%	94%
Cat	6%	14%	0%	14%	6%
Bird	0%	0%	0%	5%	0%

*Some visitor groups traveled with more than one pet type.

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*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 28

For your personal group during your visit to Yellowstone NP 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 12, Table 23, Table 24, Table 25)

- Visitor ages ranged from less than 1-year old to 90 years old.
- Approximately 15% of visitors were 65 years old or older.
- 16% of visitors were 55 to 64 years old.
- 31% of visitors were 35 to 54 years old.
- 12% of visitors were 20 to 34 years old.
- 26% of visitors were under 20 years old.

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

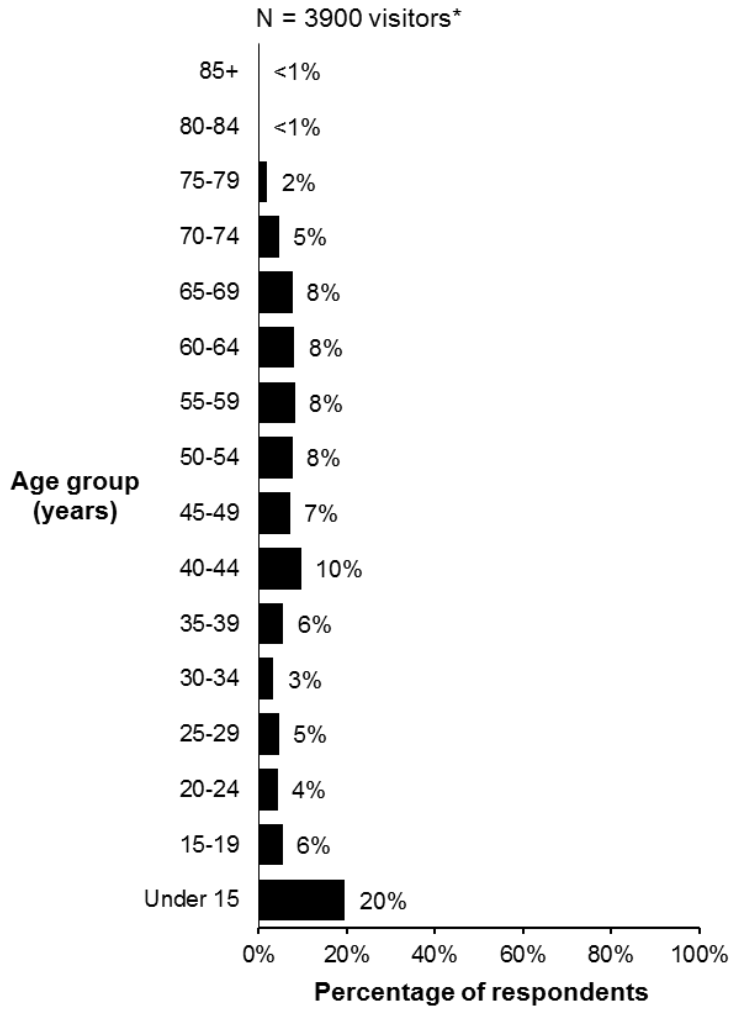


Figure 12. Visitor age

Table 23. Descriptive statistics: Visitor age

	Mean	Median	Std. Deviation
Visitor age	40.38	43.00	21.68

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The distribution of visitor ages did not significantly differ by entrance ($X^2 = 77.288$; $p = 0.066$).
- The mean visitor age significantly differed by entrance ($F = 5.277$; $p < 0.001$).

Table 24. Visitor age, by entrance

	Percentage of visitors						
	East	**North**	**Northeast**	**South**	**West**		
Age Category	*n = 679*	*n = 812*	*n = 732*	*n = 895*	*n = 774*	**Chi-square**	**p-value**
Under 15	18%	18%	14%	18%	20%		
15-19	5%	7%	5%	6%	5%		
20-24	6%	5%	5%	5%	3%		
25-29	4%	5%	4%	5%	5%		
30-34	3%	3%	4%	5%	5%		
35-39	6%	6%	4%	5%	7%		
40-44	9%	9%	7%	10%	7%		
45-49	7%	7%	8%	8%	8%		
50-54	8%	8%	8%	7%	8%	χ2 = 77.288	p = 0.066
55-59	9%	7%	11%	8%	8%		
60-64	10%	8%	11%	9%	8%		
65-69	8%	7%	11%	8%	7%		
70-74	5%	6%	5%	3%	5%		
75-79	2%	2%	2%	2%	2%		
80-84	0%	1%	1%	1%	1%		
85+	0%	0%	1%	0%	0%		

Table 25. ANOVA: Mean visitor age, by entrance

Entrance	Mean (SD)	Median
East Entrance	41.10 (21.69)[a]	44.00
North Entrance	40.64 (22.05)[a]	42.00
Northeast Entrance	44.56 (21.07)[b]	49.00
South Entrance	40.25 (21.28)[a]	43.00
West Entrance	40.33 (21.92)[a]	42.00

$F = 5.277$, $p < 0.001$

Note: means for visitor age that have no superscript in common are significantly different from each other at α = 0.05.

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*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 by generational category

Question 28

For your personal group during your visit to Yellowstone NP 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.

At the request of Yellowstone NP staff, visitor age data were binned according to the following generational age categories of interest to the park:

- Silent Generation: Visitors aged 71 years and older
- Baby Boomers: Visitors ages 52 years to 70 years
- Generation X: Visitors ages 36 years to 51 years
- Millennials: Visitors ages 19 years to 35 years
- Youth: Visitors 18 years of age and younger

Results (Figure 13, Figure 14)

- Of the generational age categories, visitors in the Baby Boomer category comprised the highest percentage of visitors with 32% of visitors to the park being ages 52 years to 70 years.
- Of the generational age categories, visitors in the Silent Generation category comprised the lowest percentage of visitors with 6% of visitors to the park being age 71 years or older.

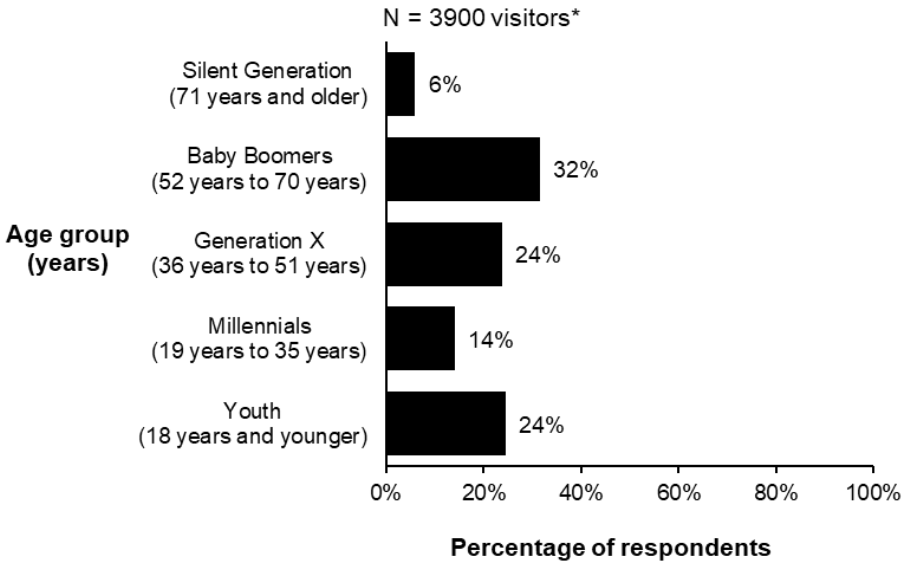


Figure 13. Visitor age by generational category

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The distribution of visitor ages by generational category differed significantly by entrance (X^2 = 33.887; p = 0.006).
- Baby Boomers entered in the greatest percentages at the Northeast Entrance (39%) and the East Entrance (33%).
- Youth, visitors ages 18 and younger, were least likely to enter at the Northeast Entrance (18%).

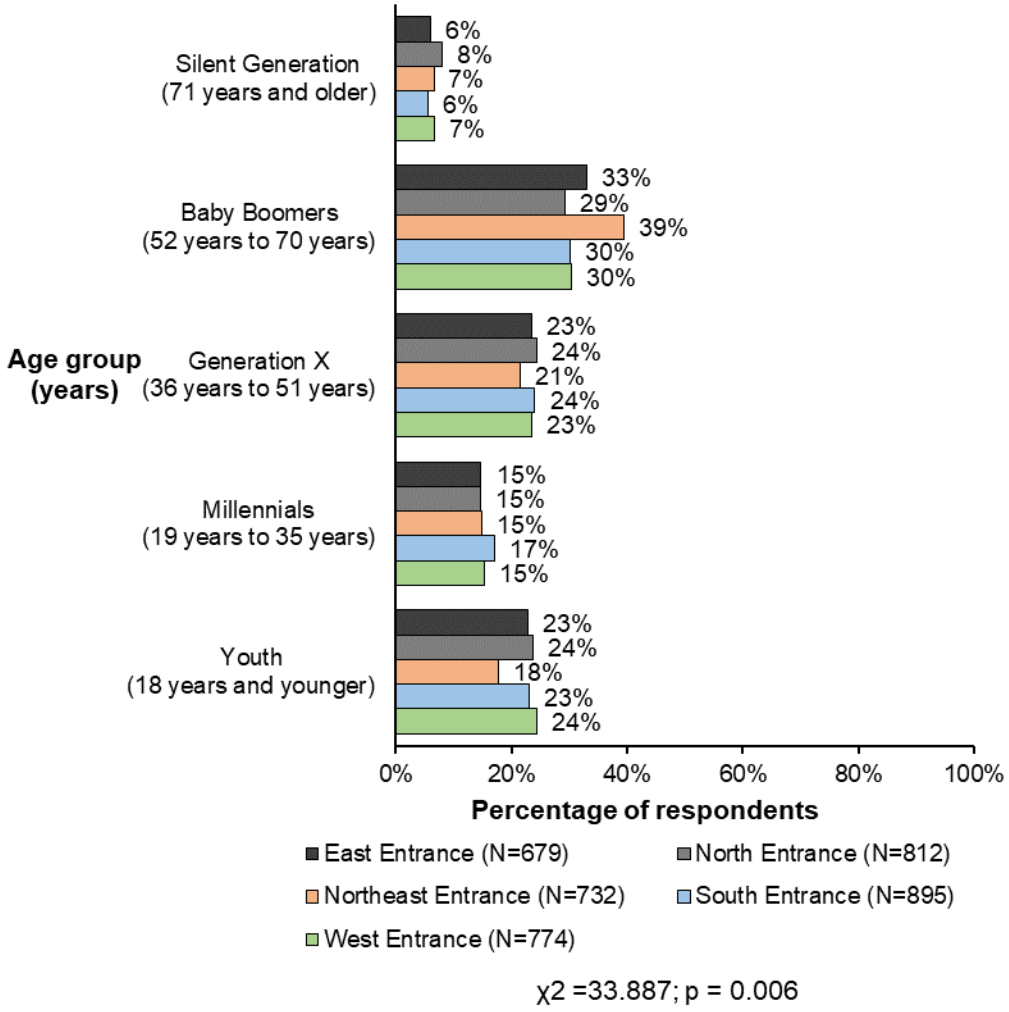


Figure 14. Visitor age by generational category, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Visitor gender

Question 29

For your personal group during your visit to Yellowstone NP on the day you were contacted for this survey, please provide your gender.

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

Results (Figure 15, Figure 16)

- 50% of visitors were female.
- 50% of visitors were male.

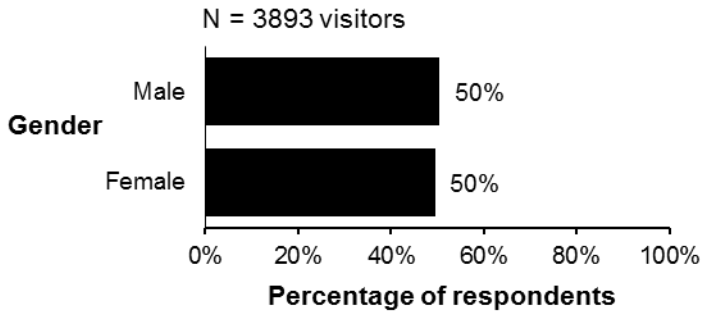


Figure 15. Visitor gender

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The distribution of visitor genders did not significantly differ by entrance ($X^2 = 10.588$; $p = 0.032$).

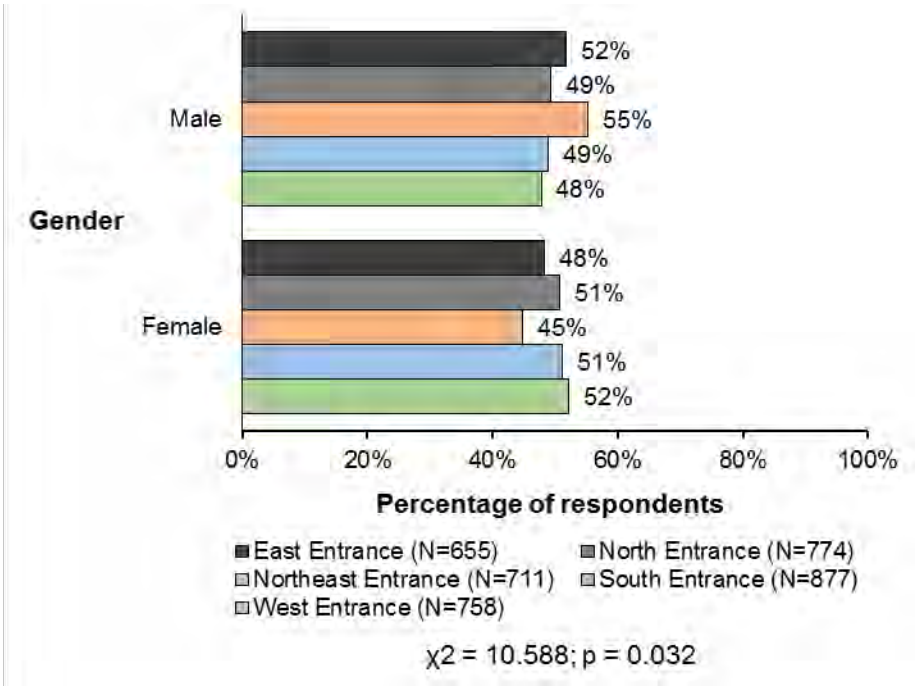


Figure 16. Visitor gender, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Visitor ethnicity

Question 29

For your personal group during your visit to Yellowstone NP on the day you were contacted for this survey, please provide your ethnicity.

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

Results (Figure 17, Figure 18)

- 7% of visitors were Hispanic or Latino.

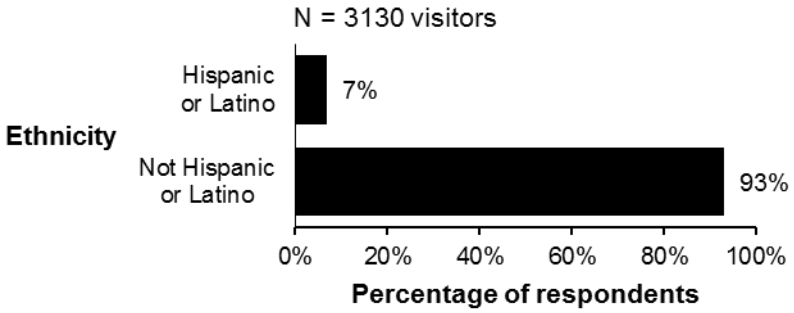


Figure 17. Visitor ethnicity

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The distribution of visitor ethnicities significantly differed by entrance ($X^2 = 47.383$; $p < 0.001$).
- Visitors entering at the East (8%), West (8%), and South (7%) entrances were more likely to report being Hispanic or Latino than visitors entering at the Northeast (4%) or North (3%) entrances.
- It should be noted that despite these statistical differences, the vast majority of entering visitors across all entrances were not Hispanic or Latino and therefore, this observed statistical difference may not have substantive meaning.

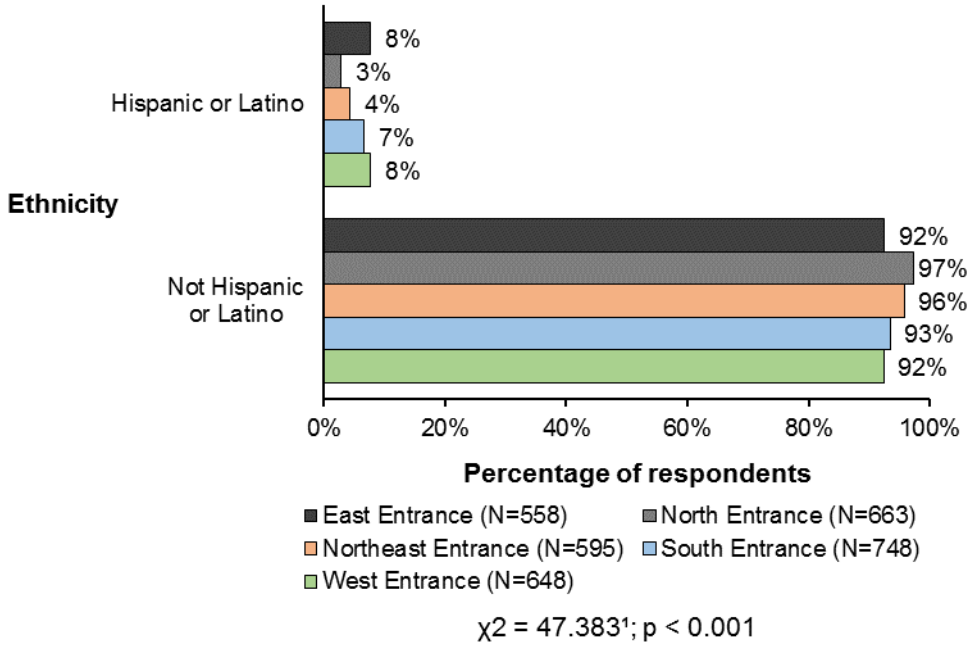


Figure 18. Visitor ethnicity, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Visitor race

Question 30

For your personal group during your visit to Yellowstone NP on the day you were contacted for this survey, please provide your race.

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

Results (Figure 19, Table 26)

- 82% of visitors were white.
- 15% of visitors were Asian.
- Very few visitors were American Indian or Alaska Native (2%), black or African American (1%), or native Hawaiian or other Pacific Islander (<1%).

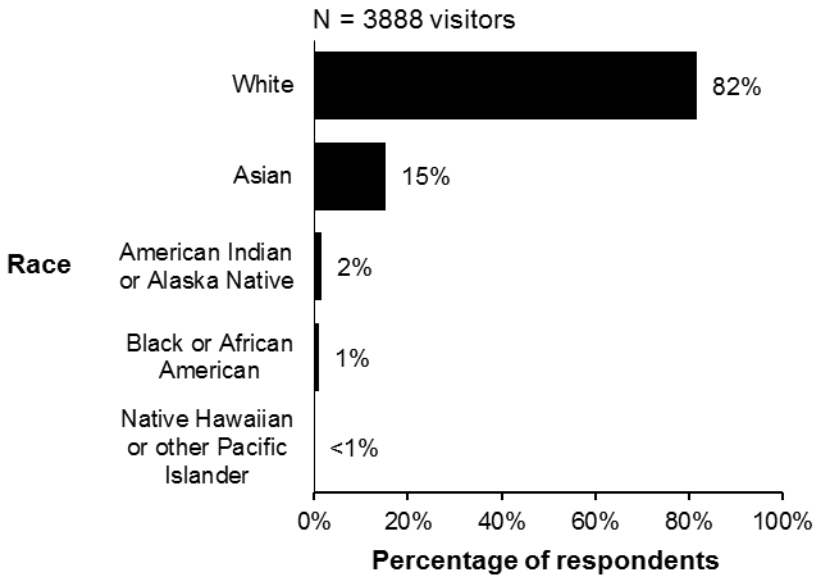


Figure 19. Visitor race

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The distribution of visitor races significantly differed by entrance for white (X^2= 39.887; p < 0.001), Asian (X^2 = 50.324; p < 0.001), and Native Hawaiian or other Pacific Islander visitors (X^2 = 15.915; p = 0.0003).
- Visitors entering at the Northeast (94%) and East (90%) entrances were more likely to report white as one or more of their races than visitors entering at the North (87%), West (86%), and South (84%) entrances.
- Visitors entering at the North (12%), South (12%), and West (12%) entrances were more likely to report Asian as one or more of their races than visitors entering at the East (6%) or Northeast (4%) entrances.
- Visitors entering at the East (1%) entrance were more likely than visitors entering at all other entrances to report Native Hawaiian or other Pacific Islander as one or more of their races.

Table 26. Visitor race, by entrance

	Percentage of visitors						
	East	**North**	**Northeast**	**South**	**West**		
Race	*n = 668***	*n = 772***	*n = 711***	*n = 864***	*n = 745***	**Chi-square**	**p-value[1]**
White	**90%**	**87%**	**94%**	**84%**	**86%**	**χ2 = 39.887**	**p < 0.001**
Asian	**6%**	**12%**	**4%**	**12%**	**12%**	**χ2 = 50.324**	**p < 0.001**
American Indian or Alaska Native	2%	1%	1%	2%	1%	χ2 =1.731	p = 0.785
Black or African American	1%	1%	1%	1%	1%	χ2 = 2.609	p = 0.625
Native Hawaiian or other Pacific Islander	**1%**	**0%**	**0%**	**0%**	**0%**	**χ2 = 15.915**	**p = 0.0003[1]**

[1] $\alpha = 0.05$, $p \leq 0.010$ indicates significant result following Bonferroni correction to account for multiple statistical tests.

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*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 28

For your personal group during your visit to Yellowstone NP 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 27, Figure 20, Table 28)

- U.S. visitors came from 50 states and the District of Columbia and comprised 83% of total visitation to the park during the survey period.
- 8% of U.S. visitors came from California.
- 6% of U.S. visitors came from Utah.
- Smaller proportions of visitors came from other U.S. states.

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Table 27. United States visitors by state of residence

State	Percent of U.S. visitors N = 2,891 visitors	Percent of all visitors N = 3,483 visitors*
California	8%	7%
Utah	6%	5%
Texas	5%	4%
Washington	5%	4%
Minnesota	5%	4%
Colorado	5%	4%
Connecticut	4%	3%
Montana	4%	3%
New York	4%	3%
Wyoming	4%	3%
Pennsylvania	3%	3%
Michigan	3%	3%
Ohio	3%	3%
Idaho	3%	3%
Kansas	3%	3%
Illinois	3%	3%
Oregon	2%	2%
Iowa	2%	2%
Wisconsin	2%	2%
Virginia	2%	2%
Florida	2%	2%
Missouri	2%	2%
Massachusetts	2%	2%
North Carolina	2%	1%
Nevada	2%	1%
Maryland	2%	1%
24 other states and the District of Columbia	12%	10%

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

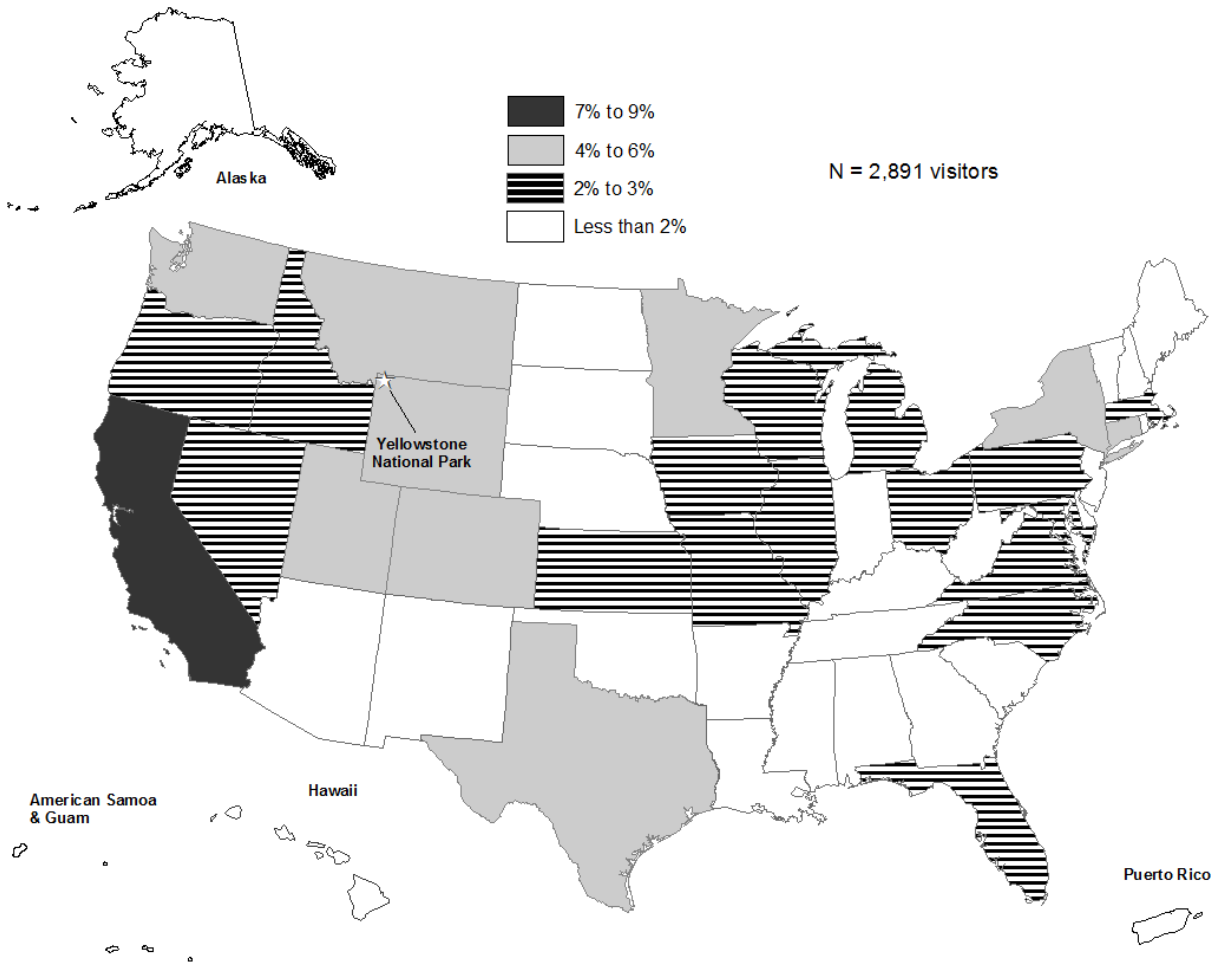


Figure 20. Proportion of U.S. visitors by state of residence

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The distribution of visitors' state of residence significantly differed by entrance (X^2= 824.533; $p < 0.001$).

Table 28. United States visitors by state of residence, by entrance

	Percentage of visitors						
	East	**North**	**Northeast**	**South**	**West**		
State	*n = 559*	*n = 664*	*n = 594*	*n = 685*	*n = 576*	**Chi-square**	**p-value**
California	7%	10%	5%	10%	11%		
Utah	4%	3%	6%	5%	10%		
Texas	7%	3%	5%	6%	7%		
Washington	3%	10%	2%	5%	6%		
Minnesota	7%	5%	6%	3%	4%		
Colorado	4%	3%	4%	7%	4%		
Connecticut	0%	0%	0%	1%	2%		
Montana	4%	9%	8%	1%	4%		
New York	2%	3%	4%	4%	5%		
Wyoming	7%	2%	5%	6%	1%		
Pennsylvania	6%	2%	3%	2%	2%		
Michigan	4%	3%	1%	2%	3%		
Ohio	3%	3%	3%	4%	2%		
Idaho	2%	0%	1%	2%	7%		
Kansas	4%	2%	1%	1%	3%	$\chi 2 = 824.553$[1]	$p < 0.001$
Illinois	4%	2%	4%	3%	1%		
Oregon	3%	3%	2%	3%	4%		
Iowa	3%	2%	4%	1%	2%		
Wisconsin	2%	3%	5%	3%	1%		
Virginia	1%	4%	1%	2%	2%		
Florida	2%	3%	2%	2%	2%		
Missouri	3%	4%	2%	1%	1%		
Massachusetts	1%	2%	2%	2%	3%		
North Carolina	2%	0%	2%	3%	2%		
Nevada	1%	0%	1%	2%	2%		
Maryland	1%	2%	1%	2%	2%		
24 other states and the District of Columbia	13%	16%	20%	17%	8%		

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*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 28

For your personal group during your visit to Yellowstone NP 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 29, Table 30)

- International visitors were from 25 countries and comprised 17% of total visitation to the park during the survey period.
- 49% of international visitors came from countries in Europe.
- 34% of international visitors came from China.
- 10% of international visitors came from Canada.
- Smaller proportions of visitors came from other countries.

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*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. International visitors by country of residence

Country	Percent of international visitors N = 594 visitors*	Percent of all visitors N = 3,483 visitors*
China	34%	6%
Italy	11%	2%
Canada	10%	2%
France	8%	1%
The Netherlands	7%	1%
Germany	7%	1%
Belgium	5%	<1%
United Kingdom	4%	<1%
Spain	3%	<1%
Australia	3%	<1%
Switzerland	2%	<1%
Finland	1%	<1%
Austria	<1%	<1%
India	<1%	<1%
New Zealand	<1%	<1%
Sri Lanka	<1%	<1%
Russia	<1%	<1%
Argentina	<1%	<1%
Mexico	<1%	<1%
Portugal	<1%	<1%
Ireland	<1%	<1%
Denmark	<1%	<1%
Japan	<1%	<1%
Norway	<1%	<1%
Peru	<1%	<1%

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The distribution of visitors' country of residence significantly differed by entrance (X^2= 246.127; $p < 0.001$).
- Among the entrance locations, visitors whose country of residence was China were most likely to enter at the South entrance (26%).
- Among the entrance locations, visitors whose country of residence was Italy were most likely to enter at the Northeast entrance (25%).
- Among the entrance locations, visitors whose country of residence was Canada were most likely to enter at the North entrance (18%).
- Among the entrance locations, visitors whose country of residence was France were most likely to enter at the East entrance (16%).
- Among the entrance locations, visitors whose country of residence was the Netherlands were most likely to enter at the West entrance (15%).

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*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. International visitors by country of residence, by entrance

Percentage of visitors

	East	North	Northeast	South	West		
Country	*n = 77*	*n = 88*	*n = 79*	*n = 126*	*n = 134*	**Chi-square**	**p-value**
China	1%	16%	11%	26%	17%		
Italy	22%	10%	25%	13%	9%		
Canada	14%	18%	13%	13%	14%		
France	16%	1%	0%	10%	5%		
The Netherlands	8%	5%	4%	6%	15%		
Germany	4%	19%	10%	13%	7%		
Belgium	5%	14%	1%	5%	3%		
United Kingdom	3%	9%	14%	4%	9%		
Spain	0%	0%	4%	3%	6%		
Australia	10%	6%	4%	0%	4%		
Switzerland	0%	2%	5%	0%	5%		
Finland	5%	0%	1%	2%	0%		
Austria	5%	0%	0%	0%	0%	$\chi 2 = 246.127$[1]	$p < 0.001$
India	3%	0%	0%	2%	0%		
New Zealand	0%	0%	1%	0%	1%		
Sri Lanka	4%	0%	0%	0%	0%		
Russia	0%	0%	0%	0%	3%		
Argentina	0%	0%	0%	0%	1%		
Mexico	0%	0%	0%	1%	0%		
Portugal	0%	0%	3%	1%	0%		
Ireland	0%	0%	0%	1%	0%		
Denmark	0%	0%	3%	0%	0%		
Japan	0%	0%	0%	1%	0%		
Norway	0%	0%	1%	0%	0%		
Peru	0%	0%	0%	1%	0%		

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*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 31

For your personal group during your visit to Yellowstone NP on the day you were contacted for this survey, what is the highest level of formal education completed by each member of your group?

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

Results (Figure 21, Figure 22)

- 26% of visitors' highest level of formal education completed was a Master's, doctoral, or professional degree.
- 26% of visitors' highest level of formal education completed was college, business, or trade school.

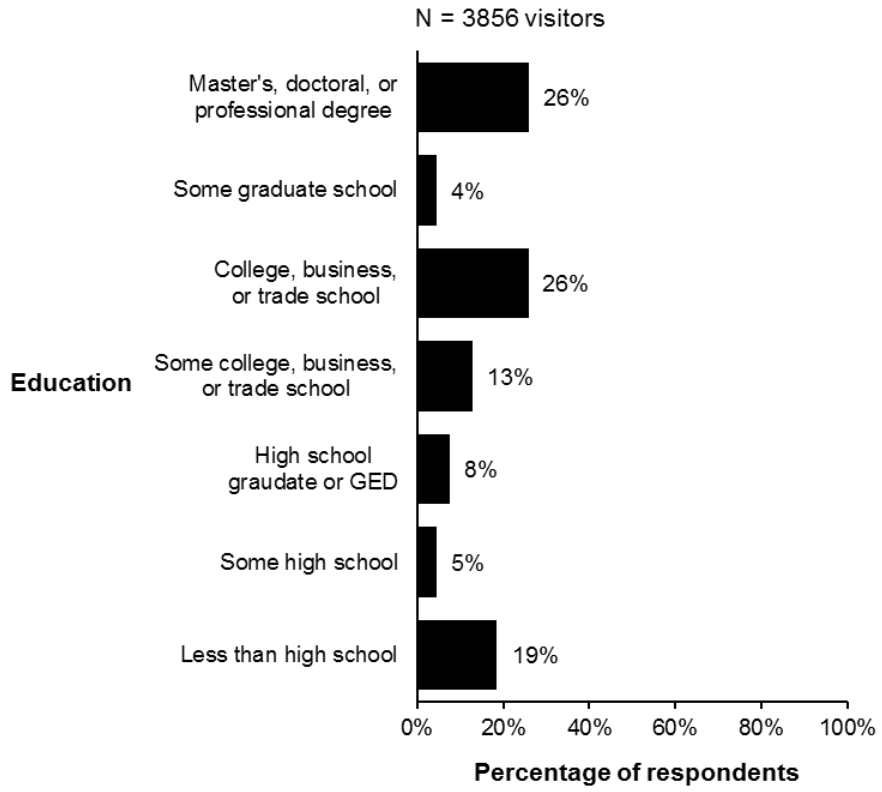


Figure 21. Visitor level of education

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The distribution of visitor level of education significantly differed by entrance ($X^2 = 70.364$; $p < 0.001$).
- Among the entrance locations, visitors entering at the South entrance (25%) and the North entrance (24%) were more likely than visitors entering at the East, West, or Northeast entrances to report completing a Master's, doctoral, or other professional degree.
- Among the entrance locations, visitors entering at the North entrance (31%) were most likely to report completing college, business, or trade school degree.

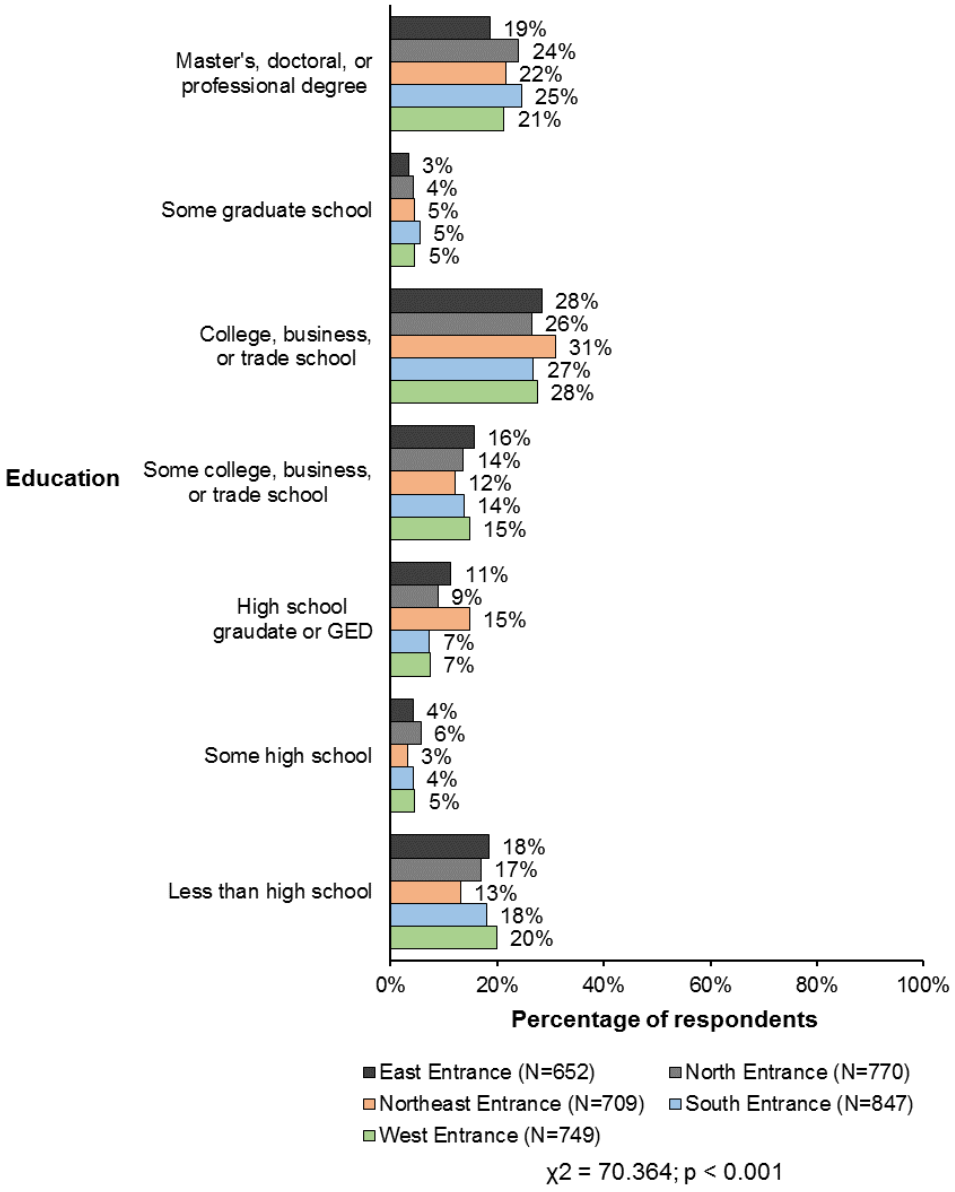


Figure 22. Visitor level of education, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Household income

Question 32

Which category best represents your annual household income?

Results (Figure 23, Figure 24)

- 18% of visitor groups reported an annual household income between $35,000 and $49,999.
- 17% of visitor groups reported an annual household income between $75,000 and $99,999.
- 12% of visitor groups reported an annual household income between $50,000 and $74,999.

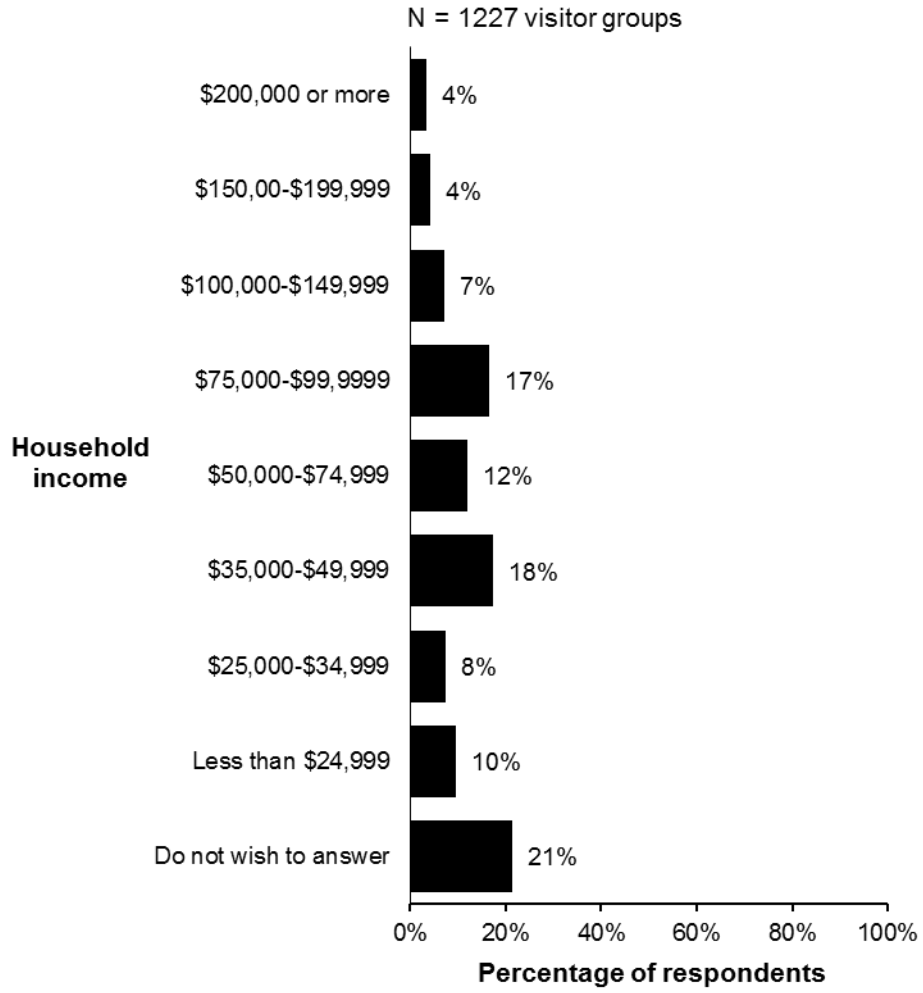


Figure 23. Annual household income

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The annual household income of visitors did not significantly differ by entrance ($X^2 = 30.446$; $p = 0.545$).

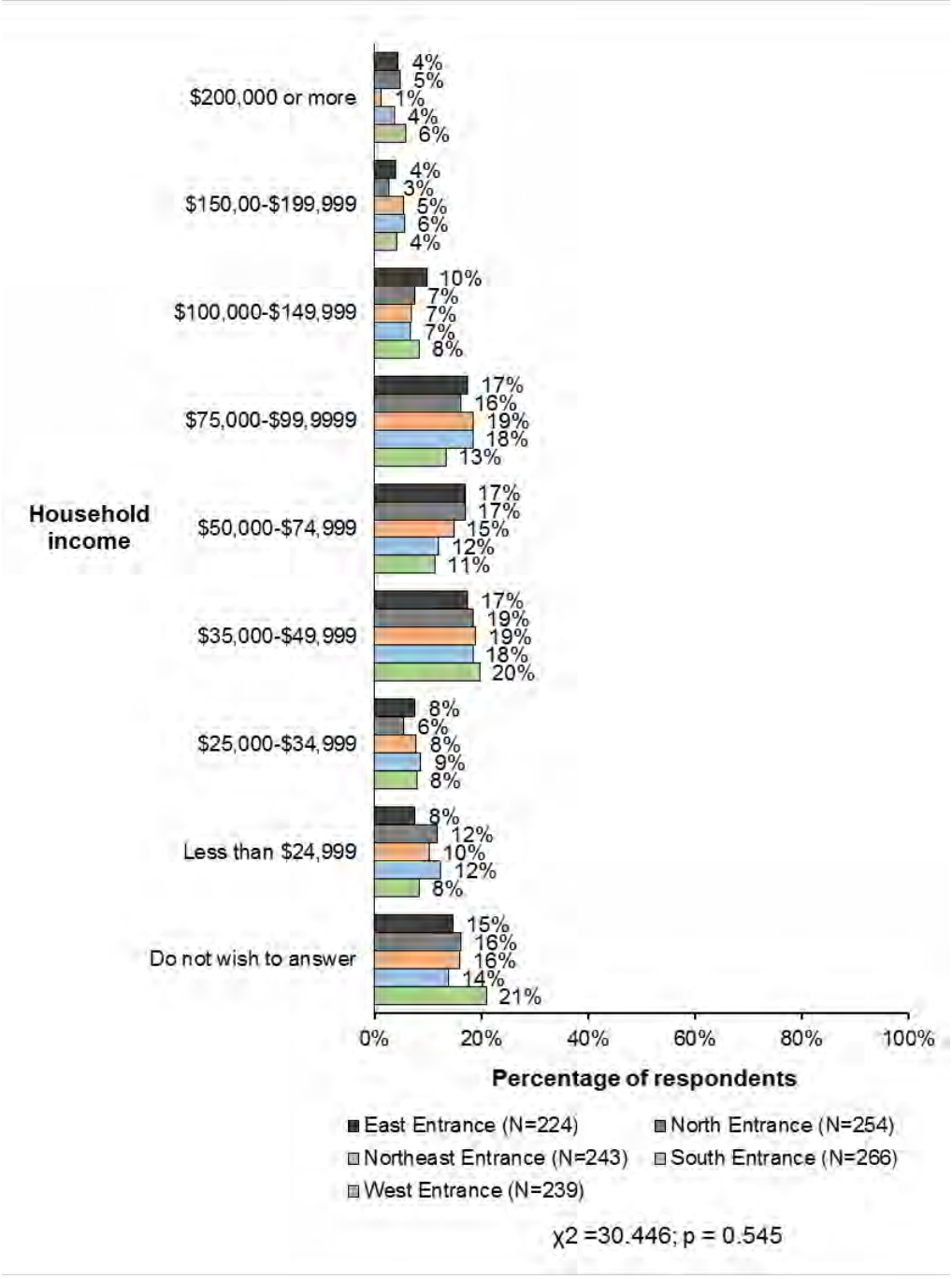


Figure 24. Annual household income, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*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 28

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

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

Results (Figure 25, Table 31, Figure 26, Table 32).

- 87% of visitors visited Yellowstone NP only once in the last 12 months.
- 8% of visitors visited Yellowstone NP 2 times in the last 12 months.

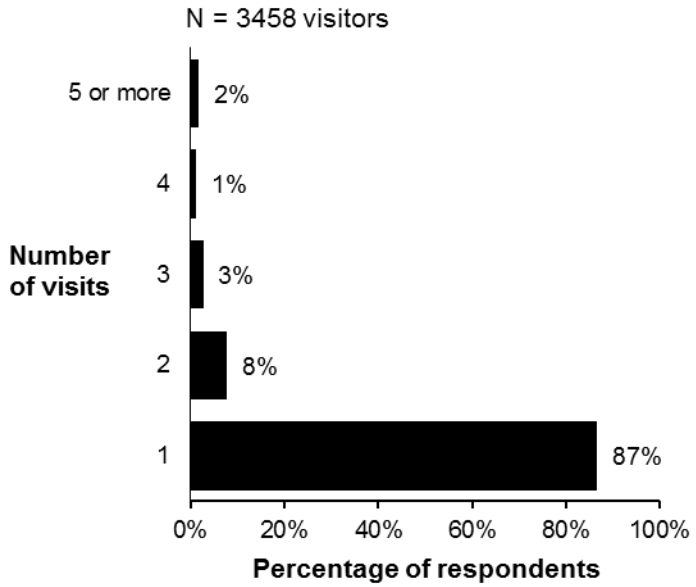


Figure 25. Park visits in last 12 months

Table 31. Descriptive statistics: Park visits in last 12 months

	Mean	Median	Std. Deviation
Number of visits	1.38	1.00	4.87

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The distribution of the number of park visits in the last 12 months by visitors significantly differed by entrance ($X^2 = 77.859$; $p < 0.001$).
- Visitor entering at the East (88%), South (87%), and West (87%) entrances were more likely to report visiting the park only once in the last 12 months than visitors entering at the North (84%) or Northeast (80%) entrances.
- Despite statistical differences between entrances, the vast majority of visitors (80% or greater) had visited the park only once in the last 12 months.
- The mean number of park visits in the last 12 months did not differ significantly by entrance ($F = 2.303$; $p = 0.056$).

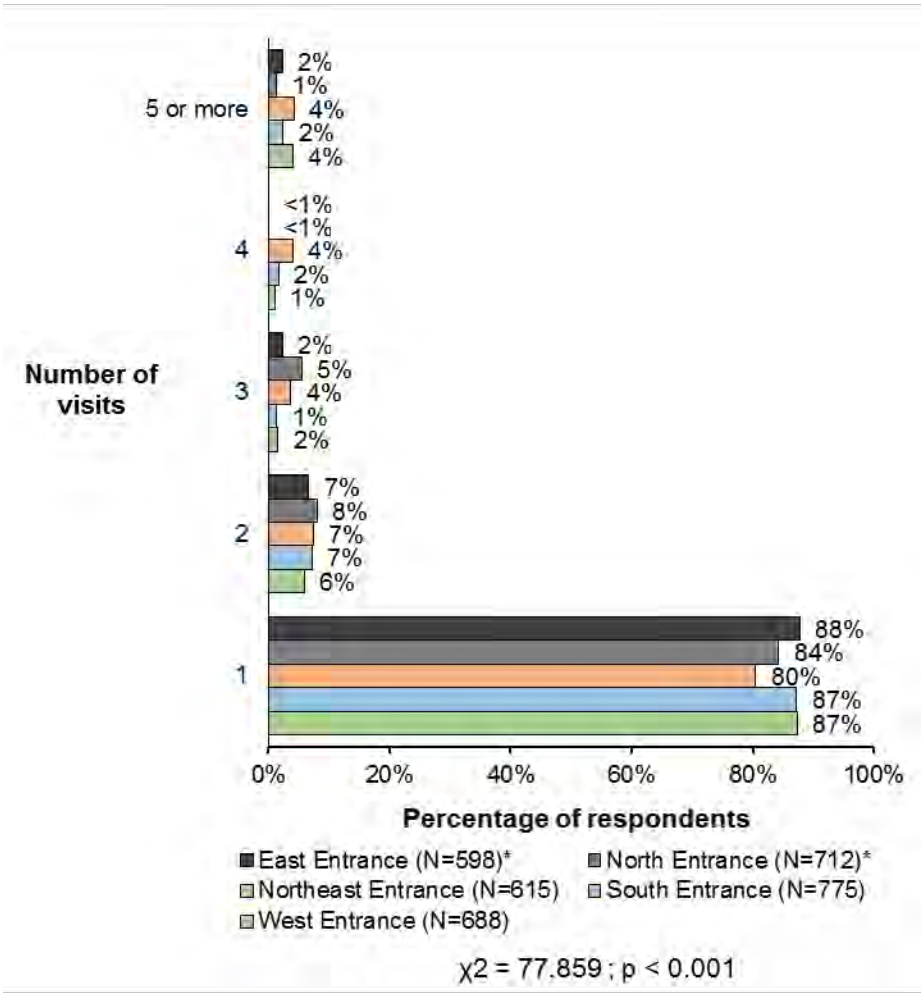


Figure 26. Park visits in last 12 months, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*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. ANOVA: Mean park visits in last 12 months, by entrance

Entrance	Mean (SD)	Median
East Entrance	1.35 (1.37)	1.00
North Entrance	1.83 (11.06)	1.00
Northeast Entrance	2.51 (15.74)	1.00
South Entrance	1.33 (1.41)	1.00
West Entrance	1.37 (1.38)	1.00
$F = 2.303$, $p = 0.056$		

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*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 other National Park Service sites
Question 28

For your personal group during your visit to Yellowstone NP on the day you were contacted for this survey, please provide the number of visits you have made to other NPS sites in the last 12 months.

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

Results (Figure 27, Table 33, Figure 28, Table 34)

- 24% of visitors did not visit any other NPS sites in the last 12 months.
- 20% of visitors visited one other NPS site in the last 12 months.

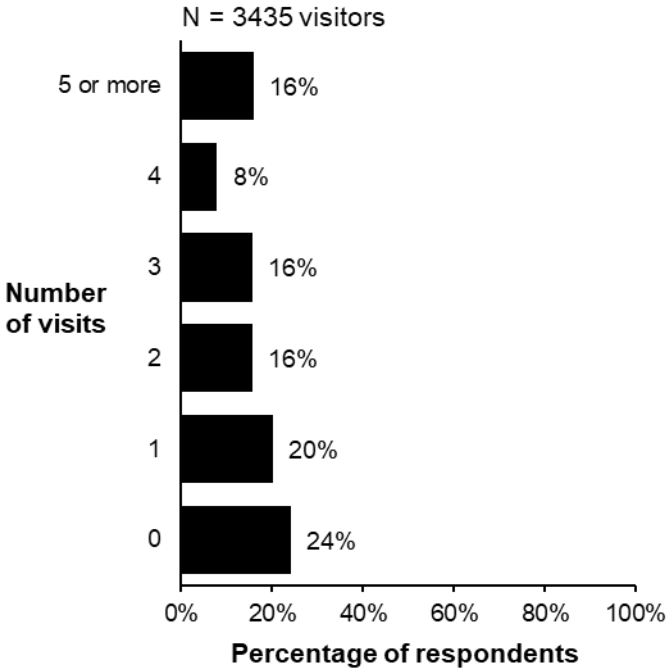


Figure 27. Other NPS site visits in last 12 months

Table 33. Descriptive statistics: Other NPS site visits in last 12 months

	Mean	Median	Std. Deviation
Number of visits	2.62	2.00	3.82

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The distribution of the number of other NPS sites visited in the last 12 months by visitors significantly differed by entrance ($X^2 = 69.870$; $p < 0.001$).
- Among entrance locations, visitors entering at the Northeast entrance (31%) were most likely to report visiting no other NPS sites, except Yellowstone NP, in the last 12 months.
- Among entrance locations, visitors entering at the East entrance (21%) were most likely to report visiting 5 or more other NPS sites in the last 12 months.
- The mean number of visitors to other NPS units in the last 12 months significantly differed by entrance ($F = 4.744$; $p = 0.001$). Visitors entering at the North and South entrances had higher mean numbers of visits to other NPS units in the last 12 months than visitors entering at the Northeast, East, or West entrances.

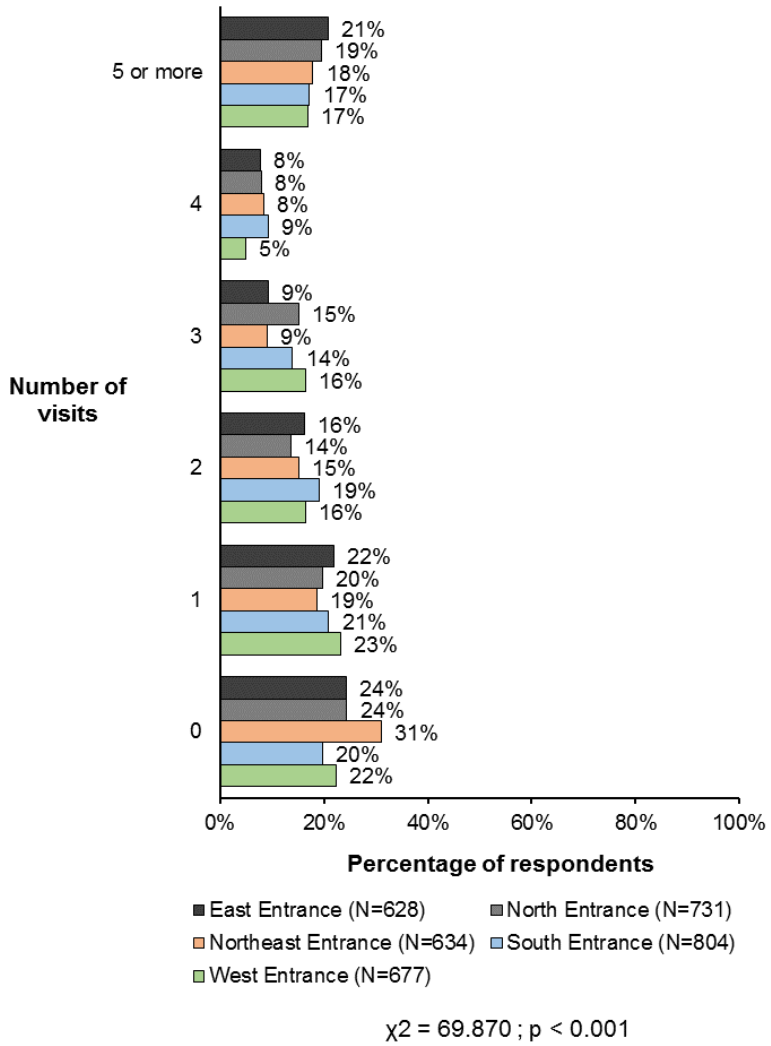


Figure 28. Other NPS site visits in last 12 months, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*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. ANOVA: Mean number of visits to other NPS site in last 12 months, by entrance

Entrance	Mean (SD)	Median
East Entrance	2.66 (2.98)[ab]	2.00
North Entrance	3.00 (4.37)[a]	2.00
Northeast Entrance	2.31 (2.82)[b]	2.00
South Entrance	2.94 (3.86)[a]	2.00
West Entrance	2.52 (2.76)[ab]	2.00
$F = 4.744$, $p = 0.001$		

Note: means for number of visits to other NPS sites in the last 12 months that have no superscript in common are significantly different from each other at α = 0.05.

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*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 9

When did you decide to visit Yellowstone NP?

Results (Figure 29, Figure 30)

- 61% of visitor groups decided to visit Yellowstone NP a month or more, but less than a year before their visit.
- 18% of visitor groups decided to visit Yellowstone NP a year of more before their visit.
- Very few visitors (3%) decided to visit Yellowstone NP on the day of their visit.

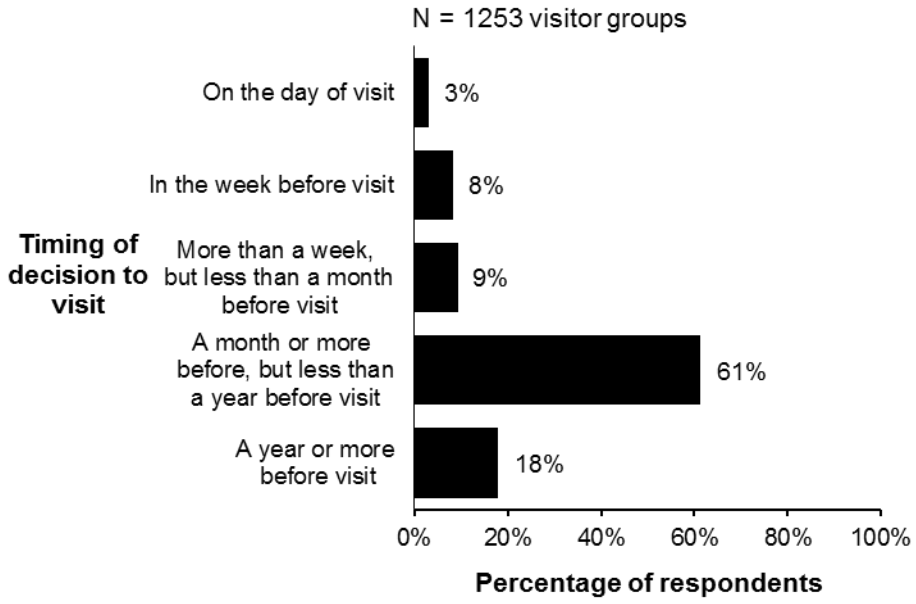


Figure 29. Timing of decision to visit park

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The distribution of the timing of visitor groups' decisions to visit the park did not significantly differ by entrance ($X^2 = 19.295$; $p = 0.254$).
- The majority of visitor groups (50% or greater) decided to visit the park a month or more before their visit, but less than a year, before their visit.

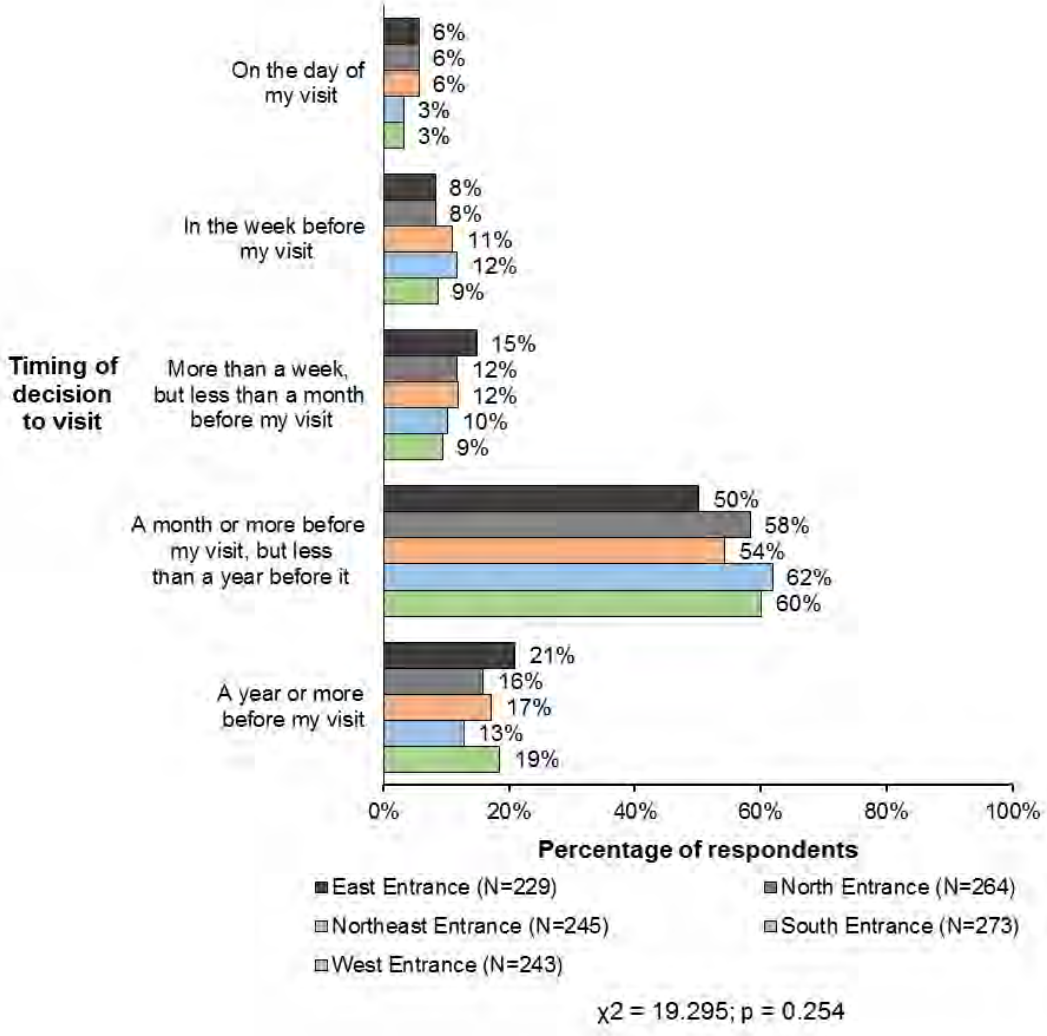


Figure 30. Timing of decision to visit park, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*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 planning

Question 10

Which of the following best describes your planning for this visit to Yellowstone NP?

Results (Figure 31, Figure 32)

- 41 % of visitor groups conducted some pre-planning prior to their visit to Yellowstone NP.
- 31% of visitor groups conducted careful planning prior to their visit to Yellowstone NP.

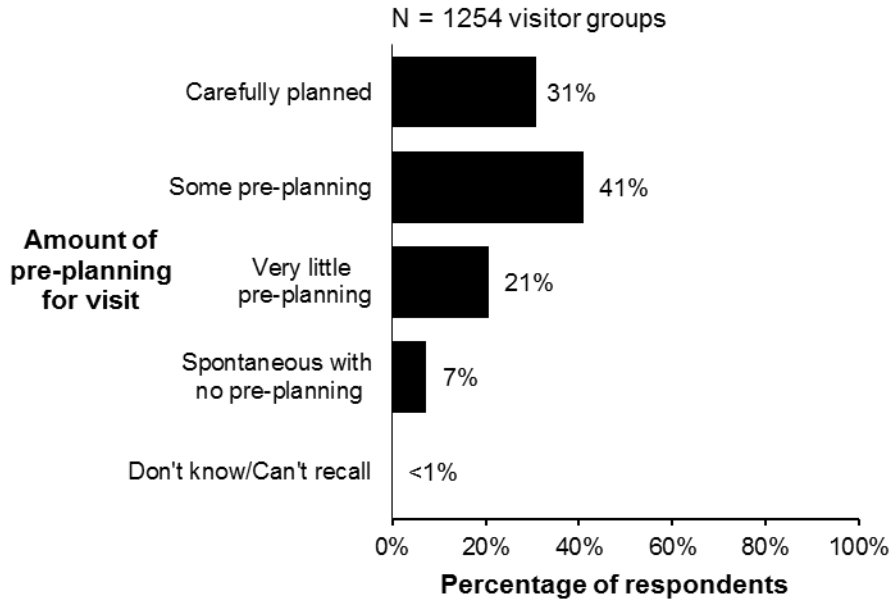


Figure 31. Amount of pre-planning for visit

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The distribution of the amount of planning visitor groups undertook for their park visit did not significantly differ by entrance ($X^2 = 12.730$; $p = 0.692$).
- Across all entrance locations, 10% or fewer visitor groups visited the park spontaneously, with no pre-planning.
- Across all entrance locations, it was most common for visitor groups to engage in some pre-planning before making their trip to Yellowstone NP.

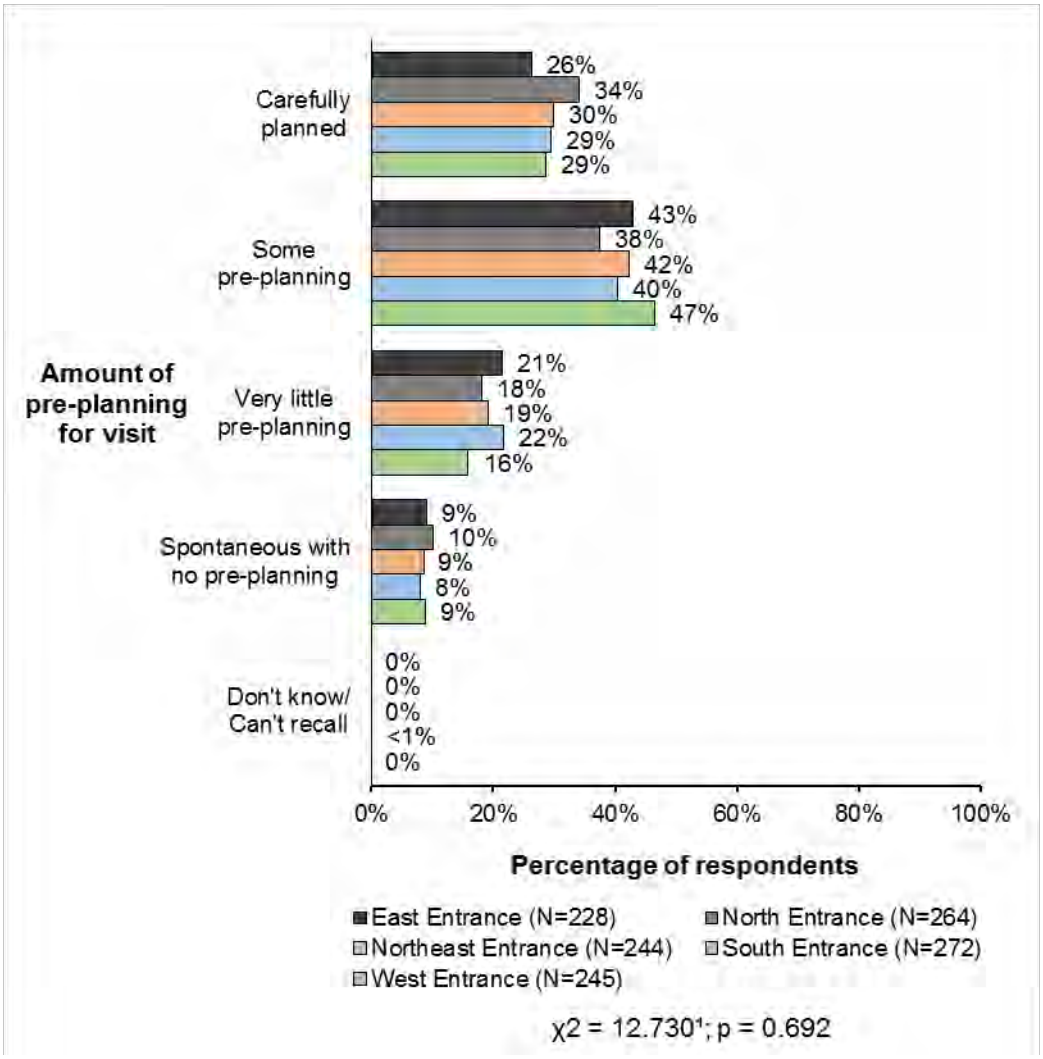


Figure 32. Amount of pre-planning for visit, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*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 prior to or during visit

Question 11

Which of the following source of information did you use to plan your visit to Yellowstone NP, including sources you used prior to and during your visit to the park?

Results (Figure 33, Figure 34, Figure 35, Table 35)

- 91% of visitors obtained information about Yellowstone NP prior to or during their visit.

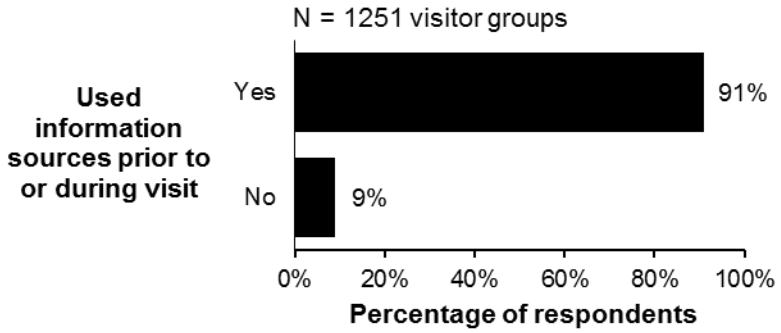


Figure 33. Visitor groups that obtained information about the park prior to and during visit

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The distribution of the number of visitor groups that obtained information prior to or during their visit significantly differed by entrance ($X^2 = 10.007$; $p = 0.040$).
- Across entrance locations, visitor groups entering at the Northeast entrance (85%) were least likely to use information sources prior to or during their visit.
- Across entrance locations, visitor groups entering at the South (93%) and West (91%) entrances were most likely to use information sources prior to or during their visit.

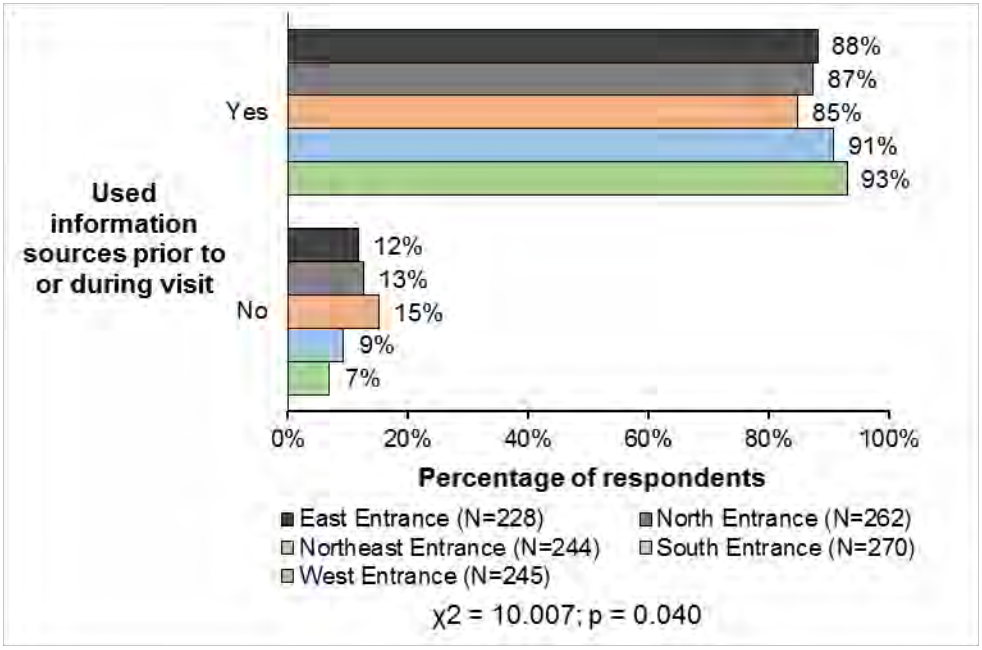


Figure 34. Visitor groups that obtained information about the park prior to and during visit, by entrance

- As shown in Figure 35, among those visitor groups that obtained information about Yellowstone NP prior to or during their visit, the most common information sources were:
    - 60% Yellowstone NP map
    - 55% Yellowstone NP website
    - 37% Travel guides/tour books

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

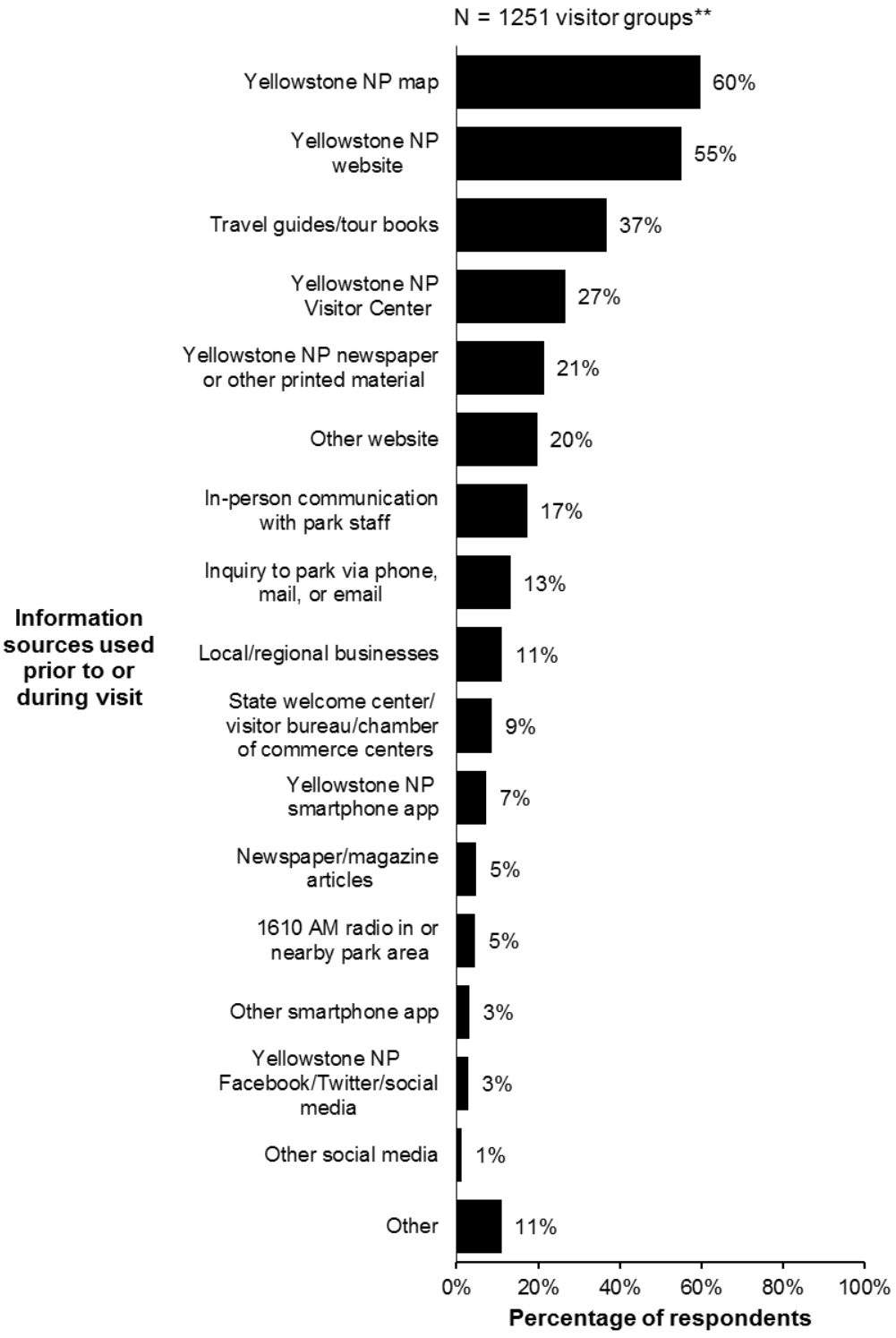


Figure 35. Information sources used prior to and during trip

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- A significant difference in visitor groups' use of information sources prior to or during their visit by entrance was found for one information source: Yellowstone NP Visitor Center (X^2 = 16.706, p = 0.002)

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*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. Information sources used prior to and during trip, by entrance

Percentage of respondents

	East	North	Northeast	South	West		
Information source used prior or during visit	*n = 228***	*n = 262***	*n = 244***	*n = 270***	*n = 245***	**Chi-square**	**p-value[1]**
Inquiry to park via phone, mail, or email	16%	16%	15%	19%	9%	χ2 = 9.084	p = 0.059
In-person communication with park staff	21%	20%	14%	26%	14%	χ2 = 15.060	p = 0.005
Yellowstone NP Visitor Center	**25%**	**28%**	**20%**	**35%**	**26%**	**χ2 = 16.706**	**p = 0.002**
Yellowstone NP website	50%	60%	50%	56%	53%	χ2 = 6.677	p = 0.154
Other website	16%	18%	21%	16%	26%	χ2 = 10.281	p = 0.036
Yellowstone NP map	57%	58%	55%	64%	60%	χ2 = 4.847	p = 0.303
Yellowstone NP newspaper or other printed material	16%	21%	18%	28%	19%	χ2 = 13.081	p = 0.011
Yellowstone NP Facebook/ Twitter/social media	3%	5%	6%	4%	3%	χ2 = 3.790	p = 0.435
Other social media	0%	2%	2%	2%	2%	χ2 = 4.919[1]	p = 0.296
Yellowstone NP smartphone app	7%	9%	6%	5%	9%	χ2 = 4.890	p = 0.299
Other smartphone app	2%	3%	2%	5%	4%	χ2 = 6.072	p = 0.194
State welcome center/visitor bureau/chamber of commerce centers	11%	5%	8%	7%	4%	χ2 = 9.255	p = 0.055
1610 AM radio in or nearby park area	4%	5%	3%	9%	3%	χ2 = 10.587	p = 0.032
Local/regional businesses	6%	8%	9%	10%	9%	χ2 = 2.496	p = 0.645
Travel guides/tour books	39%	31%	31%	34%	32%	χ2 = 4.488	p = 0.344
Newspaper/magazine articles	7%	6%	7%	7%	4%	χ2 = 3.690	p = 0.450
Other	11%	15%	15%	14%	11%	χ2 = 2.782	p = 0.595

[1] $\alpha = 0.05$, $p \leq 0.003$ indicates significant result following Bonferroni correction to account for multiple statistical tests.

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*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 information sources used

Question 12

Which of the following source of information did you use to plan your visit to Yellowstone NP, including sources you used prior to and during your visit to the park?

Results (Figure 36, Table 36, Figure 37, Table 37)

- Most commonly (68%), visitor groups consulted between one and four sources of information prior to or during their trip to Yellowstone NP.
- Few visitor groups consulted 7 or more sources (9%) or no sources of information (9%).

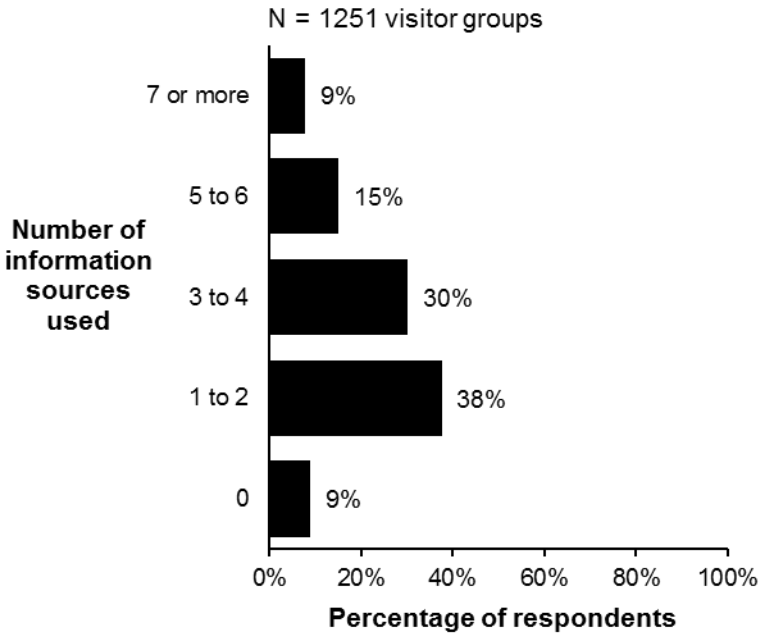


Figure 36. Number of information sources used prior to or during visit

Table 36. Descriptive statistics: Number of information sources used prior to or during visit

	Mean	Median	Std. Deviation
Number of information sources used	3.05	3.00	2.15

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The distribution of the number of information sources used by visitor groups prior to or during their visit significantly differed by entrance ($X^2 = 30.794$; $p = 0.014$).
- Across entrance locations, visitor groups entering at the South entrance (13%) were most likely to use seven or more information sources prior to or during their visit to the park.
- Across entrance locations, visitor groups entering at the West entrance (76%) were most likely to use between one and four sources prior to or during their visit to the park.
- The mean number of information sources used by visitor groups prior to or during their visit differed significantly by entrance ($F = 3.458$, $p = 0.008$). Specifically, the mean number of information sources used prior to or during their visit among visitor groups entering at the South entrance was higher than the mean for those visitor groups entering at the West entrance.

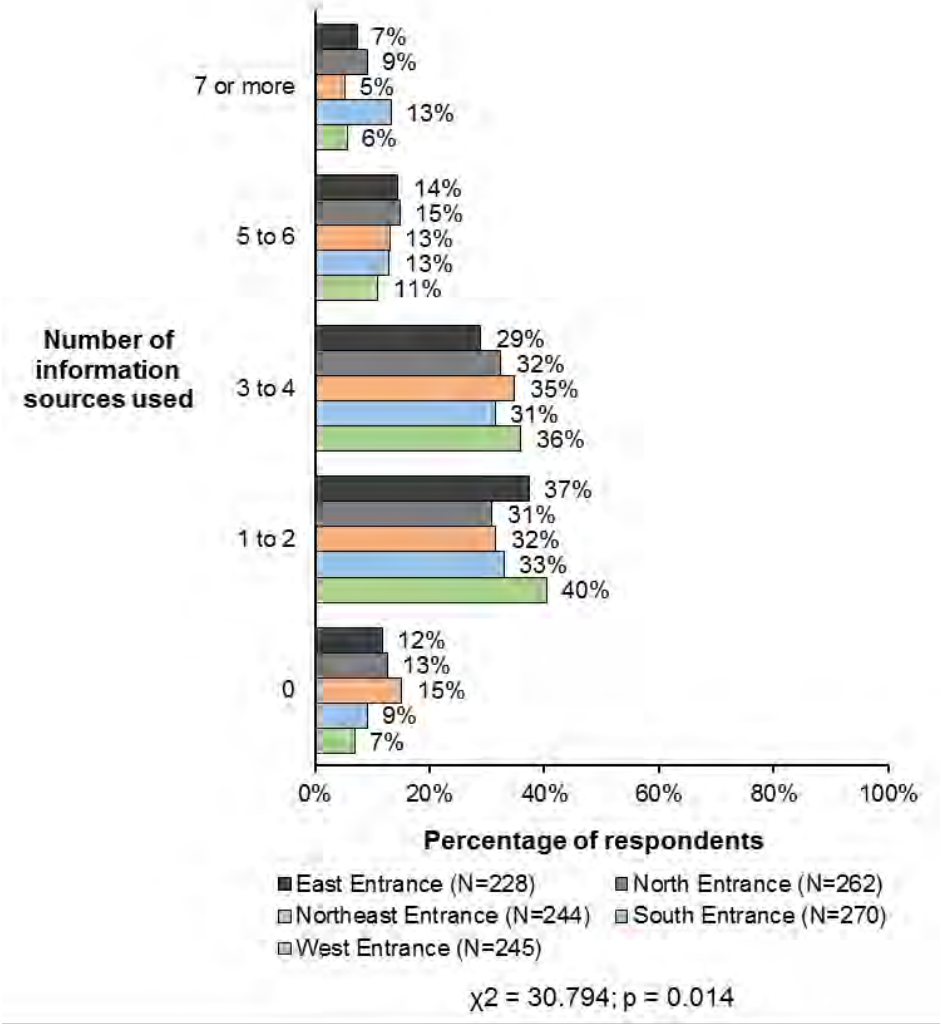


Figure 37. Number of information sources used prior to or during visit, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Table 37. ANOVA: Mean number of information sources used prior to or during visit, by entrance

Entrance	Mean (SD)	Median
East Entrance	3.30 (2.05)[ab]	3.00
North Entrance	3.55 (2.08)[ab]	3.00
Northeast Entrance	3.33 (1.91)[ab]	3.00
South Entrance	3.74 (2.28)[a]	3.00
West Entrance	3.10 (1.86)[b]	3.00
$F = 3.458$, $p = 0.008$		

Note: means for number of information sources used prior to or during visit that have no superscript in common are significantly different from each other at α = 0.05.

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Most useful information source

Question 12

Of the information source listed in Question 11, which were the most useful for you?

Results (Figure 38, Table 38)

- 22% of visitor groups found the Yellowstone NP website to be the most useful source of information for their visit.
- 21% of visitor groups found the Yellowstone NP park map to be the most useful source of information for their visit.
- 17% of visitor groups found travel guides and/or tour books to be the most useful sources of information for their visit.

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

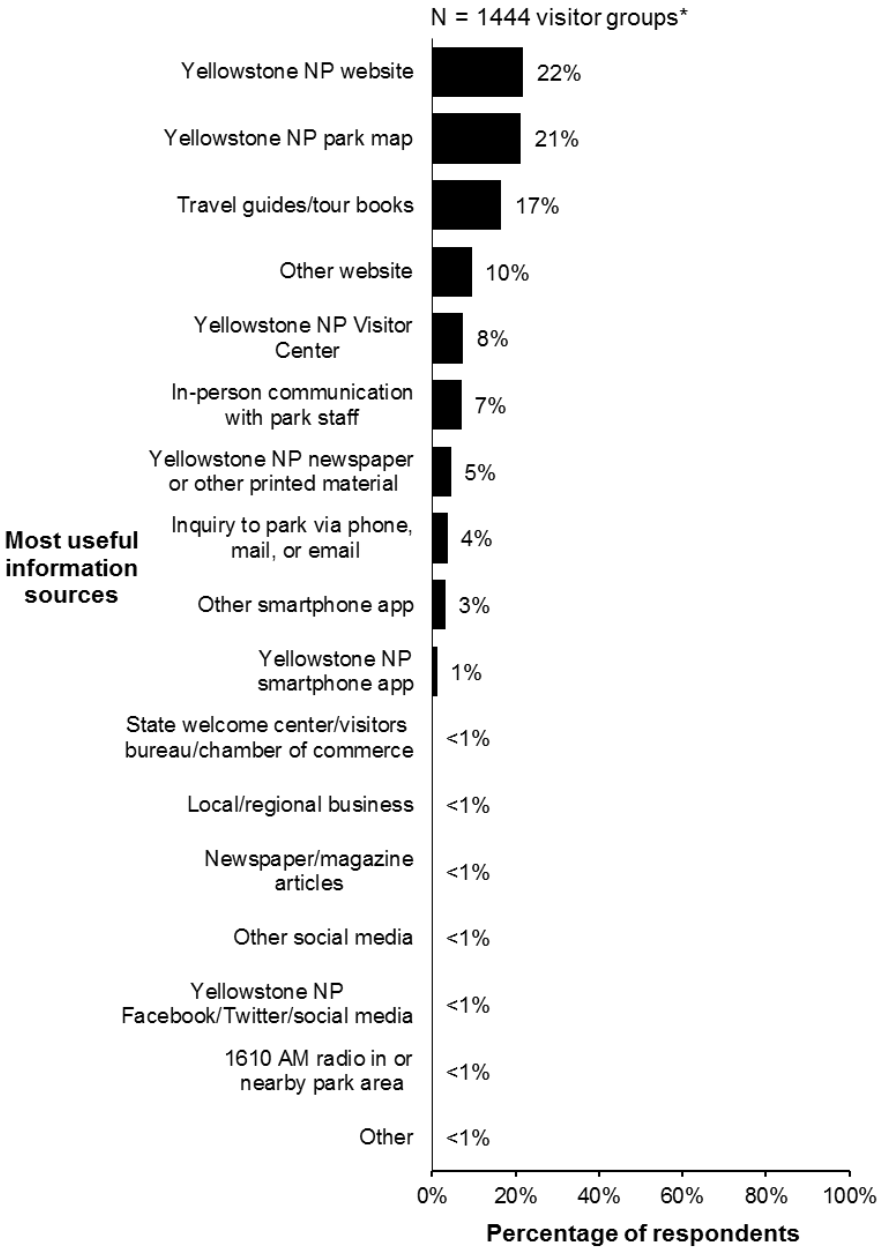


Figure 38. Most useful information sources

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The distribution of the information sources found to be most useful did not significantly differ by entrance ($X^2 = 67.901$; $p = 0.346$).

Table 38. Most useful information sources, by entrance

Percentage of respondents

	East	North	Northeast	South	West		
Information source	*n = 256**	*n = 300**	*n = 250**	*n = 309**	*n = 280**	**Chi-square**	**p-value**
Yellowstone NP website	20%	24%	24%	21%	19%		
Yellowstone NP park map	23%	22%	24%	24%	26%		
Travel guides/tour books	14%	11%	15%	14%	14%		
Other website	7%	9%	9%	8%	10%		
Yellowstone NP Visitor Center	5%	8%	4%	7%	8%		
In-person communication with park staff	9%	6%	4%	6%	4%		
Yellowstone NP newspaper or other printed material	3%	5%	2%	5%	3%		
Inquiry to park via phone, mail, or email	4%	4%	2%	4%	1%		
Other smartphone app	1%	2%	<1%	1%	2%	$\chi 2 = 67.901$[1]	p = 0.346
Yellowstone NP smartphone app	2%	1%	1%	<1%	2%		
State welcome center/visitors bureau/chamber of commerce	3%	<1%	2%	1%	1%		
Local/regional business	<1%	2%	3%	<1%	1%		
Newspaper/magazine articles	<1%	<1%	1%	<1%	<1%		
Other social media	0%	0%	1%	1%	0%		
Yellowstone NP Facebook/Twitter/social media	<1%	<1%	<1%	0%	<1%		
1610 AM radio in or nearby park area	<1%	0%	0%	0%	0%		
Other	7%	6%	7%	7%	9%		

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*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 reasons for visiting the park

Question 13

Please indicate the importance of each of the following reasons for visiting Yellowstone NP on this trip.

Rating choices:

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

Results (Figure 39, Table 39)

- Figure 39 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:
    - 96% View natural scenery
    - 83% View wildlife in their natural habitat
    - 78% View geysers and other thermal features
- The reasons that received the lowest combined proportions of "extremely important" and "very important" ratings were:
    - 43% Relax
    - 28% Drive for Pleasure
    - 25% Experience solitude

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

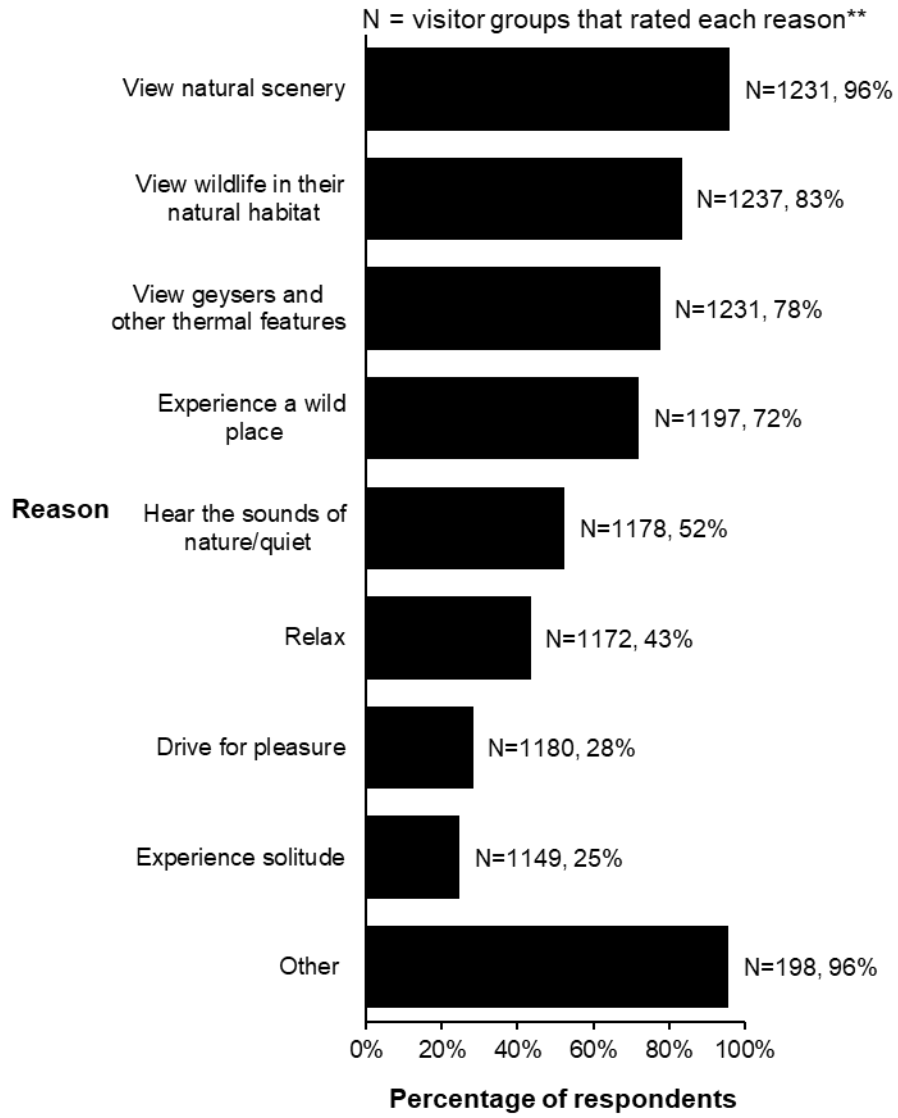


Figure 39. Importance of reasons for visiting the park, includes responses for either "extremely important" or "very important"

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*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 shows the combined proportions of "extremely important" and "very important" ratings for reasons for visiting Yellowstone NP by entrance.
- Significant differences in the distribution of the combined "extremely important" and "very important" ratings of the importance of reasons for visiting the park by entrance were found for only one reason:
    - Viewing geysers and other thermal features ($X^2 = 38.246$; $p < 0.001$)

Table 39. Importance of reasons for visiting the park, by entrance, includes responses for either "extremely important" or "very important"

		East	North	Northeast	South	West		
Reason	***n***			***Percentage of respondents***			**Chi-square**	**p-value[1]**
View natural scenery	1230	93%	96%	91%	96%	97%	χ2 = 12.356	p = 0.015
View wildlife in their natural habitat	1230	82%	83%	88%	87%	86%	χ2 = 3.671	p = 0.452
View geysers and other thermal features	**1220**	**76%**	**74%**	**58%**	**80%**	**76%**	**χ2 = 37.079**	**p < 0.001**
Experience a wild place	1197	66%	75%	74%	76%	72%	χ2 = 6.830	p = 0.145
Hear the sounds of nature/quiet	1179	44%	54%	50%	53%	53%	χ2 = 6.644	p = 0.156
Relax	1173	40%	44%	44%	44%	45%	χ2 = 1.407	p = 0.843
Drive for pleasure	1185	35%	26%	40%	28%	30%	χ2 = 13.132	p = 0.011
Experience solitude	1151	29%	30%	29%	29%	24%	χ2 = 2.065	p = 0.724
Other	176	96%	100%	94%	87%	100%	χ2 = 8.468	p = 0.076

[1] $\alpha = 0.05$, $p \leq 0.005$ indicates significant result following Bonferroni correction to account for multiple statistical tests.

Figure 40 through Figure 55 show ratings for each reason.

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

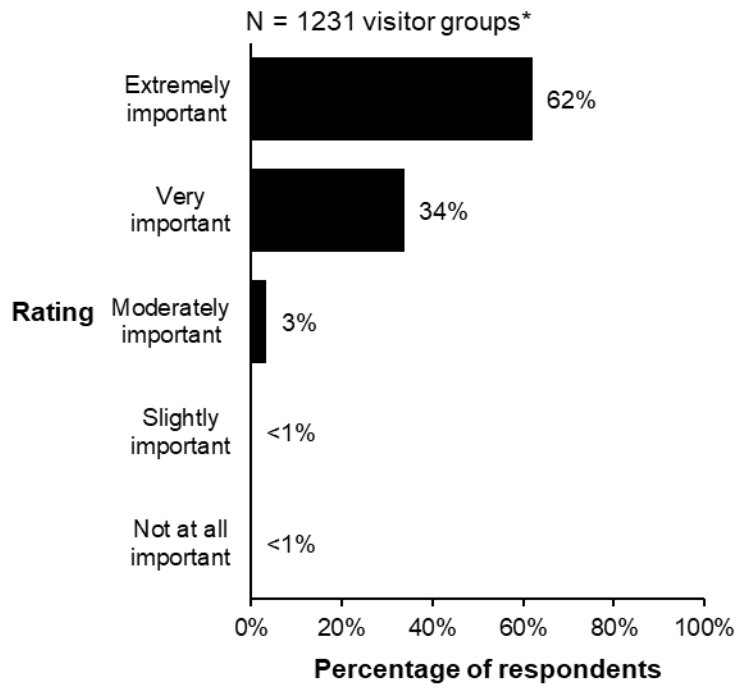


Figure 40. Importance of viewing natural scenery

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

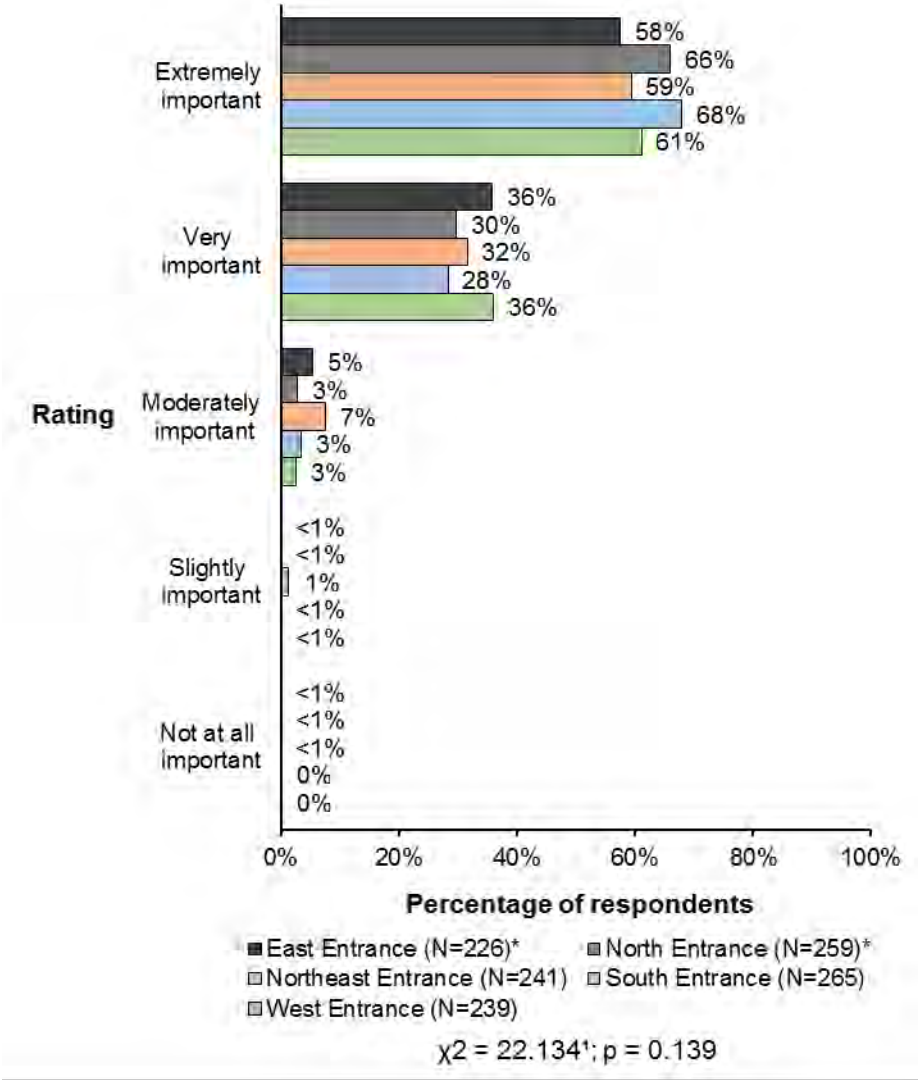


Figure 41. Importance of viewing natural scenery, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

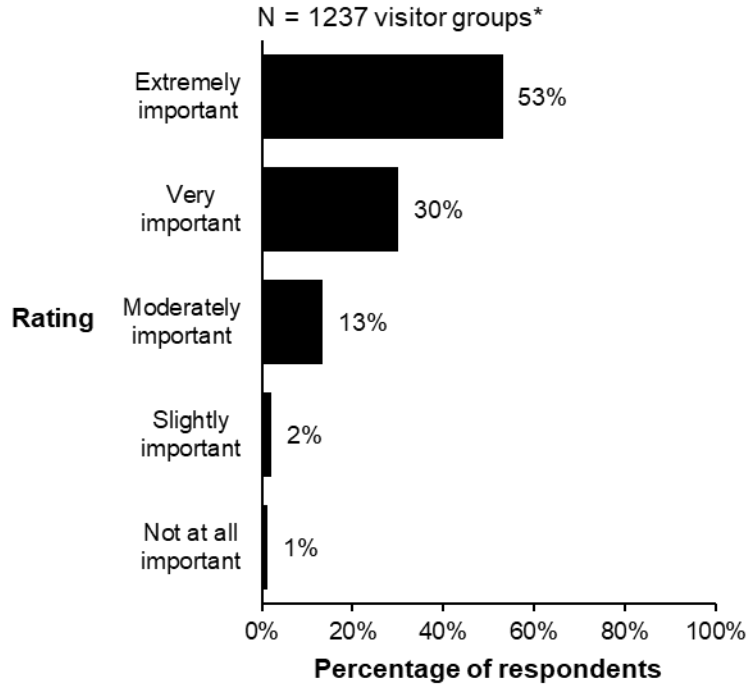


Figure 42. Importance of viewing wildlife in their natural habitat

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

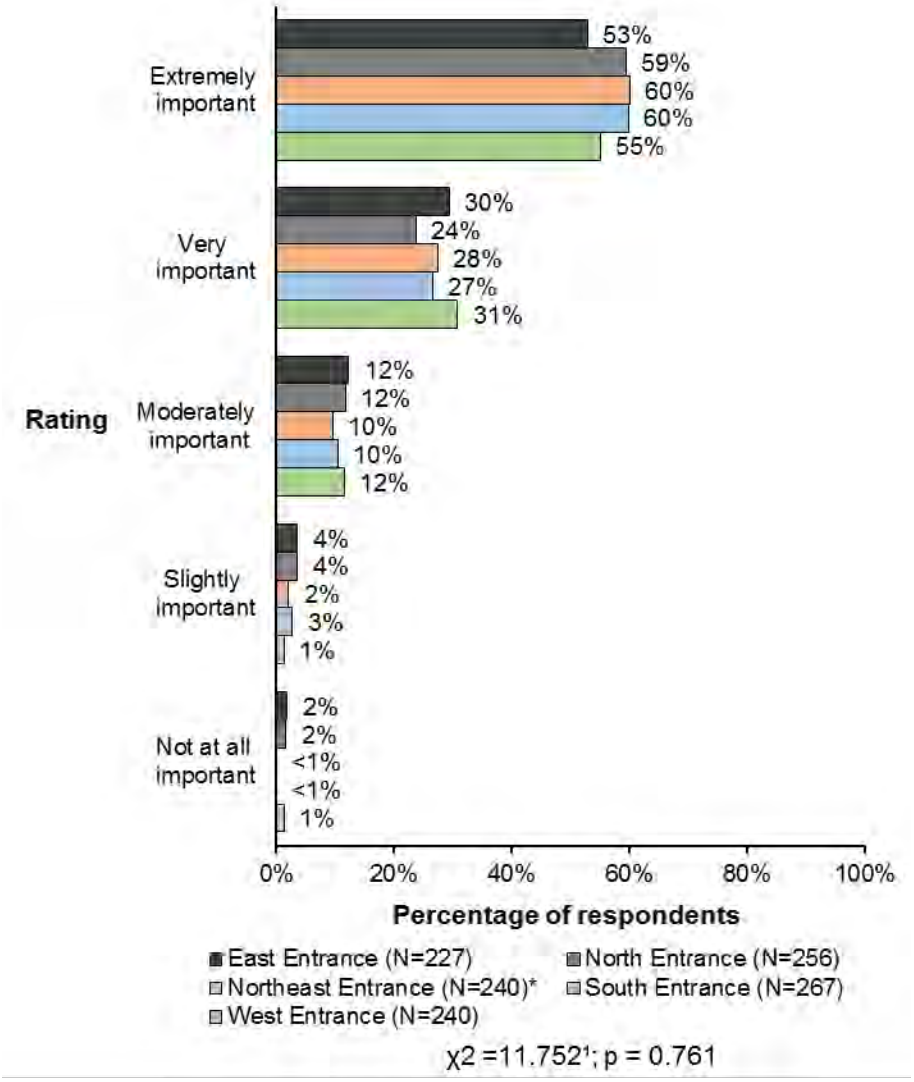


Figure 43. Importance of viewing wildlife in their natural habitat, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

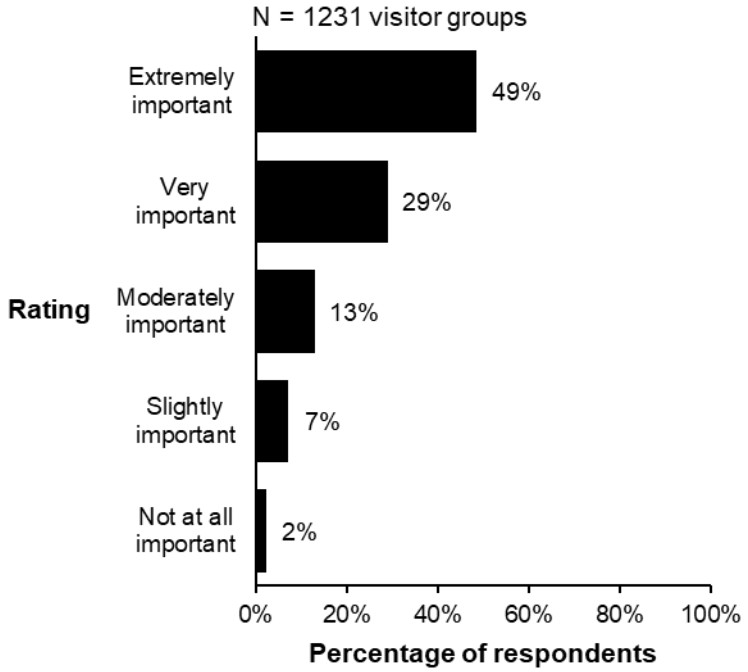


Figure 44. Importance of viewing geysers and other thermal features

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

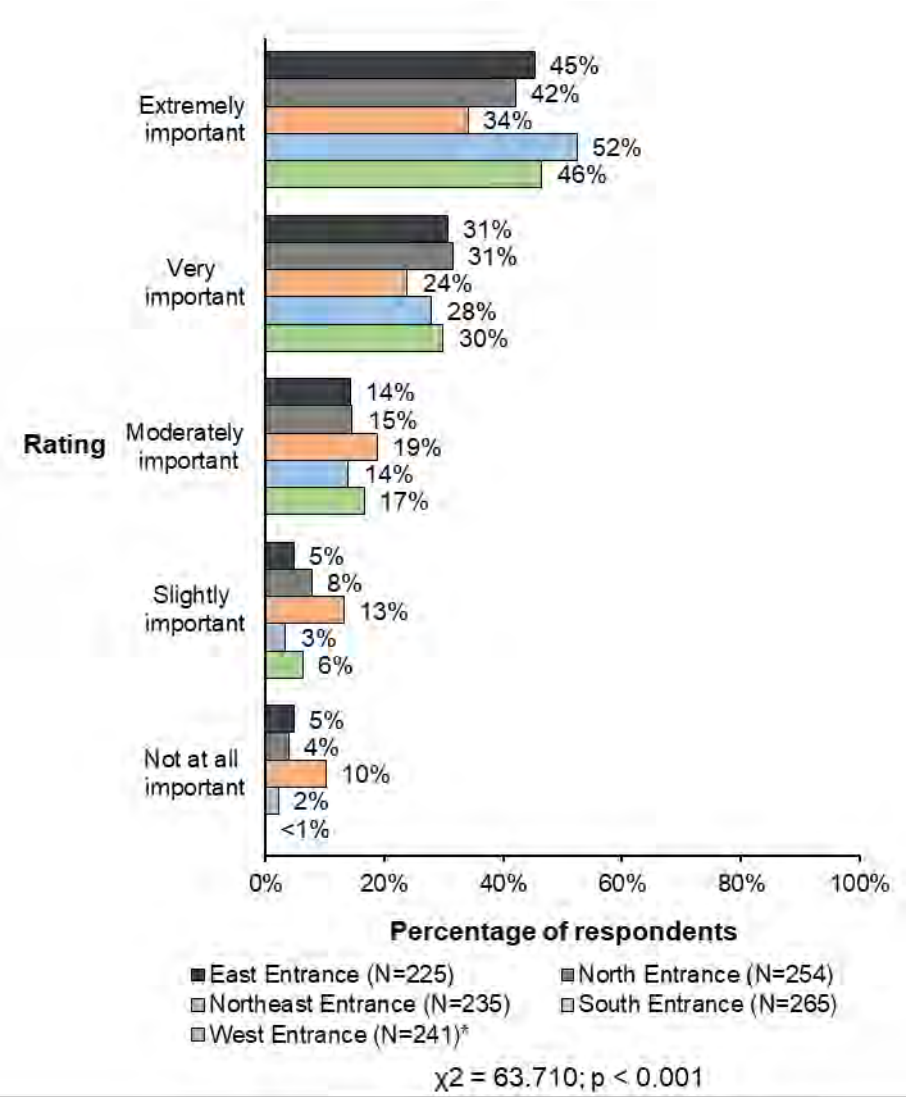


Figure 45. Importance of viewing geysers and other thermal features, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

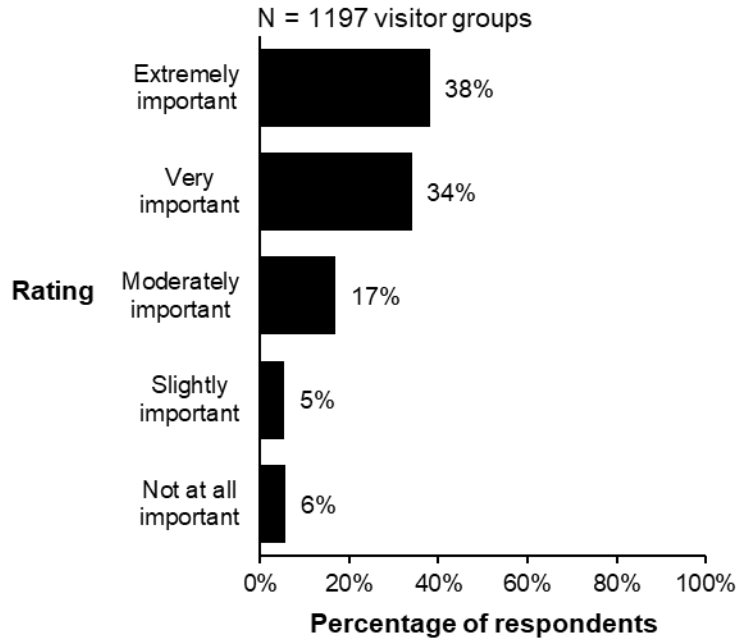


Figure 46. Importance of experiencing a wild place

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

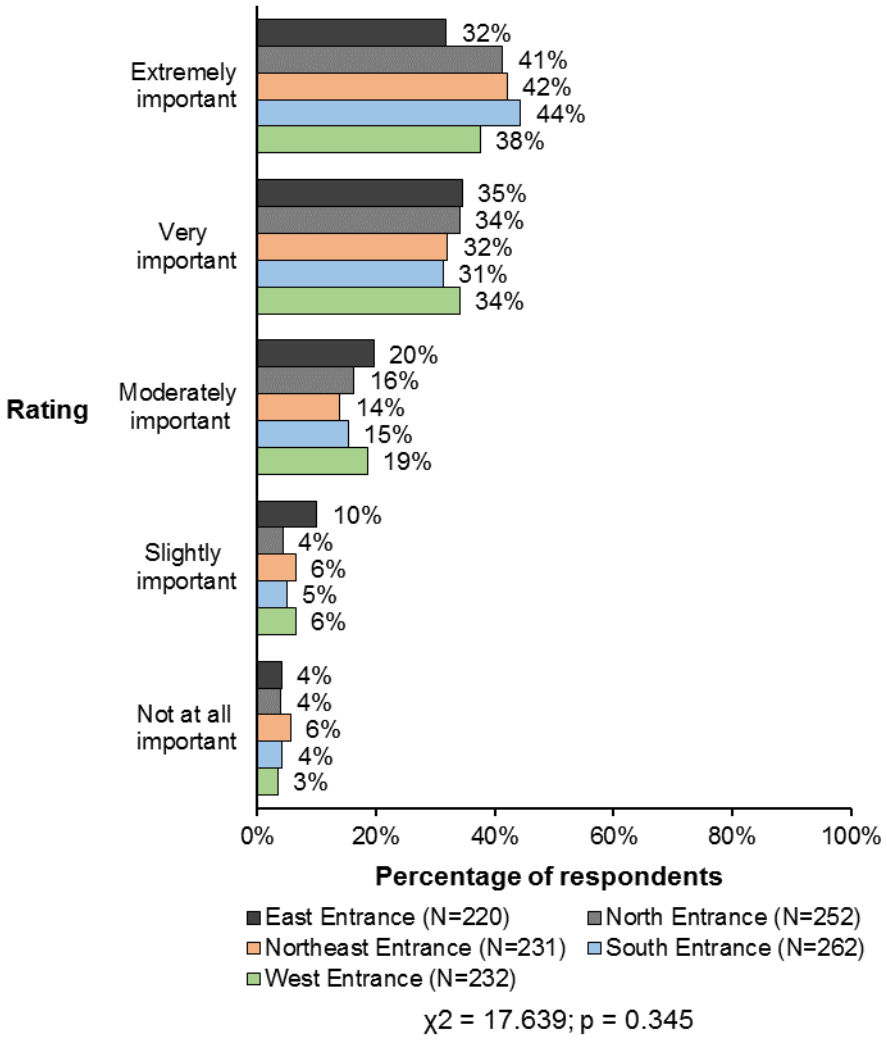


Figure 47. Importance of experiencing a wild place, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

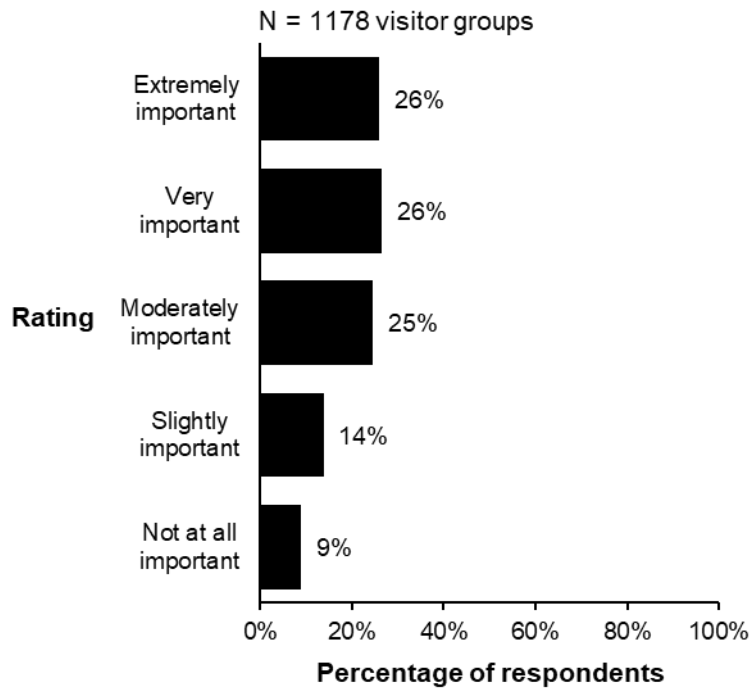


Figure 48. Importance of hearing the sounds of nature/quiet

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

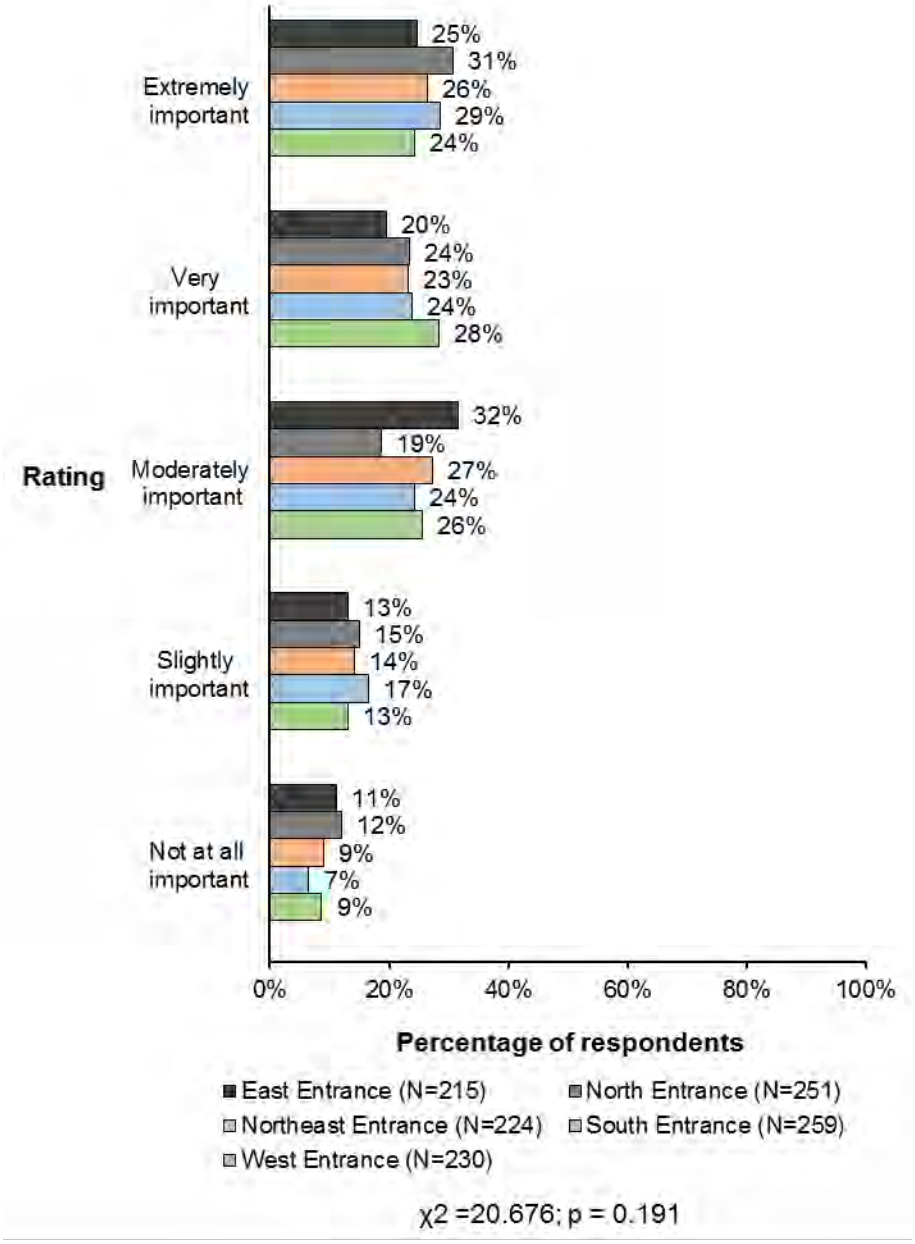


Figure 49. Importance of hearing the sounds of nature/quiet, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

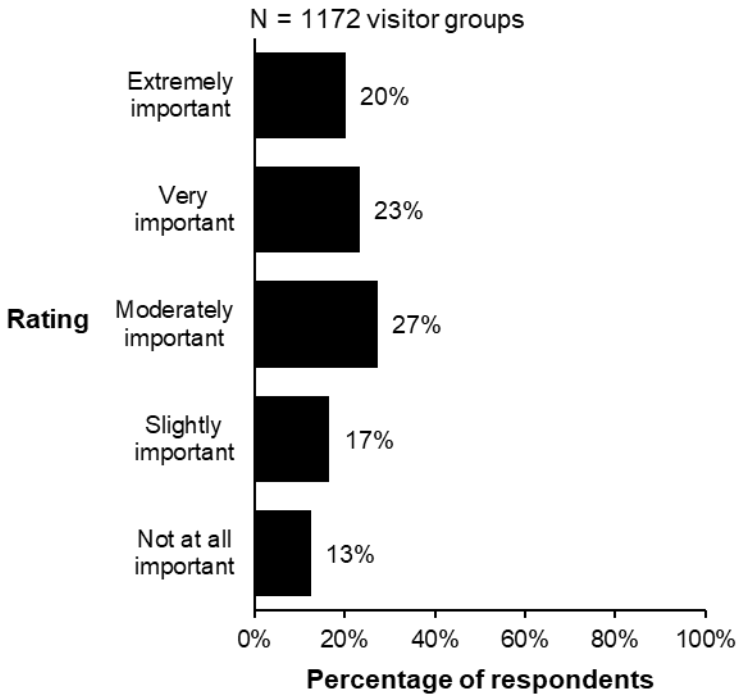


Figure 50. Importance of relaxing

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

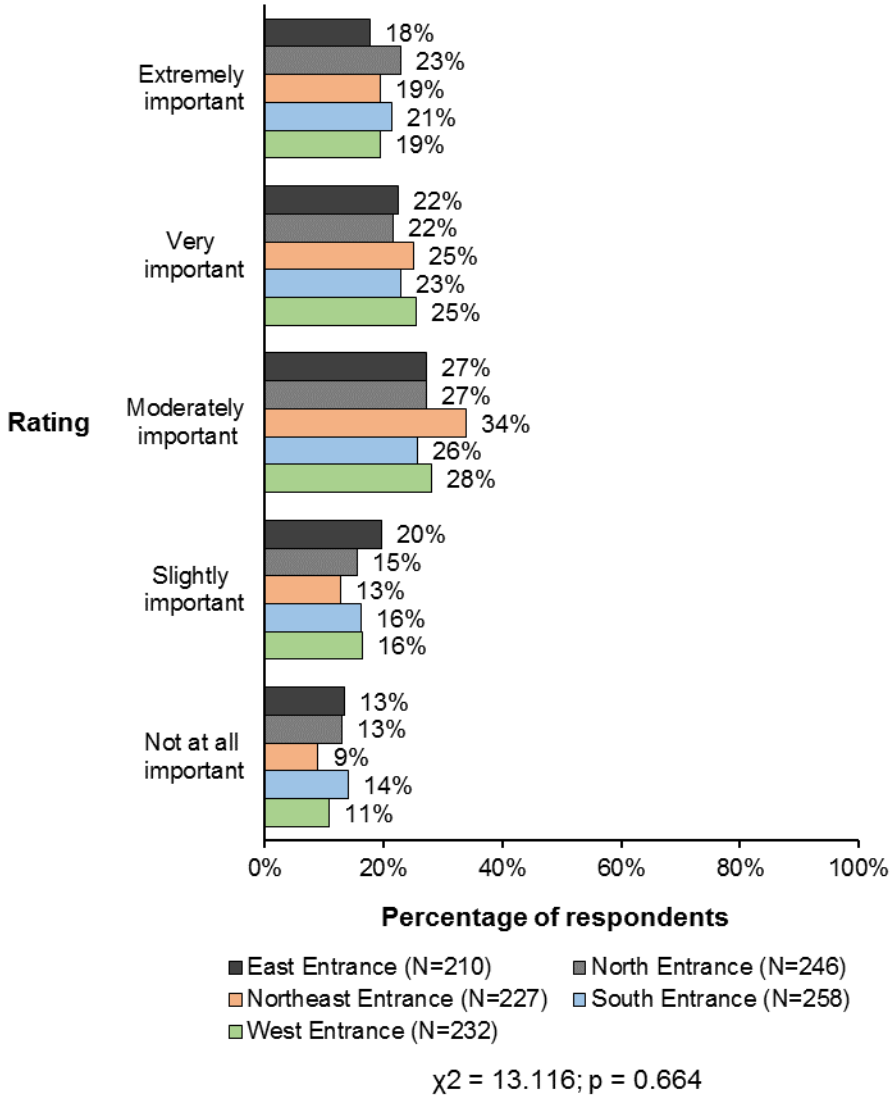


Figure 51. Importance of relaxing, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

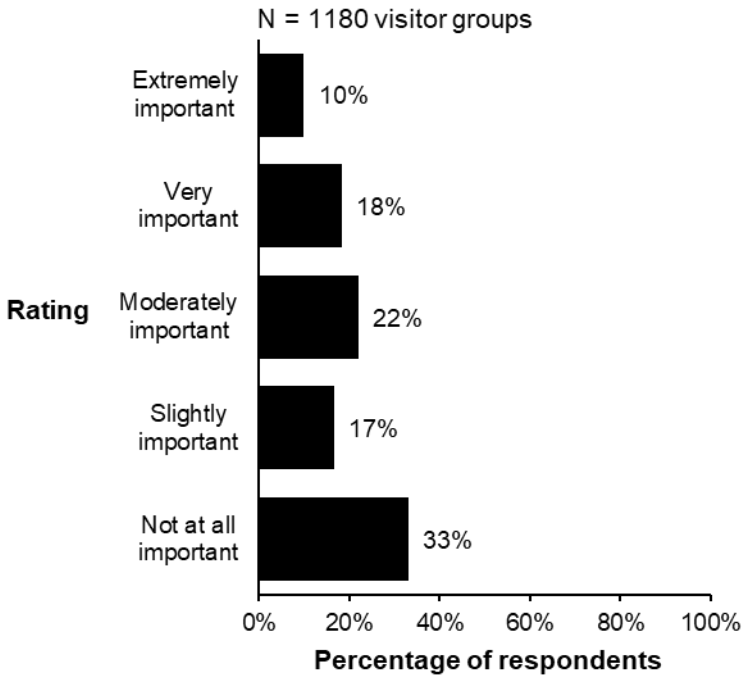


Figure 52. Importance of driving for pleasure

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

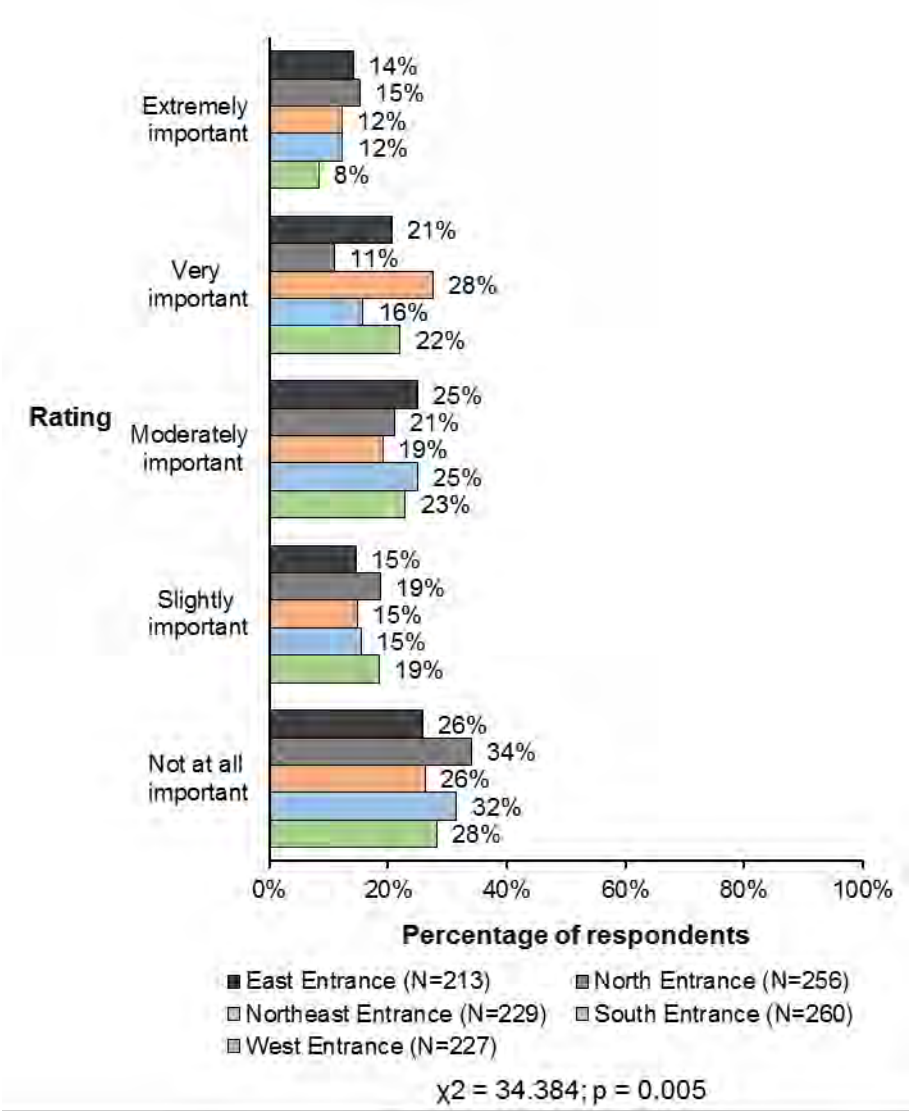


Figure 53. Importance of driving for pleasure, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

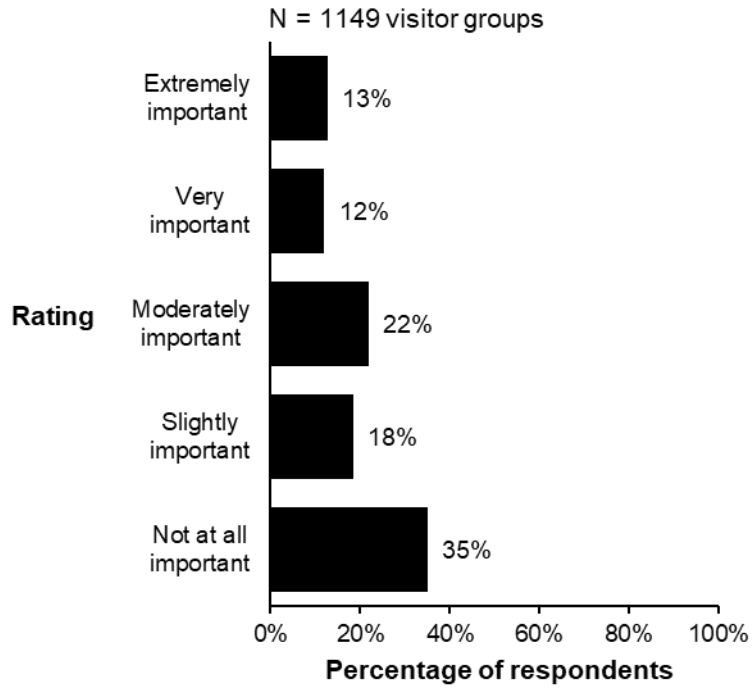


Figure 54. Importance of experiencing solitude

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

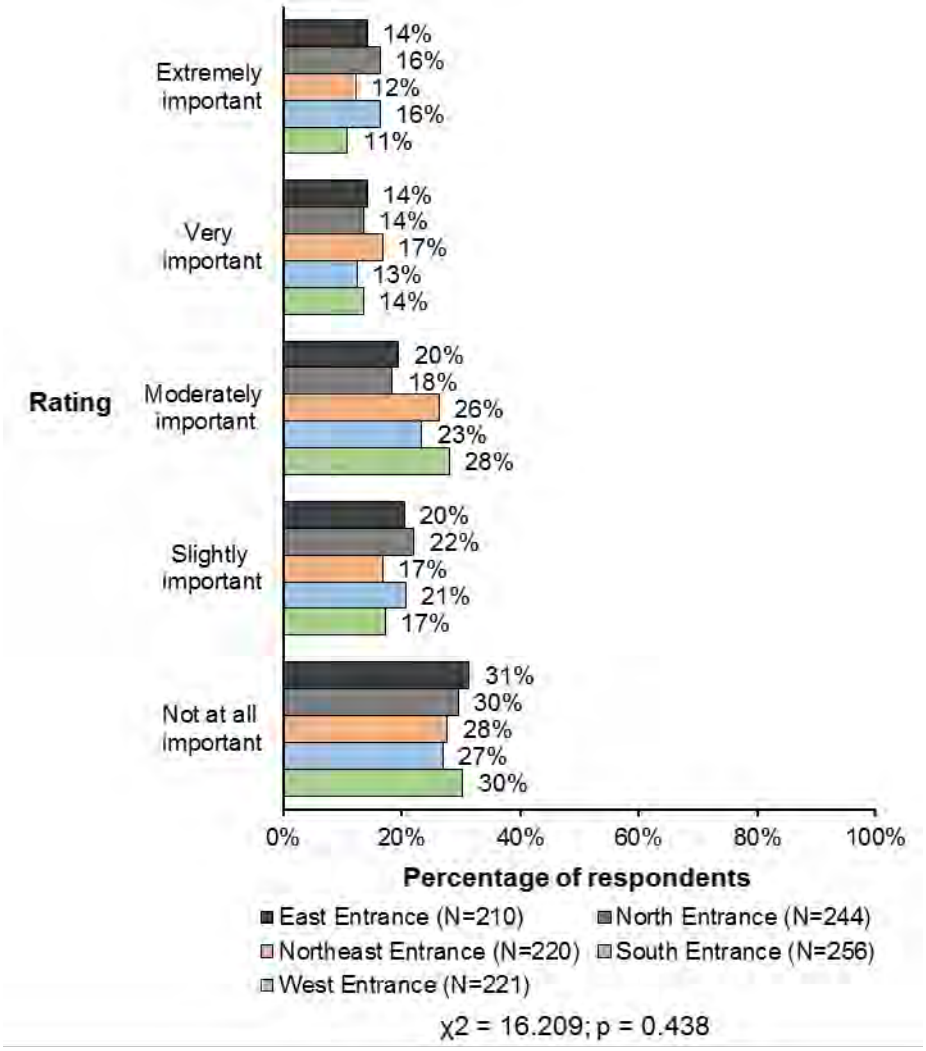


Figure 55. Importance of experiencing solitude, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Satisfaction with reasons for visiting the park

Question 13

Please indicate your level of satisfaction with each of the following reasons for visiting Yellowstone NP on this trip.

Rating choices:

Very satisfied
Somewhat satisfied
Neither
Somewhat unsatisfied
Very unsatisfied

Results (Figure 56, Table 40)

- Figure 39 shows the combined proportions of "very satisfied" and "somewhat satisfied" ratings for reasons for visiting the park.
- The reasons that received the highest combined proportions of "very satisfied" and "somewhat satisfied" ratings were:
    - 99% View natural scenery
    - 94% View geysers and other thermal features
    - 89% Experience a wild place
    - 85% View wildlife in their natural habitat
- The reasons that received the lowest combined proportions of "very satisfied" and "somewhat satisfied" ratings were:
    - 67% Drive for pleasure
    - 46% Experience solitude

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

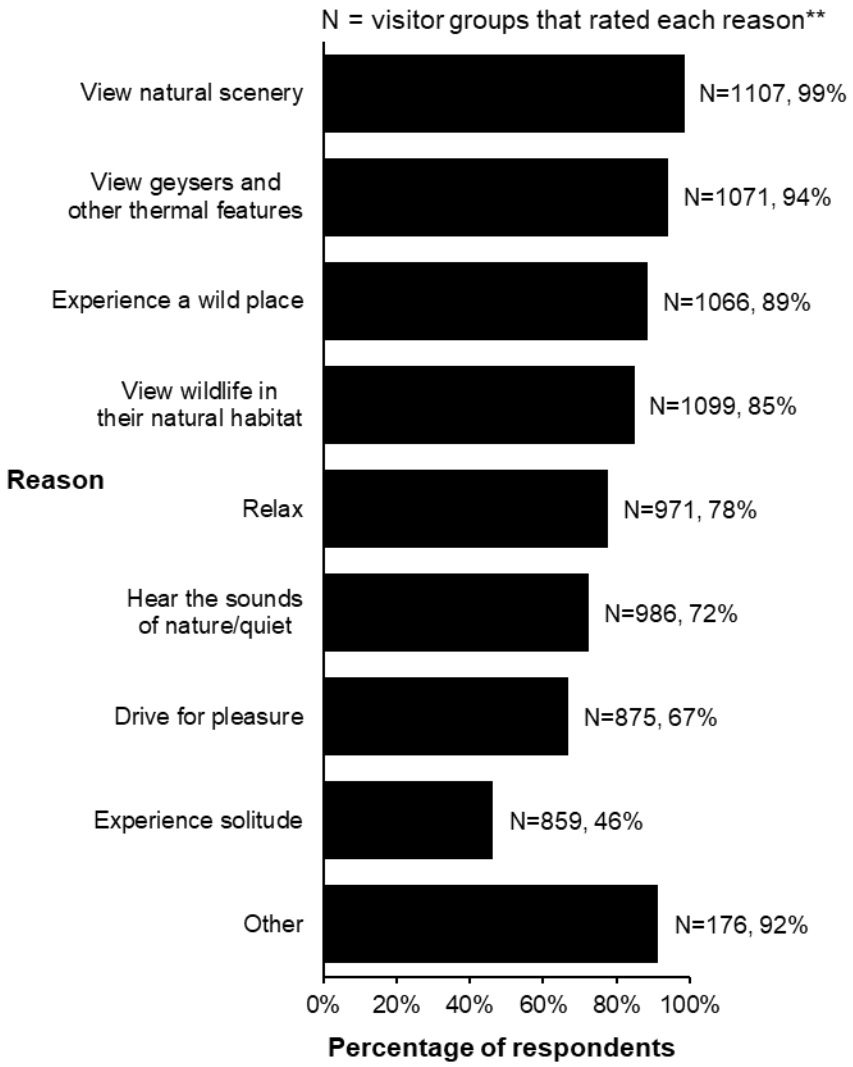


Figure 56. Satisfaction with reasons for visiting the park, includes responses for "very satisfied" or "somewhat satisfied"

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- Table 40 shows the combined proportions of "very satisfied" and "somewhat satisfied" ratings for reasons for visiting Yellowstone NP by entrance.
- No significant differences in the distribution of the combined "very satisfied" and "somewhat satisfied" ratings of the satisfaction with reasons for visiting the park were found by entrance.

Table 40. Satisfaction with reasons for visiting the park, by entrance, includes responses for either "very satisfied" or "somewhat satisfied"

		East	North	Northeast	South	West		
Reason	***n***			***Percentage of respondents***			**Chi-square**	**p-value[1]**
View natural scenery	1097	99%	99%	100%	99%	98%	χ2 = 3.587	p = 0.465
View geysers and other thermal features	1087	81%	87%	89%	78%	84%	χ2 = 14.424	p = 0.006
Experience a wild place	1046	93%	91%	88%	94%	95%	χ2 = 8.015	p = 0.091
View wildlife in their natural habitat	1048	90%	88%	91%	87%	86%	χ2 = 3.709	p = 0.447
Relax	991	72%	69%	74%	67%	72%	χ2 = 3.025	p = 0.554
Hear the sound of nature/quiet	970	75%	78%	77%	78%	72%	χ2 = 2.825	p = 0.588
Drive for pleasure	895	67%	66%	73%	66%	65%	χ2 = 3.060	p = 0.548
Experience solitude	879	50%	51%	49%	43%	47%	χ2 = 3.340	p = 0.503
Other	163	78%	94%	92%	86%	90%	χ2 = 4.164	p = 0.384

[1] $\alpha = 0.05$, $p \leq 0.005$ indicates significant result following Bonferroni correction to account for multiple statistical tests.

Figure 57 through Figure 72 show ratings for each reason.

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

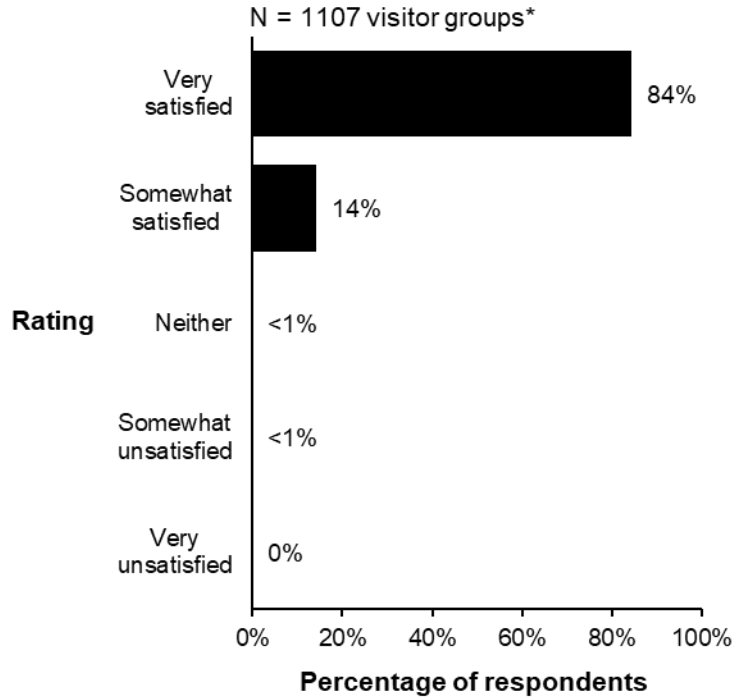


Figure 57. Satisfaction with viewing natural scenery

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

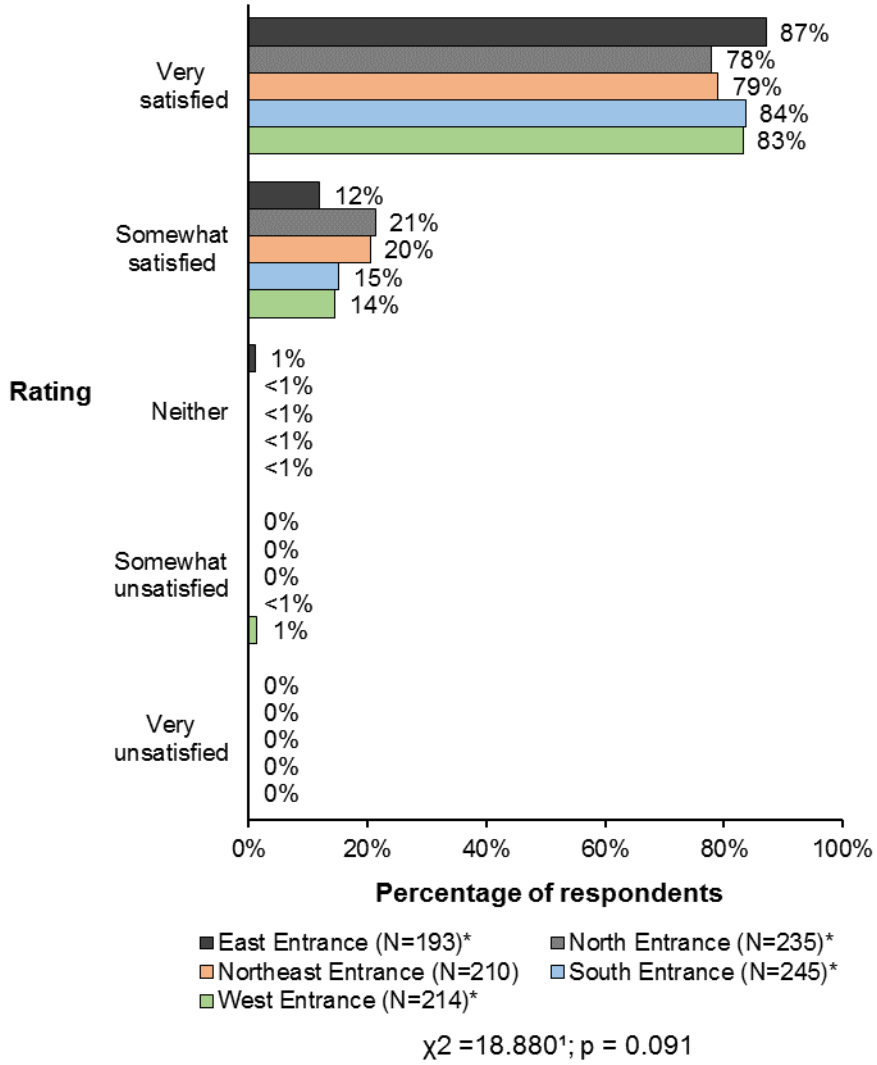


Figure 58. Satisfaction with viewing natural scenery, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

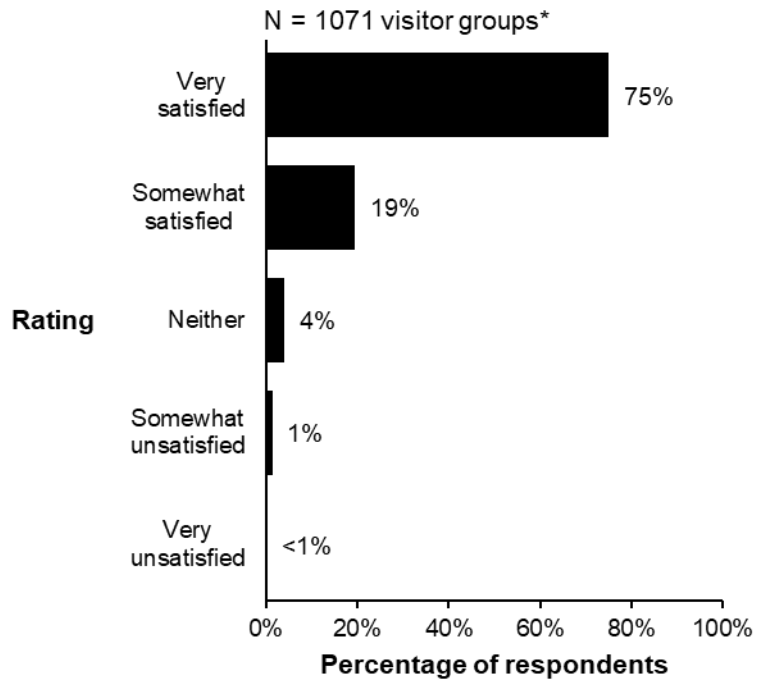


Figure 59. Satisfaction with viewing geysers and other thermal features

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

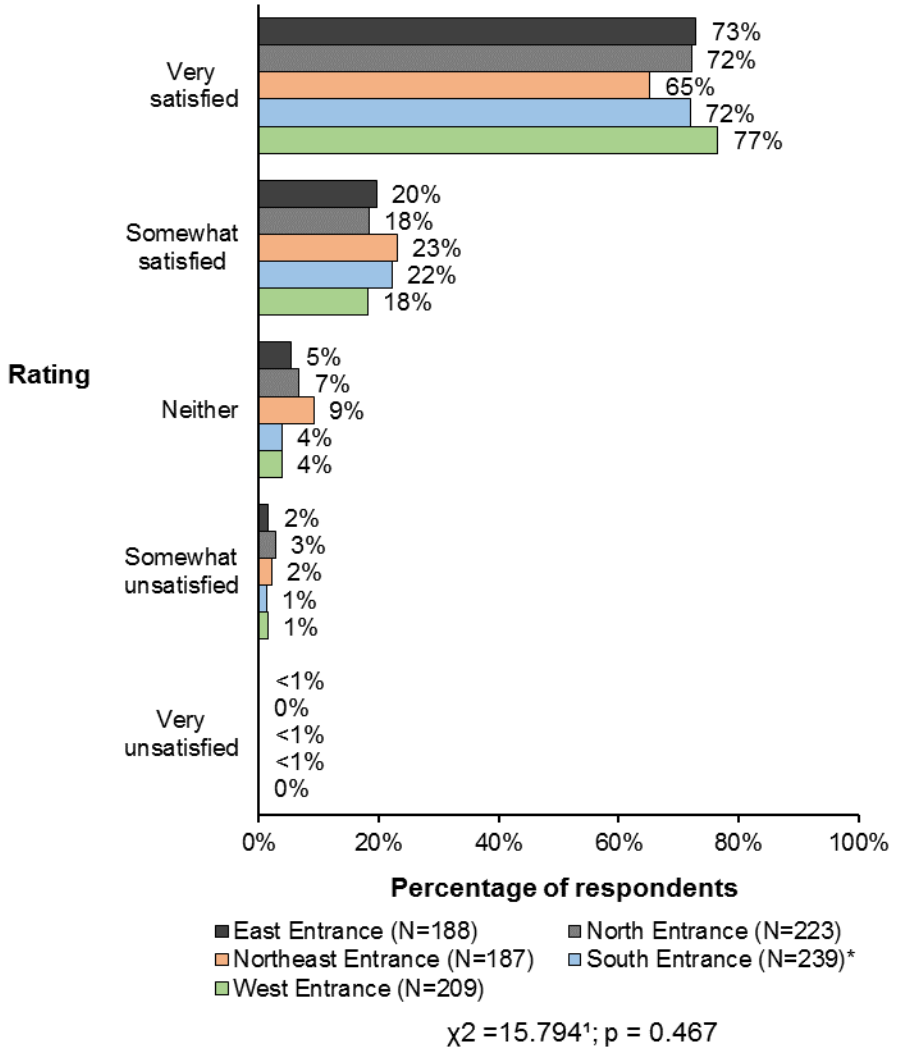


Figure 60. Satisfaction with viewing geysers and other thermal features, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

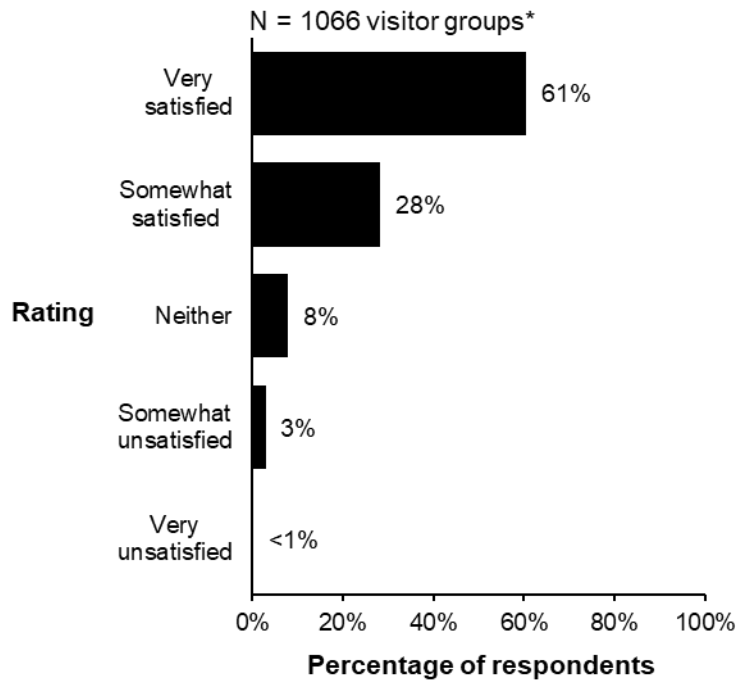


Figure 61. Satisfaction with experiencing a wild place

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

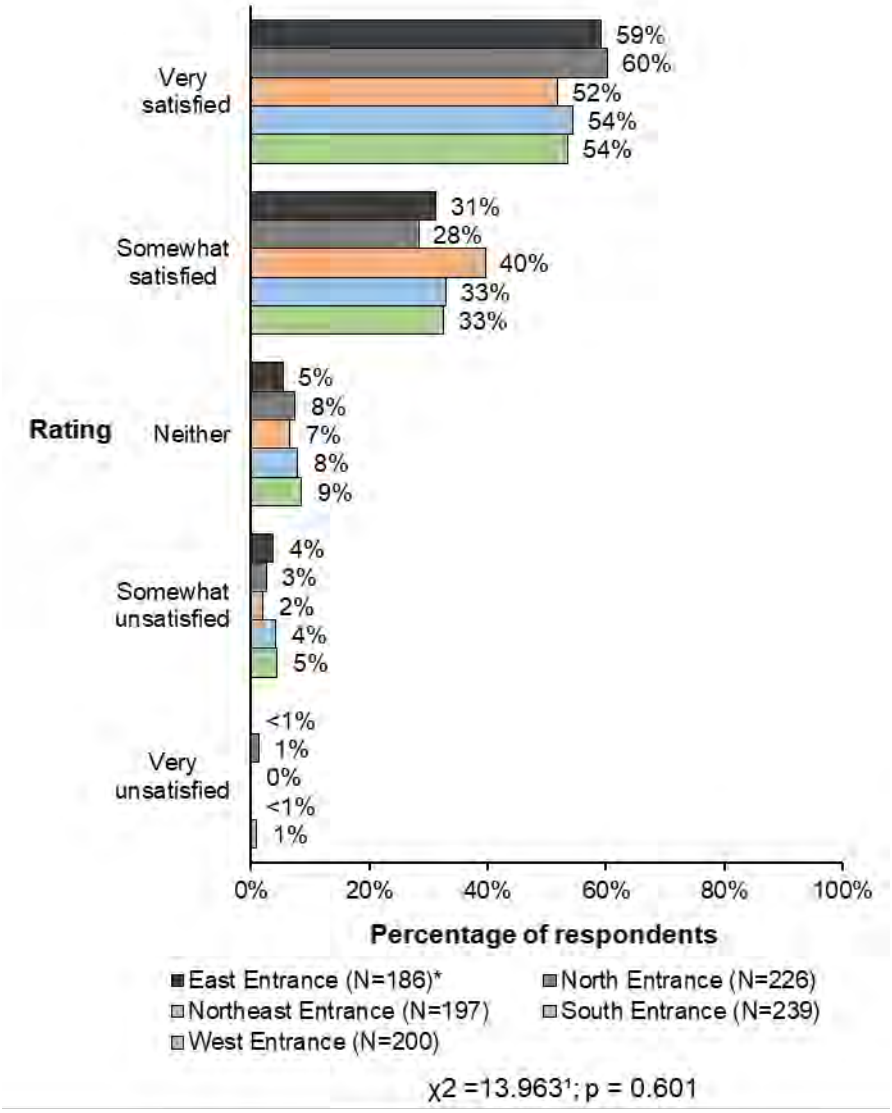


Figure 62. Satisfaction with experiencing a wild place, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

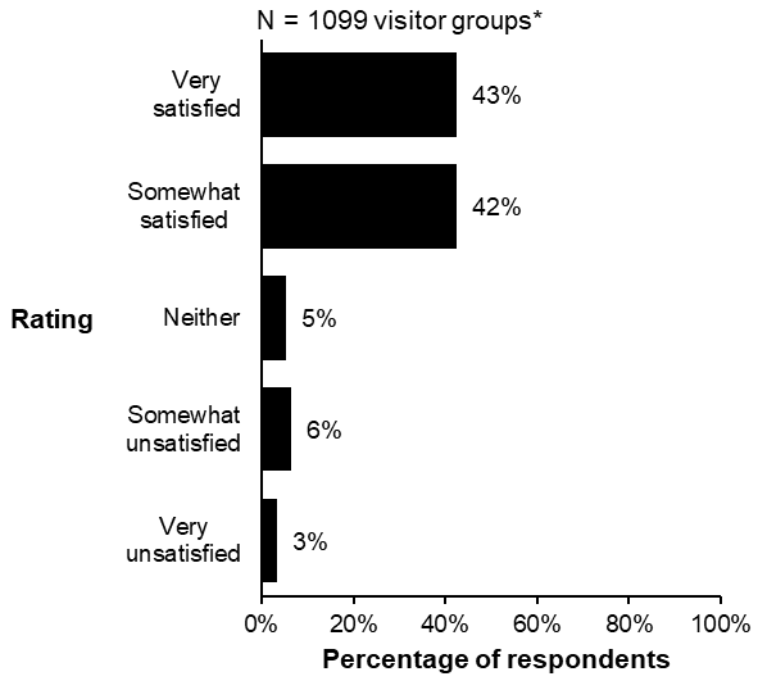


Figure 63. Satisfaction with viewing wildlife in their natural habitat

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

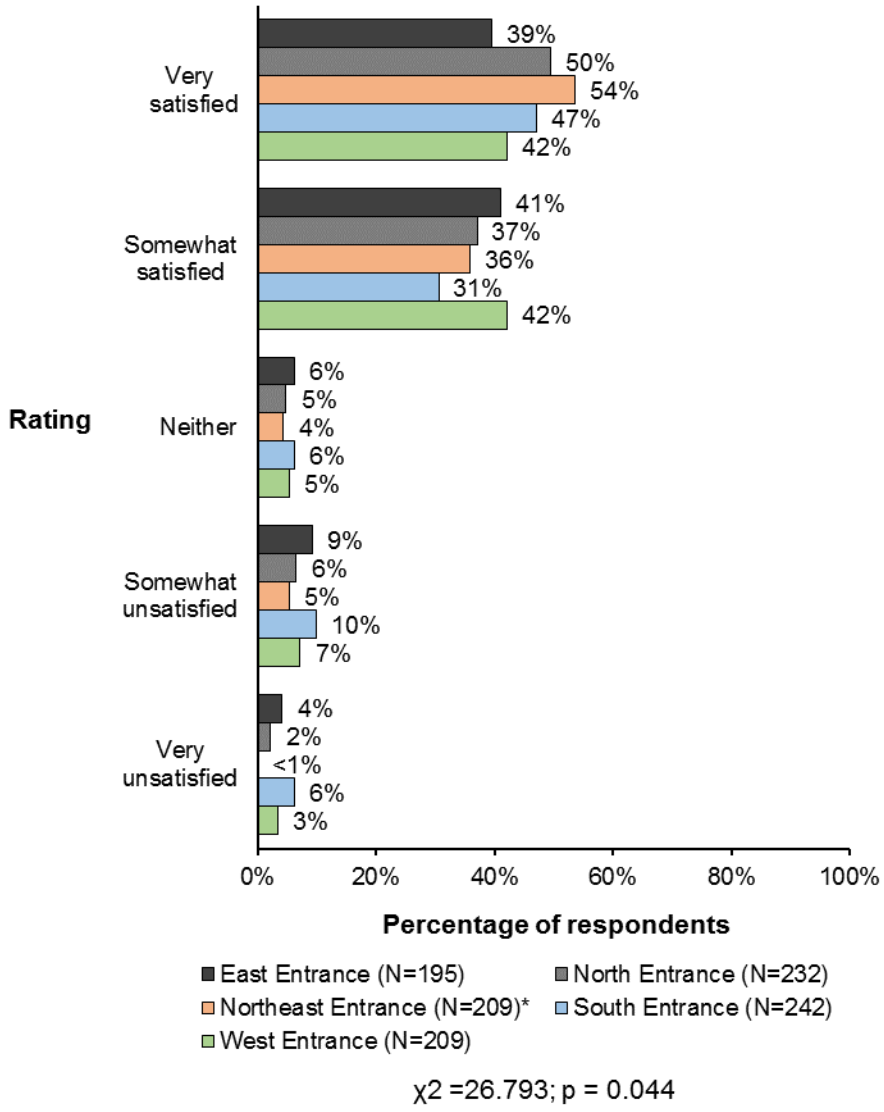


Figure 64. Satisfaction with viewing wildlife in their natural habitat, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

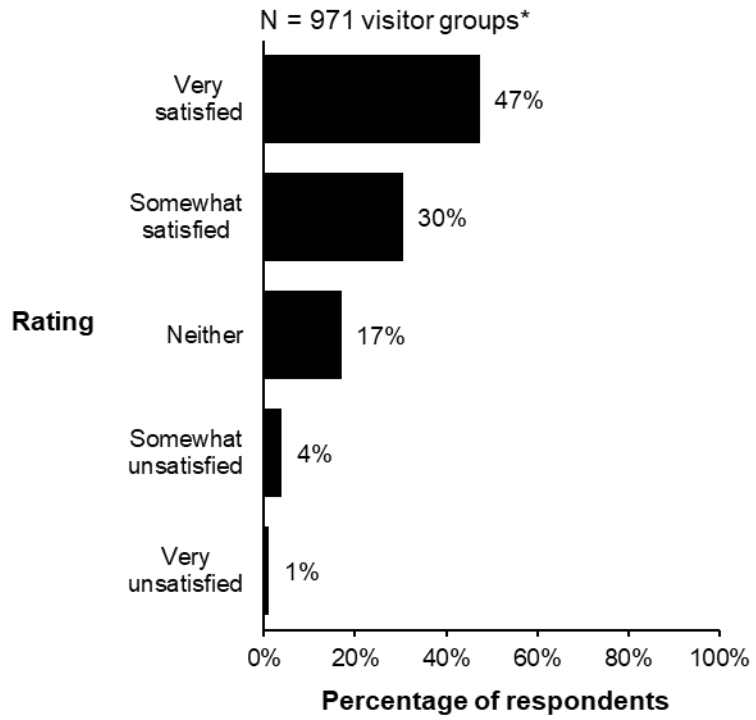


Figure 65. Satisfaction with relaxing

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

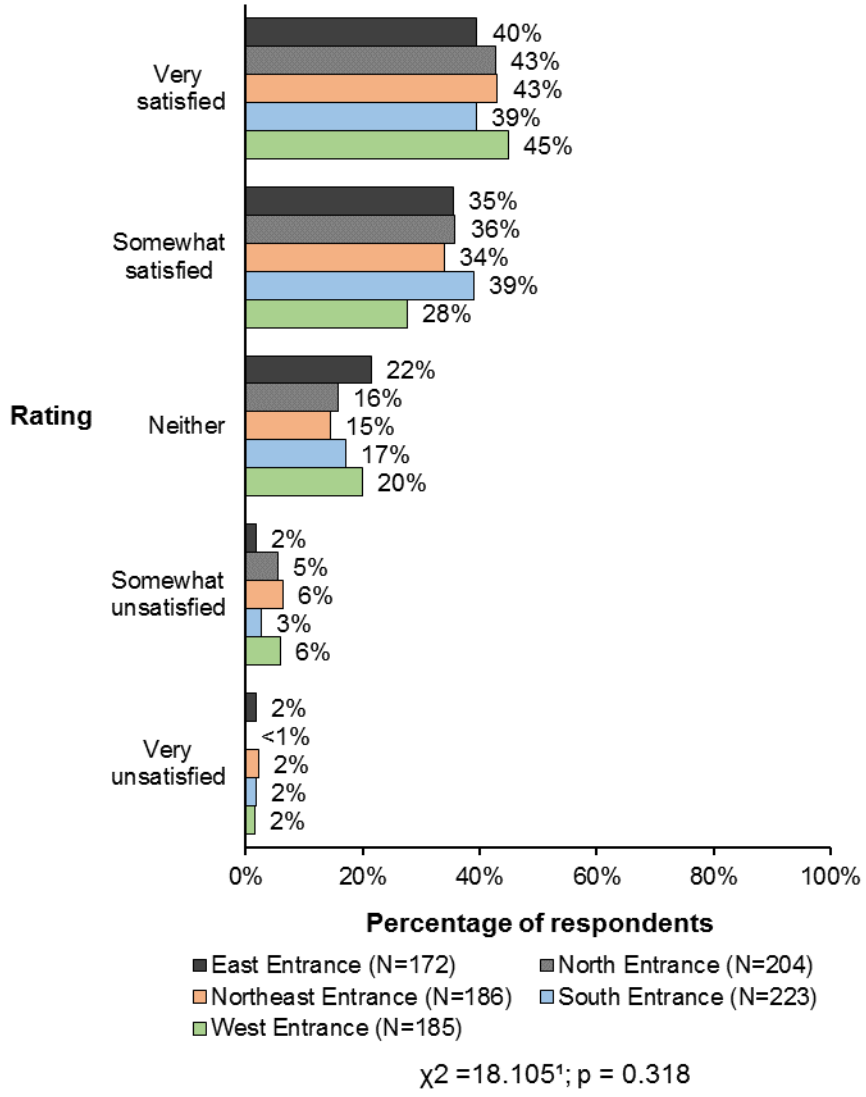


Figure 66. Satisfaction with relaxing, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

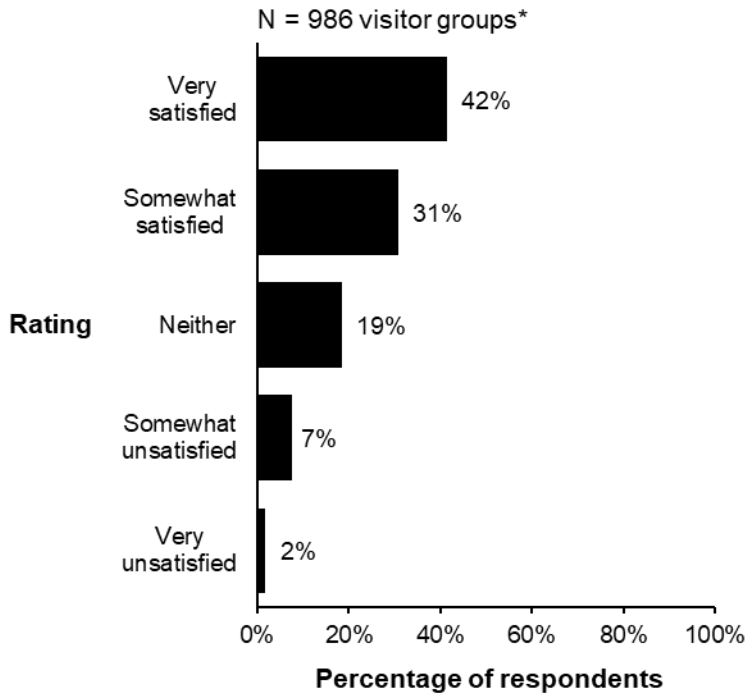


Figure 67. Satisfaction with hearing the sounds of nature/quiet

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

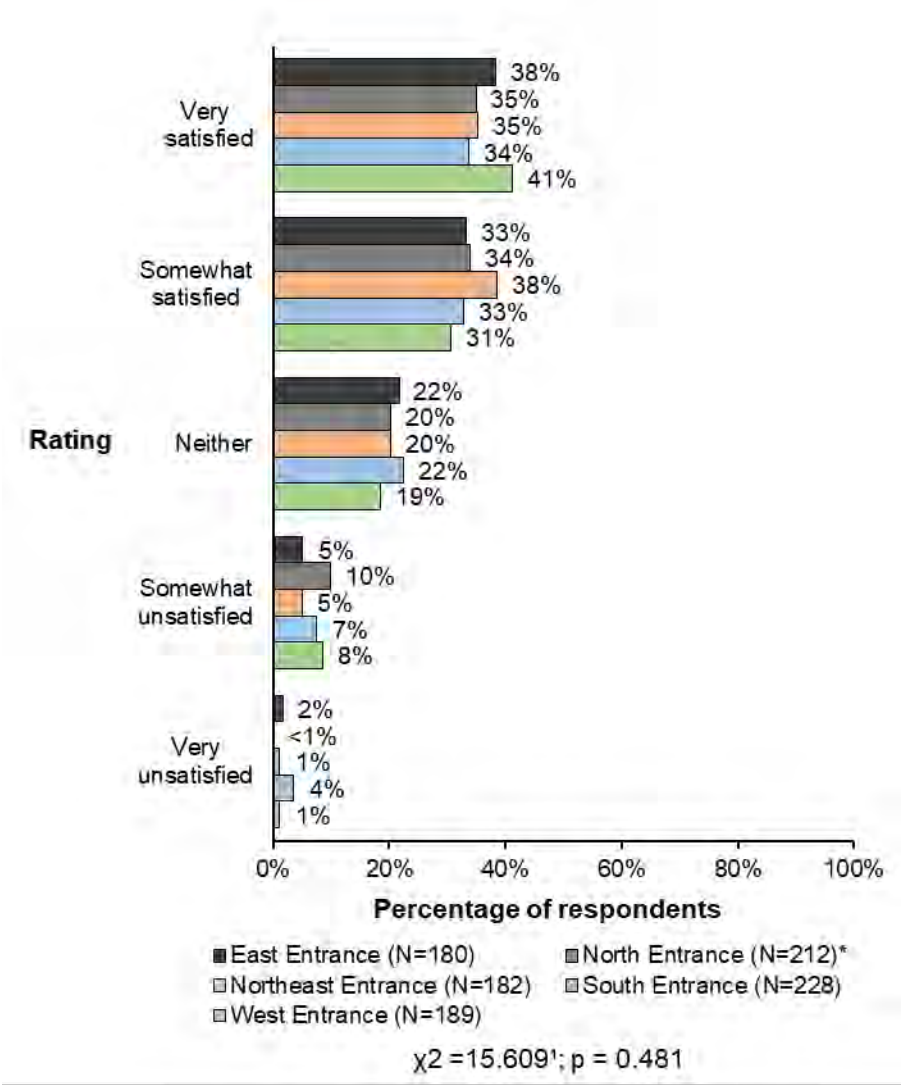


Figure 68. Satisfaction with hearing the sounds of nature/quiet, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

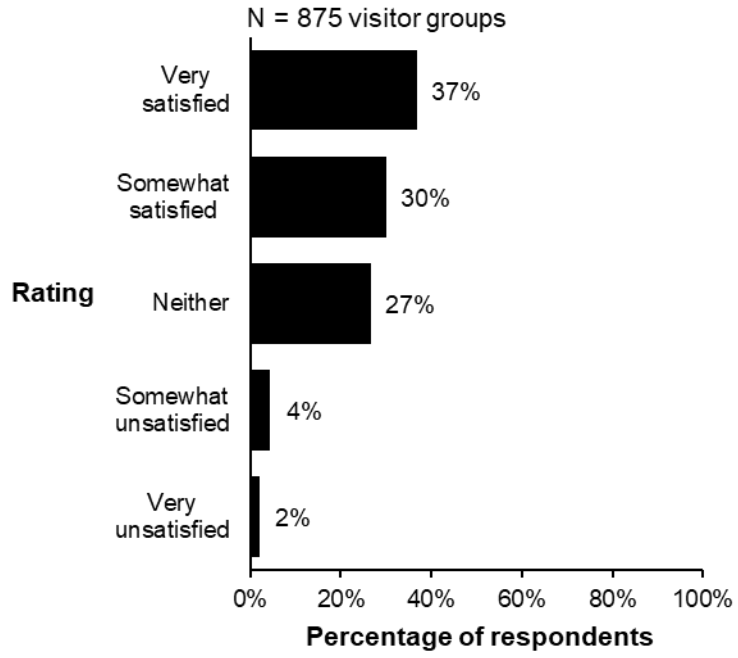


Figure 69. Satisfaction with driving for pleasure

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

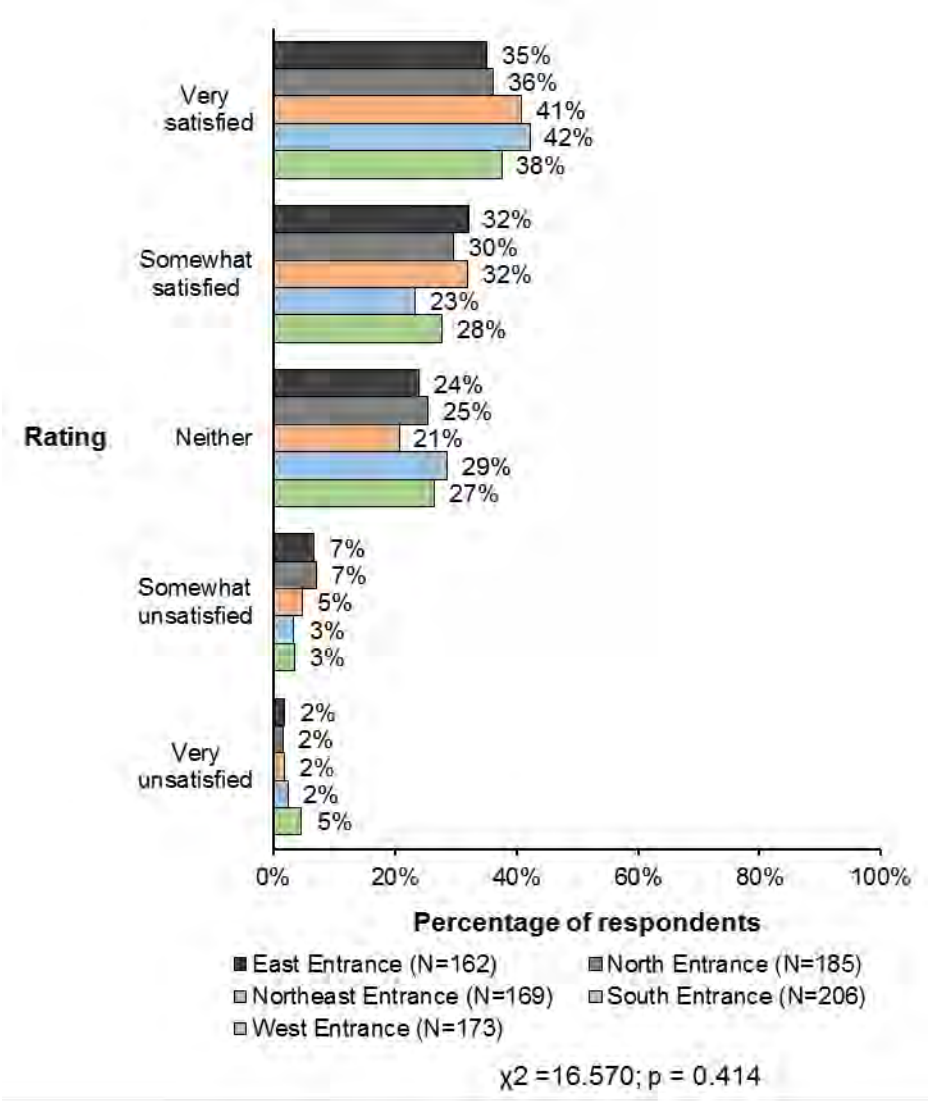


Figure 70. Satisfaction with driving for pleasure, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

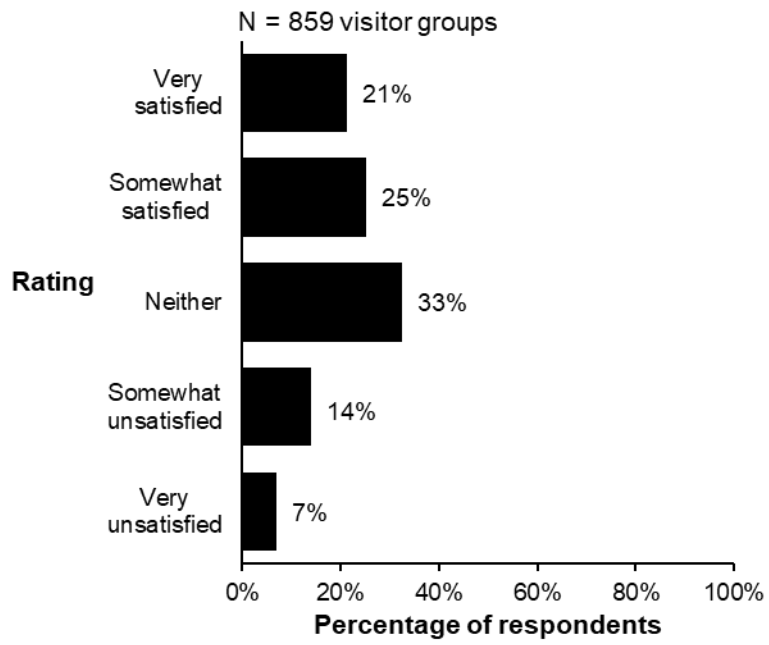


Figure 71. Satisfaction with experiencing solitude

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

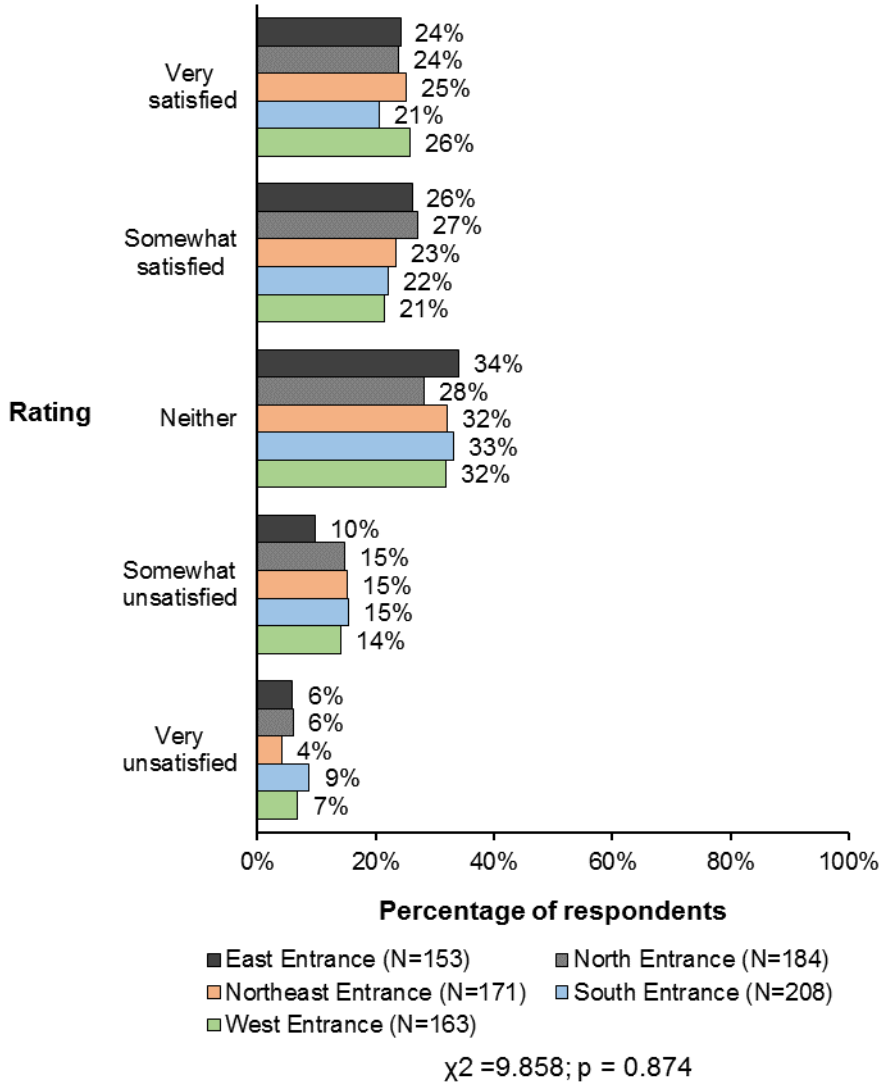


Figure 72. Satisfaction with experiencing solitude, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Mean scores of importance and satisfaction ratings for reasons for visiting the park
Question 13

- Figure 73 shows the mean ratings of the importance and satisfaction for all reasons for visiting Yellowstone NP.
- Mean importance ratings for all reasons for visiting Yellowstone NP were relatively important to visitor groups, with the exception of driving for pleasure and experiencing solitude, which received, on average, importance ratings below the midpoint rating on the scale (moderately important).
- Mean satisfaction ratings with reasons for visiting the park were positive for all listed reasons, indicating visitors to be at least somewhat satisfied with reasons for visiting the park.

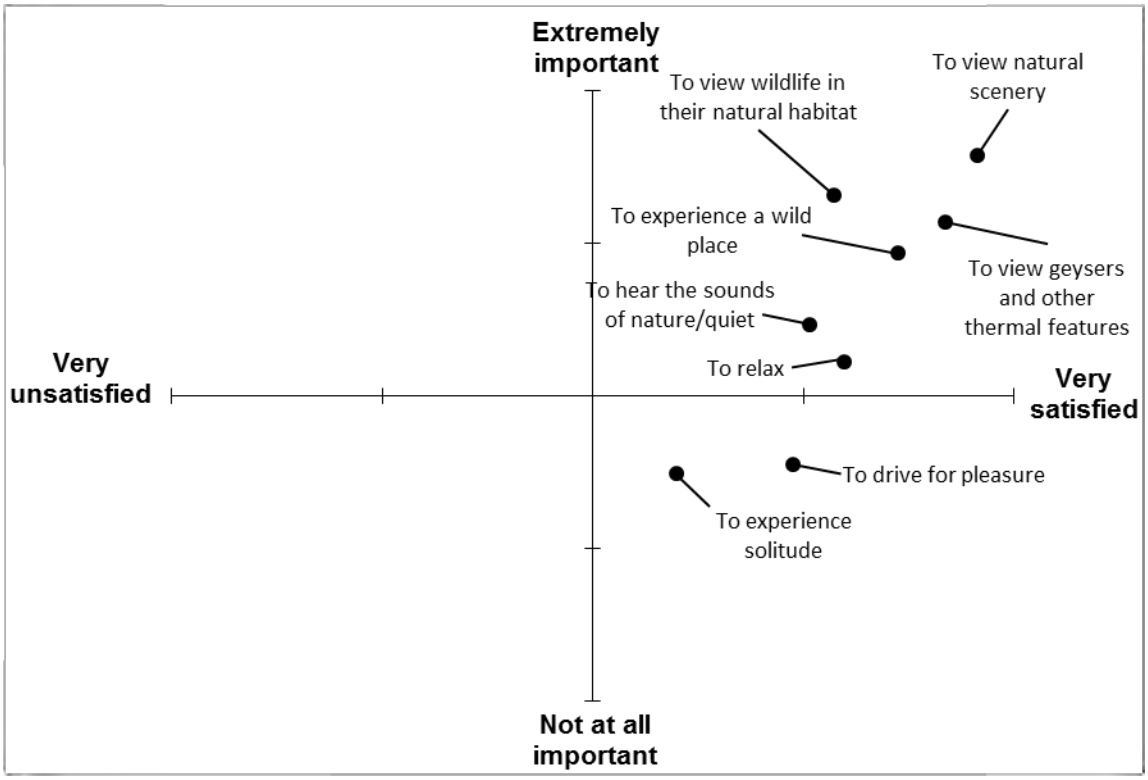


Figure 73. Mean scores for importance and satisfaction ratings for reasons for visiting the park

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Most important reasons for visiting the park

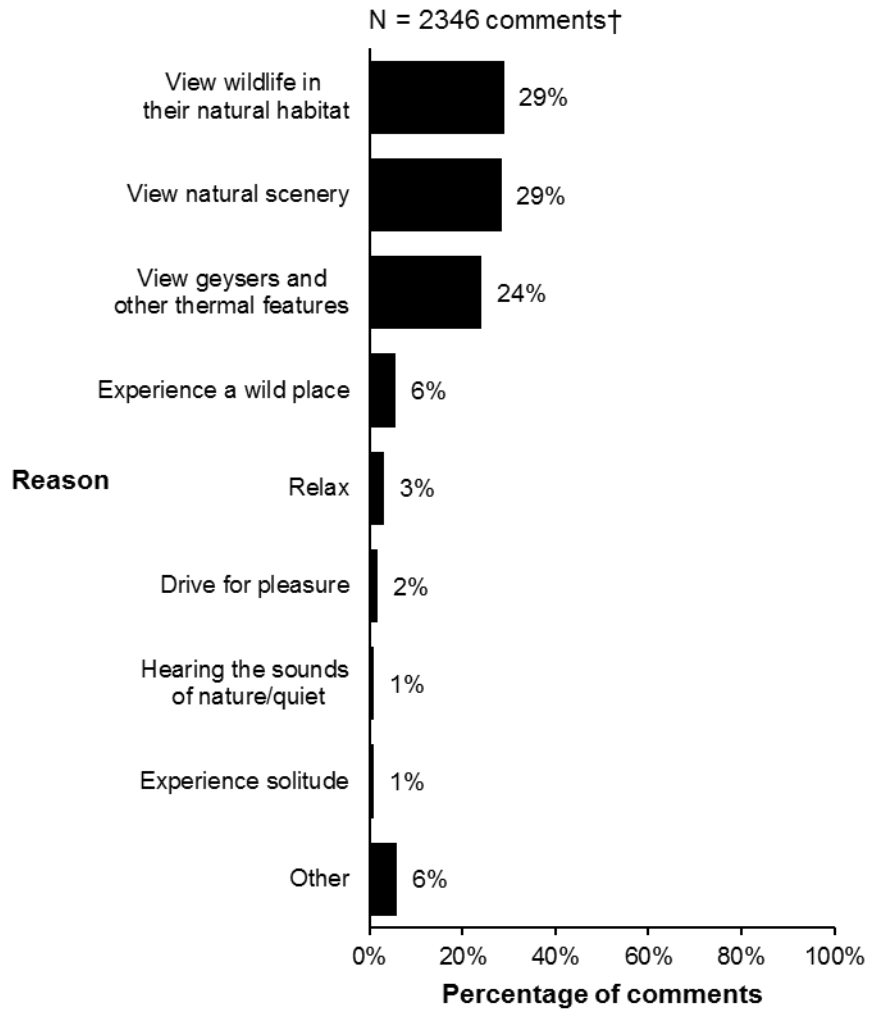
Question 14

Of the reasons for visiting Yellowstone NP on this trip listed in Question 13, which two were the most important to you?

Results (Figure 74, Table 41)

- As shown in Figure 74, the most commonly selected most important reasons for visiting Yellowstone NP were:
    - 29% Viewing wildlife in their natural habitat
    - 29% Viewing natural scenery
    - 24% Viewing geysers and thermal features
- The least commonly selected most important reasons were:
    - 2% Driving for pleasure
    - 1% Hearing the sounds of nature/quiet
    - 1% Experiencing solitude

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer



†Visitor groups were asked to list two most important reasons. Some visitor groups may have only listed one reason.

Figure 74. Most important reasons for visiting the park

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The distribution of the reasons visitor groups considered to be most important to their visit to Yellowstone NP significantly differed by entrance ($X^2 = 60.103$; $p = 0.002$).

Table 41. Most important reasons for visiting the park, by entrance

	Percentage of comments†						
	East	**North**	**Northeast**	**South**	**West**		
Reason	*n = 423**	*n = 484**	*n = 449**	*n = 494**	*n = 459**	**Chi-square**	**p-value**
View wildlife in their natural habitat	28%	30%	32%	29%	31%		
View natural scenery	30%	30%	30%	28%	26%		
View geysers and other thermal features	21%	17%	13%	24%	22%		
Experience a wild place	5%	8%	6%	7%	7%		
Relax	5%	3%	3%	3%	5%	χ2 = 60.103	p = 0.002
Drive for pleasure	3%	2%	4%	1%	1%		
Hearing the sounds of nature/quiet	2%	1%	2%	2%	0%		
Experience solitude	1%	2%	1%	1%	1%		
Other specified reason	5%	7%	10%	5%	7%		

†Visitor groups were asked to list two most important reasons. Some visitor groups may have only listed one reason.

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*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

Length of stay in Yellowstone NP

Question 7

On this trip, how much total time did you spend within Yellowstone NP?

Results (Figure 75, Figure 76)

- 66% of visitor groups spent 1 day or more visiting Yellowstone NP.
- 34% of visitor groups spent less than one day visiting Yellowstone NP.

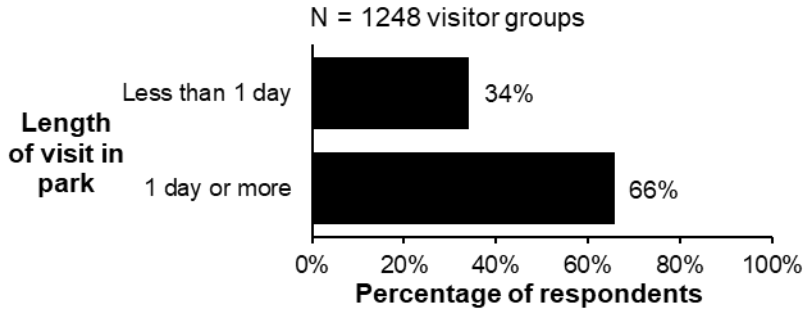


Figure 75. Length of visit in Yellowstone NP

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The distribution of the number of visitor groups that stayed in the park for less than one day versus one day or more did not differ significantly by entrance ($X^2 = 6.950$; $p = 0.139$).

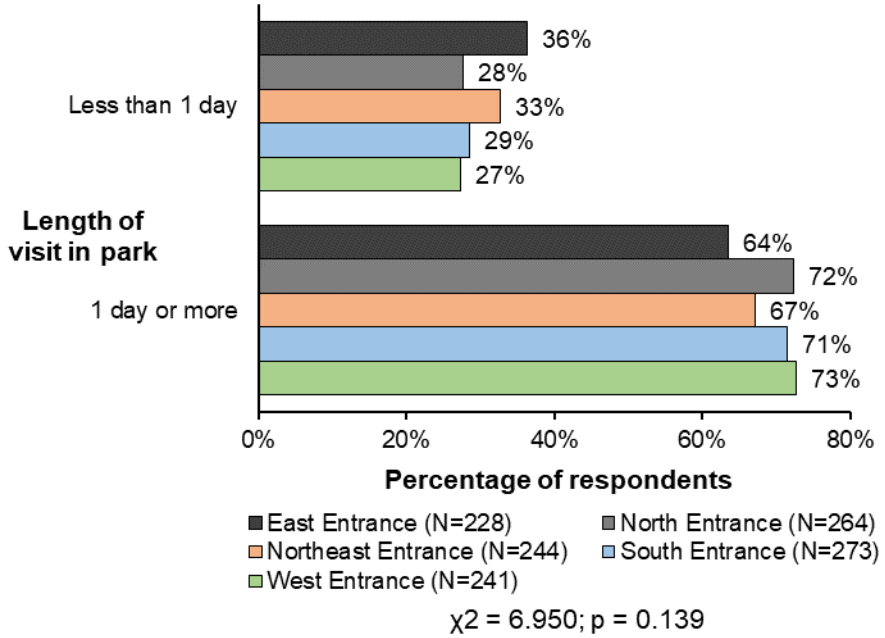


Figure 76. Length of visit in Yellowstone NP, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*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 hours, if day trip

Results (Figure 77, Table 42, Figure 78, Table 43)

- 31% of visitor groups who spent less than 24 hours in the park visited for 7 to 8 hours.
- 22% of visitor groups who spent less than 24 hours in the park visited for 5 to 6 hours.
- The mean number of hours spent in the park was approximately 7 hours.

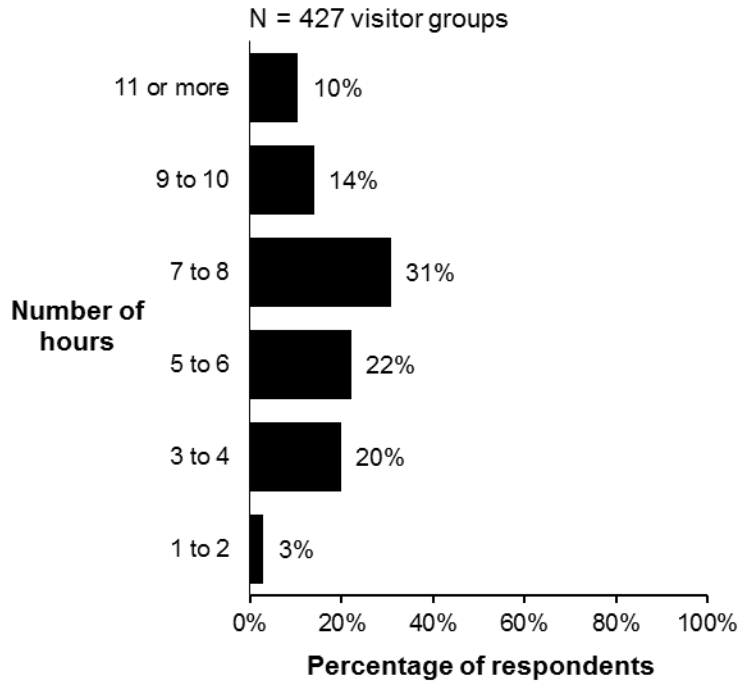


Figure 77. Number of hours visiting the park by groups who spent less than 24 hours in the park

Table 42. Descriptive statistics: Number of hours visiting park

	Mean	Median	Std. Deviation
Number of hours visiting park	7.23	8.00	3.17

- The number of hours visitor groups who spent less than 24 hours in the park spent in the park did not significantly differ by entrance ($X^2 = 24.095$; $p = 0.238$).
- Across all entrances, visitor groups who spent less than 24 hours in the park tended to spend between 5 and 10 hours in the park.

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The mean number of hours visitor groups who spent less than 24 hours in the park spent in the park did not significantly differ by entrance ($F = 1.228$, $p = 0.298$).

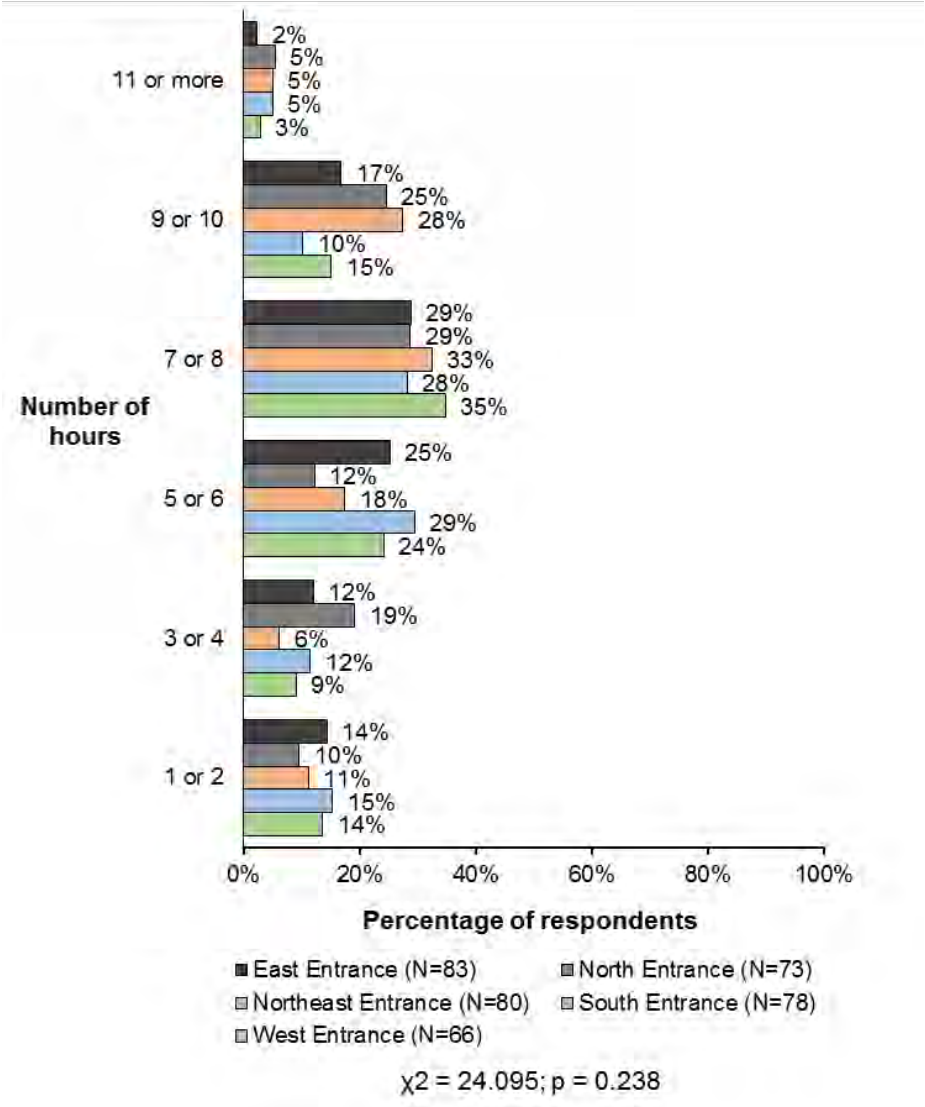


Figure 78. Number of hours visiting the park by groups who spent less than 24 hours in the park, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Table 43. ANOVA: Mean number of hours visiting the park by groups who spent less than 24 hours in the park, by entrance

Entrance	Mean (SD)	Median
East Entrance	7.13 (3.15)	7.00
North Entrance	6.93 (3.97)	6.00
Northeast Entrance	6.39 (3.58)	6.00
South Entrance	7.33 (2.88)	7.00
West Entrance	7.59 (4.22)	6.00
$F = 1.228$, $p = 0.298$		

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*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 days, if greater than 1 day

Results (Figure 79, Table 44, Figure 80, Table 45)

- 44% of visitor groups who reported spending 24 hours or more in the park visited for 3 to 4 days.
- 32% of visitor groups who reported spending 24 hours or more in the park visited for up to 2 days.
- The mean number of days spent visiting the park among visitor groups who reported spending 24 hours or more in the park was approximately 4 days.

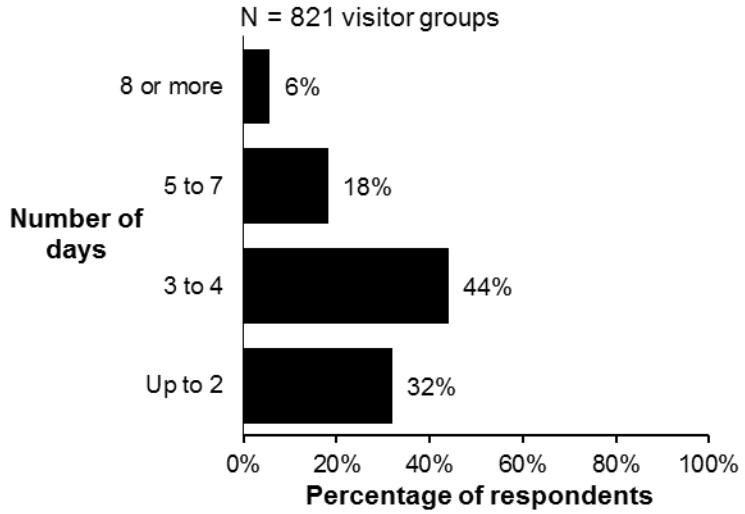


Figure 79. Number of days visiting the park by groups who spent 24 hours or more in the park

Table 44. Descriptive statistics: Number of days visiting park

	Mean	Median	Std. Deviation
Number of days visiting park	3.98	3.00	4.48

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The number of days visitor groups who spent 24 hours or more in the park spent in the park significantly differed by entrance ($X^2 = 31.620$; $p = 0.002$).
- Across entrances, visitor groups entering at the North entrance were most likely to spend 5 or more days at the park.
- Across entrances, visitor groups entering at the South entrance were most likely to spend 1 or 2 days at the park.
- The mean number of days visitors who spent more than 24 hours in the park spent in the park significantly differed by entrance. Specifically, visitor groups entering at the North entrance had a higher mean number of days than visitor groups entering at the South entrance ($F = 3.006$; $p = 0.019$).

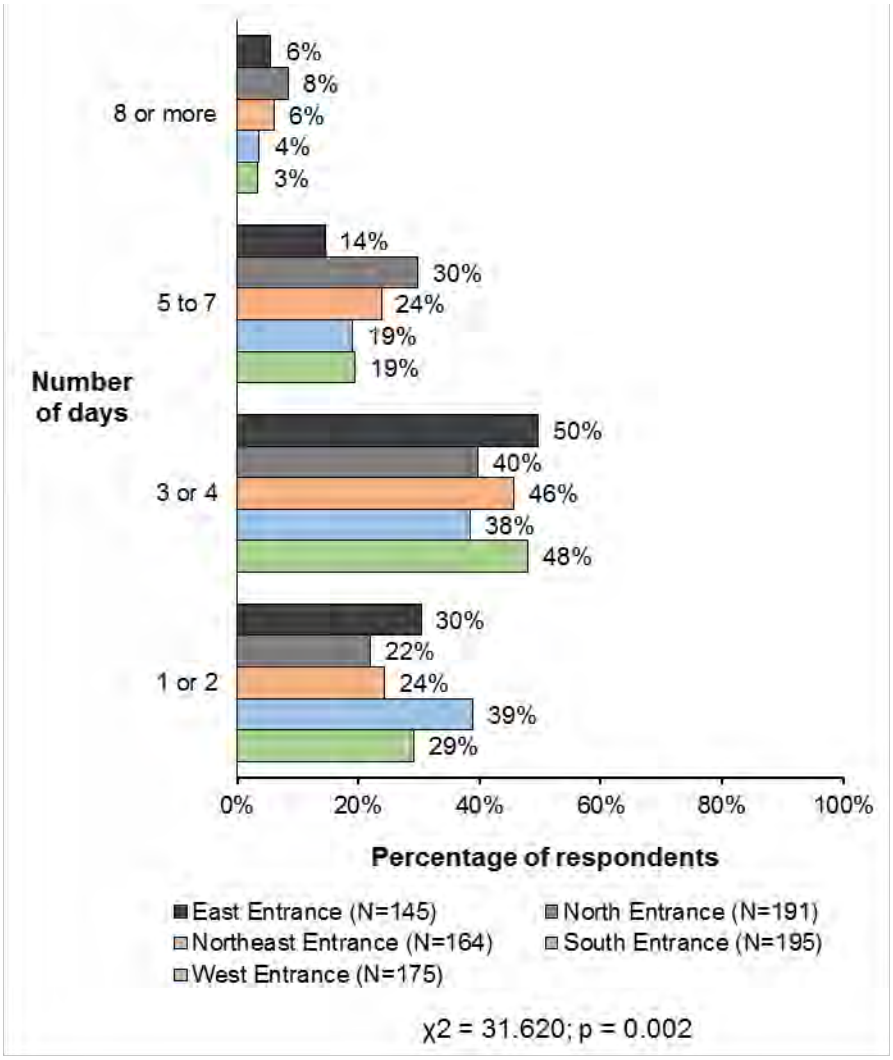


Figure 80. Number of days visiting the park by groups who spent 24 hours or more in the park, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Table 45. ANOVA: Mean number of days visiting the park by groups who spent 24 hours or more in the park, by entrance

Entrance	Mean (SD)	Median
East Entrance	3.70 (2.10)[ab]	3.00
North Entrance	5.24 (11.21)[a]	4.00
Northeast Entrance	4.23 (3.03)[ab]	4.00
South Entrance	3.53 (2.10)[b]	3.00
West Entrance	3.78 (2.56)[ab]	3.00
$F = 3.006$, $p = 0.019$		

Note: means for number of days visiting the park by groups who spent 24 hours or more in the park that have no superscript in common are significantly different from each other at α = 0.05.

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Days entered or re-entered park

Question 6

On how many days during this trip did you enter or re-enter Yellowstone NP? If you were on a day trip or if you camped or lodged inside the park and did not leave the park boundaries for the entire length of your stay, then answer 1 day.

Results (Figure 81, Table 46, Figure 82, Table 47)

- 40% of visitor groups entered or reentered the park on only 1 day.
- 27% of visitor groups entered or reentered the park on 2 days.

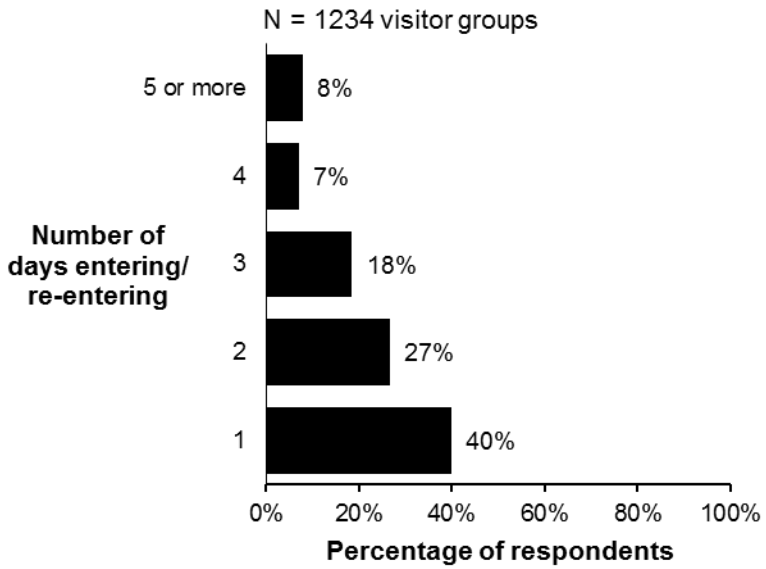


Figure 81. Number of days entered or re-entered park

Table 46. Descriptive statistics: Number of days entered or re-entered park

	Mean	Median	Std. Deviation
Number of days entered or re-entered park	2.27	2.00	1.65

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The number of days visitor groups entered or reentered the park significantly differed by entrance ($X^2 = 50.475$; $p < 0.001$).
- Across entrances, visitor groups entering at the East entrance were most likely to enter or reenter the park on only one day.
- The mean number days on which visitor groups entered or reentered the park significantly differed by entrance ($F = 7.096$; $p < 0.001$).

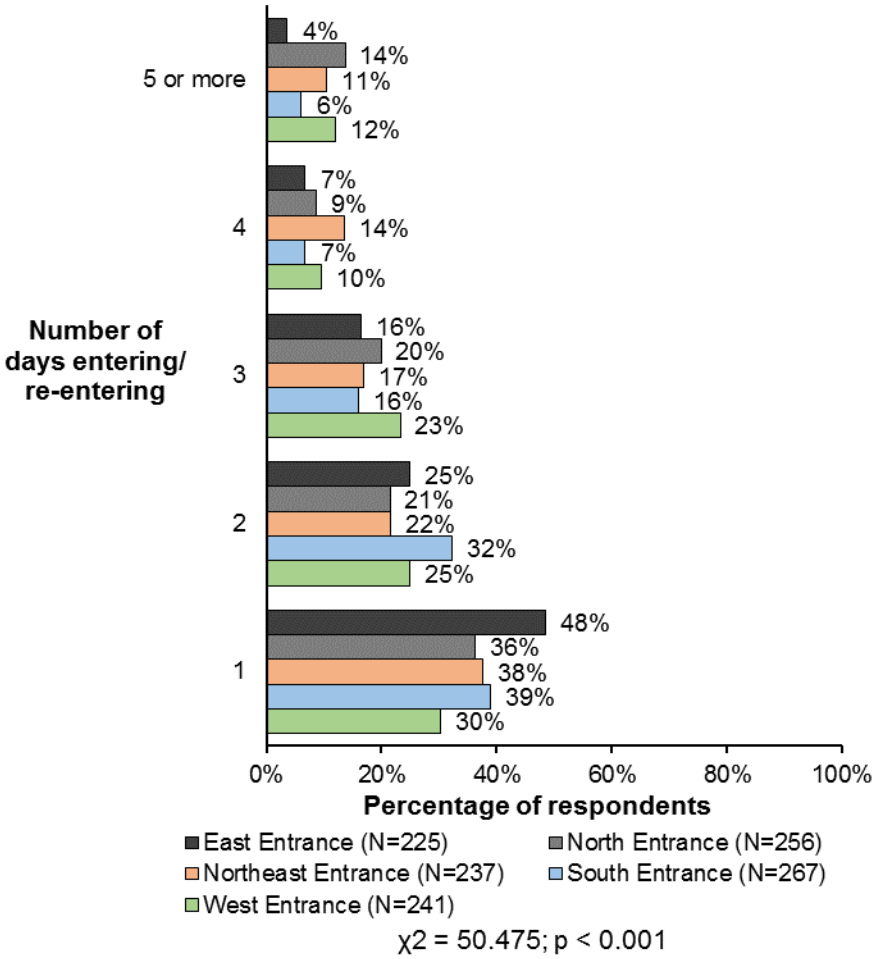


Figure 82. Number of days entered or re-entered park, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Table 47. ANOVA: Mean number of days entered or re-entered park, by entrance

Entrance	Mean (SD)	Median
East Entrance	1.99 (1.40)[a]	2.00
North Entrance	2.74 (2.73)[b]	2.00
Northeast Entrance	2.51 (1.73)[bc]	2.00
South Entrance	2.15 (1.38)[ac]	2.00
West Entrance	2.60 (1.71)[b]	2.00
$F = 7.096$, $p < 0.001$		

Note: means for number of days entered or re-entered that have no superscript in common are significantly different from each other at α = 0.05.

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Overnight stay

Question 8a

On this trip, did you stay overnight away from your permanent residence either inside or nearby Yellowstone NP?

Results (Figure 83, Figure 84)

- 81% of visitor groups stayed overnight either inside and/or nearby Yellowstone NP on their trip.

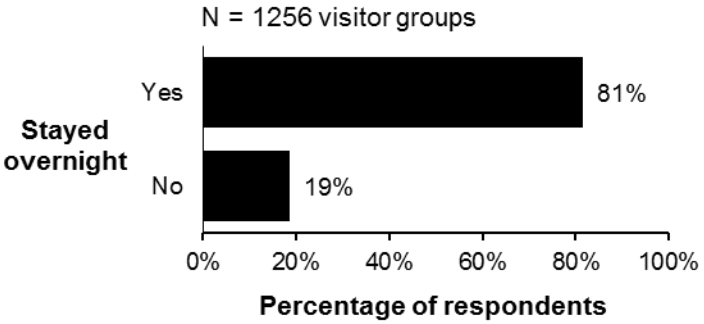


Figure 83. Visitors who stayed overnight in and/or near Yellowstone NP

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The number of visitor groups staying overnight away from their primary residence during their trip did not significantly differ by entrance ($X^2 = 2.744$; $p = 0.602$).

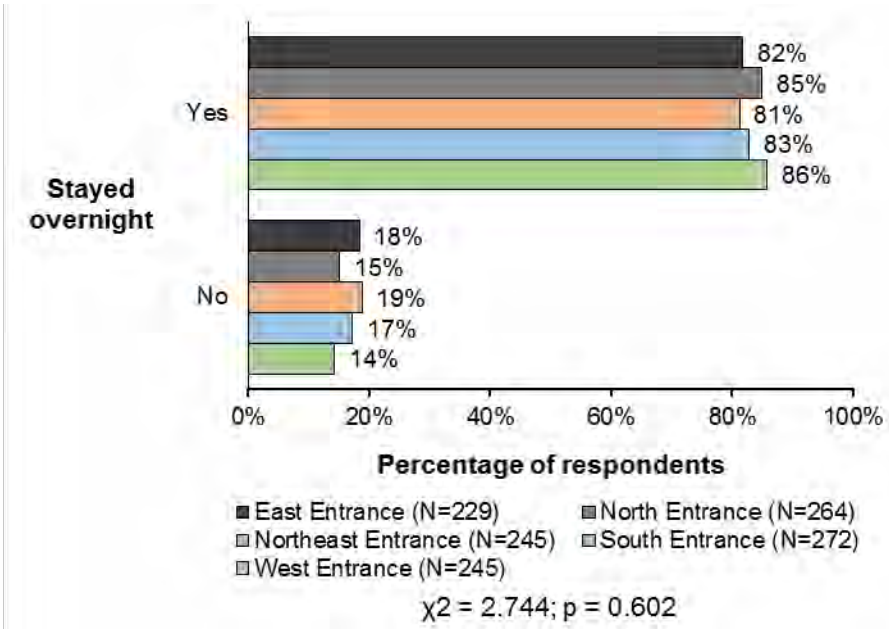


Figure 84. Visitors who stayed overnight in and/or near Yellowstone NP, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Nights spent in overnight accommodations

Question 8b

If YES, please list the number of nights you stayed in Yellowstone NP and/or anywhere nearby Yellowstone NP on this trip.

Results (Figure 85, Table 48)

- Figure 85 shows the percentages of visitor groups that reported staying one or more nights in the listed overnight accommodations.
- 50% of visitor groups who stayed overnight one or more nights stayed in lodging outside of Yellowstone NP.
- 18% of visitor groups who stayed overnight one or more nights camped outside of Yellowstone NP.
- 25% of visitor groups who stayed overnight one or more nights stayed in accommodations (campground, lodging, or backcountry campsite) inside Yellowstone NP.

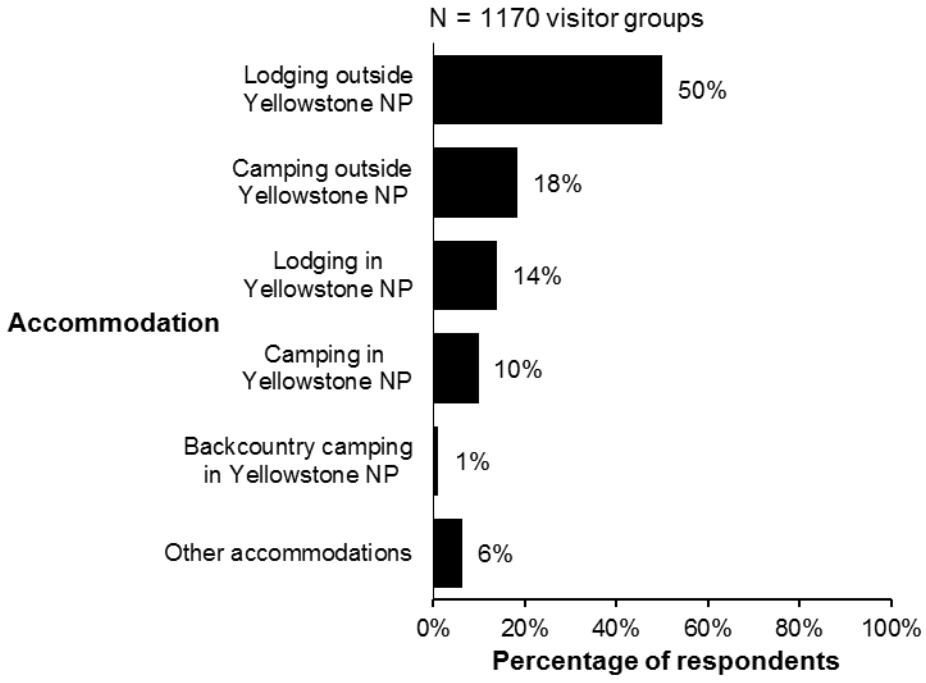


Figure 85. Accommodations for nights spent in Yellowstone NP or the nearby area

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The types of accommodations used by visitor groups staying overnight away from their primary residence during their trip significantly differed for camping in Yellowstone NP (X^2 = 14.970; p = 0.005).

Table 48. Accommodations for nights spent in Yellowstone NP or the nearby area, by entrance

Percentage of respondents

	East	North	Northeast	South	West		
Accommodation	*n = 184***	*n = 217***	*n = 193***	*n = 219***	*n = 203***	**Chi-square**	**p-value[1]**
Lodging outside Yellowstone NP	53%	56%	62%	48%	60%	χ2 = 9.986	p = 0.041
Camping outside Yellowstone NP	27%	19%	16%	21%	22%	χ2 = 7.013	p = 0.135
Lodging in Yellowstone NP	17%	17%	17%	23%	12%	χ2 = 9.214	p = 0.056
Camping in Yellowstone NP	**18%**	**20%**	**10%**	**19%**	**10%**	**χ2 = 14.970**	**p = 0.005**
Backcountry camping in Yellowstone NP	2%	2%	3%	2%	0%	χ2 = 3.808[1]	p = 0.433
Other accommodations	6%	8%	6%	7%	6%	χ2 = 1.319	p = 0.858

[1] $\alpha = 0.05$, $p \leq 0.008$ indicates significant result following Bonferroni correction to account for multiple statistical tests.

Figure 86 through Figure 97 report the number of nights spent in each type of overnight accommodation.

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Backcountry Camping in Yellowstone NP

Results (Figure 86)

- 48% of visitor groups who camped in the backcountry of Yellowstone NP camped for 2 nights.
- 31% of visitor groups who camped in the backcountry of Yellowstone NP camped for only 1 night.

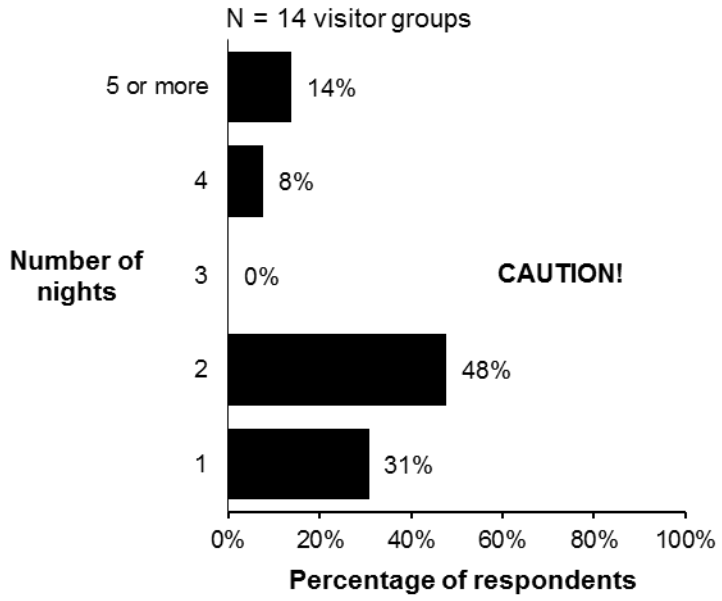


Figure 86. Nights spent in backcountry in Yellowstone NP

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The number of nights that visitor groups stayed overnight in the backcountry of Yellowstone NP during their trip did not significantly differ by entrance ($X^2 = 12.271$; $p = 0.424$).

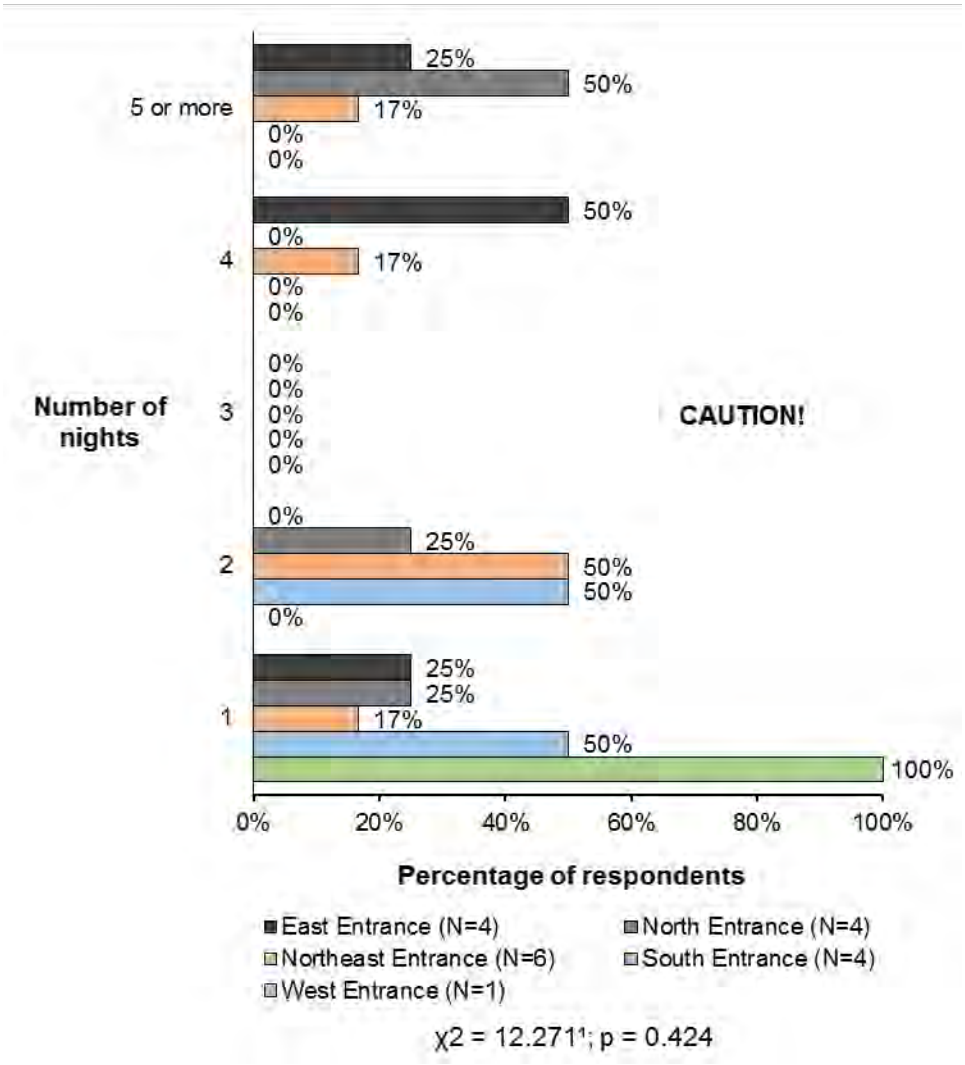


Figure 87. Nights spent in backcountry in Yellowstone NP, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Camping in Yellowstone NP

Results (Figure 88)

- 27% of visitor groups who camped in Yellowstone NP camped for 3 nights.
- 24% of visitor groups who camped in Yellowstone NP camped for 4 nights.
- Of those who camped in Yellowstone NP, few (6%) visitor groups camped for only 1 night.

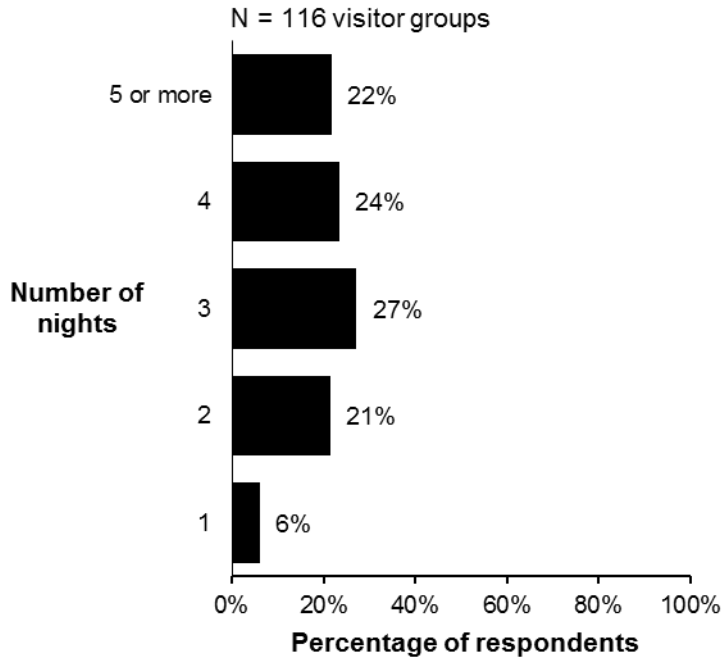


Figure 88. Nights spent camping in Yellowstone NP

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The number of nights that visitor groups camped overnight in Yellowstone NP during their trip differed significantly by entrance ($X^2 = 26.904$; $p = 0.043$).
- Across entrances, visitor groups entering at the Northeast entrance were most likely to camp in Yellowstone NP for 5 or more nights.
- Across entrances, visitor groups entering at the West entrance were mostly likely to camp for 3 nights.

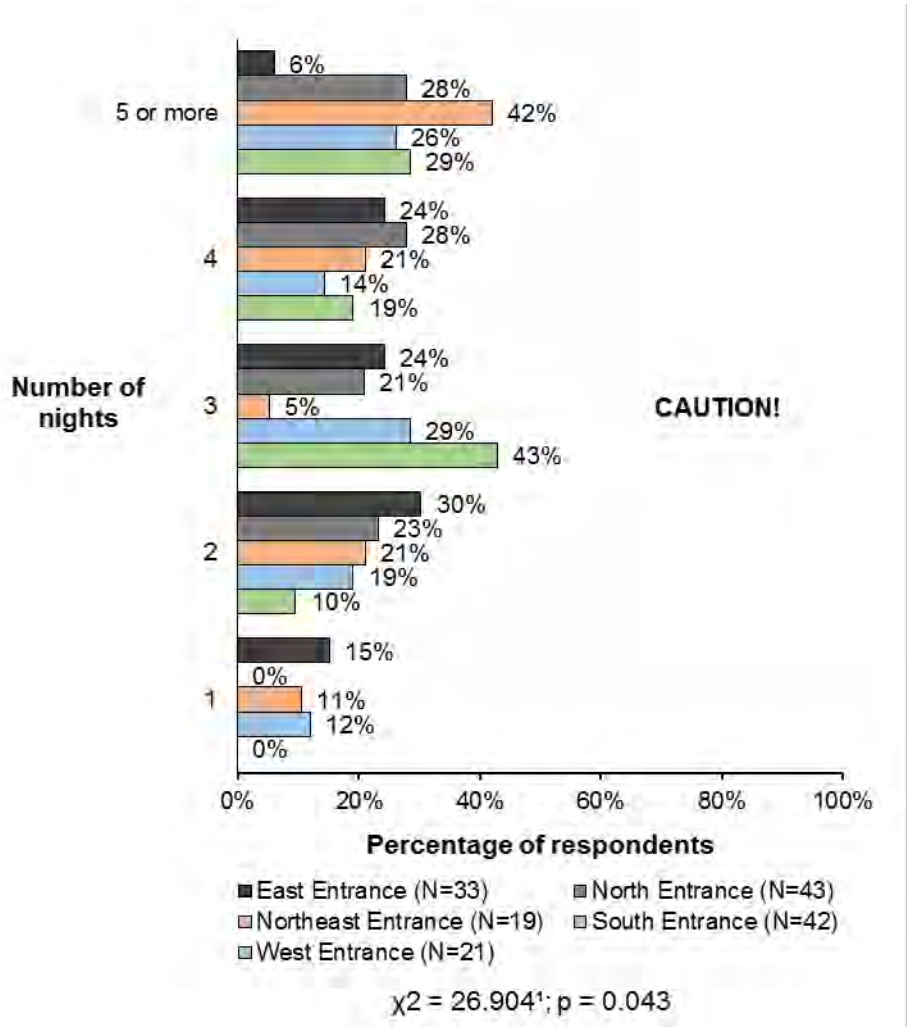


Figure 89. Nights spent camping in Yellowstone NP, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Camping outside Yellowstone NP

Results (Figure 90)

- 27% of visitor groups who camped outside of Yellowstone NP camped for 5 or more nights.
- 23% of visitor groups who camped outside of Yellowstone NP camped for 2 nights.

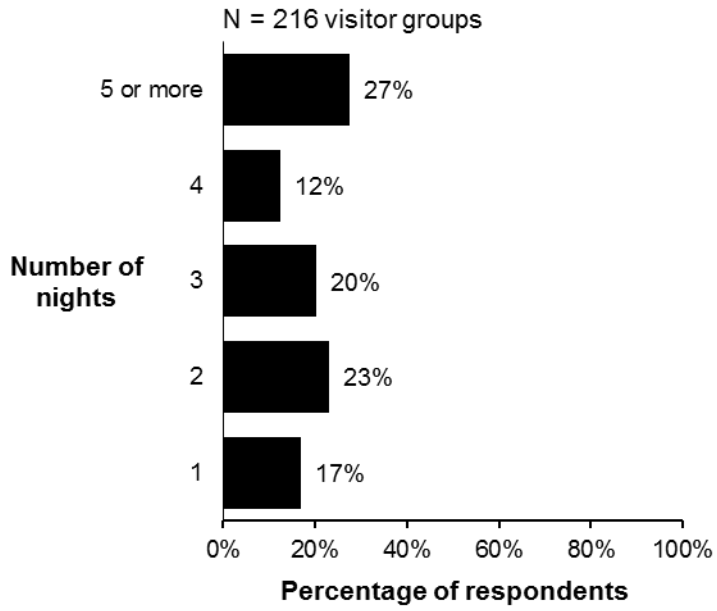


Figure 90. Nights spent camping outside Yellowstone NP

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The number of nights visitor groups camped overnight outside of Yellowstone NP during their trip did not significantly differ by entrance ($X^2 = 13.746$; $p = 0.618$).

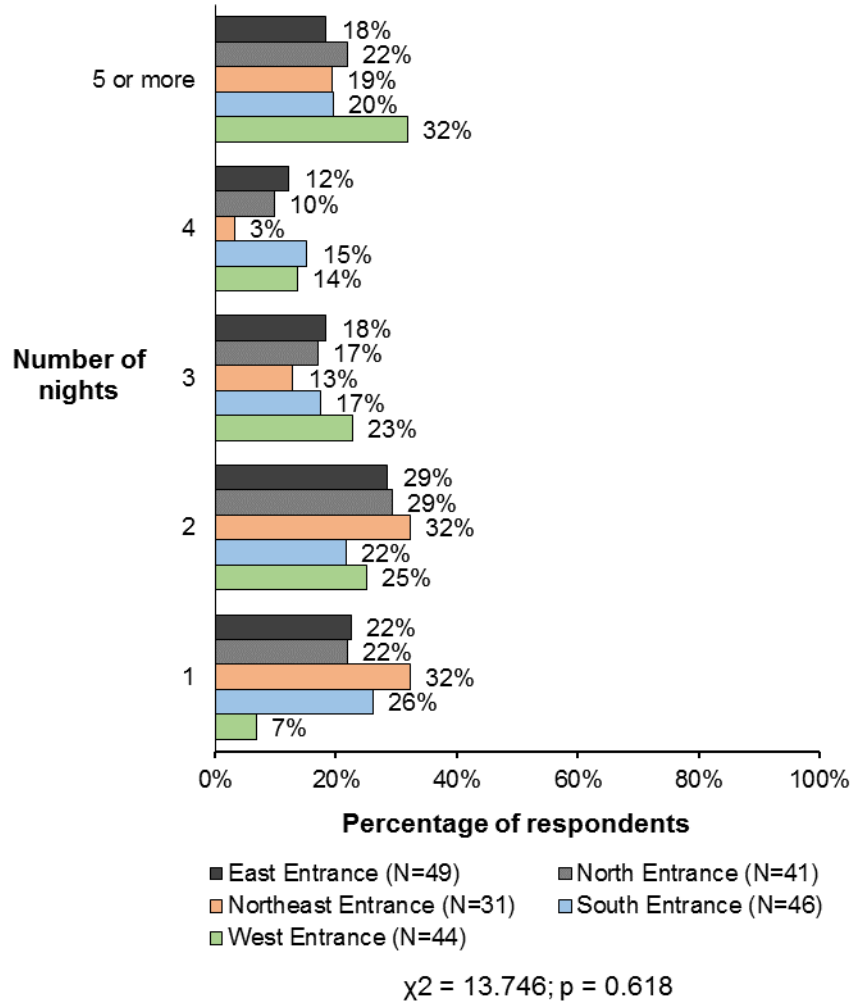


Figure 91. Nights spent camping outside Yellowstone NP, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Lodging in Yellowstone NP

Results (Figure 92)

- 33% of visitor groups who stayed in lodging in Yellowstone NP stayed for only 1 night.
- 27% of visitor groups who stayed in lodging in Yellowstone NP stayed for 2 nights.

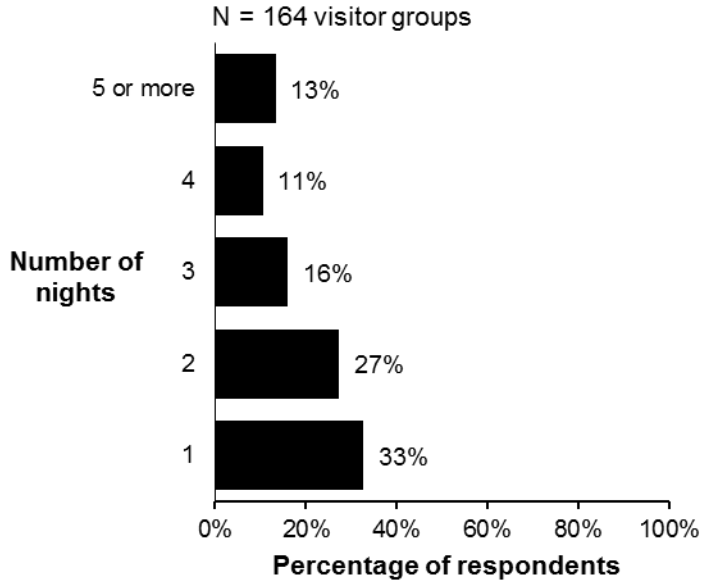


Figure 92. Nights spent in lodging in Yellowstone NP

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The number of nights visitor groups that lodged overnight in Yellowstone NP during their trip did not significantly differ by entrance ($X^2 = 20.043$; $p = 0.218$).

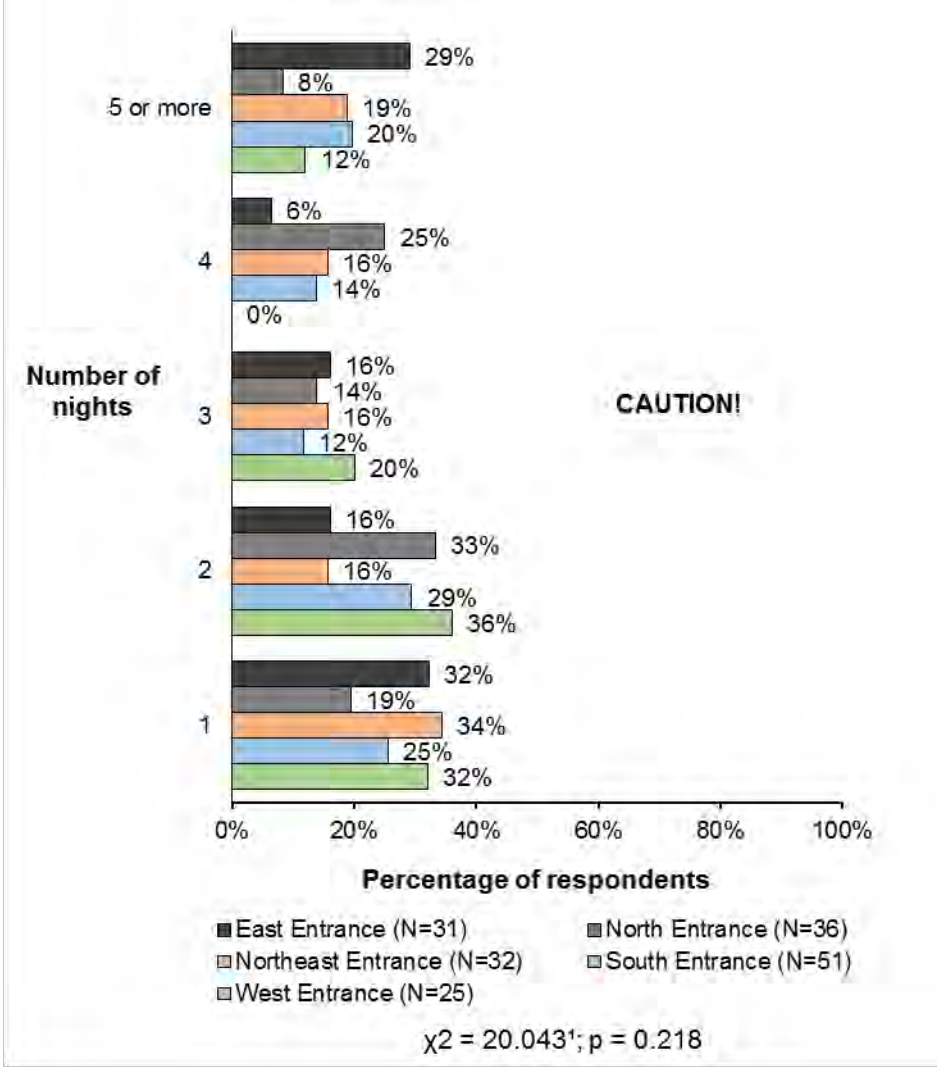


Figure 93. Nights spent in lodging in Yellowstone NP, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Lodging Outside Yellowstone NP

Results (Figure 94)

- 25% of visitor groups who stayed in lodging outside Yellowstone NP stayed for 5 or more nights.
- 24% of visitor groups who stayed in lodging outside Yellowstone NP stayed for 2 nights.

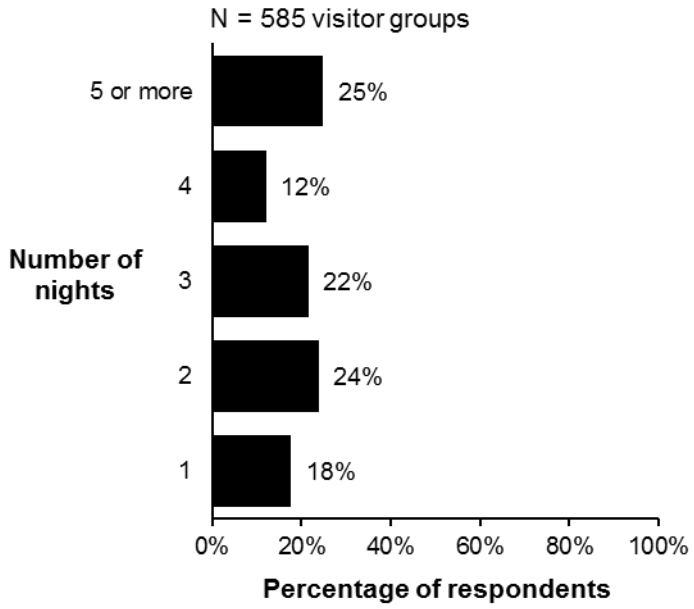


Figure 94. Nights spent in lodging outside Yellowstone NP

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The number of nights visitor groups lodged overnight outside of Yellowstone NP during their trip did not significantly differ by entrance ($X^2 = 24.604$; $p = 0.077$).

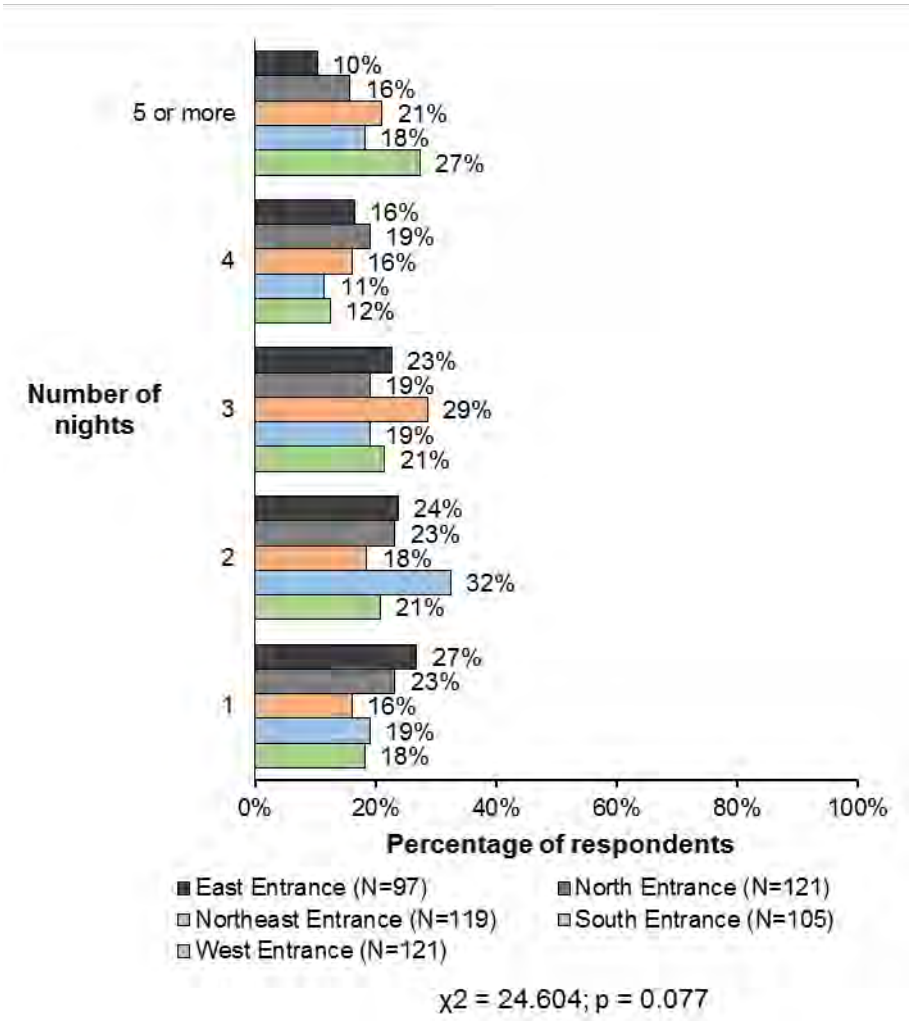


Figure 95. Nights spent in lodging outside Yellowstone NP, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Other accommodations (e.g., staying with friends/relatives)
Results (Figure 96)

- 35% of visitor groups who stayed overnight in other accommodations stayed for 5 or more nights.
- 27% of visitor groups who stayed overnight in other accommodations stayed for 3 nights.

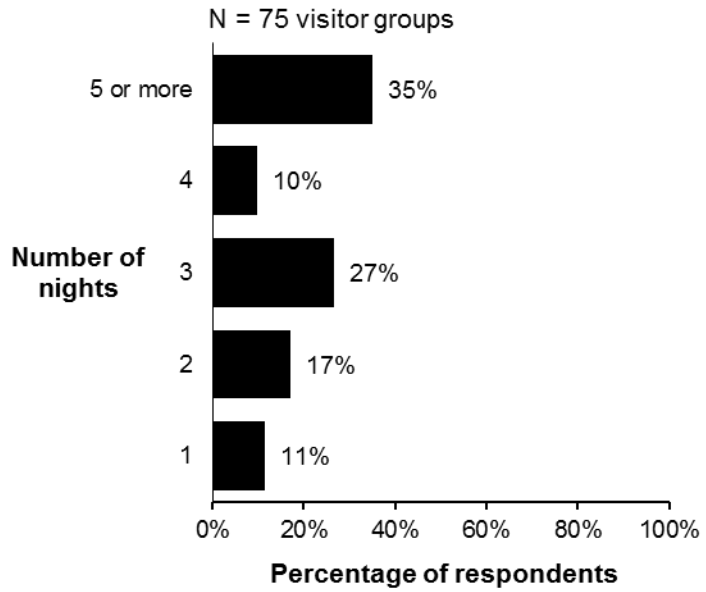


Figure 96. Nights in other accommodations (e.g., staying with friends/relatives)

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The number of nights visitor groups stayed overnight in other accommodations during their trip did not significantly differ by entrance ($X^2 = 17.840$; $p = 0.333$).

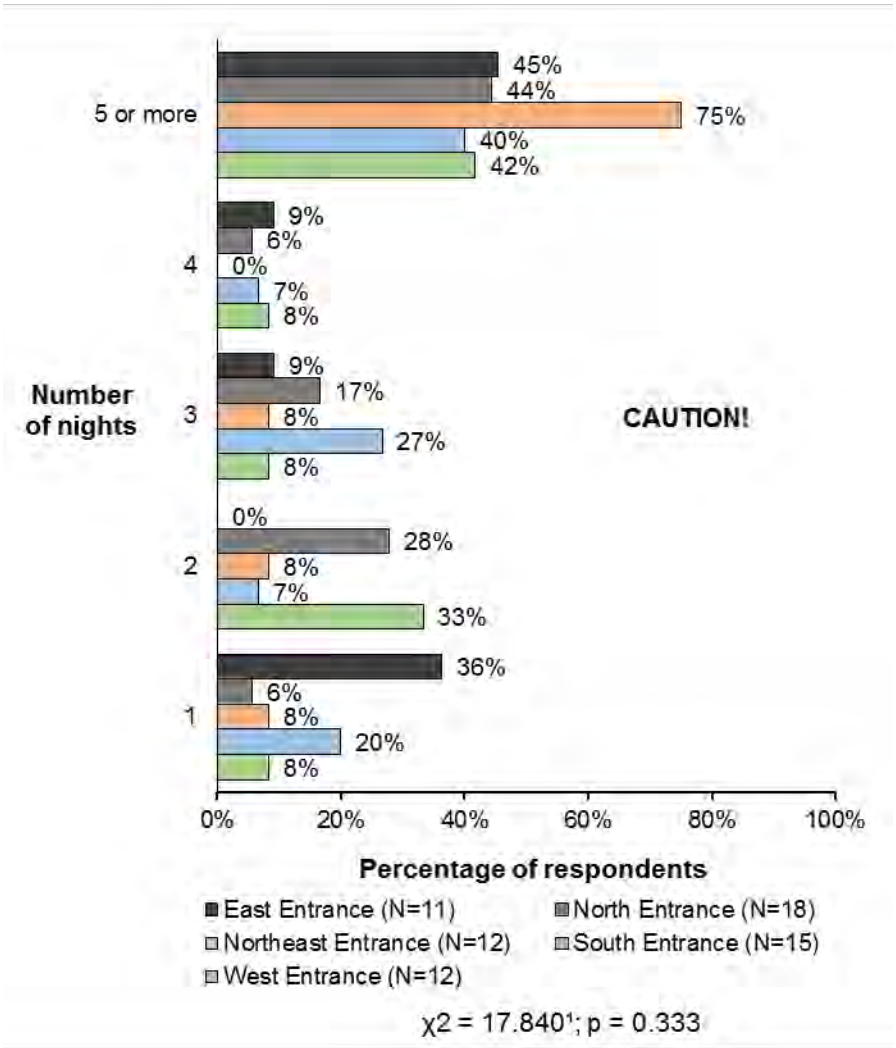


Figure 97. Nights in other accommodations (e.g., staying with friends/relatives), by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*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 resources

Question 15

Please indicate the importance to you of each of the following resources of Yellowstone NP.

Rating choices:

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

Results (Figure 98, Table 49)

- Figure 98 shows the combined proportions of "extremely important" and "very important" ratings for park resources.
- The resources that received the highest combined proportions of "extremely important" and "very important" ratings were:
    - 82% Bison
    - 78% Old Faithful Geyser
    - 77% Elk
- The resources that received the lowest combined proportions of "extremely important" and "very important" ratings were:
    - 44% Hiking
    - 24% Backcountry travel
    - 15% Fishing

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

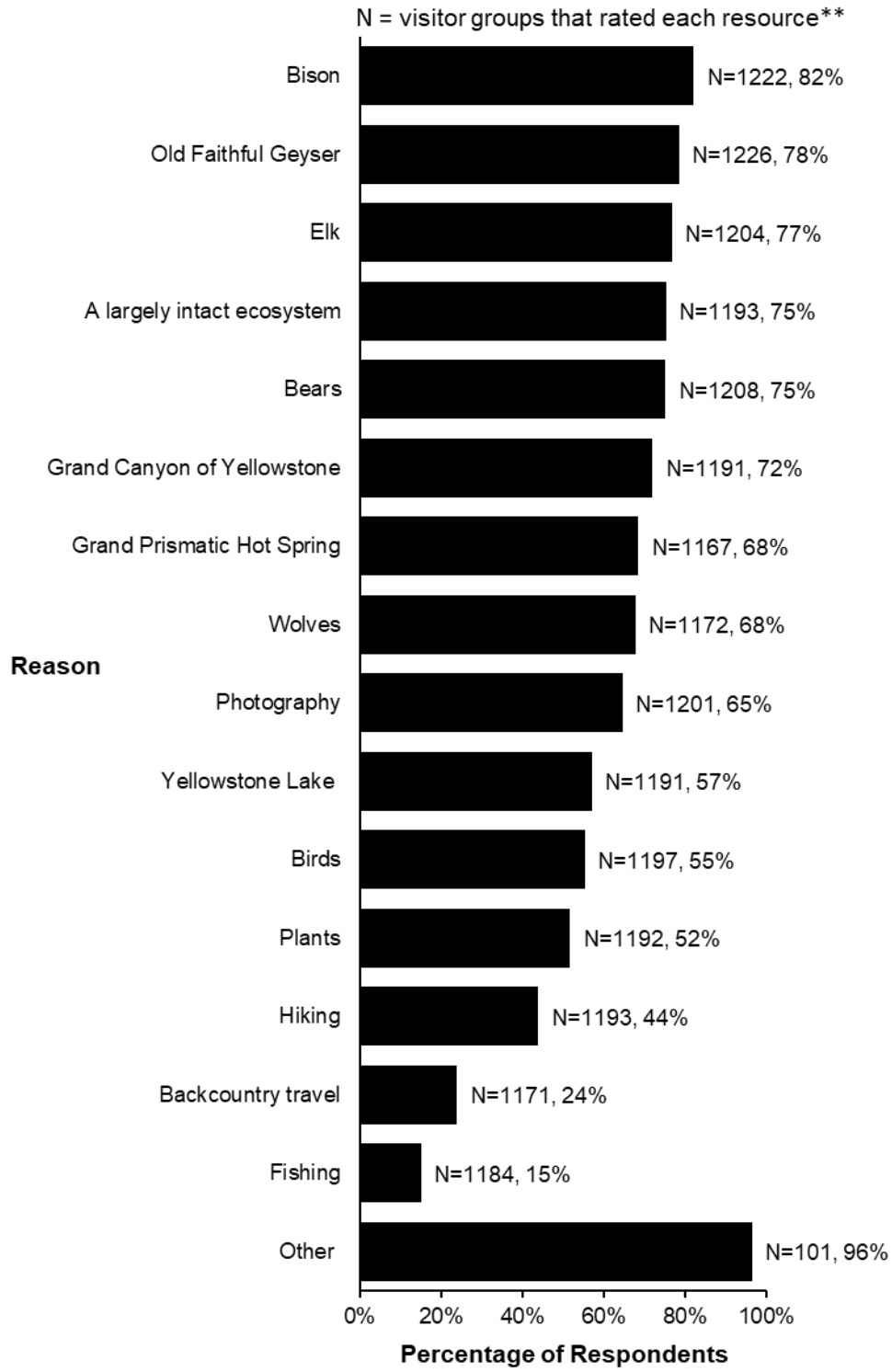


Figure 98. Ratings of the importance of resources in Yellowstone NP, includes responses for either "extremely important" or "very important"

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- Table 49 shows the combined proportions of "extremely important" and "very important" ratings for the listed park resources by entrance.
- Significant differences in the distribution of "extremely important" and "very important" ratings of the importance of resources in Yellowstone NP by entrance included:
    - Old Faithful Geyser ($X^2 = 31.396$; $p < 0.001$)
    - Hiking ($X^2 = 21.280$; $p < 0.001$)

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Table 49. Ratings of the importance of resources in Yellowstone NP, by entrance, includes responses for either "extremely important" or "very important"

		East	North	Northeast	South	West		
Resource	***n***	**Percentage of respondents**					**Chi-square**	**p-value[1]**
Bison	1217	80%	81%	78%	84%	80%	χ2 = 3.292	p = 0.510
Old Faithful Geyser	**1216**	**82%**	**76%**	**64%**	**82%**	**81%**	**χ2 = 31.396**	**p < 0.001**
Elk	1203	75%	80%	76%	81%	73%	χ2 = 6.749	p = 0.150
A largely intact ecosystem	1192	72%	77%	71%	82%	78%	χ2 = 10.645	p = 0.031
Bears	1206	77%	80%	85%	80%	77%	χ2 = 5.841	p = 0.211
Grand Canyon of Yellowstone	1183	79%	70%	69%	72%	75%	χ2 = 7.893	p = 0.096
Grand Prismatic Hot Spring	1158	67%	61%	56%	67%	68%	χ2 = 10.908	p = 0.028
Wolves	1183	65%	72%	76%	72%	69%	χ2 = 7.470	p = 0.113
Photography	1193	65%	72%	61%	71%	64%	χ2 = 9.931	p = 0.042
Yellowstone Lake	1178	63%	54%	56%	57%	52%	χ2 = 6.869	p = 0.143
Birds	1192	56%	61%	59%	60%	55%	χ2 = 2.890	p = 0.576
Plants	1186	53%	56%	53%	58%	50%	χ2 = 3.030	p = 0.553
Hiking	**1190**	**42%**	**51%**	**50%**	**59%**	**40%**	**χ2 = 21.280**	**p < 0.001**
Backcountry travel	1169	24%	31%	32%	33%	23%	χ2 = 10.179	p = 0.038
Fishing	1177	16%	20%	20%	18%	15%	χ2 = 3.368	p = 0.498
Other	91	100%	90%	94%	93%	100%	χ2 = 3.370	p = 0.498

[1] $\alpha = 0.05$, $p \leq 0.003$ indicates significant result following Bonferroni correction to account for multiple statistical tests.

Figure 99 through Figure 128 show ratings for each resource.

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

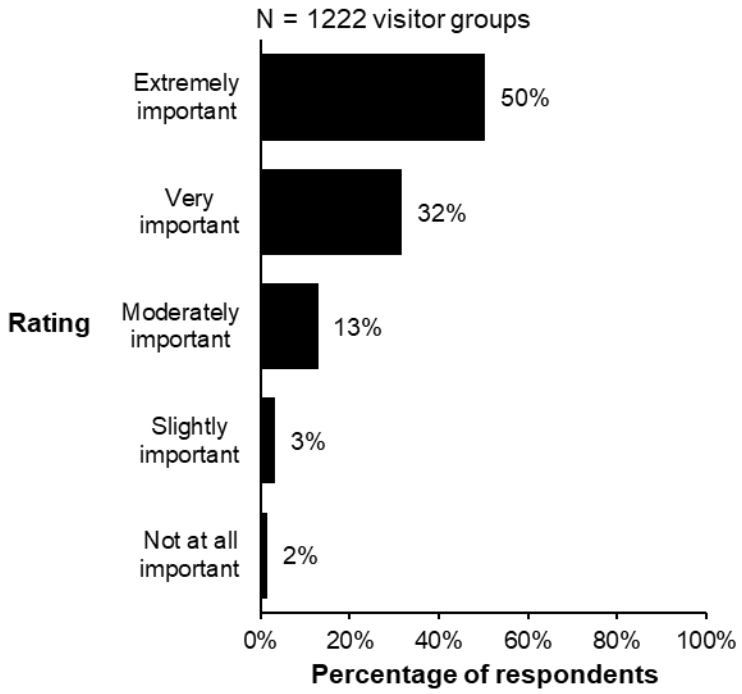


Figure 99. Importance of bison

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

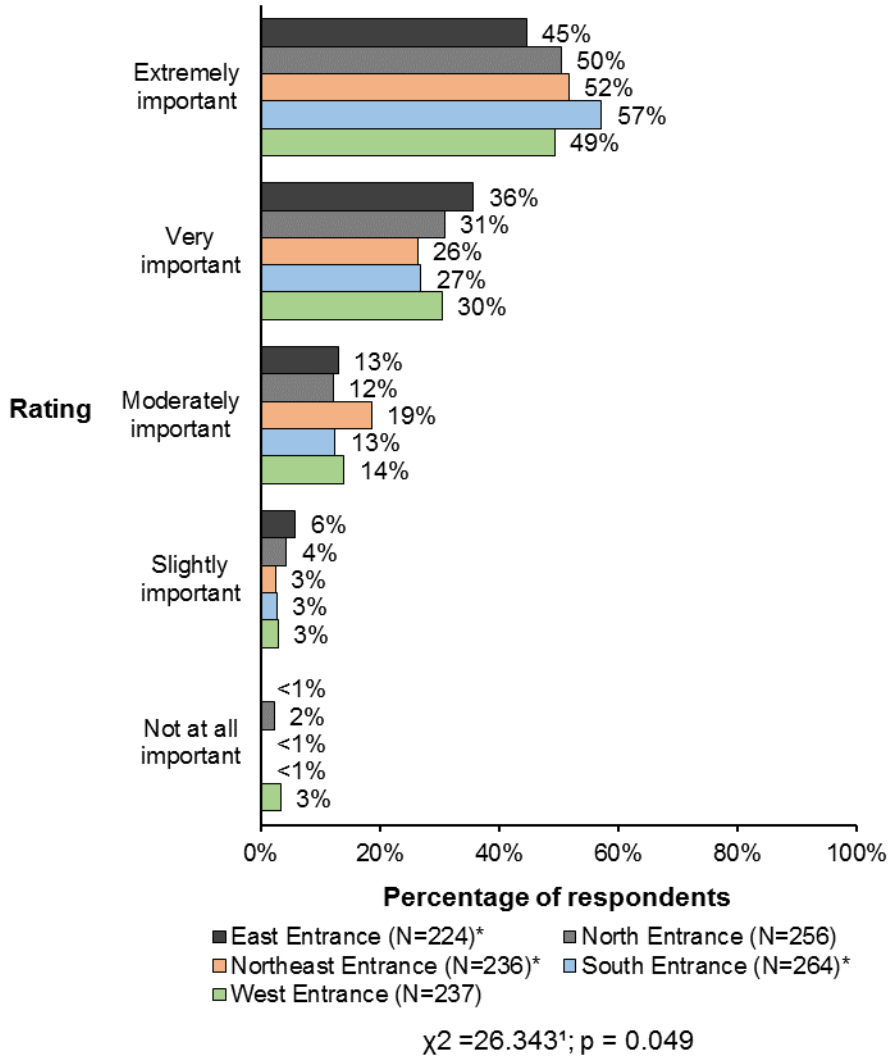


Figure 100. Importance of bison, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

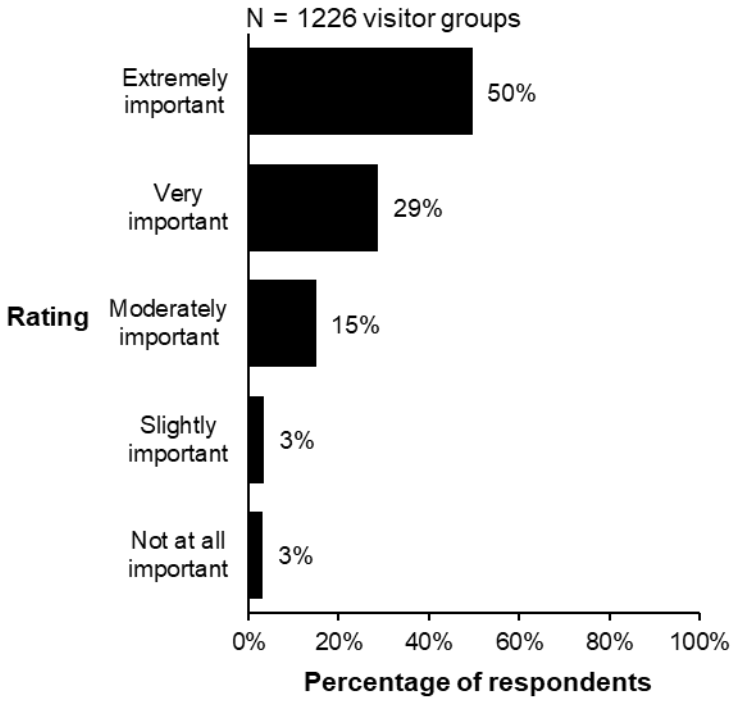


Figure 101. Importance of Old Faithful Geyser

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

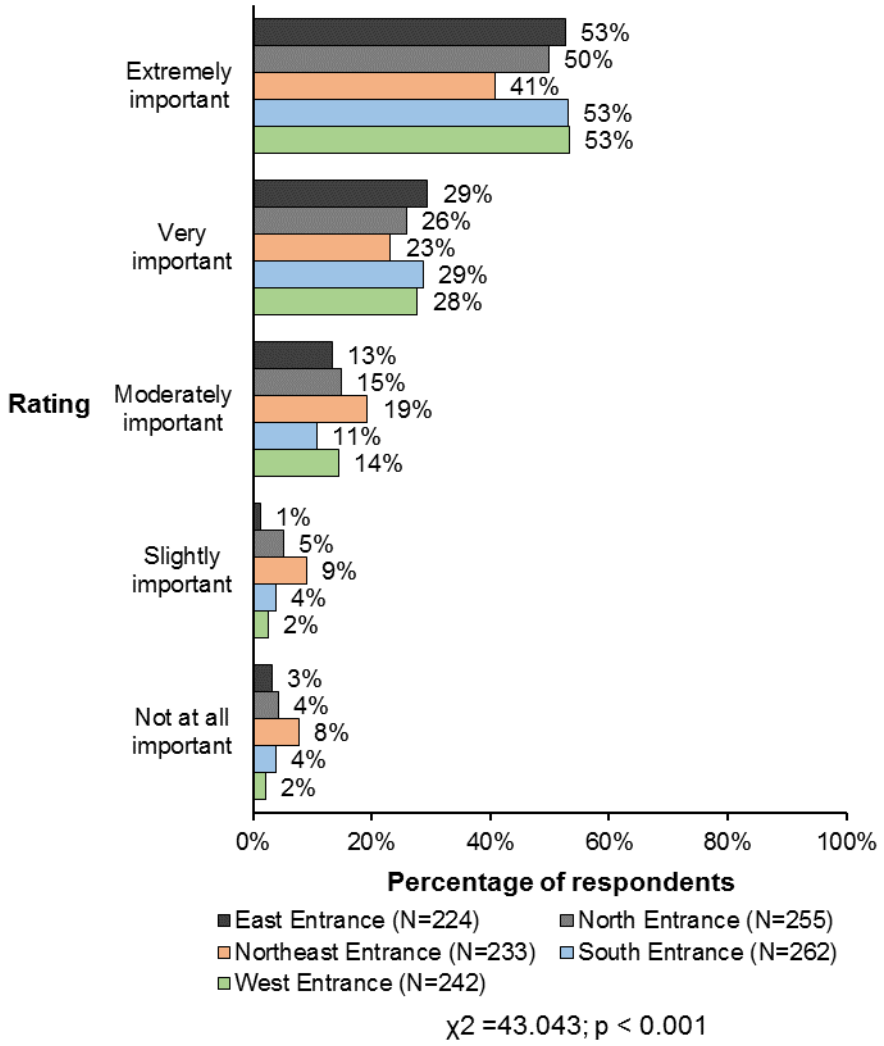


Figure 102. Importance of Old Faithful Geyser, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

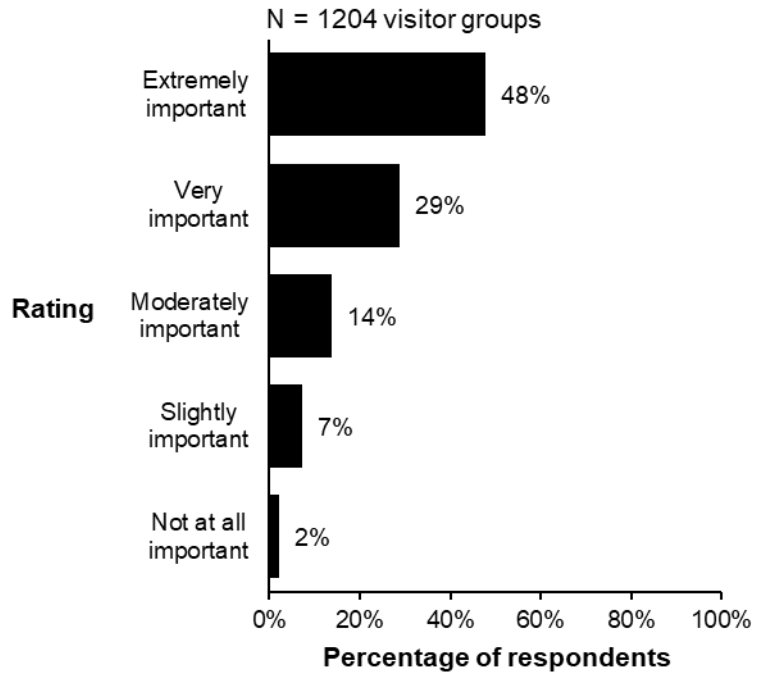


Figure 103. Importance of elk

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

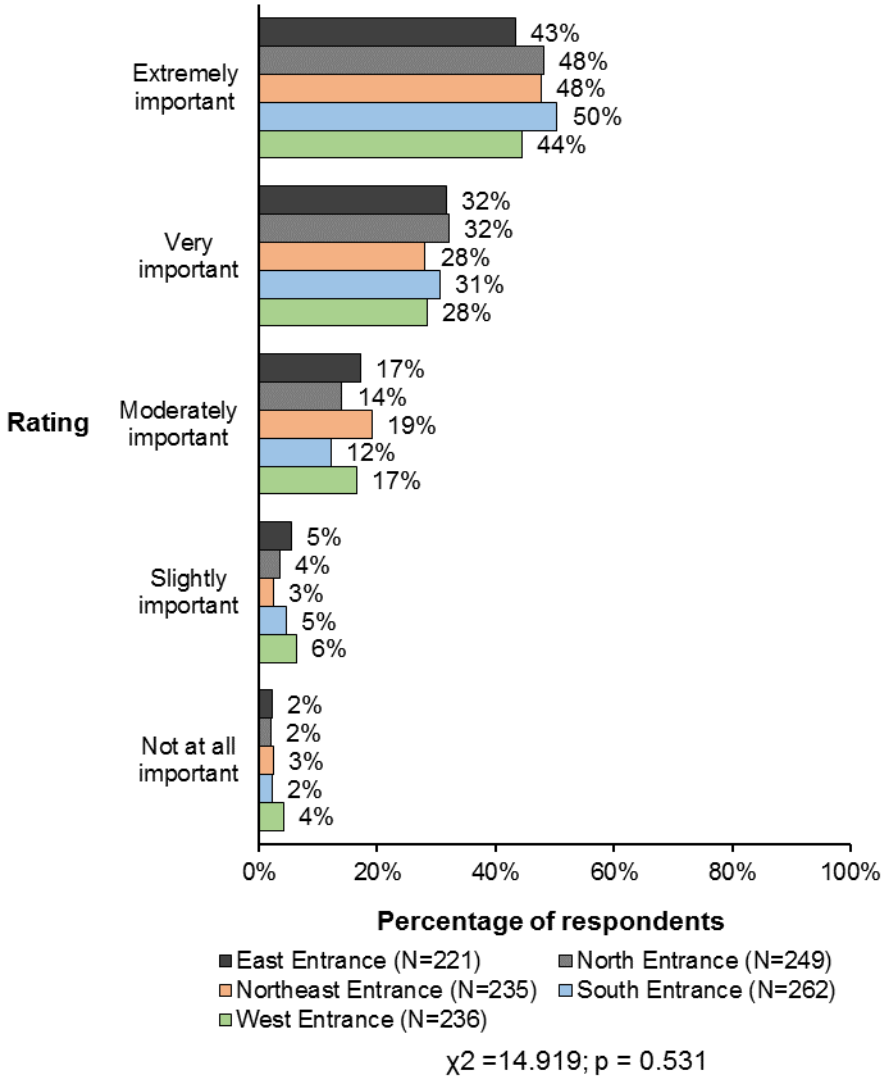


Figure 104. Importance of elk, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

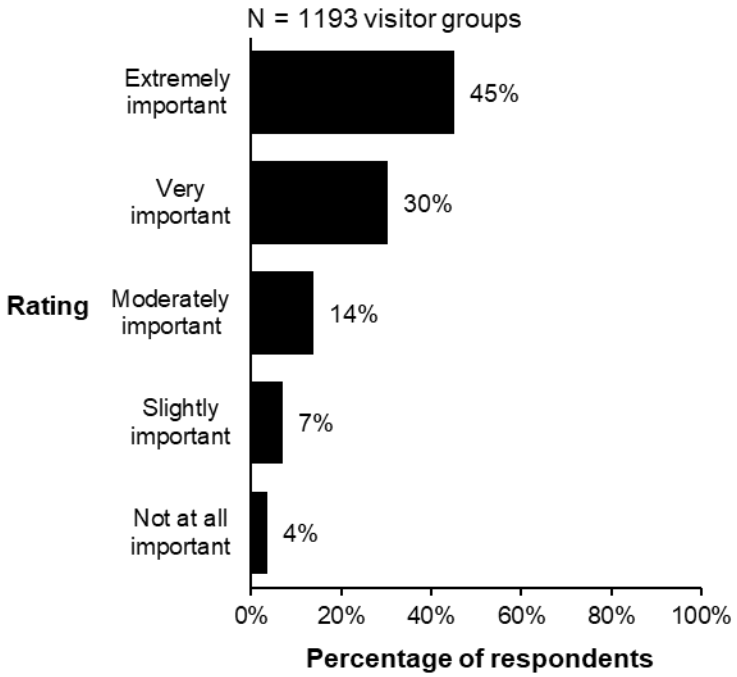


Figure 105. Importance of a largely intact ecosystem

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

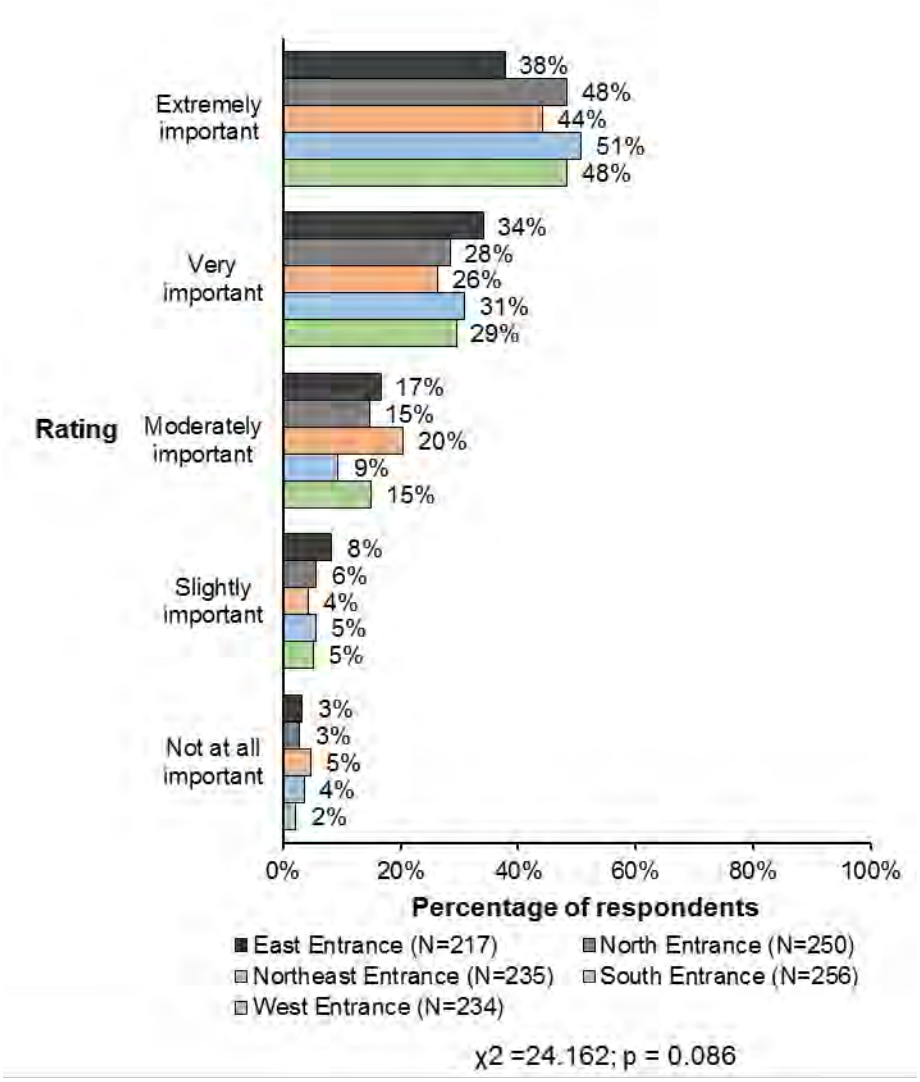


Figure 106. Importance of a largely intact ecosystem, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

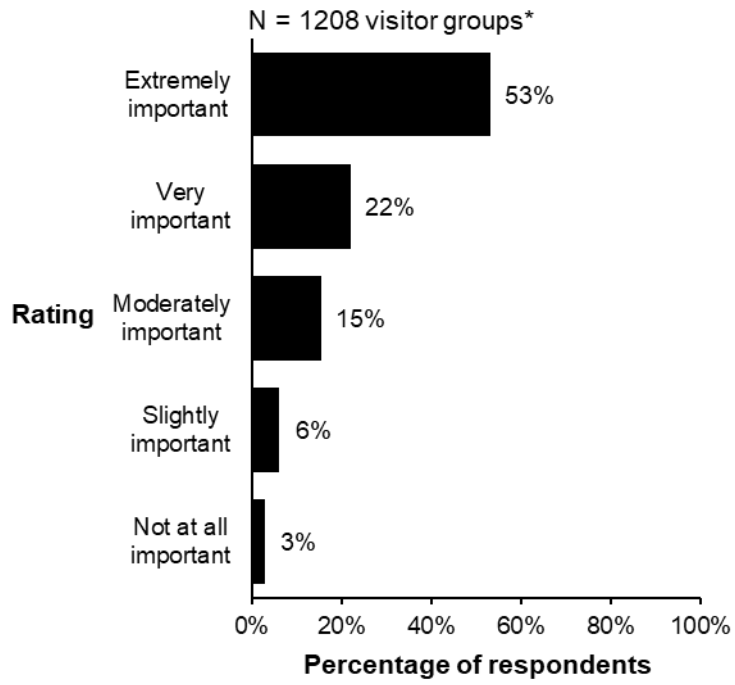


Figure 107. Importance of bears

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

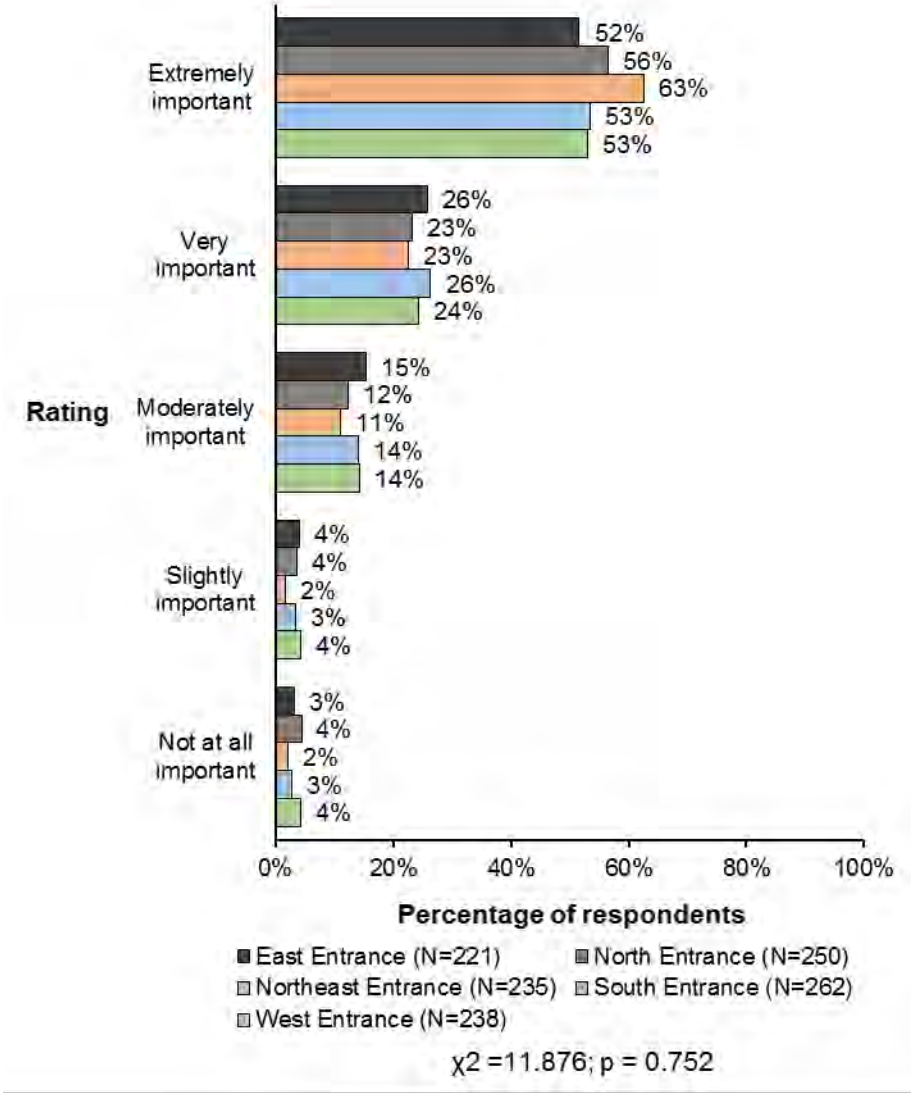


Figure 108. Importance of bears, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

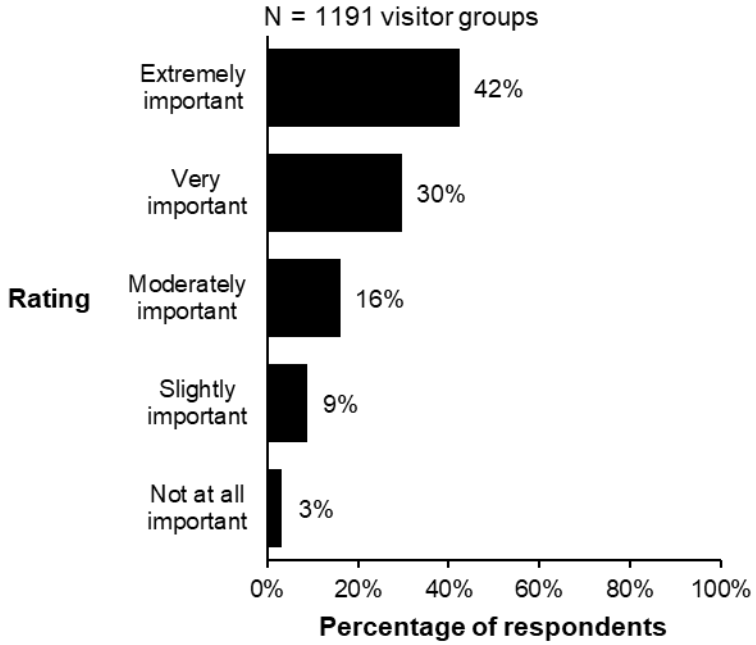


Figure 109. Importance of the Grand Canyon of Yellowstone

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

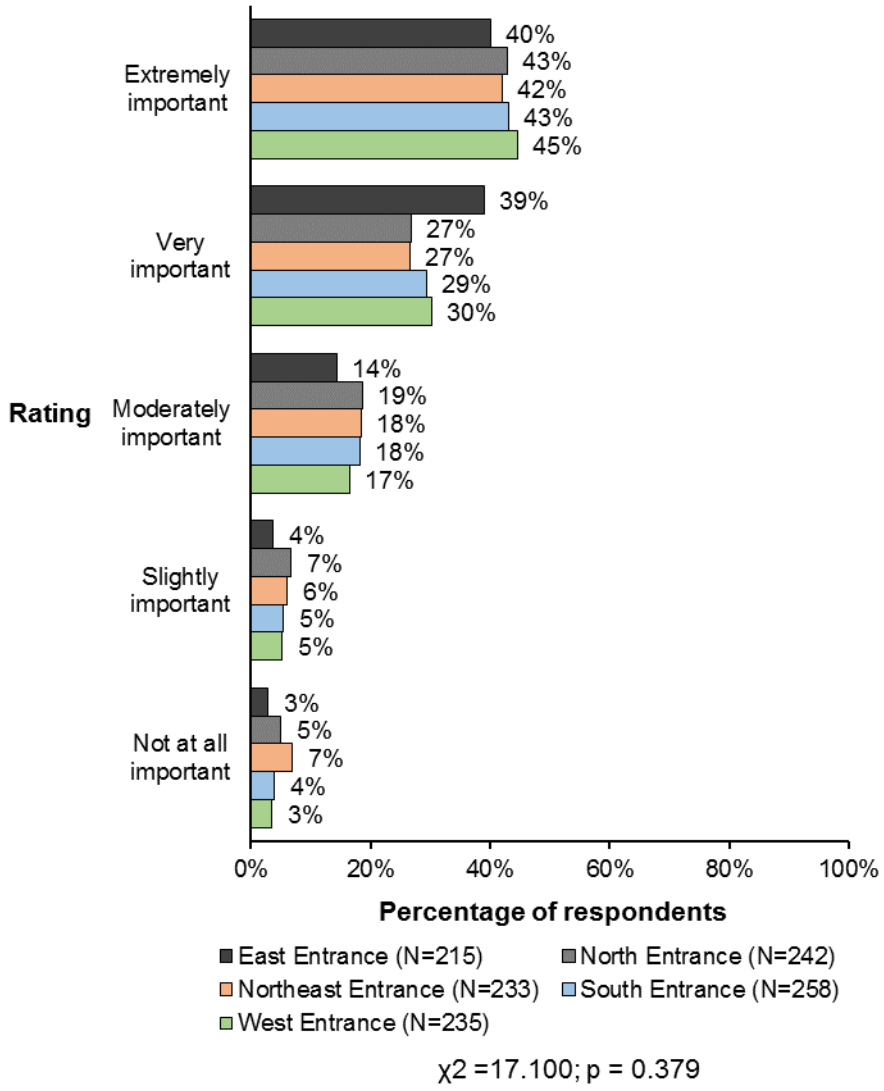


Figure 110. Importance of the Grand Canyon of Yellowstone, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

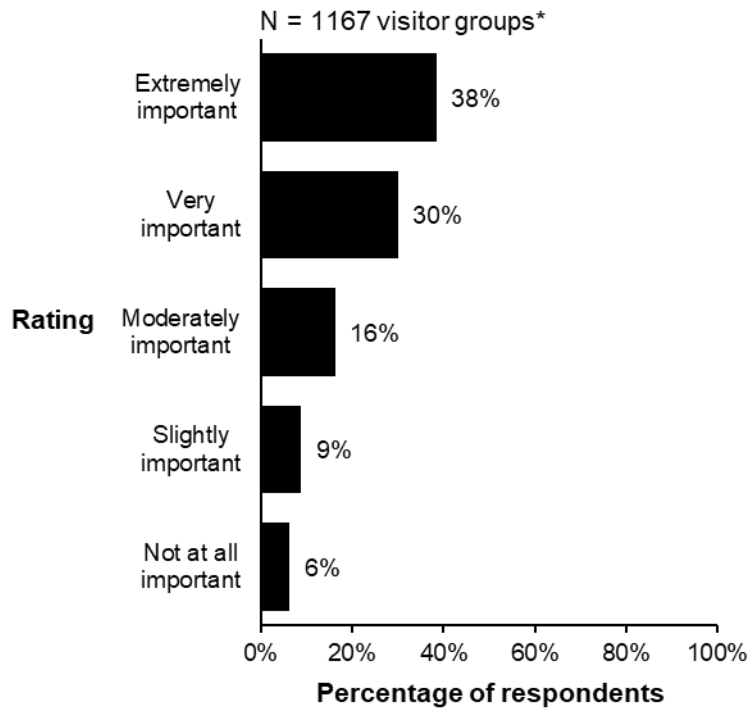


Figure 111. Importance of the Grand Prismatic Hot Spring

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

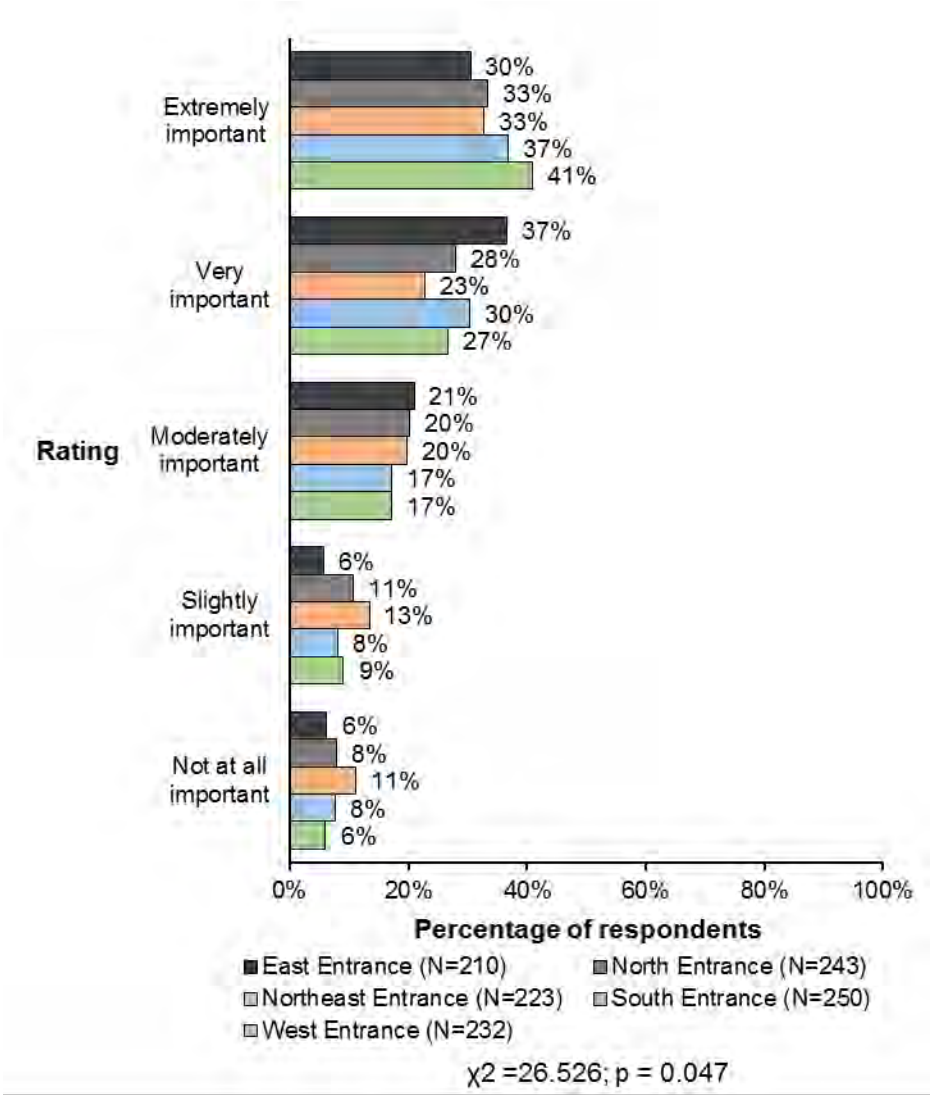


Figure 112. Importance of the Grand Prismatic Hot Spring, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

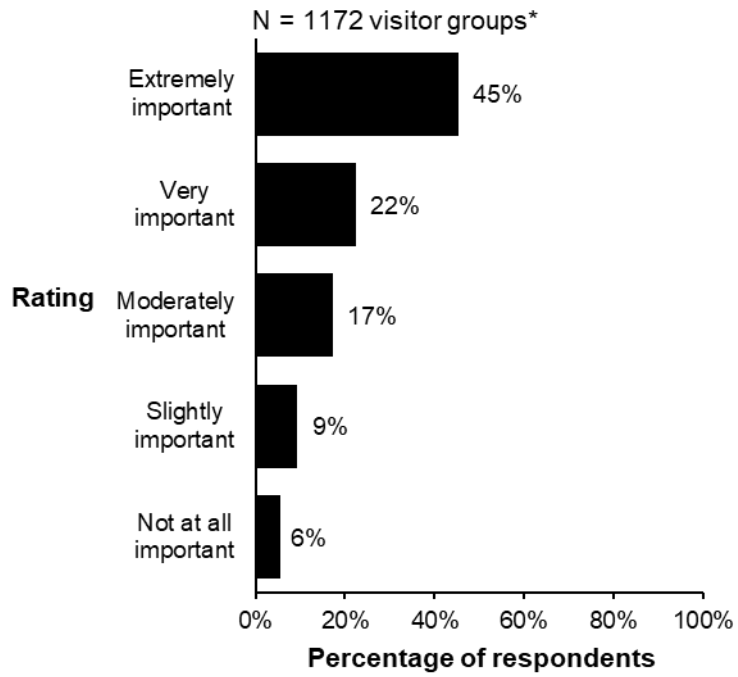


Figure 113. Importance of wolves

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

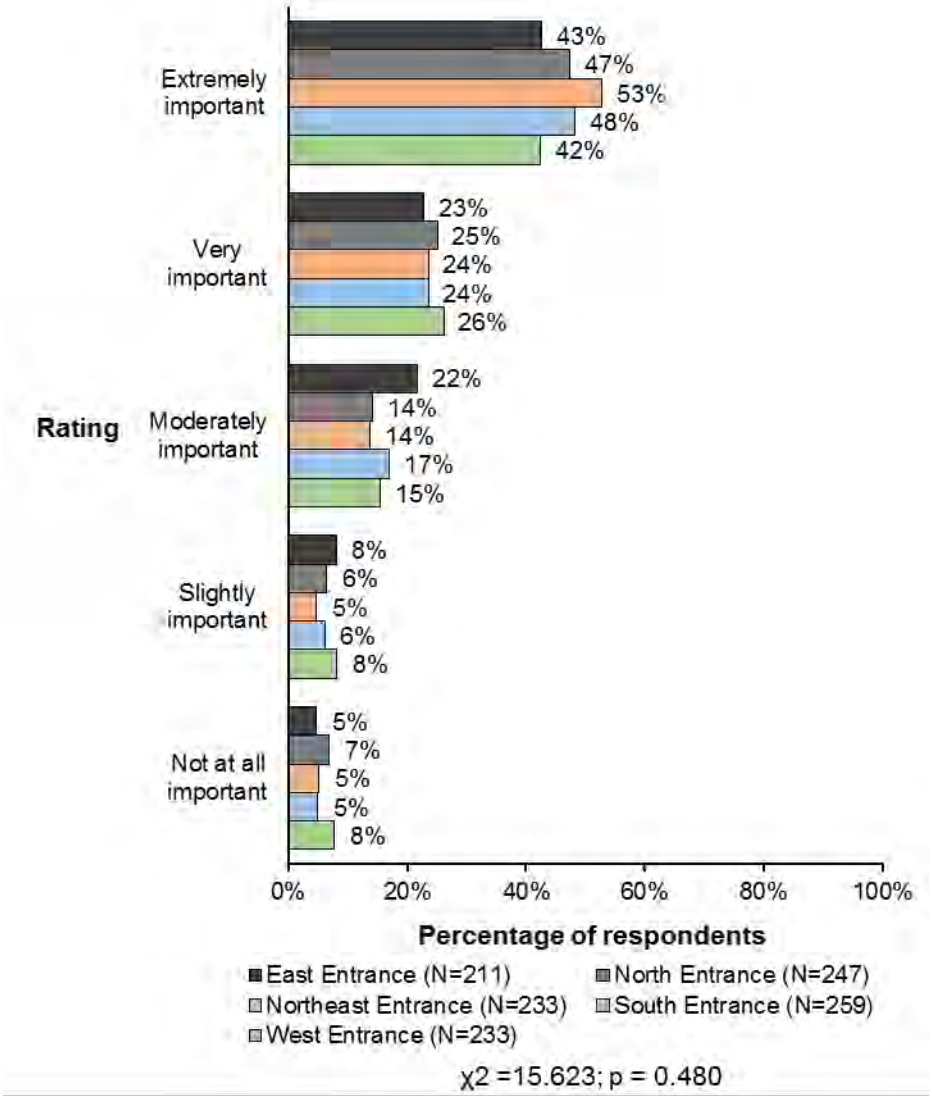


Figure 114. Importance of wolves, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

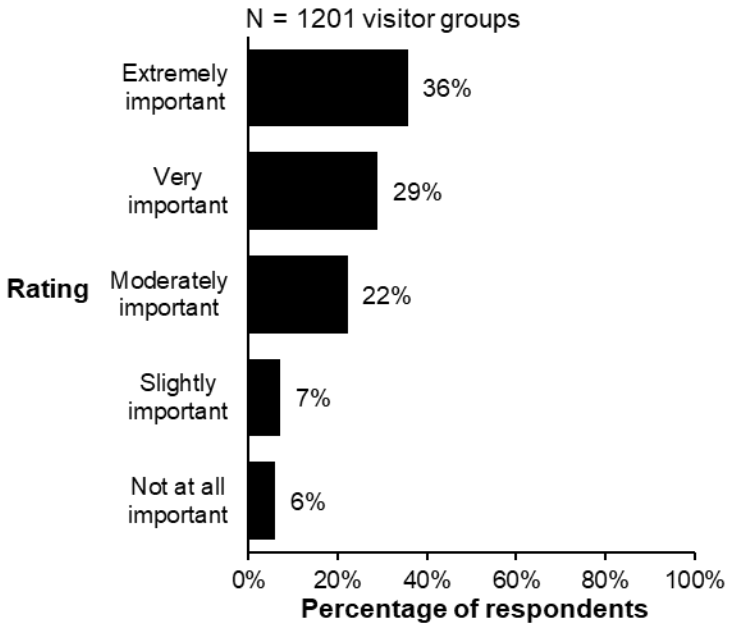


Figure 115. Importance of photography

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

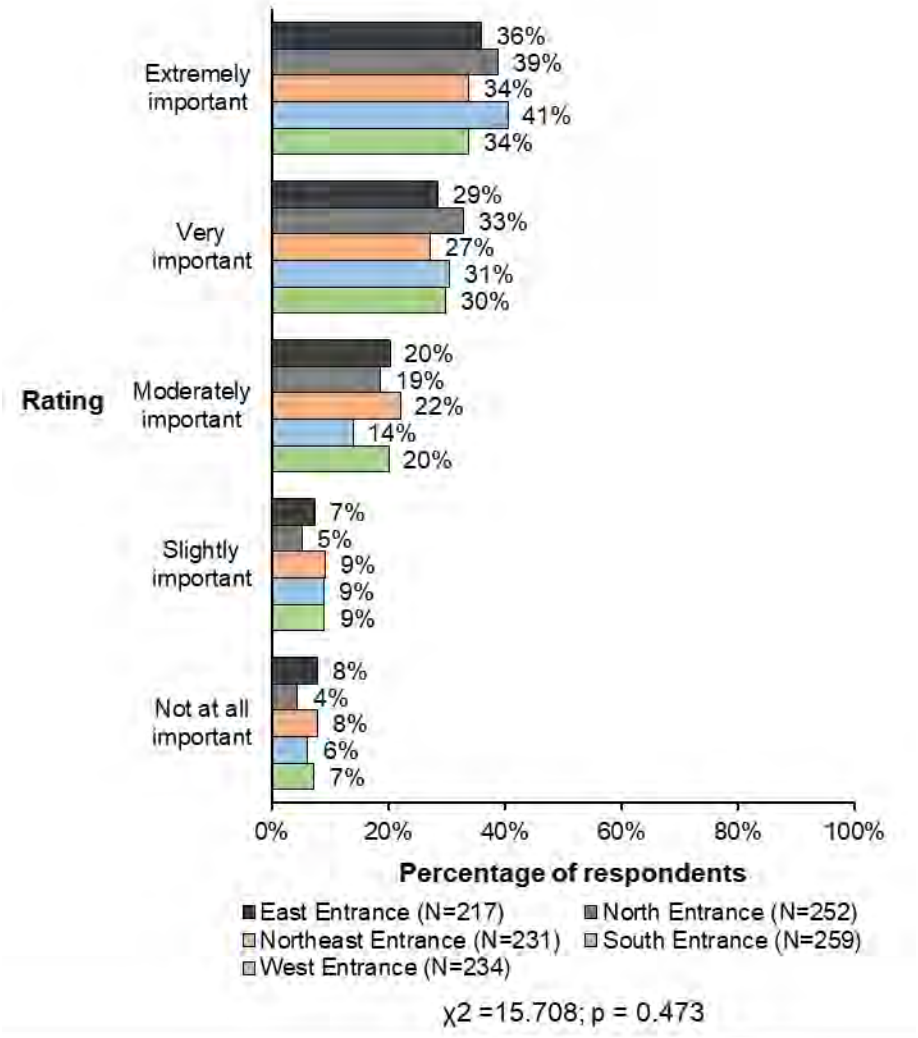


Figure 116. Importance of photography, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

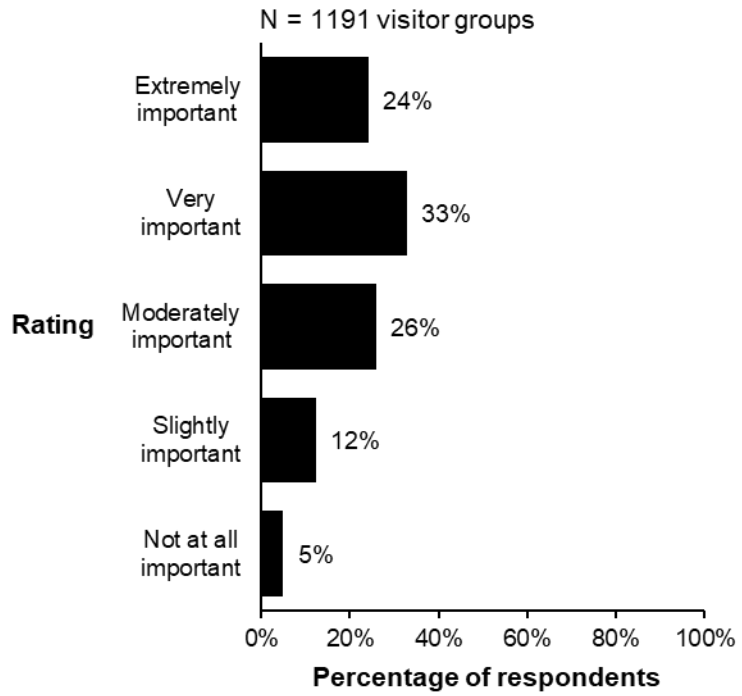


Figure 117. Importance of Yellowstone Lake

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

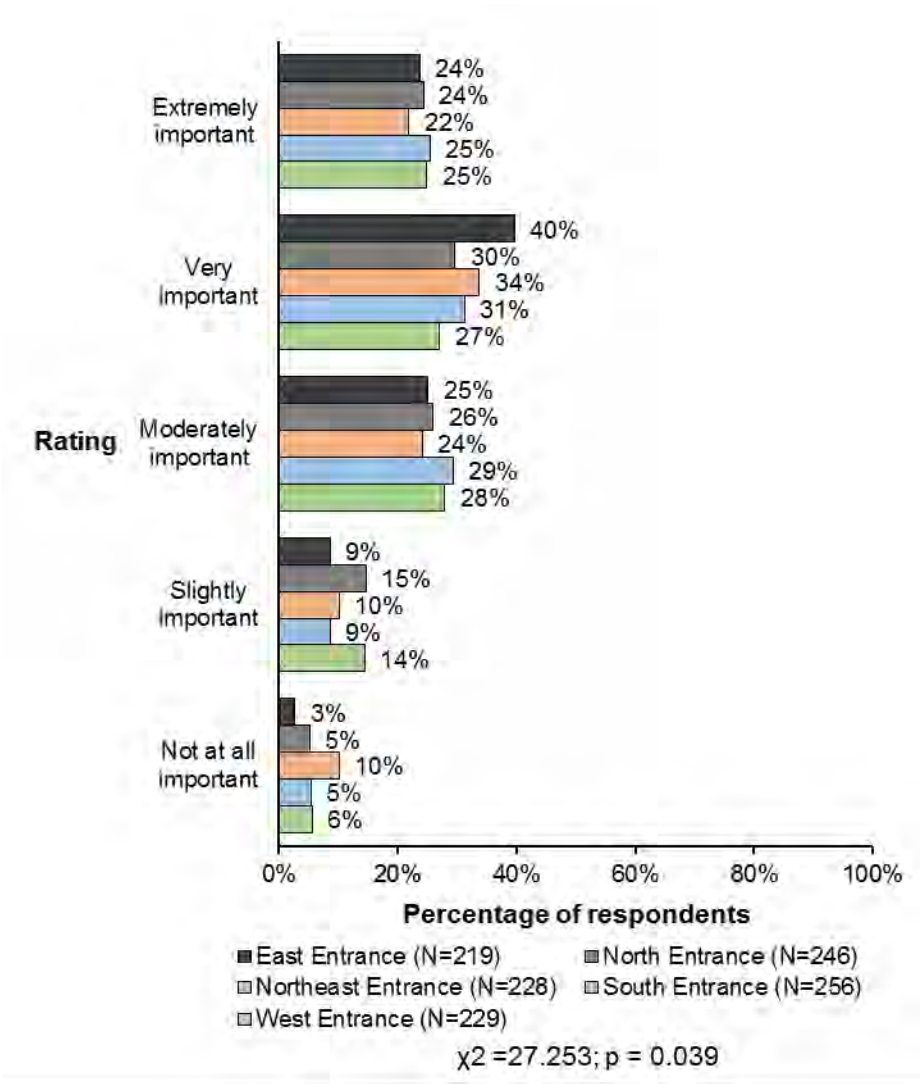


Figure 118. Importance of Yellowstone Lake, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

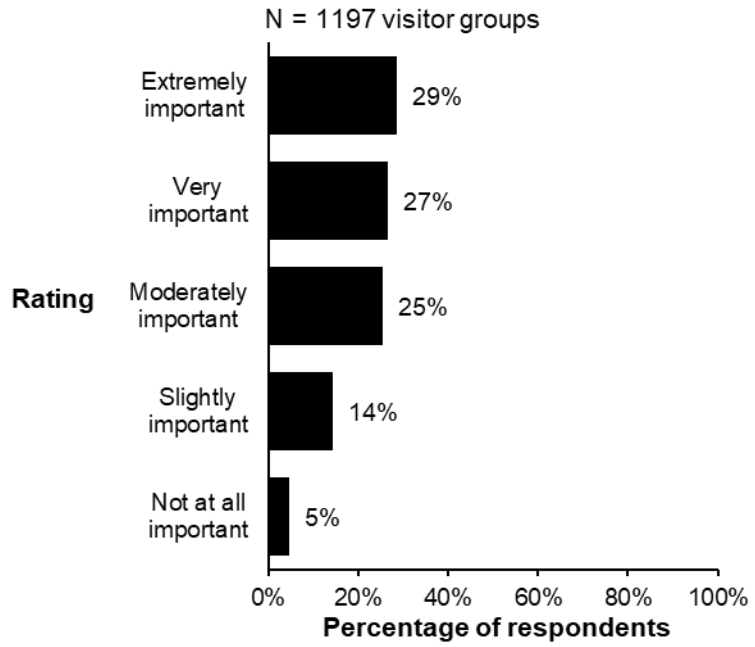


Figure 119. Importance of birds

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

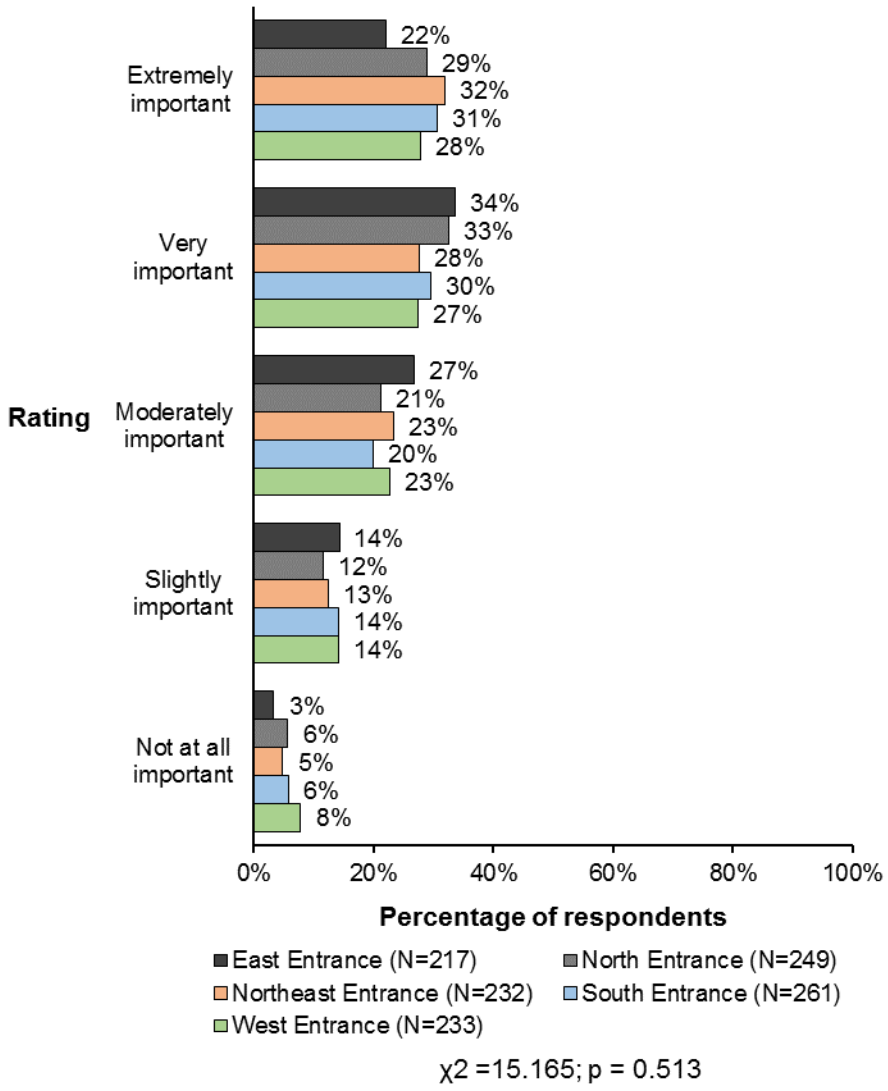


Figure 120. Importance of birds, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

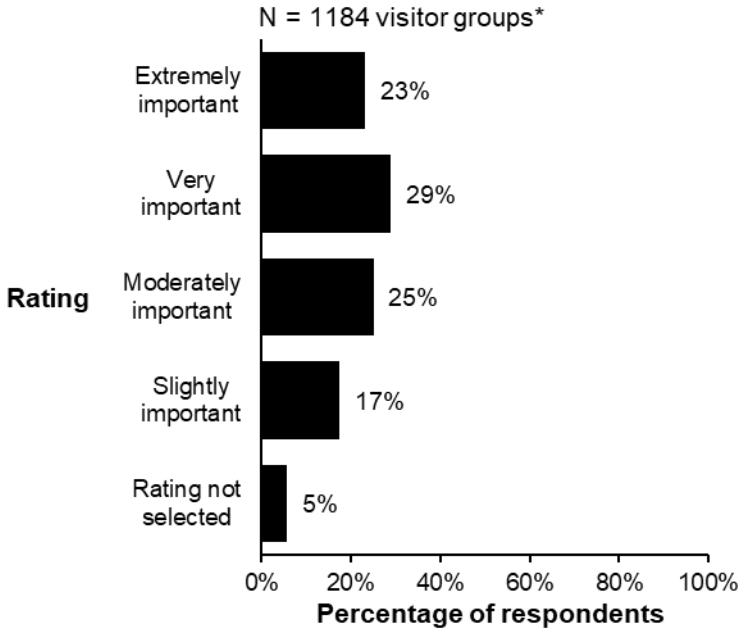


Figure 121. Importance of plants

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

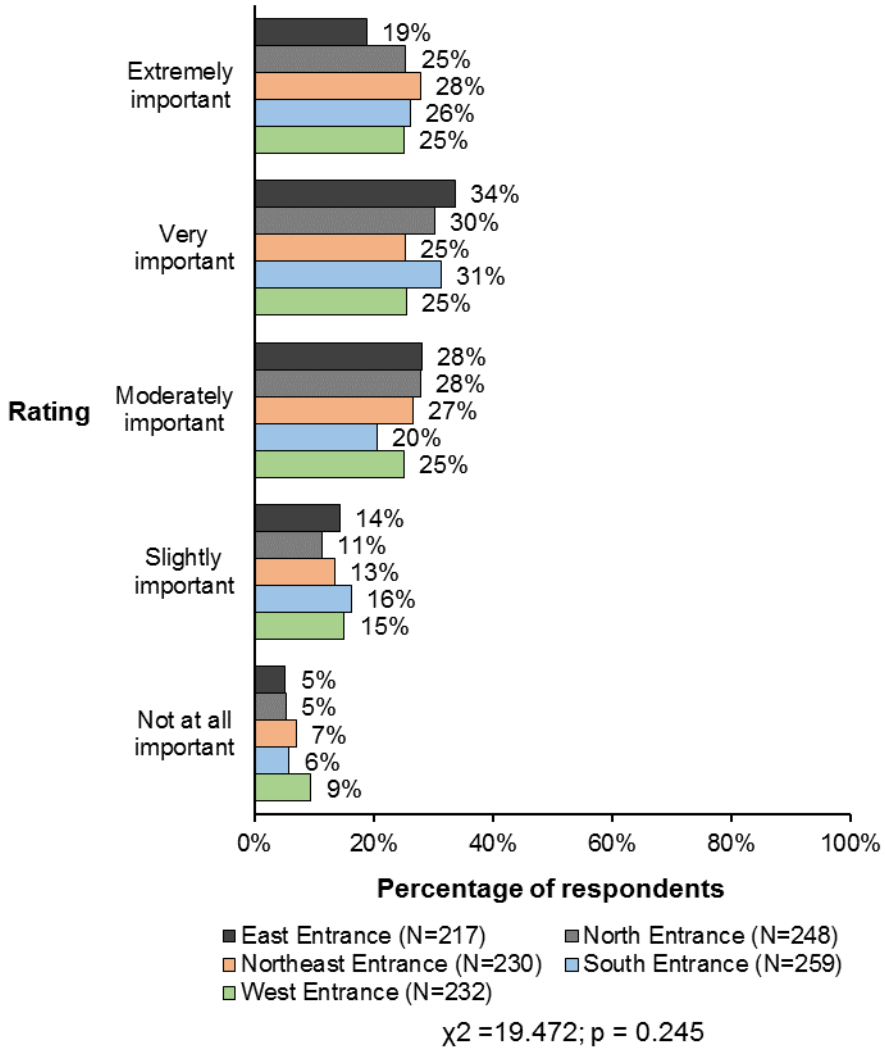


Figure 122. Importance of plants, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

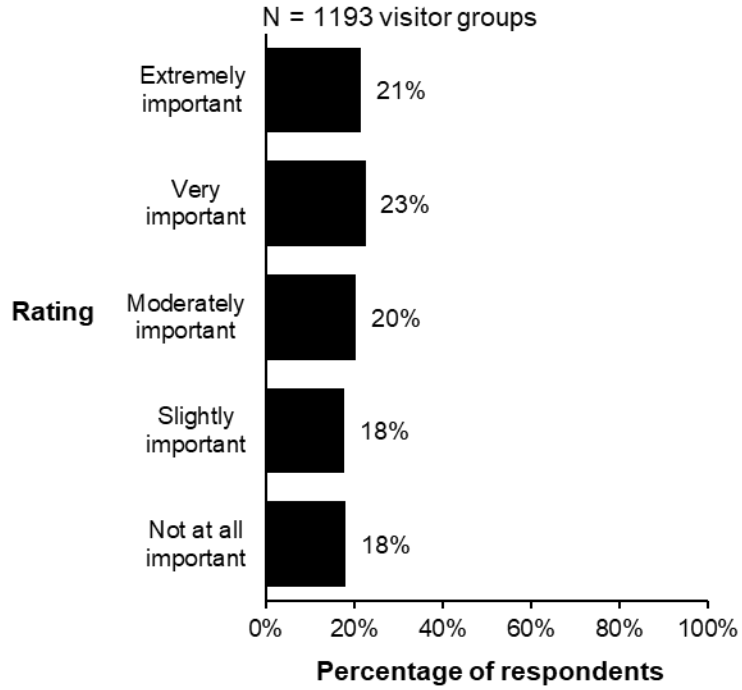


Figure 123. Importance of hiking

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

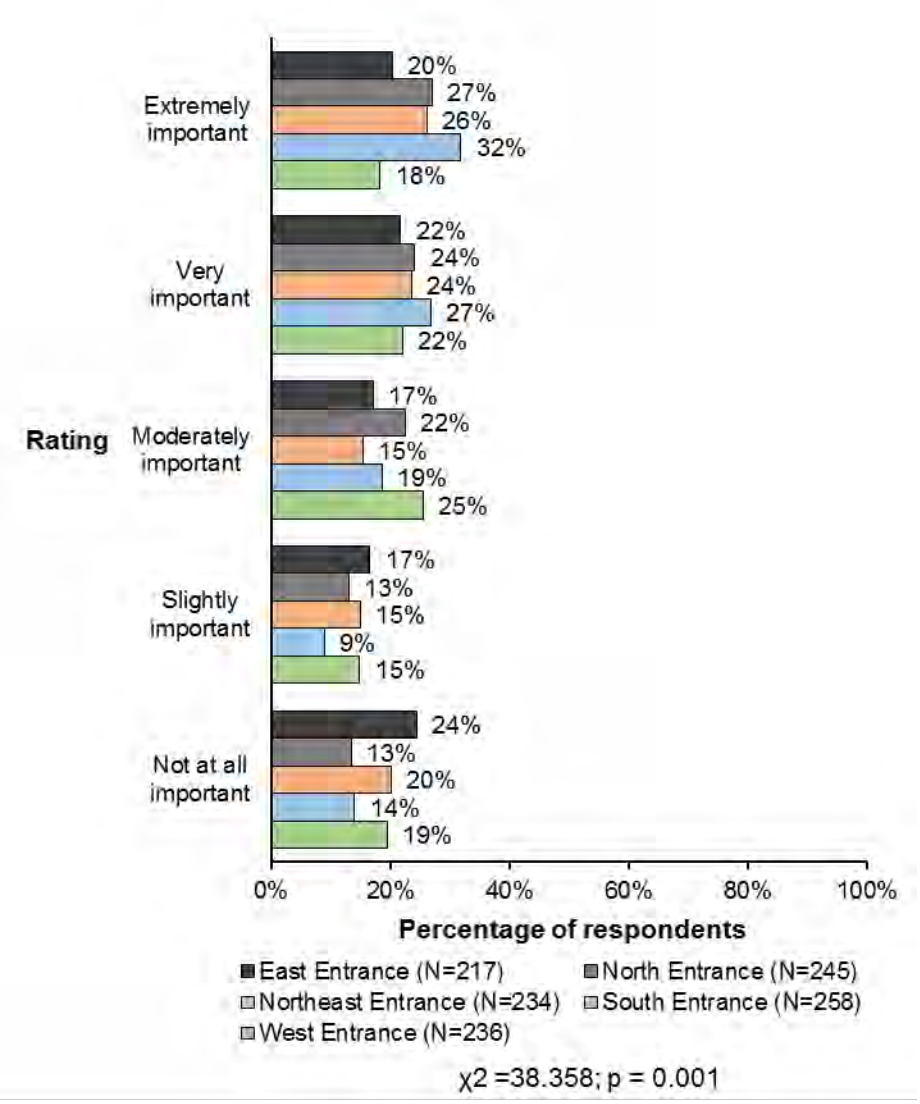


Figure 124. Importance of hiking, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

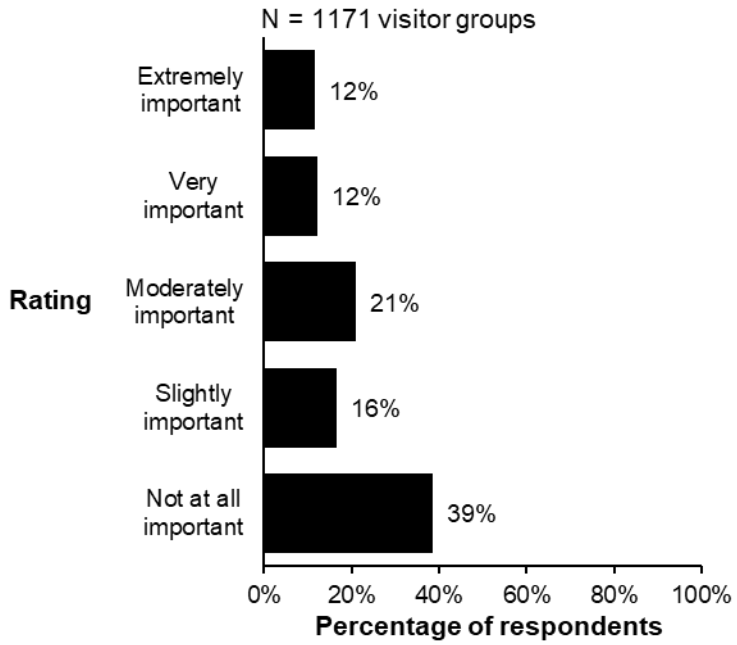


Figure 125. Importance of backcountry travel

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

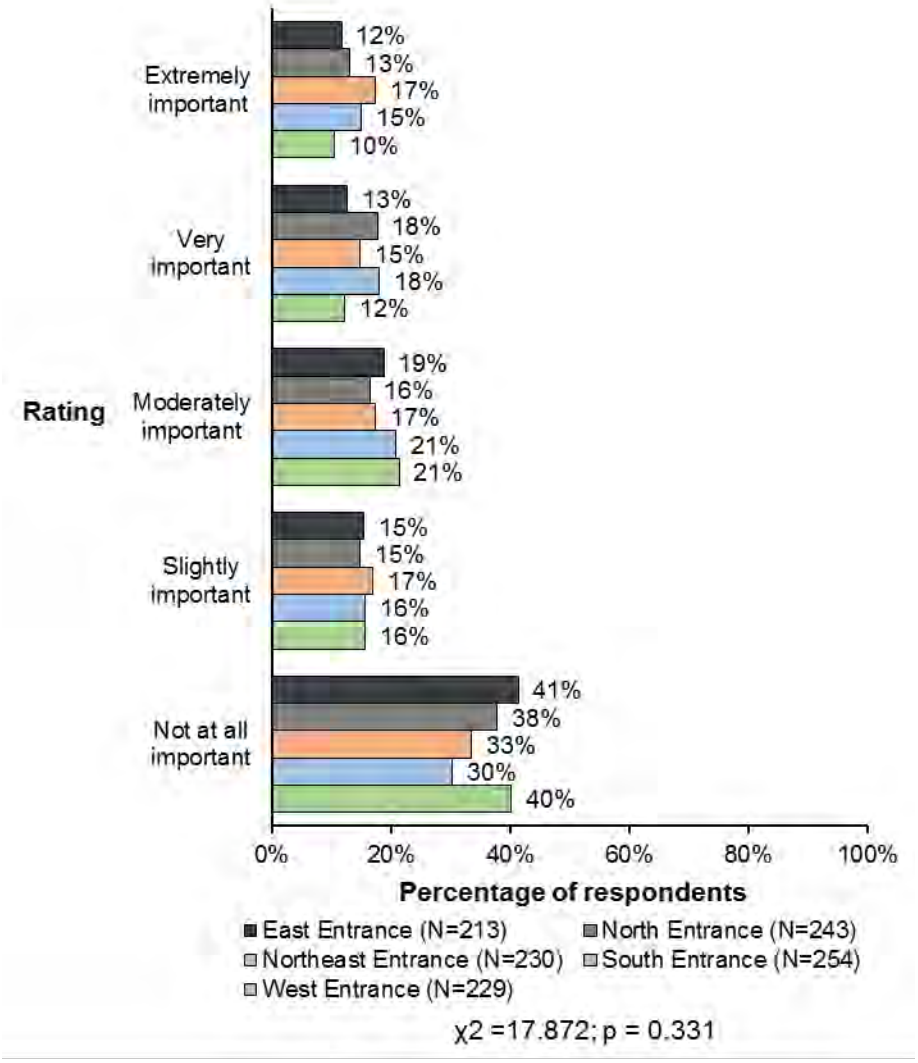


Figure 126. Importance of backcountry travel, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

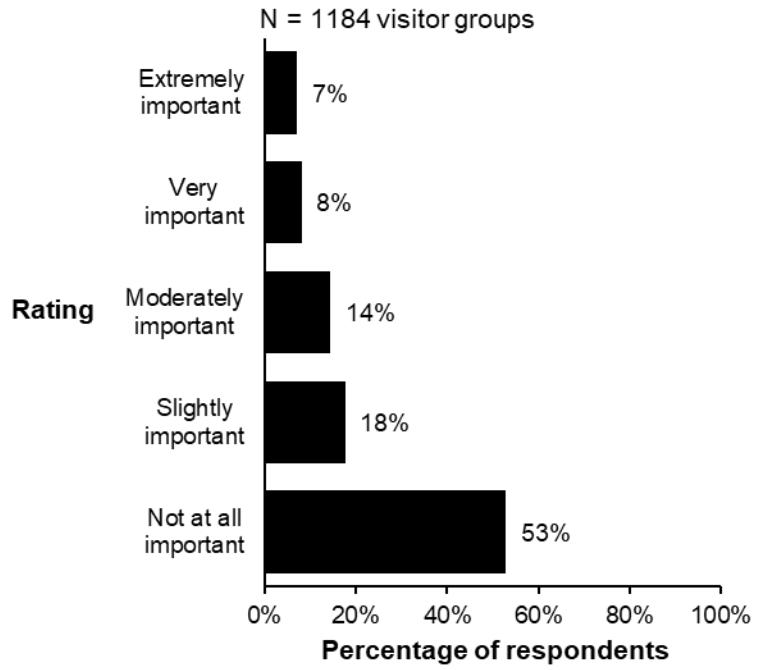


Figure 127. Importance of fishing

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

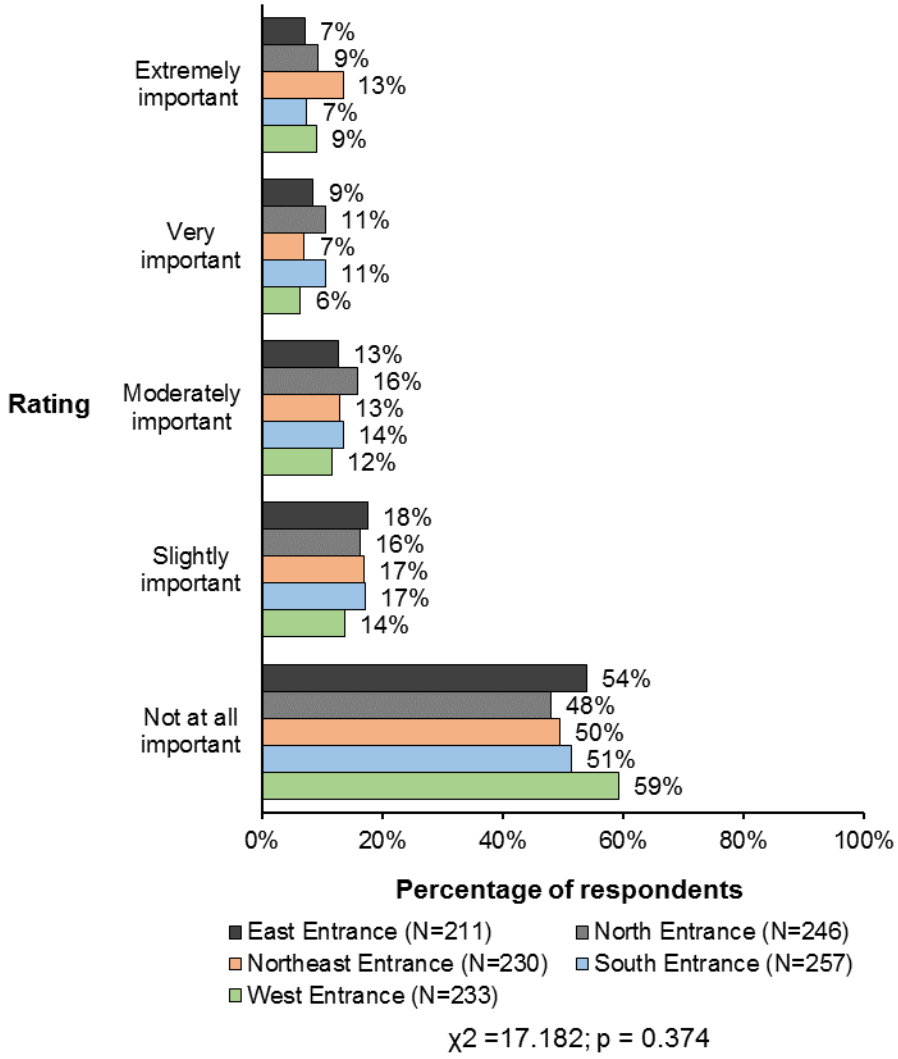


Figure 128. Importance of fishing, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Most important resources

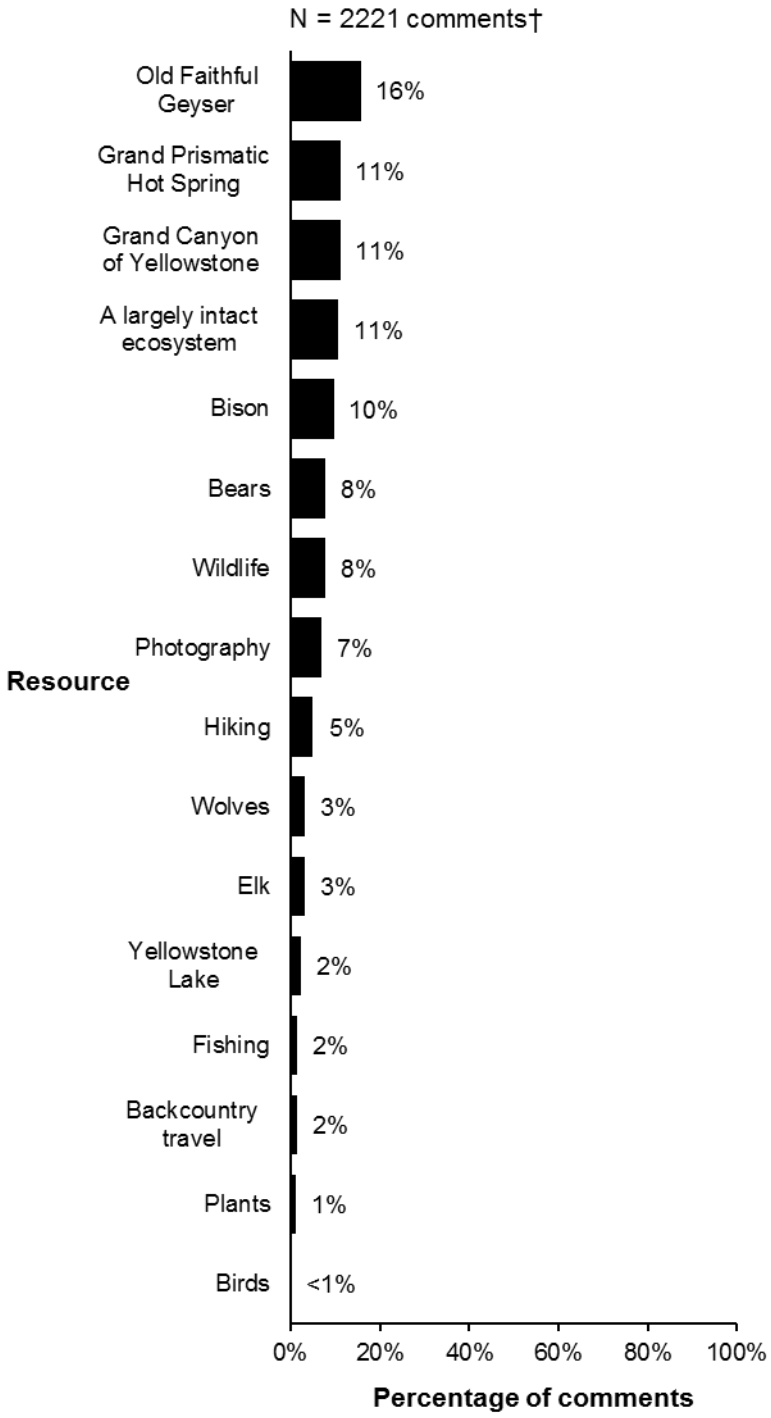
Question 16

Of the resources of Yellowstone NP listed in Question 15, which two are the most important to you?

Results (Figure 129, Table 50)

- As shown in Figure 129, the resources mentioned most frequently as most important by the visitor groups include the following:
    - 16% Old Faithful Geyser
    - 11% Grand Prismatic Hot Spring
    - 11% Grand Canyon of Yellowstone
    - 11% A largely intact ecosystem
- The resources mentioned least frequently as most important by visitor groups include the following include the following:
    - 2% Fishing
    - 2% Backcountry travel
    - 1% Plants

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer



†Visitor groups were asked to list two most important resources. Some visitor groups may have only listed one resource.

Figure 129. Resources visitor groups consider to be the most important

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The distribution of resources that visitor groups considered to be most important significantly differed by entrance ($X^2 = 107.421$; $p = 0.001$).

Table 50. Resource visitor groups consider to be the most important, by entrance

Percentage of respondents†

Resource	East *n = 424**	North *n = 490**	Northeast *n = 447**	South *n = 496**	West *n = 467**	Chi-square	p-value
Old Faithful Geyser	18%	14%	9%	15%	15%		
Grand Prismatic Hot Spring	6%	7%	5%	9%	9%		
Grand Canyon of Yellowstone	8%	8%	10%	7%	10%		
A largely intact ecosystem	8%	11%	11%	11%	10%		
Bison	6%	8%	7%	11%	10%		
Bears	8%	9%	12%	6%	9%		
Wildlife	8%	10%	9%	8%	7%		
Photography	8%	5%	6%	6%	5%		
Hiking	5%	8%	6%	7%	3%	χ2 = 107.421	p = 0.001
Wolves	5%	4%	6%	3%	4%		
Elk	2%	3%	4%	3%	3%		
Yellowstone Lake	4%	2%	1%	2%	2%		
Fishing	1%	2%	3%	1%	2%		
Backcountry travel	2%	1%	2%	2%	1%		
Plants	2%	2%	2%	2%	1%		
Birds	0%	2%	1%	1%	1%		
Other specified reason	8%	6%	7%	6%	7%		

†Visitor groups were asked to list two most important reasons. Some visitor groups may have only listed one reason.

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Learning from park staff, programs, and/or exhibits

Question 18

On this visit to Yellowstone NP, did you learn anything from park staff, programs, exhibits, and/or the park itself about American history, nature, and/or culture?

Results (Figure 130, **Figure 131**)

- 56% of visitor groups learned something from park staff, programs, exhibits, and/or the park itself about American history, nature, and/or culture.

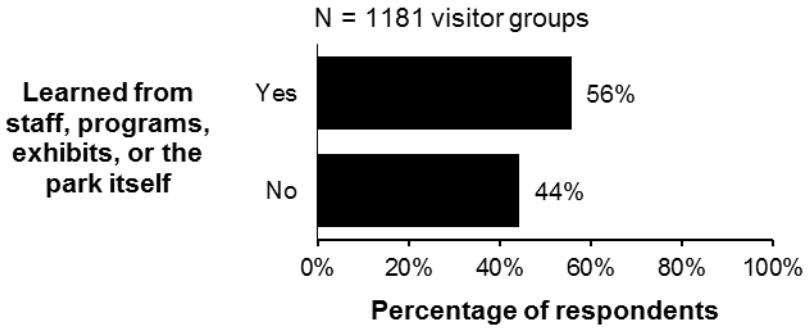


Figure 130. Visitors who learned something from park staff, programs, exhibits, and/or the park itself

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The distribution of visitor groups that learned something from park staff, programs, exhibits, and/or the park itself about American history, nature, and/or culture during their visit significantly differed by entrance ($X^2 = 13.810$ $p = 0.008$).
- Across entrances, visitor groups entering at the South (58%) and North (56%) entrances were more likely to report learning from staff, programs, exhibits, or the park itself during their visit than visitor groups entering at the West (51%), East (47%), and Northeast (44%) entrances.

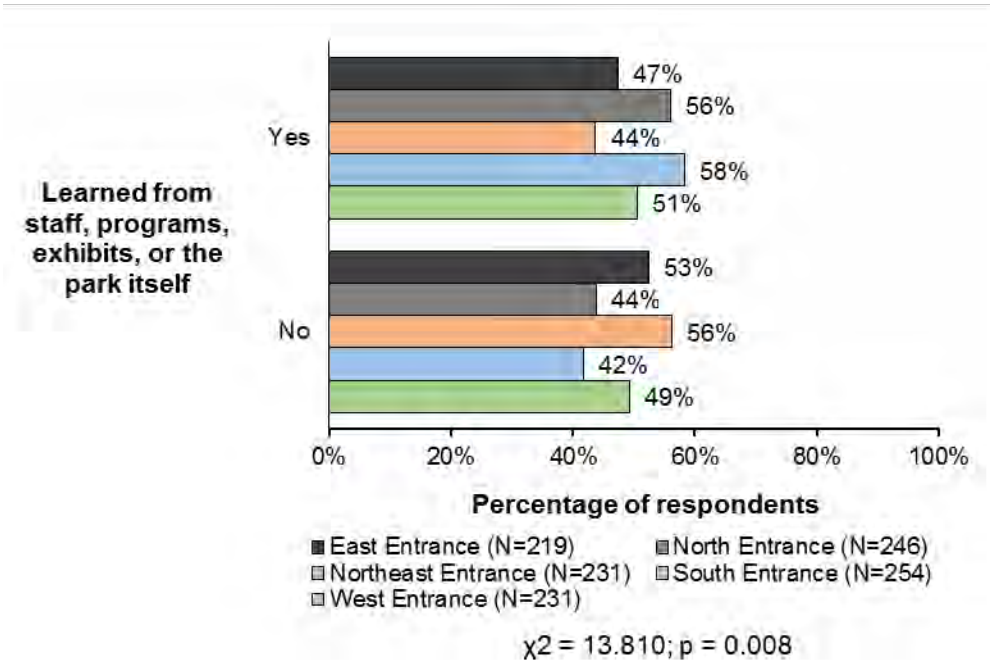


Figure 131. Visitors who learned something from park staff, programs, exhibits, and/or the park itself, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Question 18

If YES, please specify subjects you learned about (open-ended).

Results (Table 51, Table 52)

- Table 51 shows the subjects visitor groups learned about from park staff, programs, exibits, and/or the park itself. The most frequently mentioned subjects were:
    - "Park history" (16%)
    - "Thermal features" (10%)
    - "Geysers" (8%)

Table 51. Subjects learned

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

N = 1003 comments Some visitor groups may have made more than one comment.	
Subject	**Percent of valid responses**
Park history	16%
Thermal features	10%
Geysers	8%
Geology	6%
Volcanoes	5%
Nature/Natural history	5%
Wildlife (unspecified)	5%
Wildlife topics (i.e., safety, behaviors)	5%
Conservation	4%
Bears/Bear safety	3%
Old Faithful Geyser	3%
Wolves	2%
Fire	2%
Bison	2%
Hot springs	2%
Grand Canyon of the Yellowstone	2%
Yellowstone Lake	2%
Trip planning information	1%
NPS history	1%
Geothermal history/activity	1%
Yellowstone ecosystem	1%
Elk	1%
Caldera	1%
Historical buildings/lodging	1%
Native American history	1%
Fish species/ecology	1%
Founding of Yellowstone NP	1%
Fishing locations/information	1%
History (unspecified)	1%
Painted pots/mudpots	1%
Other topics	8%

- Table 52 shows the subjects visitor groups learned about from park staff, programs, exibits, and/or the park itself by entrance.

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Table 52. Subjects learned, by entrance

Subject	Percent of valid responses				
	East *n = 131**	North *n = 219**	Northeast *n = 160**	South *n = 215**	West *n = 165**
Park history	14%	15%	9%	11%	15%
Thermal features	8%	8%	3%	10%	12%
Geysers	13%	9%	6%	11%	10%
Geology	4%	4%	6%	6%	5%
Volcanoes	2%	3%	1%	4%	5%
Nature/Natural history	3%	6%	4%	4%	6%
Wildlife (unspecified)	5%	6%	8%	6%	7%
Wildlife topics (i.e., safety, behaviors)	2%	2%	3%	3%	4%
Conservation	1%	0%	1%	1%	1%
Bears/Bear safety	5%	2%	6%	3%	2%
Old Faithful Geyser	5%	3%	3%	3%	2%
Wolves	4%	4%	5%	3%	3%
Fire	0%	2%	3%	5%	2%
Bison	5%	3%	5%	3%	2%
Hot springs	2%	1%	3%	2%	1%
Grand Canyon of the Yellowstone	0%	1%	0%	1%	1%
Yellowstone Lake	2%	1%	1%	0%	1%
Trip planning information	0%	1%	4%	2%	1%
NPS History	2%	3%	0%	2%	0%
Geothermal history/activity	2%	1%	2%	2%	1%
Yellowstone ecosystem	1%	3%	3%	1%	1%
Elk	1%	1%	1%	1%	1%
Caldera	2%	1%	1%	1%	1%
Historical buildings/lodging	1%	2%	1%	0%	1%
Native American history	2%	1%	1%	0%	1%
Fish species/ecology	0%	1%	1%	2%	1%
Founding of Yellowstone NP	2%	1%	3%	1%	1%
Fishing locations/information	1%	1%	1%	0%	1%
History (unspecified)	0%	1%	4%	1%	1%
Painted pots/mudpots	0%	1%	0%	1%	1%
Birds	0%	1%	0%	1%	0%
Park rules/management	2%	0%	1%	1%	0%
Mammoth Hot Springs	0%	1%	1%	0%	0%
Other topics	13%	10%	10%	7%	9%

*Some visitor groups may have made more than one comment.

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Learning about subjects on future visits

Question 19

If you were to visit Yellowstone NP in the future, are there specific subjects you would like to learn about?

Results (Figure 132, Figure 133)

- 56% of visitors did not have specific subjects they would like to learn about on a future visit to Yellowstone NP.

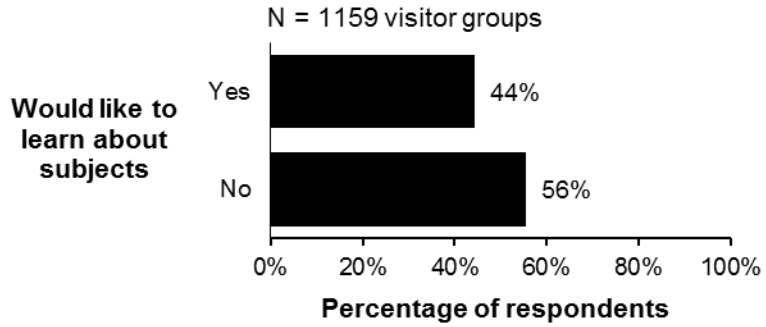


Figure 132. Visitors who would like to learn about specific subjects on future visits

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The distribution of visitor groups that would like to learn about specific subjects on a future visit to Yellowstone NP did not significantly differ by entrance ($X^2 = 3.919$ $p = 0.417$).

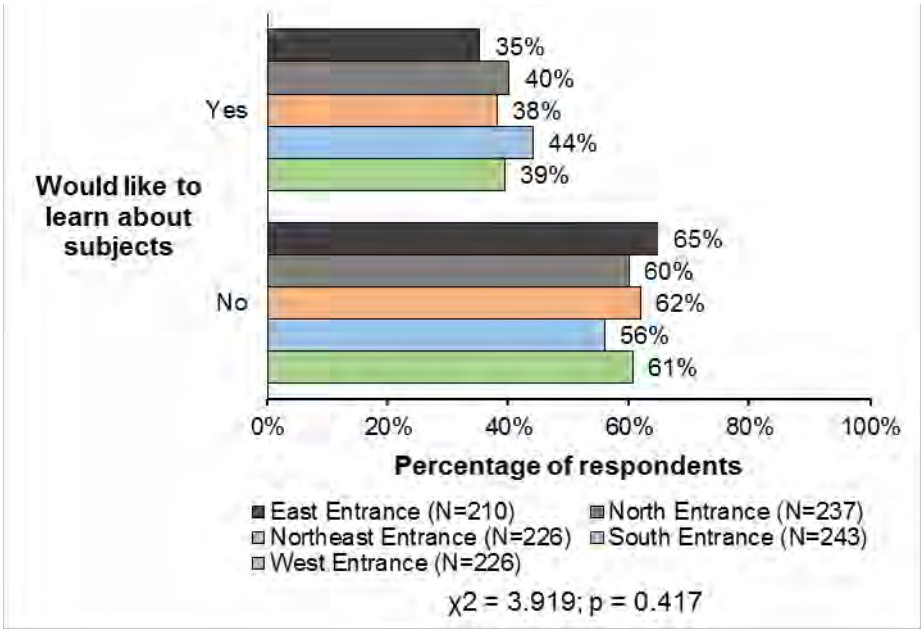


Figure 133. Visitors who would like to learn about specific subjects on future visits, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Question 19

If YES, please specify subjects you would like to learn about (open-ended).

Results (Table 53, Table 54)

- Table 53 shows the subjects visitor groups would like to learn about on future visits to Yellowstone NP. The most frequently mentioned subjects were:
    - "Wildlife (unspecified)" (13%)
    - "Park history" (10%)
    - "Geology" (10%)

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Table 53. Subjects visitor groups would like to learn

N = 825 comments

Some visitor groups may have made more than one comment.

Subject	Percent of valid responses
Wildlife (unspecified)	13%
Park history	10%
Geology	10%
Recreation activities	5%
Fishing information/locations	4%
Thermal features	4%
Wolves	3%
Geysers	3%
Location of wildlife	3%
Bears/bear safety	3%
Park management	3%
Yellowstone ecosystem	3%
Volcanoes	2%
Native American history	2%
Preservation/conservation	2%
Wildlife topics (i.e., safety, behaviors)	2%
Seasons/seasonal use	2%
Plants/trees/vegetation	2%
Elk	2%
Hiking trails	1%
Fire	1%
Backcountry/Wilderness experiences	1%
Climate change	1%
Bison	1%
Hot springs	1%
Geothermal science	1%
Impact of visitors on park resources	1%
Trip planning information	1%
Founding of Yellowstone NP	1%
Other subjects	11%

- Table 53 shows the subjects visitors would like to learn about on future visits to Yellowstone NP by entrance.

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Table 54. Subjects visitor groups would like to learn, by entrance

	Percent of valid responses				
Subject	**East** *n = 113**	**North** *n = 147**	**Northeast** *n = 150**	**South** *n = 168**	**West** *n = 136**
Wildlife (unspecified)	11%	11%	12%	20%	15%
Park history	12%	5%	10%	5%	7%
Geology	2%	3%	8%	2%	4%
Recreation activities	1%	3%	0%	1%	1%
Fishing information/locations	1%	1%	1%	1%	2%
Thermal features	4%	4%	2%	3%	5%
Wolves	4%	7%	6%	5%	2%
Geysers	4%	1%	3%	5%	3%
Location of wildlife	2%	4%	3%	3%	4%
Bears/bear safety	3%	5%	7%	4%	4%
Park management	7%	7%	4%	1%	4%
Yellowstone ecosystem	2%	5%	3%	4%	1%
Volcanoes	4%	2%	3%	2%	5%
Native American history	6%	5%	2%	4%	4%
Preservation/conservation	4%	2%	3%	3%	1%
Wildlife topics (i.e., safety, behaviors)	4%	5%	3%	4%	1%
Seasons/seasonality of use	0%	1%	1%	2%	2%
Plants, trees, vegetation	1%	3%	3%	3%	4%
Elk	4%	1%	3%	2%	1%
Hiking trails	2%	1%	1%	2%	3%
Fire	3%	2%	2%	4%	2%
Backcountry/Wilderness experiences	1%	4%	3%	1%	1%
Climate change	1%	2%	3%	1%	1%
Bison	2%	2%	2%	3%	0%
Hot springs	2%	1%	1%	1%	1%
Geothermal science	1%	1%	1%	1%	1%
Impact of visitors on park resources	1%	1%	0%	2%	1%
Trip planning information	2%	1%	2%	2%	0%
Founding of Yellowstone	4%	0%	1%	0%	1%
Birds	1%	1%	0%	0%	1%
Fish species/ecology	0%	1%	1%	0%	1%
Other subjects	8%	8%	7%	9%	13%

*Some visitor groups may have made more than one comment.

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Problems with issues in park

Question 17

How much of a problem do you think the following issues are in Yellowstone NP?

Rating choices:

Not a problem
Small problem
Moderate problem
Big problem
Don't know

Results (Figure 134, Table 55)

- Figure 134 shows the combined proportions of "big problem" and "moderate problem" ratings for park issues. Some visitor groups may not have selected a rating for each issue.
- The issues that received the highest combined proportions of "big problem" and "moderate problem" ratings were:
    - 67% Difficulty finding a parking space
    - 57% Too many people in the park
    - 55% Traffic congestion on park roads
    - 55% Other visitors acting unsafe around wildlife
- The issues that received the lowest combined proportions of "big problem" and "moderate problem" ratings were:
    - 25% Too much noise
    - 24% Not enough park staff present
    - 22% Vegetation loss along roads and trails

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

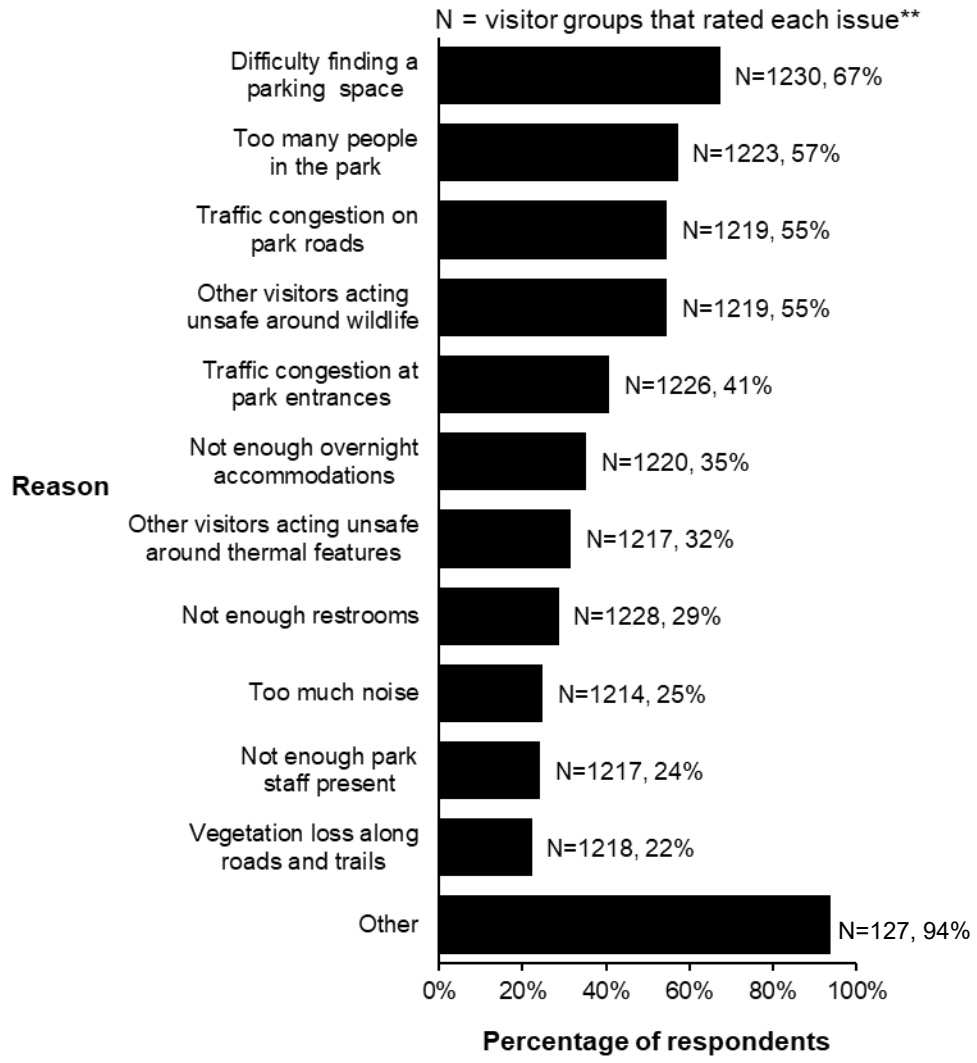


Figure 134. The degree to which visitors found an issue to be a problem during their visit, includes responses for either "big problem" or "moderate problem"

Figure 135 through Figure 152 show ratings for each issue.

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- Table 55 shows the combined proportions of "big problem" and "moderate problem" ratings for park issues by entrance.
- No statistical differences in the combined proportions of which park issues visitor groups rated as "big problem" or "moderate problem" were found.

Table 55. The degree to which visitors found an issue to be a problem during their visit, by entrance, includes responses for either "big problem" or "moderate problem"

		East	North	Northeast	South	West		
Issue	***n***	**Percentage of respondents**					**Chi-square**	**p-value[1]**
Difficulty finding a parking space	1221	56%	68%	59%	60%	69%	χ2 = 14.066	p = 0.007
Too many people in the park	1214	57%	67%	64%	62%	60%	χ2 = 6.165	p = 0.187
Traffic congestion on park roads	1214	54%	62%	58%	46%	57%	χ2 = 14.077	p = 0.007
Other visitors acting unsafe around wildlife	1144	55%	58%	61%	49%	59%	χ2 = 7.092	p = 0.131
Traffic congestion at park entrances	1208	38%	47%	46%	39%	44%	χ2 = 6.317	p = 0.177
Not enough overnight accommodations	1012	45%	44%	42%	51%	45%	χ2 = 3.993	p = 0.407
Other visitors acting unsafe around thermal features	1109	38%	35%	43%	32%	34%	χ2 = 6.707	p = 0.152
Not enough restrooms	1190	23%	23%	24%	25%	35%	χ2 = 12.697	p = 0.013
Too much noise	1165	27%	30%	24%	28%	26%	χ2 = 2.405	p = 0.662
Not enough park staff present	1145	24%	24%	28%	19%	27%	χ2 = 7.092	p = 0.131
Vegetation loss along roads and trails	1064	32%	28%	26%	23%	31%	χ2 = 5.614	p = 0.230
Other	135	89%	92%	81%	100%	96%	χ2 = 7.241	p = 0.124

[1] $\alpha = 0.05$, $p \leq 0.004$ indicates significant result following Bonferroni correction to account for multiple statistical tests.

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

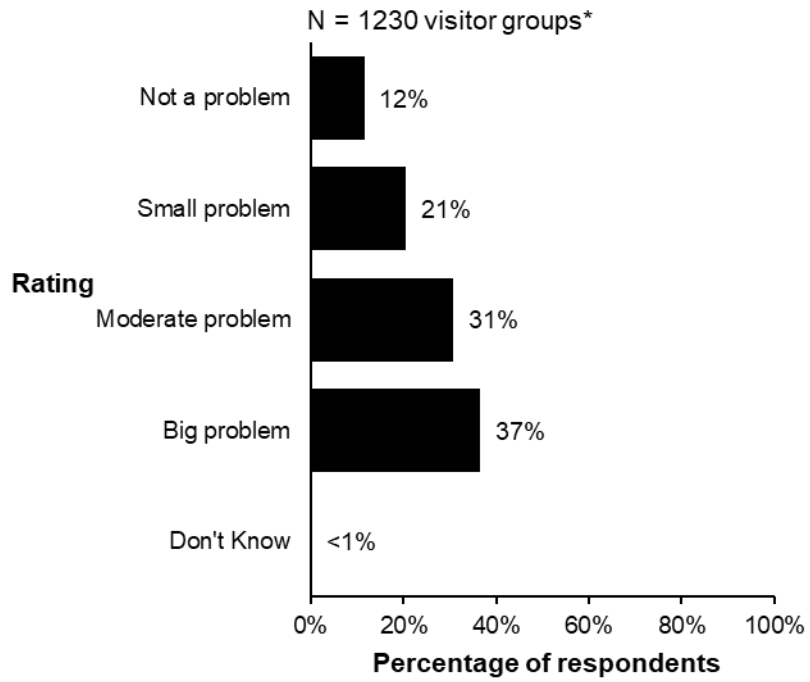


Figure 135. Issue of difficulty finding a parking space

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

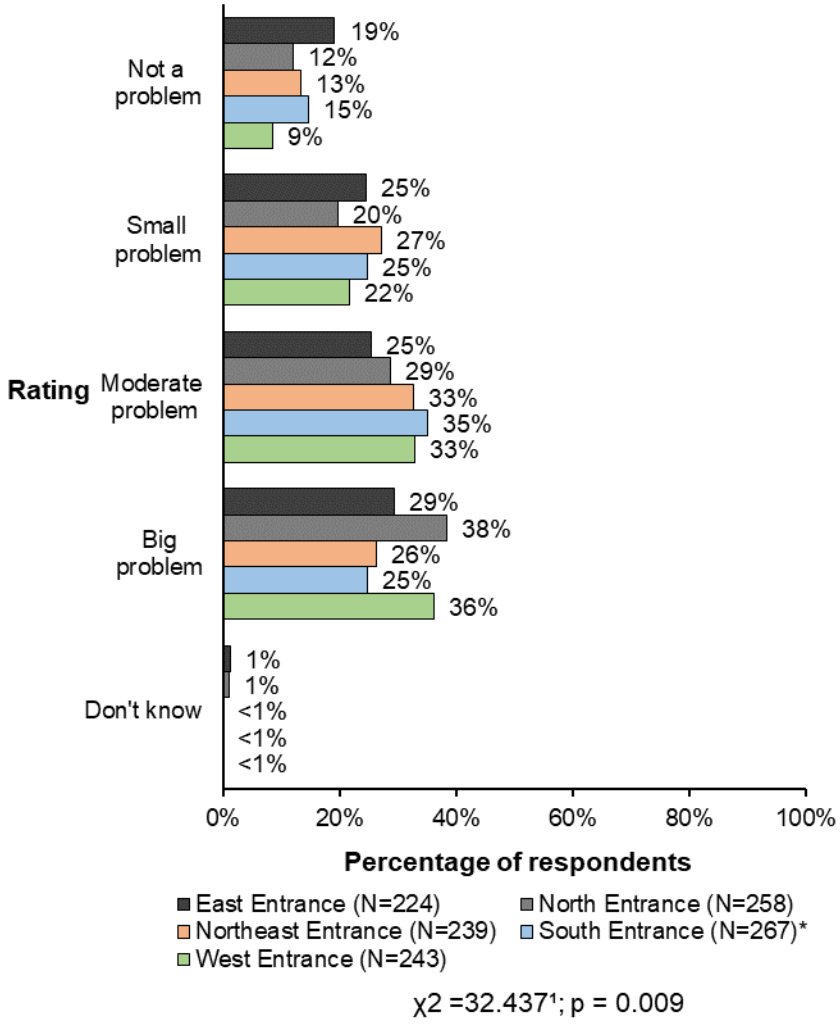


Figure 136. Issue of difficulty finding a parking space, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

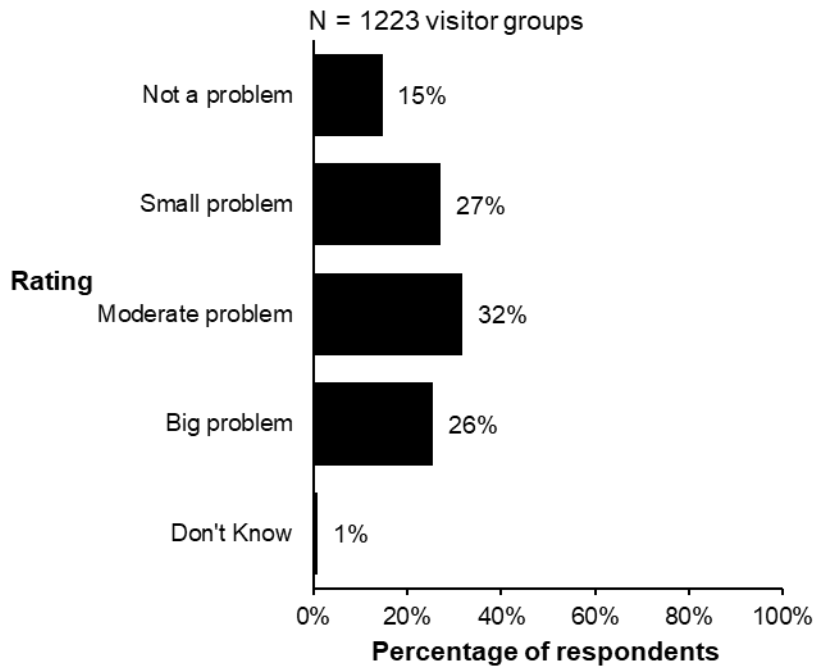


Figure 137. Issue of too many people in the park

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

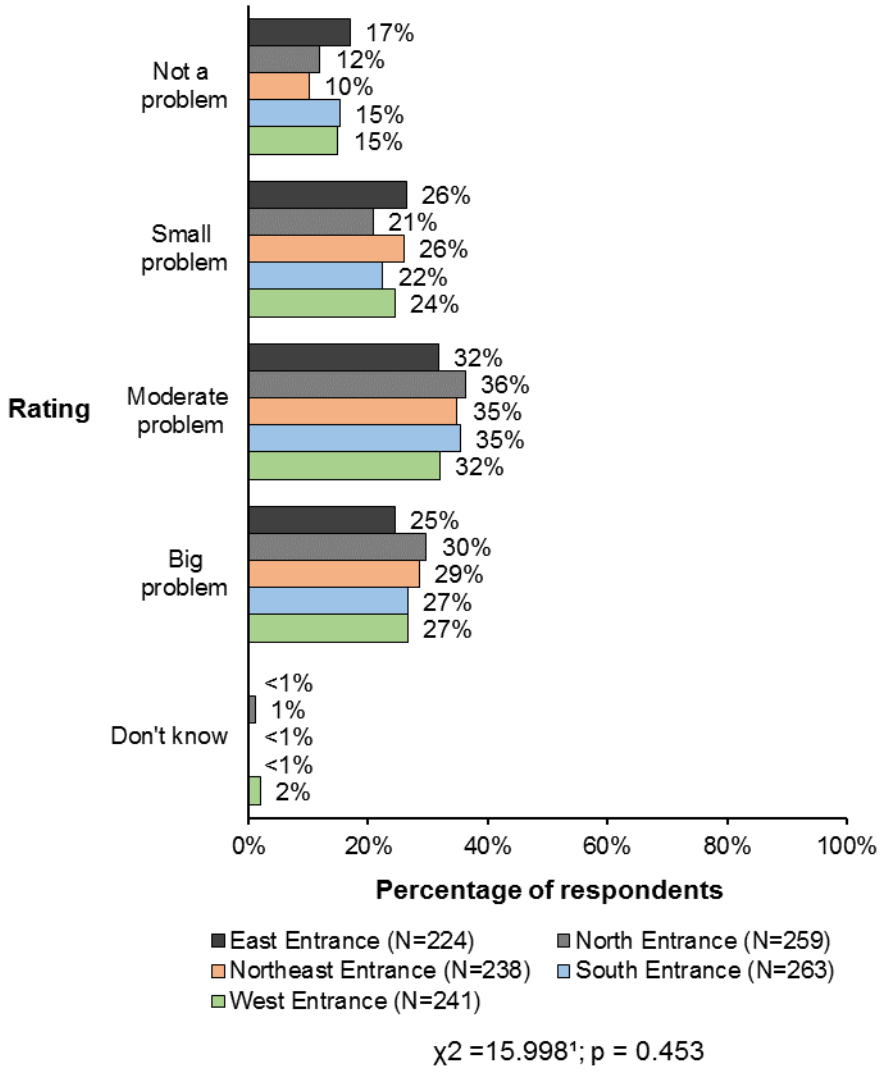


Figure 138. Issue of too many people in the park, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

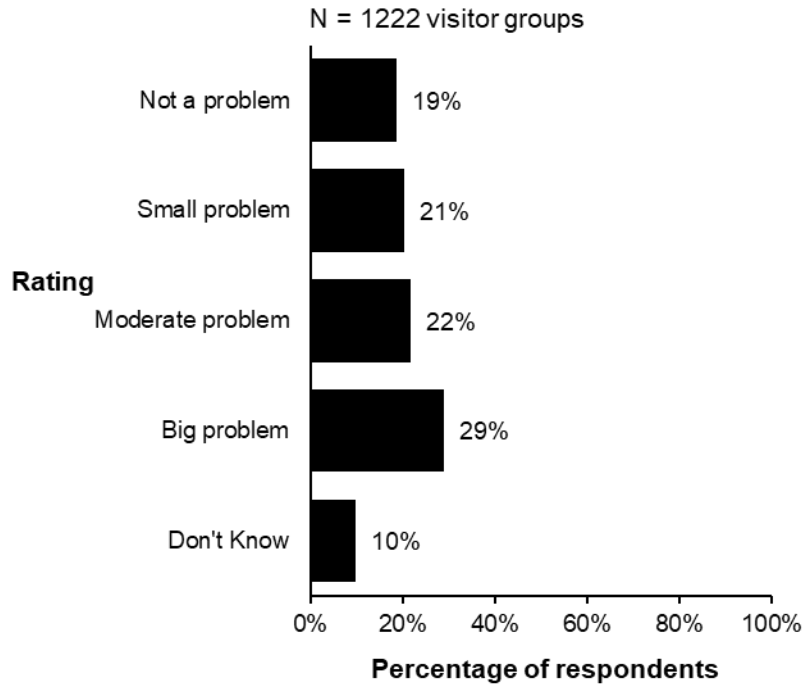


Figure 139. Issue of other visitors acting unsafe around wildlife

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

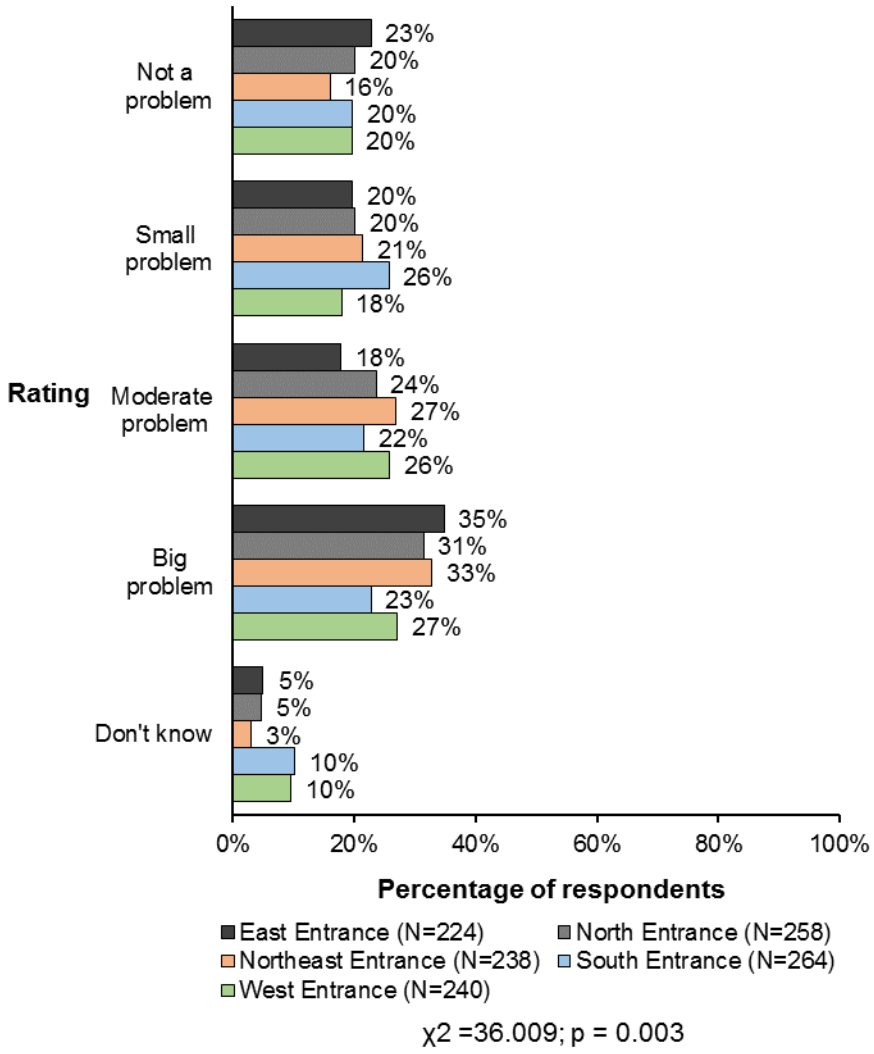


Figure 140. Issue of other visitors acting unsafe around wildlife, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

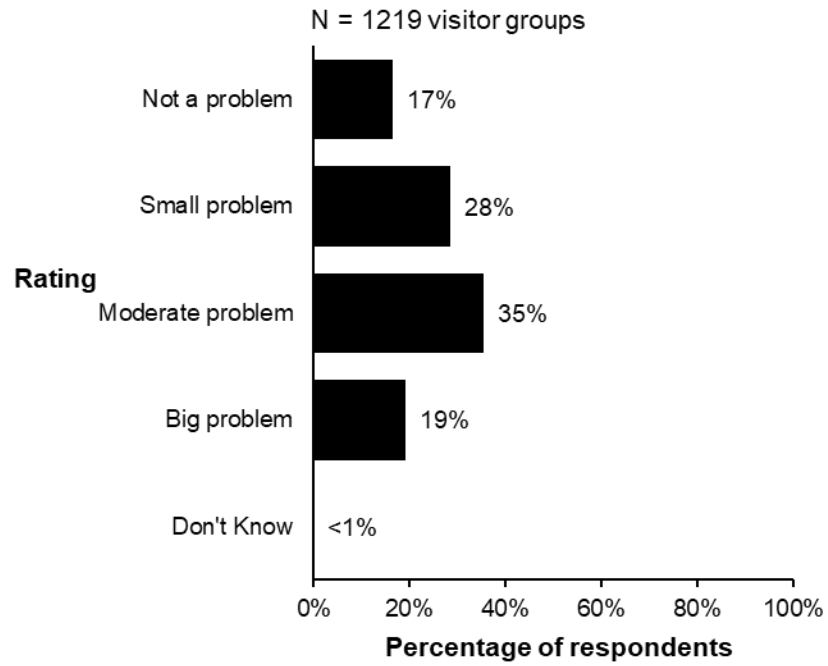


Figure 141. Issue of traffic congestion on park roads

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

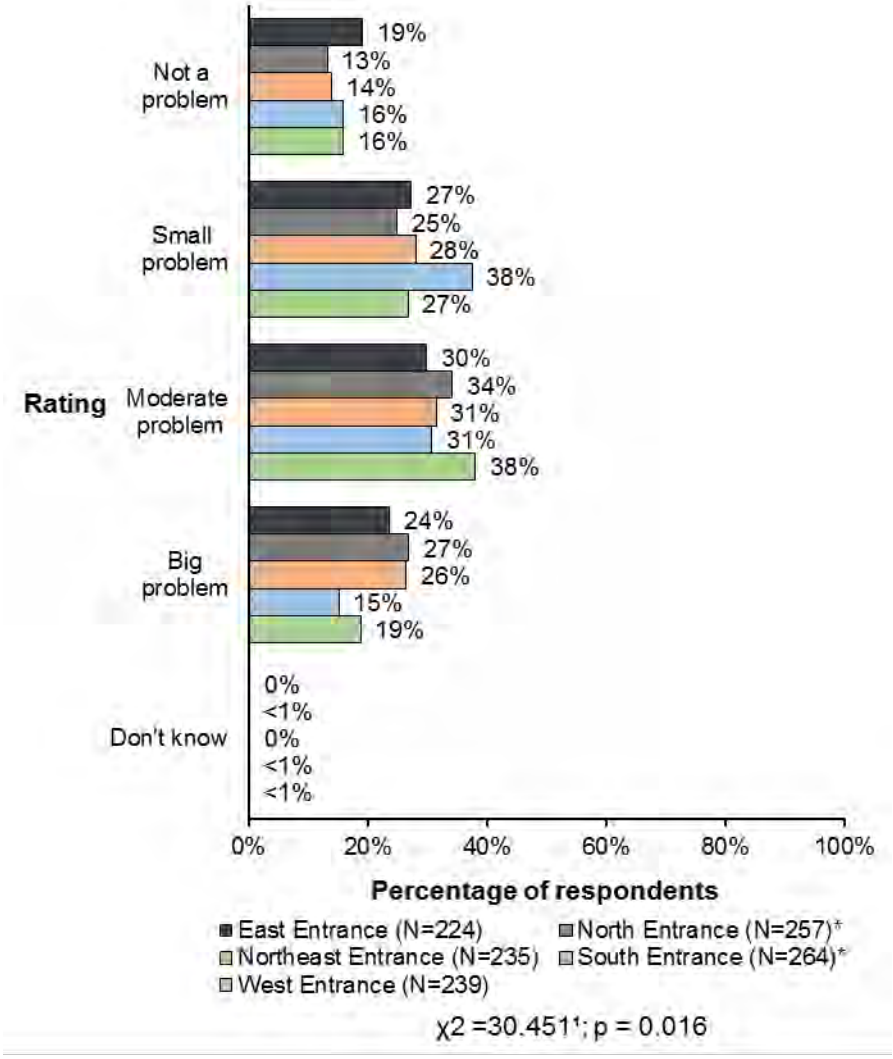


Figure 142. Issue of traffic congestion on park roads, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

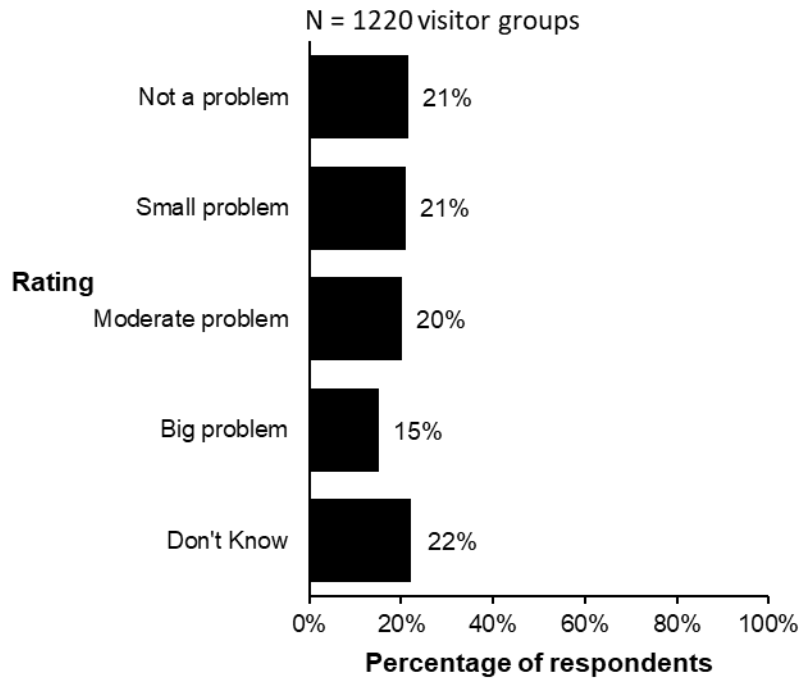


Figure 143. Issue of not enough overnight accommodations

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

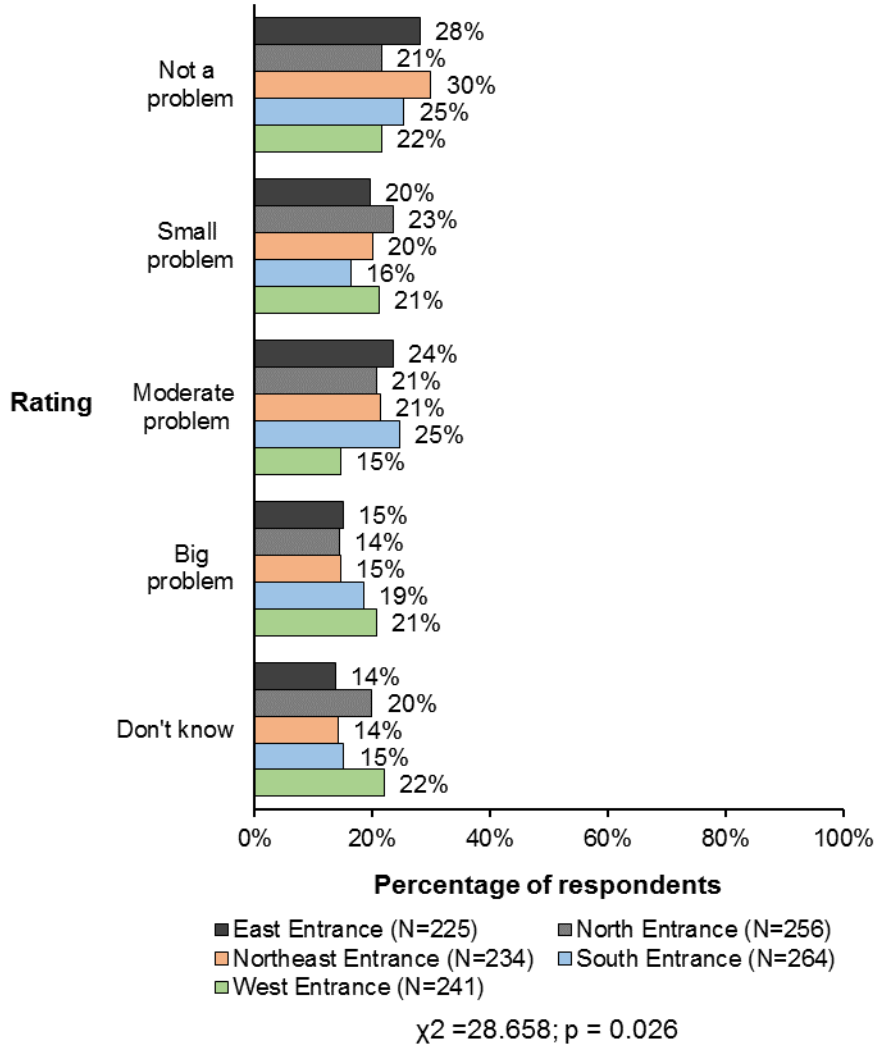


Figure 144. Issue of not enough overnight accommodations, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

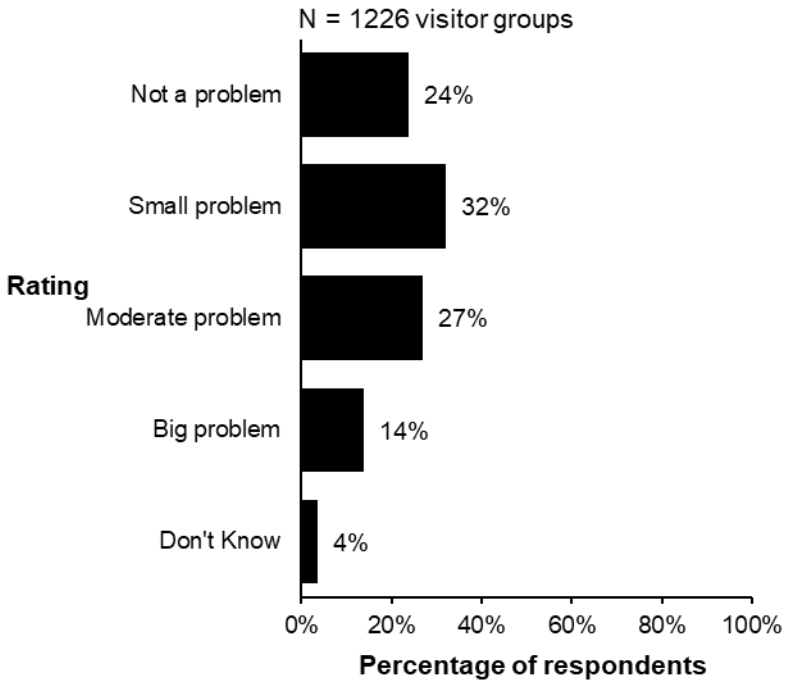


Figure 145. Issue of traffic congestion at park entrances

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

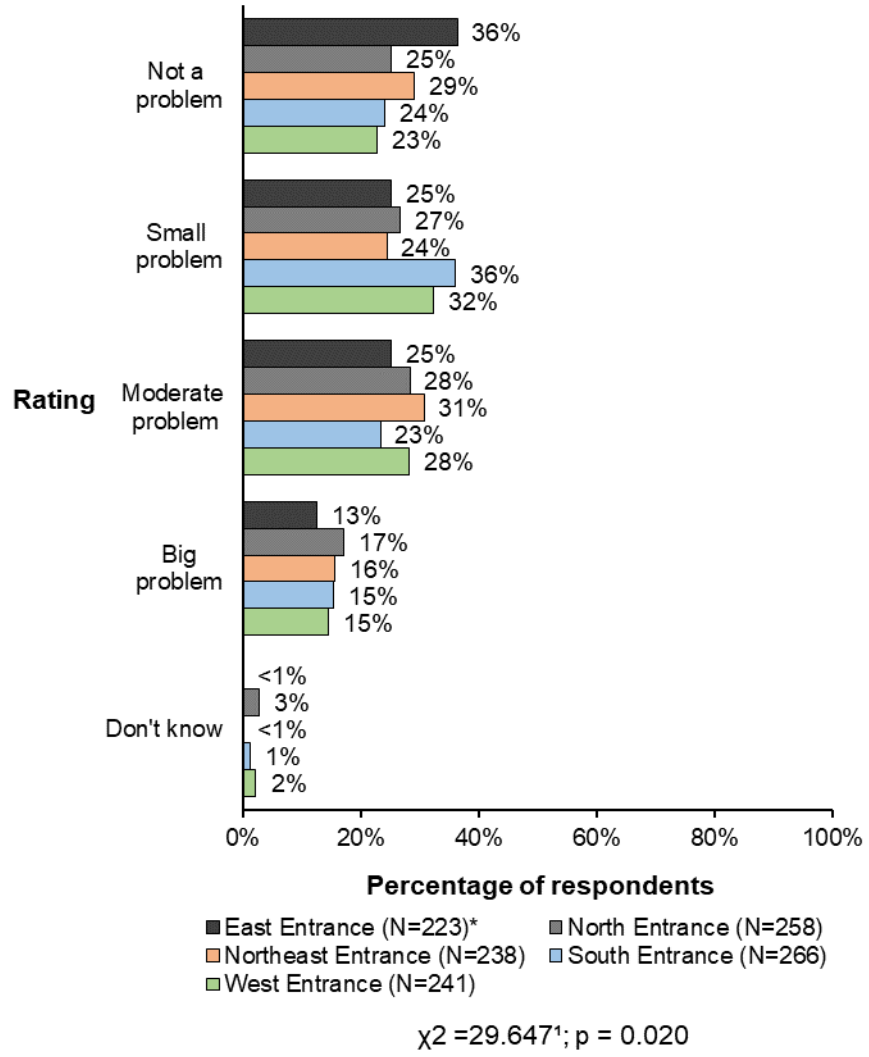


Figure 146. Issue of traffic congestion at park entrances, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

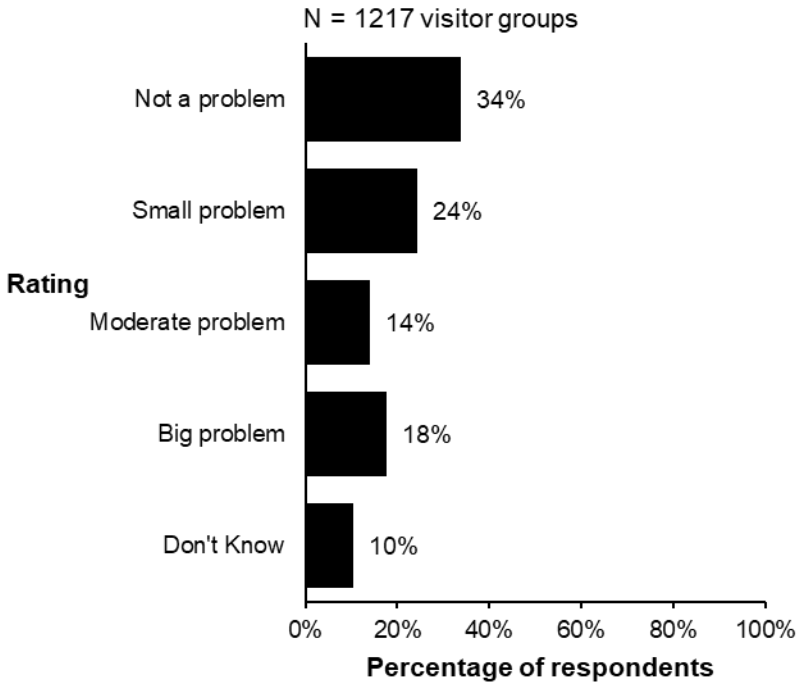


Figure 147. Issue of other visitors acting unsafe around thermal features

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

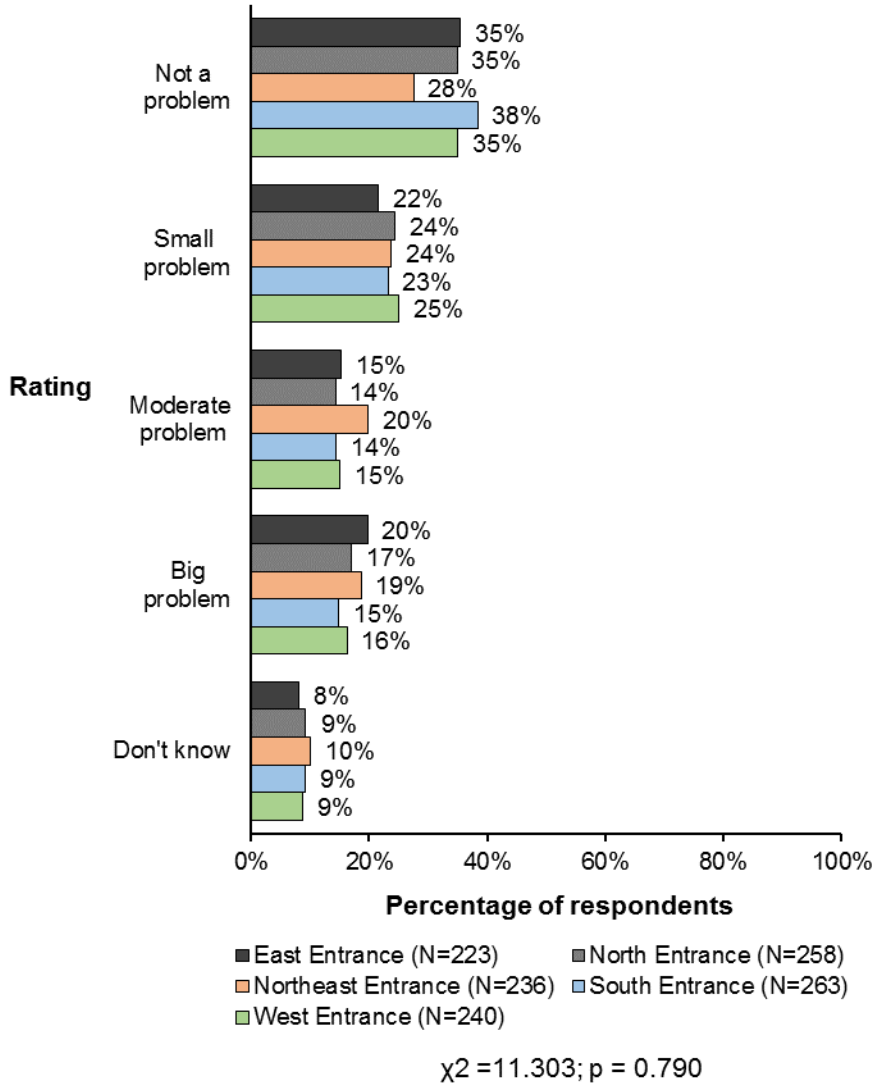


Figure 148. Issue of other visitors acting unsafe around thermal features, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

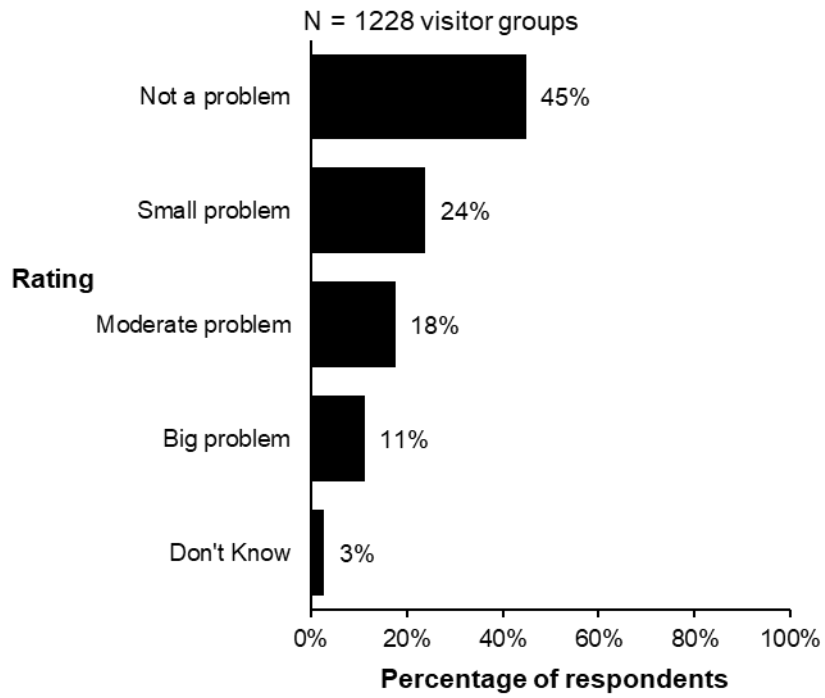


Figure 149. Issue of not enough restrooms

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

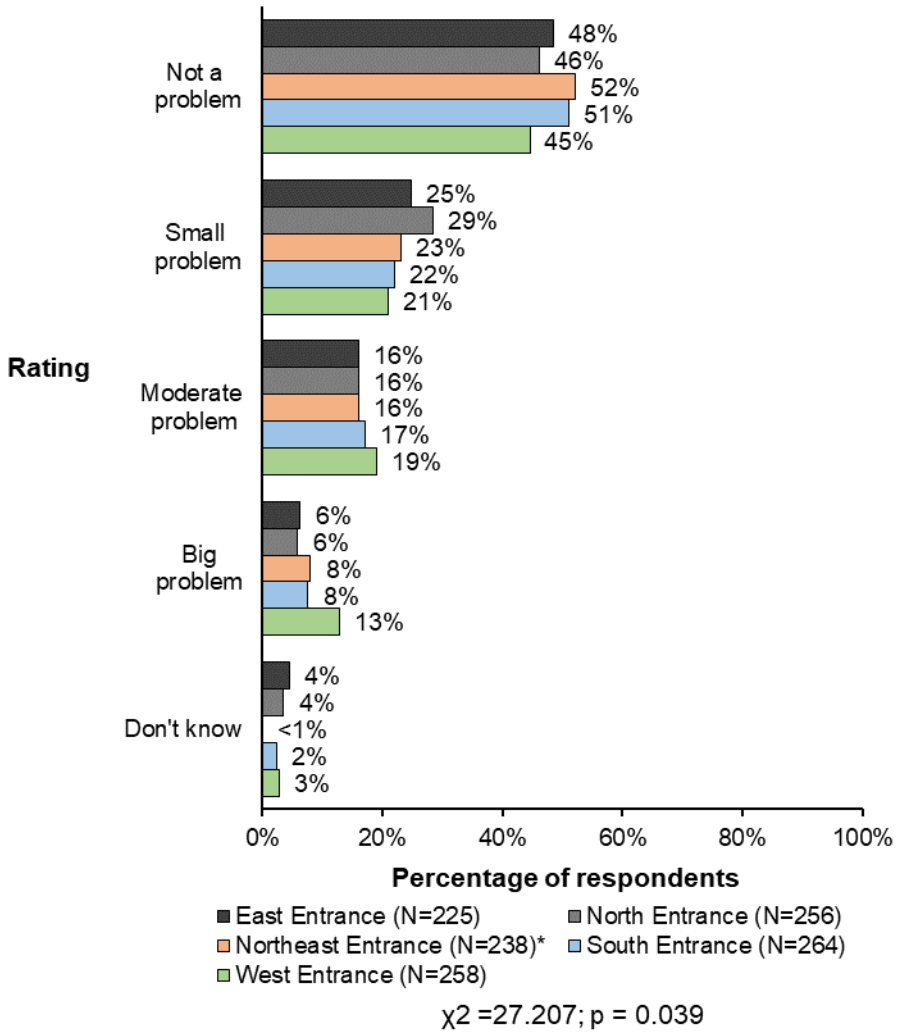


Figure 150. Issue of not enough restrooms, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

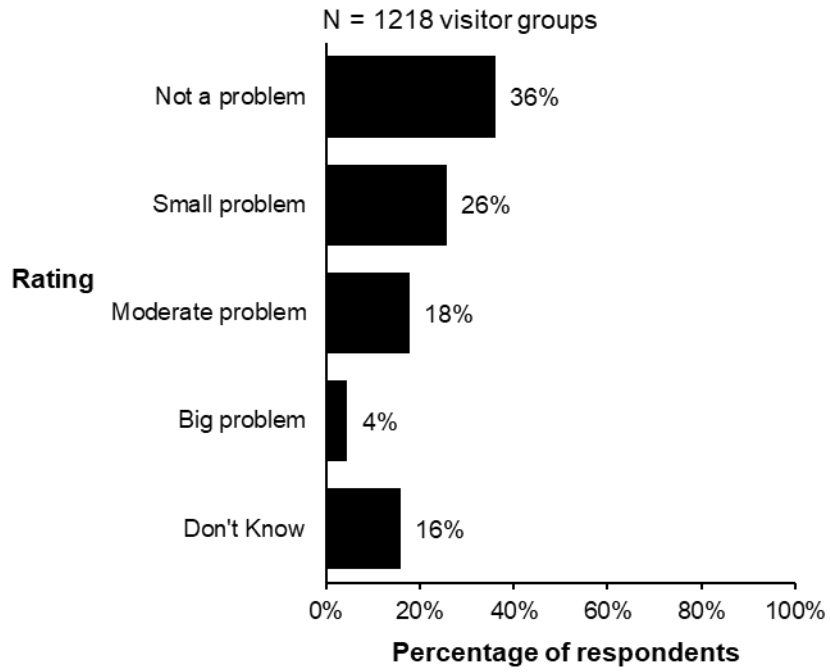


Figure 151. Issue of vegetation loss along roads and trails

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

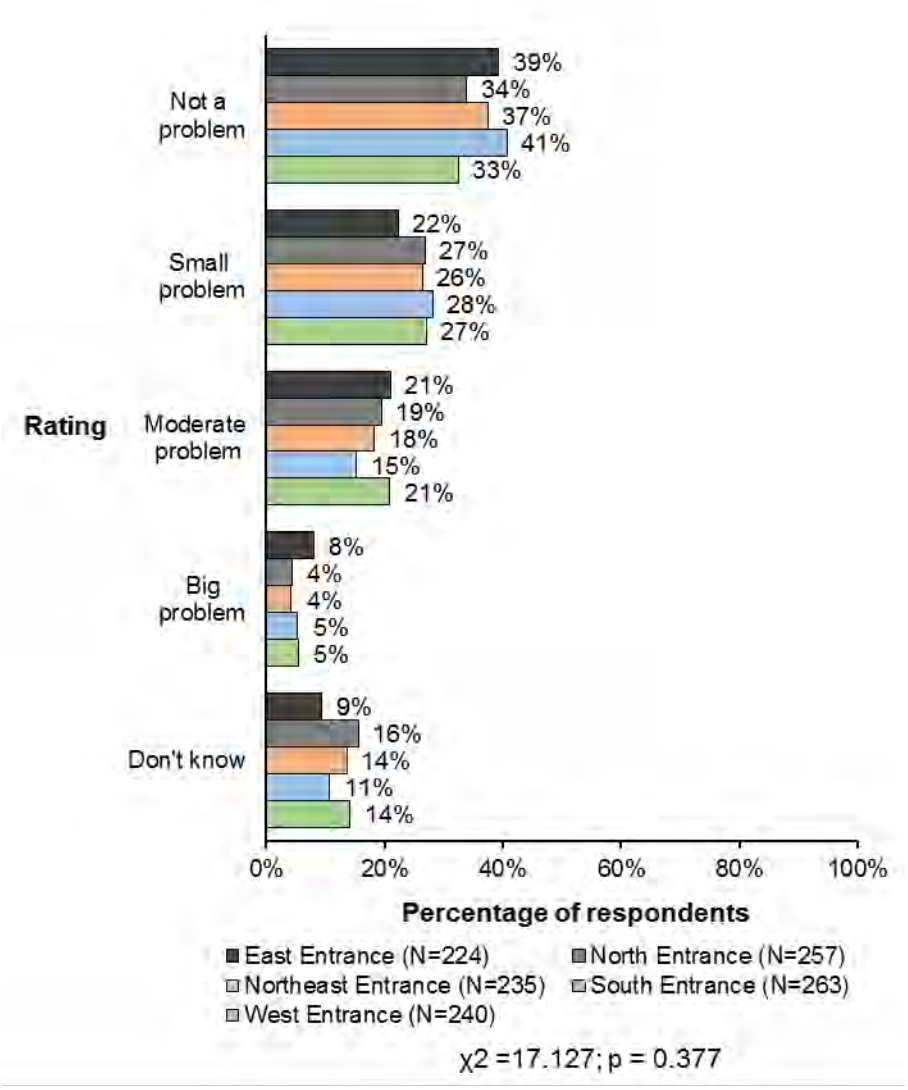


Figure 152. Issue of vegetation loss along roads and trails, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

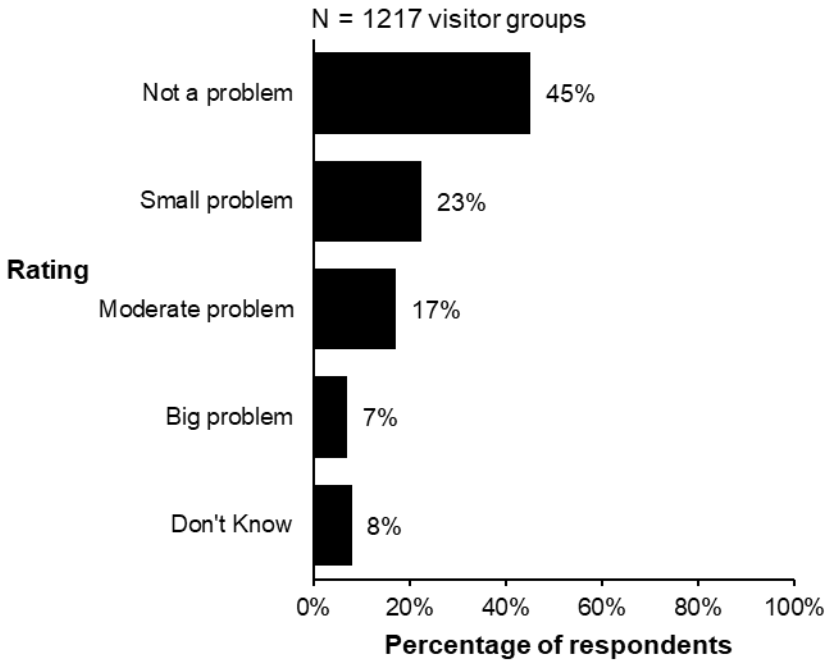


Figure 153. Issue of not enough park staff present

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

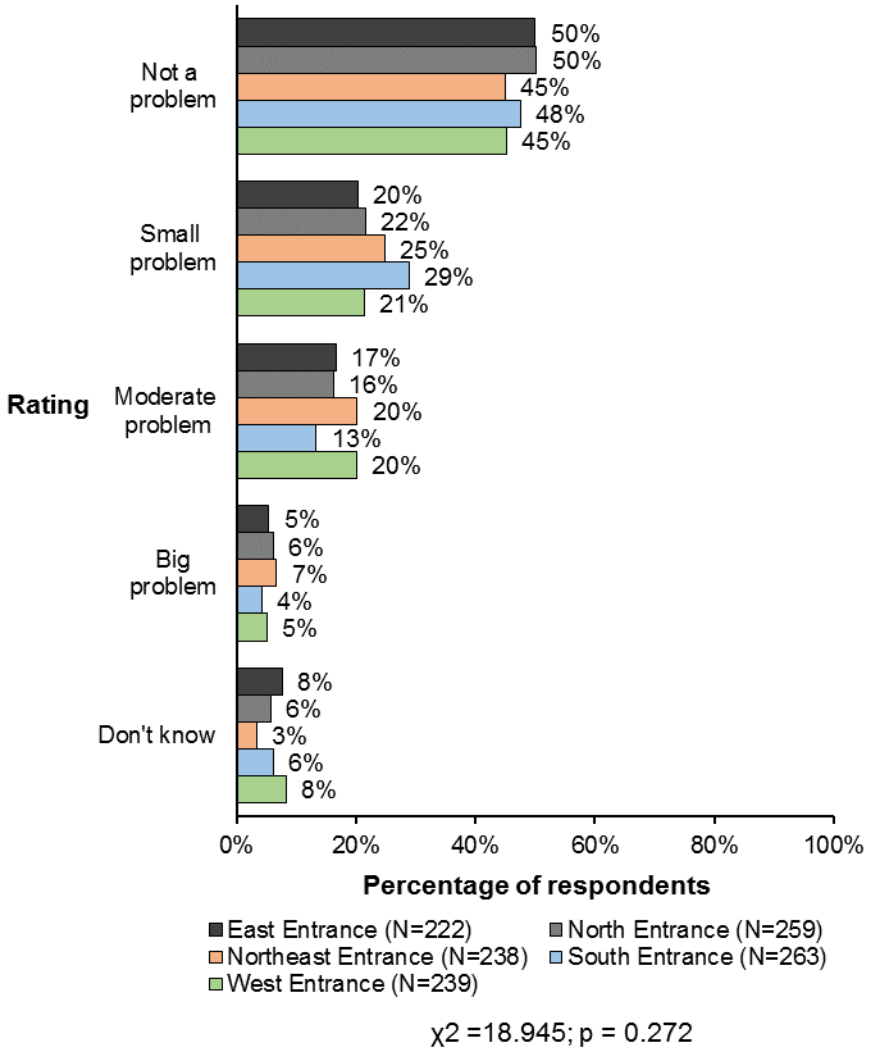


Figure 154. Issue of not enough park staff present, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

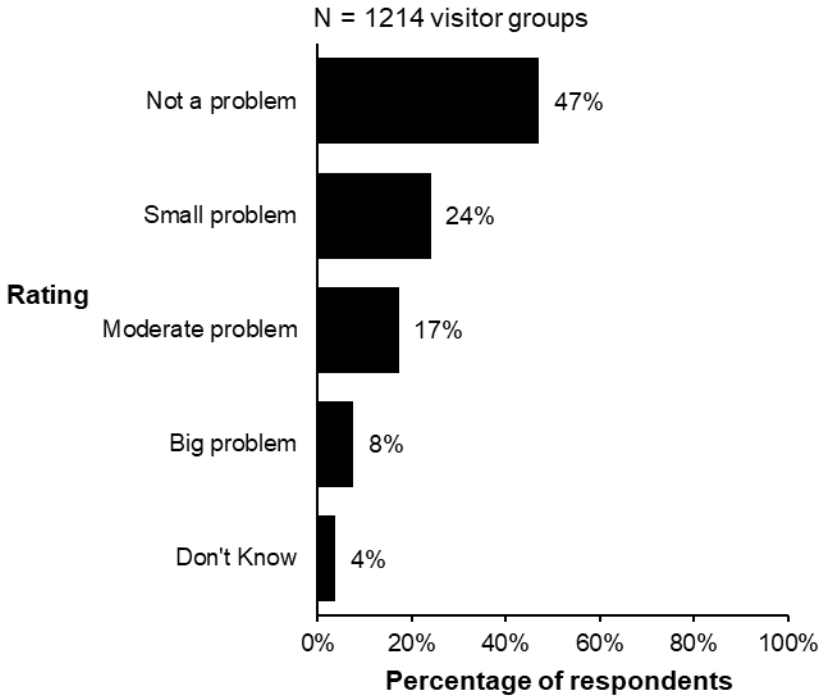


Figure 155. Issue of too much noise

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

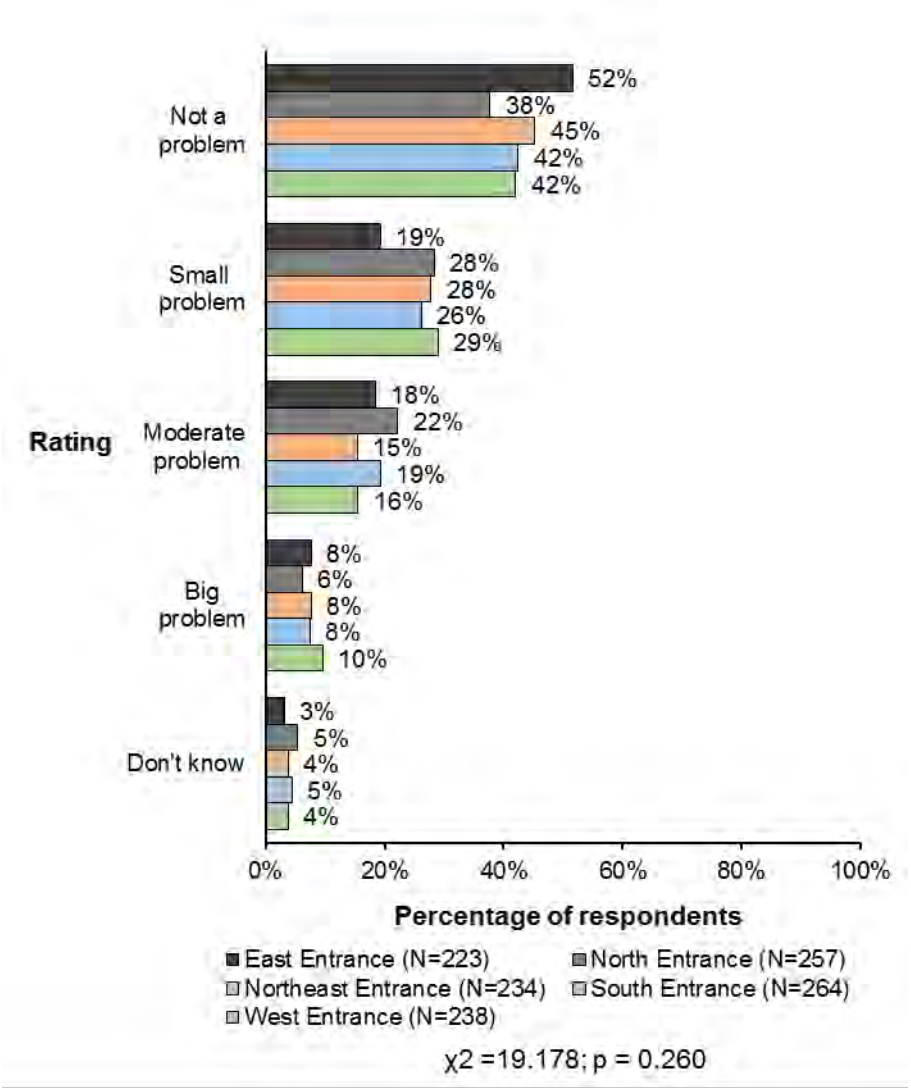


Figure 156. Issue of too much noise, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*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 valued about Yellowstone NP

Question 20

What do you value most about Yellowstone NP (open-ended)?

Results (Table 56, Table 57)

- Table 56 shows the aspects visitor groups value most about Yellowstone NP. The most frequently mentioned aspects were:
    - "Wildlife" (21%)
    - "Natural beauty" (12%)

Table 56. Aspects most valued about Yellowstone NP

N = 1805 comments
Some visitor groups may have made more than one comment.

Aspect	Percent of valid responses
Wildlife	21%
Natural beauty	12%
Geothermal features	9%
Scenery	7%
Preservation and protection	7%
Unaltered natural wilderness	6%
Landscape/natural features	5%
Intact ecosystem	5%
Nature	5%
Everything	3%
Diversity	3%
Recreation	2%
Accessibility	2%
History	1%
Availability to future generations	1%
Vastness	1%
Minimal development	1%
See nature up close	1%
Infrastructure and services	1%
National treasure	1%
Habitat	1%
Peaceful and quiet	1%
Other aspects	5%

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- Table 57 shows the aspects visitor groups value most about Yellowstone NP by entrance.

Table 57. Aspects most valued about Yellowstone NP, by entrance

	Percent of valid responses				
Aspect	**East** *n = 321**	**North** *n = 388**	**Northeast** *n = 367**	**South** *n = 402**	**West** *n = 368**
Wildlife	20%	21%	23%	21%	20%
Natural beauty	10%	10%	8%	12%	14%
Geothermal features	9%	11%	5%	8%	10%
Scenery	9%	6%	7%	7%	7%
Preservation and protection	7%	7%	6%	6%	4%
Unaltered natural wilderness	11%	6%	8%	5%	7%
Landscape/natural features	5%	6%	6%	9%	6%
Intact ecosystem	3%	4%	3%	4%	5%
Nature	3%	4%	4%	7%	5%
Everything	1%	2%	2%	0%	2%
Diversity	2%	3%	3%	3%	3%
Recreation	1%	3%	3%	3%	1%
Accessibility	0%	3%	2%	1%	3%
History	2%	1%	1%	2%	1%
Availability to future generations	1%	1%	1%	1%	1%
Vastness	2%	1%	3%	2%	0%
Minimal development	2%	1%	1%	1%	1%
See nature up close	1%	1%	1%	1%	1%
Infrastructure and services	1%	2%	1%	1%	1%
National treasure	1%	1%	1%	1%	1%
Habitat	1%	1%	0%	0%	1%
Peaceful and quiet	0%	0%	1%	1%	1%
Other aspects	7%	7%	10%	2%	6%

*Some visitor groups may have made more than one comment.

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*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

Airplane travel

Question 3

On this trip, did you travel by airplane as part of your trip from home to Yellowstone NP?

Results (Figure 157, Figure 158, Figure 159, Table 58)

- 35% of visitor groups traveled on an airplane as part of their trip from home to Yellowstone NP.

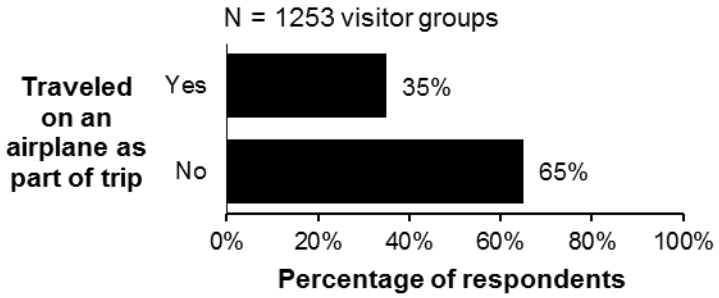


Figure 157. Air travel as part of trip from home to Yellowstone NP

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The distribution of visitor groups that traveled by airplane as part of their trip significantly differed by entrance ($X^2 = 21.963$; $p < 0.001$).
- Across entrances, visitor groups entering at the East entrance were less likely than groups entering at the other four entrances to travel on an airplane as part of their trip away from home to Yellowstone NP.

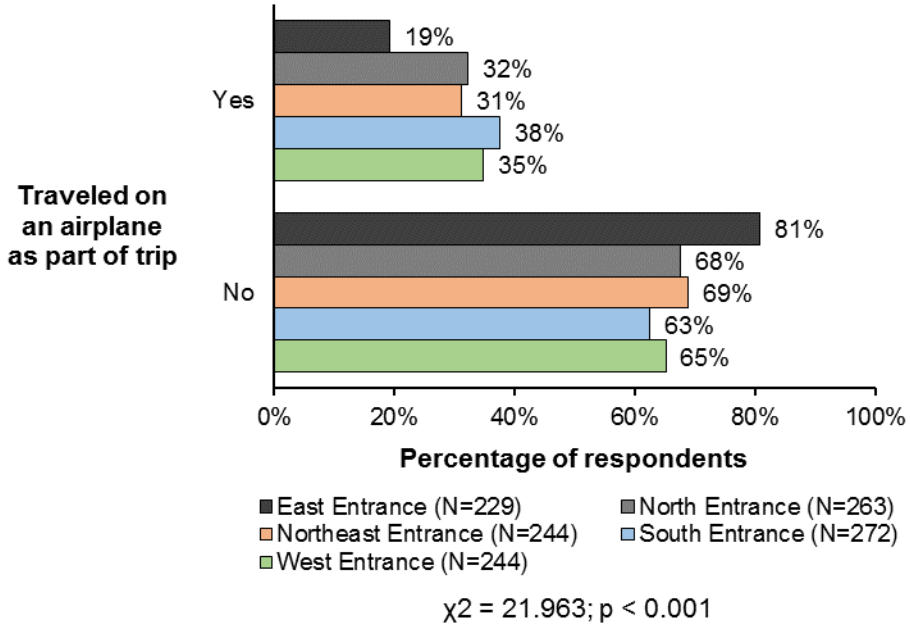


Figure 158. Air travel as part of trip from home to Yellowstone NP, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- Of those visitor groups who did travel by airplane as part of their trip from home to Yellowstone NP, the most popular airports for last arrival before entering Yellowstone NP were:
    - 21% Jackson Hole Airport, WY
    - 20% Salt Lake International Airport, UT
    - 14% Bozeman Yellowstone International Airport, MT
    - 12% Denver International Airport, CO

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

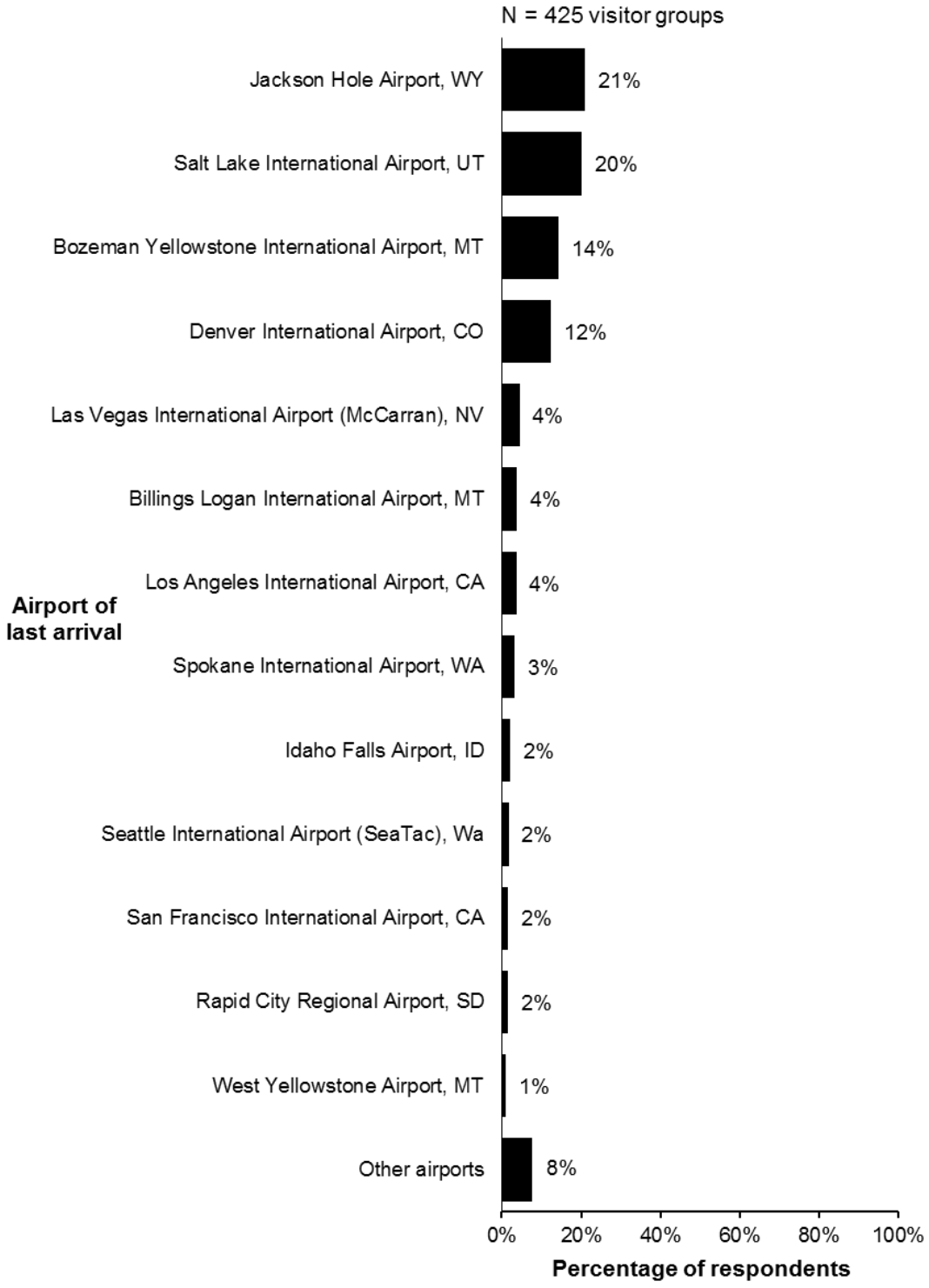


Figure 159. Airports used by visitor groups whose trip included airplane travel

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- Table 58 shows the airport of visitor groups' last arrival before entering Yellowstone NP by entrance.
- The following airports were the most popular airport for last arrival by entrance:
    - East entrance: Denver International Airport, CO
    - North entrance: Bozeman Yellowstone International Airport, MT
    - Northeast entrance: Billings Logan International Airport, MT
    - South entrance: Jackson Hole Airport, WY
    - West entrance: Salt Lake International Airport, UT

Table 58. Airports used by visitor groups whose trip included airplane travel, by entrance

	Percent of valid responses				
	East	**North**	**Northeast**	**South**	**West**
Airport	*n = 43*	*n = 76*	*n = 72*	*n = 101*	*n = 81*
Jackson Hole Airport, WY	5%	5%	7%	39%	12%
Salt Lake International Airport, UT	9%	21%	17%	19%	21%
Bozeman Yellowstone International Airport, MT	7%	37%	14%	5%	16%
Denver International Airport, CO	35%	8%	11%	17%	7%
Las Vegas International Airport (McCarran), NV	0%	3%	1%	5%	7%
Billings Logan International Airport, MT	14%	4%	22%	3%	0%
Los Angeles International Airport, CA	0%	0%	3%	3%	7%
Spokane International Airport, WA	0%	1%	0%	0%	1%
Idaho Falls Airport, ID	0%	0%	1%	3%	4%
Seattle International Airport (SeaTac), WA	0%	4%	1%	0%	5%
San Francisco International Airport, CA	0%	1%	1%	0%	4%
Rapid City Regional Airport, SD	2%	1%	1%	0%	2%
West Yellowstone Airport, MT	0%	1%	3%	0%	4%
Cody Yellowstone Regional Airport, WY	14%	0%	4%	0%	0%
Missoula International Airport, MT	0%	4%	0%	1%	1%
Minneapolis-St. Paul International Airport, MN	7%	0%	0%	1%	1%
16 Other Airports	7%	9%	13%	5%	6%

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Entrance of first entry

Question 4

On this trip, through which park entrance did you first enter Yellowstone NP?

Results (Figure 160, Figure 161)

- 36% of visitor groups first entered Yellowstone NP through the West entrance.
- 28% of visitor groups first entered Yellowstone NP through the South entrance.

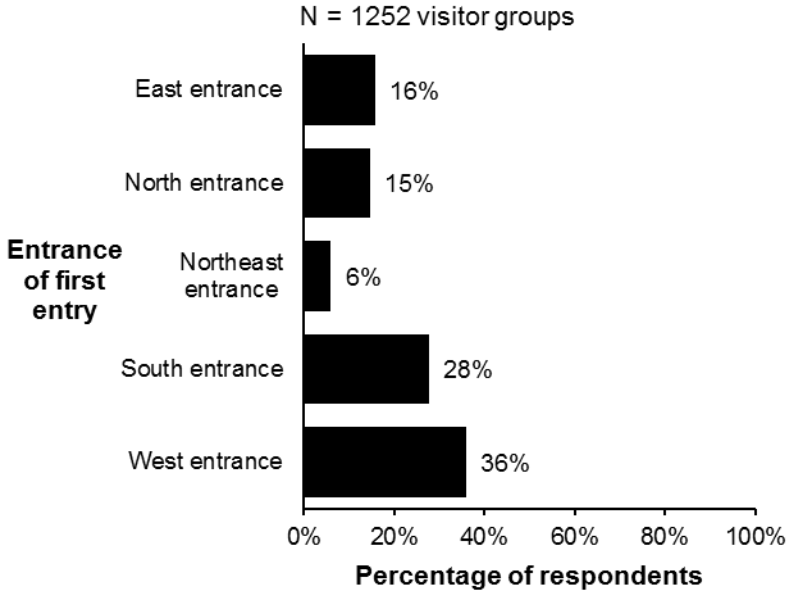


Figure 160. Entrance of first entry into Yellowstone NP

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The distribution of the entrances through which visitor groups first entered the park significantly differed by entrance ($X^2 = 2321.279$; $p < 0.001$). It should be noted that the classification of survey responses by entrance for the by-entrance analysis was done according to the entrance location where the visitor group was intercepted. These results show that for some visitor groups, the entrance location of the survey intercept was not the entrance location of their first entrance to the park.

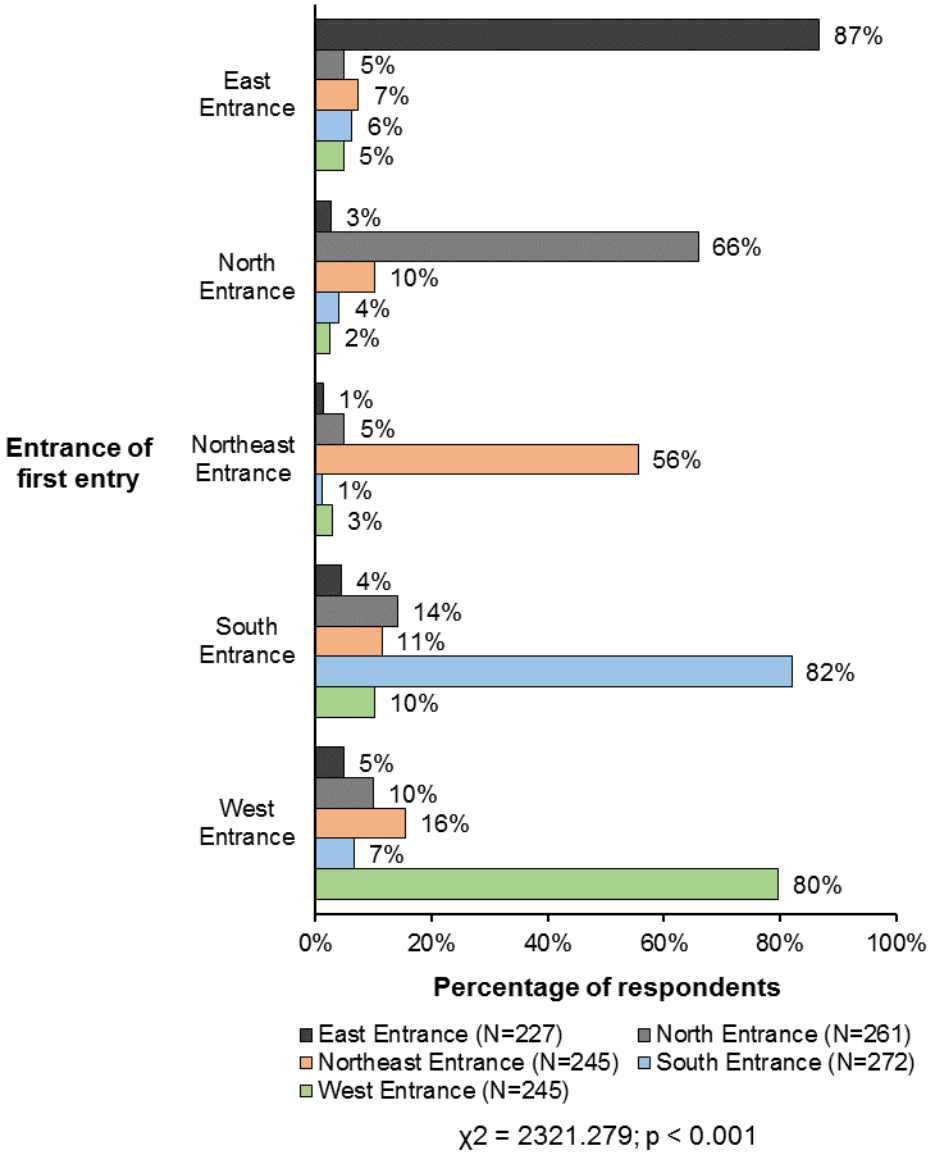


Figure 161. Entrance of first entry into Yellowstone NP, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Entrance of last exit

Question 5

On this trip, through which park entrance did you last exit at the end of your visit to Yellowstone NP?

Results (Figure 162, Figure 163)

- 35% of visitor groups last exited the park through the South entrance.
- 34% of visitor groups last exited the park through the West entrance.

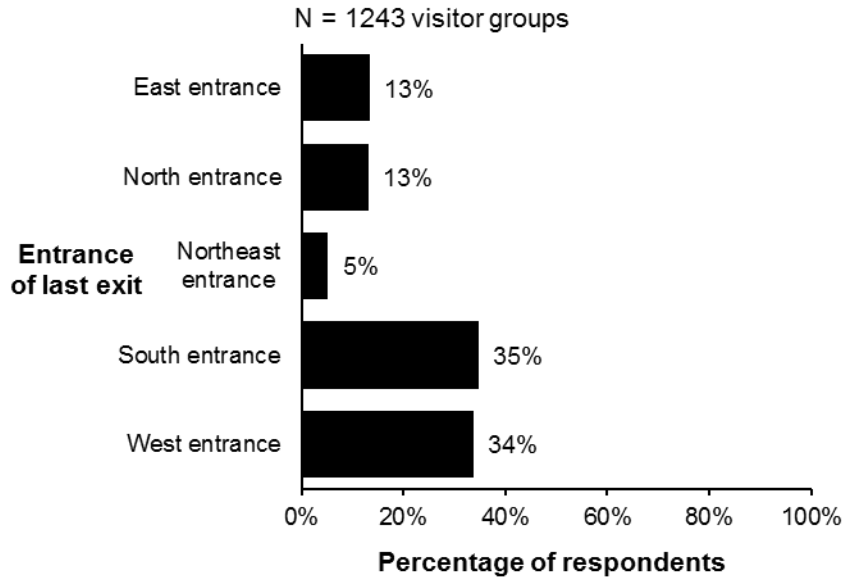


Figure 162. Entrance of last exit from Yellowstone NP

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The distribution of the entrance through which visitor groups last exited from the park significantly differed by entrance ($X^2 = 168.373$; $p < 0.001$).

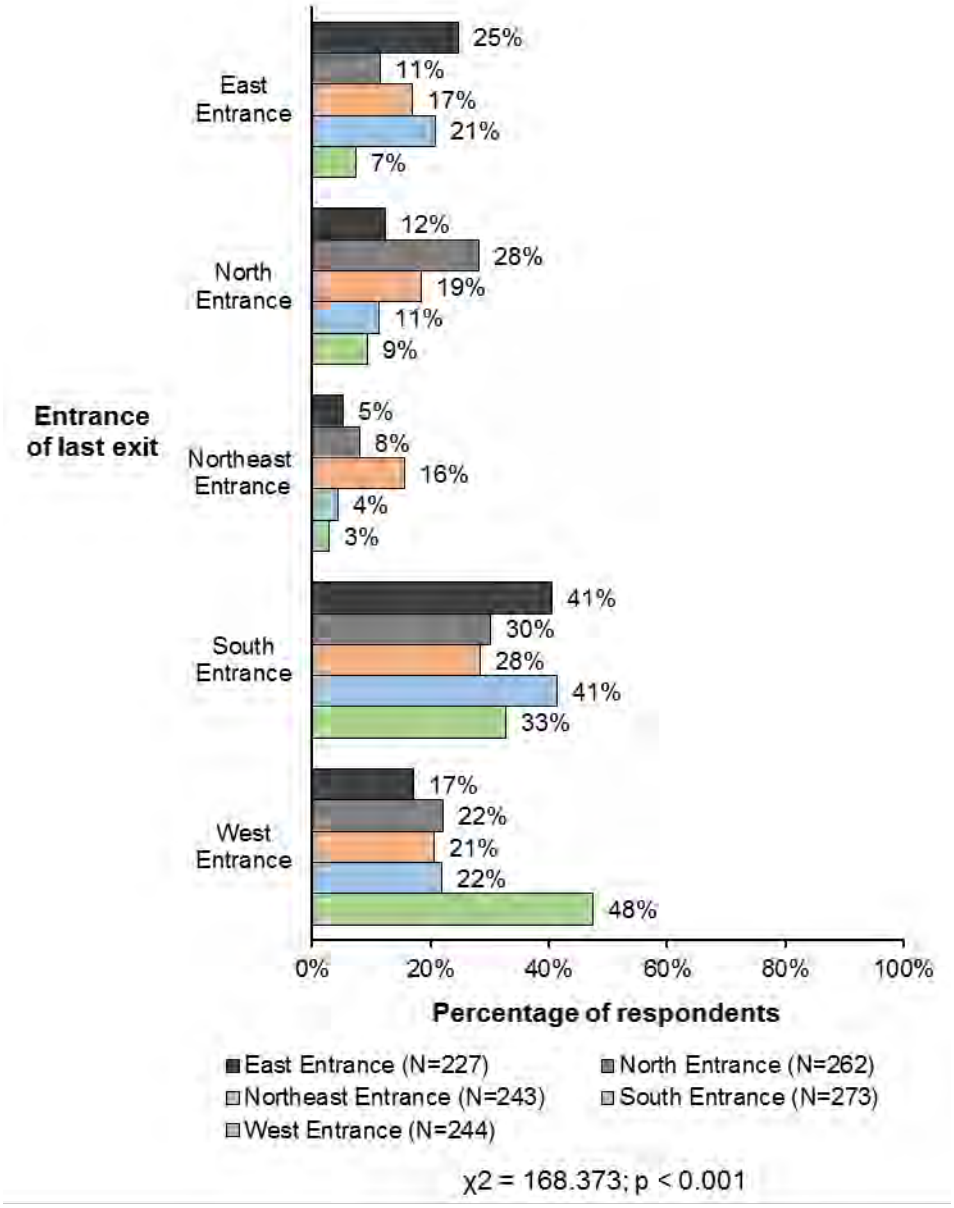


Figure 163. Entrance of last exit from Yellowstone NP, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Ability of visitors to visit all planned locations

Question 21a

On this trip, were you able to visit all of the locations in Yellowstone NP that you planned to visit?

Results (Figure 164, Figure 165)

- 55% of visitor groups were able to visit all locations they planned to visit in Yellowstone NP during their trip.

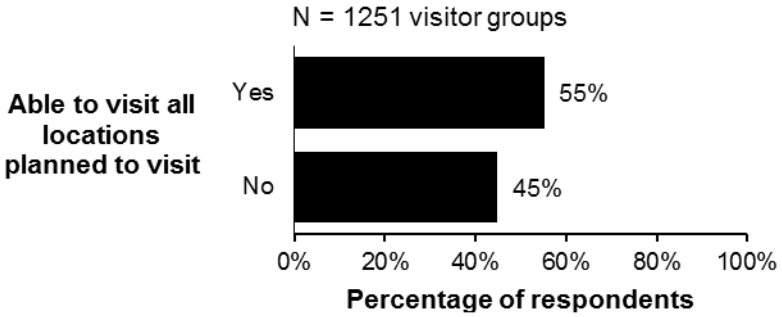


Figure 164. Visitor groups' ability to visit all planned locations

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The ability of visitor groups to visit all planned locations significantly differed by entrance ($X^2 = 25.961$; $p < 0.001$).
- Visitor groups entering at the Northeast entrance were most likely to be able to visit all planned locations.
- Visitor groups entering at the West entrance were least likely to be able to visit all planned locations.

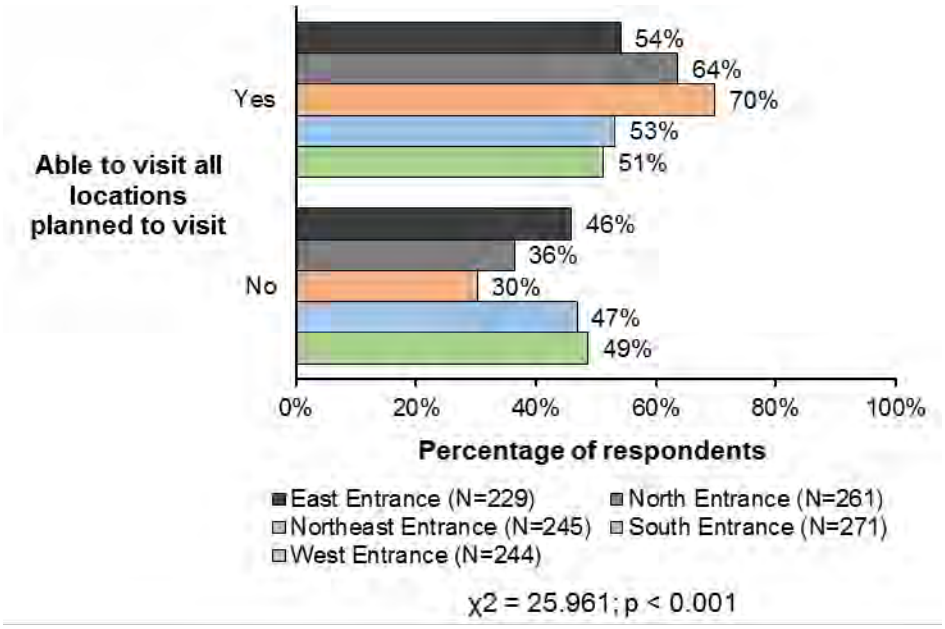


Figure 165. Visitor groups' ability to visit all planned locations, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Reasons preventing visitation to planned locations

Question 21b

If you were unable to visit a location(s) that you had planned to visit, what prevented you from visiting it?

Results (Figure 166, Table 59)

- Of visitor groups that were unable to visit all planned locations, the leading causes of prevention were:
    - 63% Not enough time
    - 34% Travel time inside of park greater than expected
    - 34% Could not find a place to park

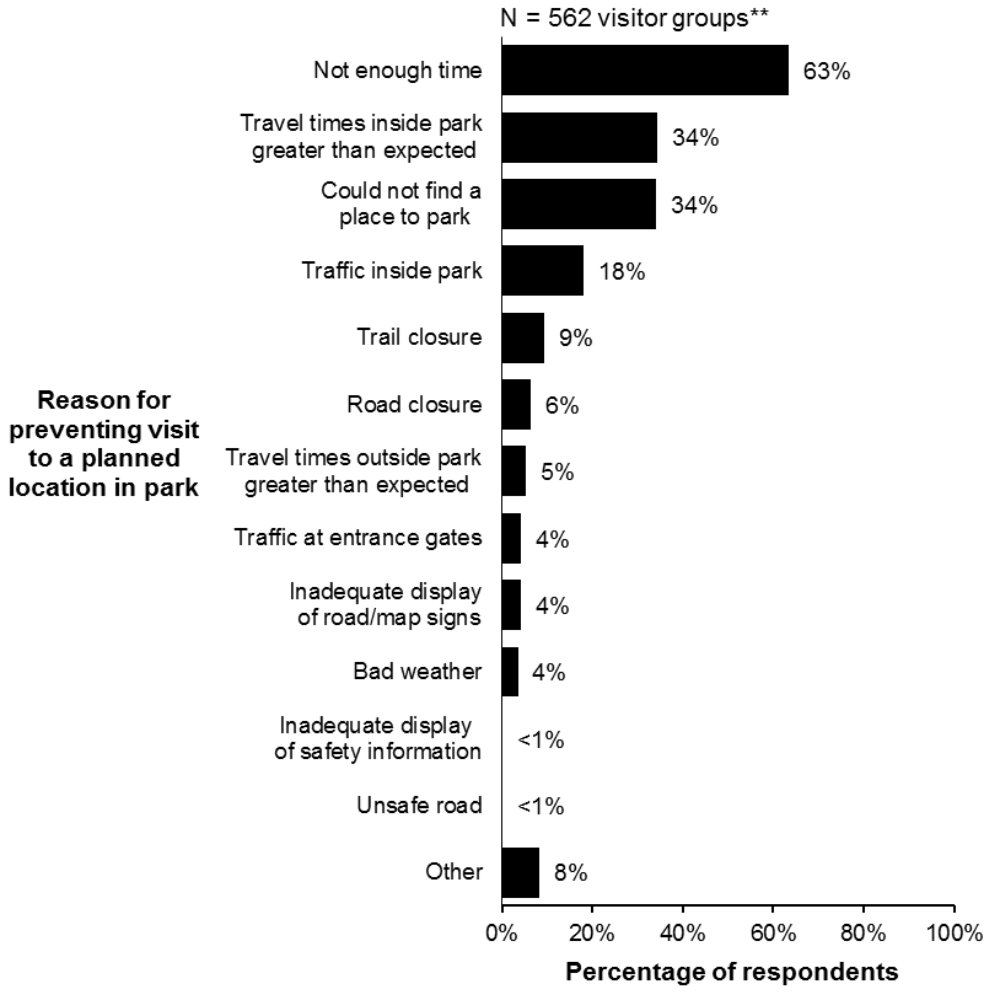


Figure 166. Reasons preventing visit to all planned locations in Yellowstone NP

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The distribution of reasons preventing visitors from visiting all planned locations did not differ significantly by entrance.

Table 59. Reasons preventing visit to all planned locations in Yellowstone NP, by entrance

Percentage of Respondents

	East	North	Northeast	South	West		
Reason for preventing visit to a planned location in park	*n = 105***	*n = 95***	*n = 75***	*n = 127***	*n = 119***	**Chi-square**	**p-value[1]**
Not enough time	65%	66%	59%	72%	69%	χ2 = 4.509	p = 0.341
Could not find a place to park	32%	34%	35%	24%	32%	χ2 = 3.516	p = 0.475
Travel times inside park greater than expected	31%	37%	33%	31%	37%	χ2 = 1.743	p = 0.783
Travel times outside park greater than expected	6%	3%	12%	5%	8%	χ2 = 6.928	p = 0.140
Trail closure	7%	4%	11%	5%	8%	χ2 = 3.832	p = 0.429
Road closure	8%	11%	8%	5%	8%	χ2 = 2.699	p = 0.609
Traffic at entrance entrances	4%	4%	3%	6%	5%	χ2 = 1.707¹	p = 0.789
Traffic inside park	25%	35%	20%	14%	22%	χ2 = 13.743	p = 0.008
Bad weather	6%	3%	4%	6%	3%	χ2 = 1.482¹	p = 0.830
Inadequate display of road/map signs	4%	7%	3%	5%	5%	χ2 = 2.361¹	p = 0.670
Inadequate display of safety information	0%	0%	0%	0%	2%	χ2 = 6.782¹	p = 0.148
Unsafe road	1%	0%	0%	0%	1%	χ2 = 2.680¹	p = 0.613
Other	12%	11%	8%	11%	6%	χ2 = 3.444	p = 0.487

[1] $\alpha = 0.05$, $p \leq 0.004$ indicates significant result following Bonferroni correction to account for multiple statistical tests.

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Transportation management options

Question 22

During peak periods, traffic congestion and parking shortages can occur in Yellowstone NP. Please rate your level of support or opposition for each of the following potential transportation management options to address these issues.

Rating choices:

Strongly support
Slightly support
Neither
Slightly oppose
Strongly oppose

Results (Figure 167, Table 60)

- Figure 167 shows the combined proportions of "strongly support" and "slightly support" ratings for the listed transportation management options.
- The management options that received the highest combined proportions of "strongly support" and "slightly support" ratings were:
    - 87% Offer voluntary shuttle bus service to popular park locations during peak periods
    - 75% Offer voluntary park-wide shuttle bus service with parking outside the park during peak periods
    - 74% Add more pullouts at scenic views
- The management options that received the lowest combined proportions of "strongly support" and "slightly support" ratings were:
    - 33% Require mandatory shuttle bus service to popular locations during peak periods
    - 31% Require mandatory park-wide shuttle bus system with parking outside the park during peak periods
    - 17% Temporarily close park roads when there is heavy traffic congestion

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

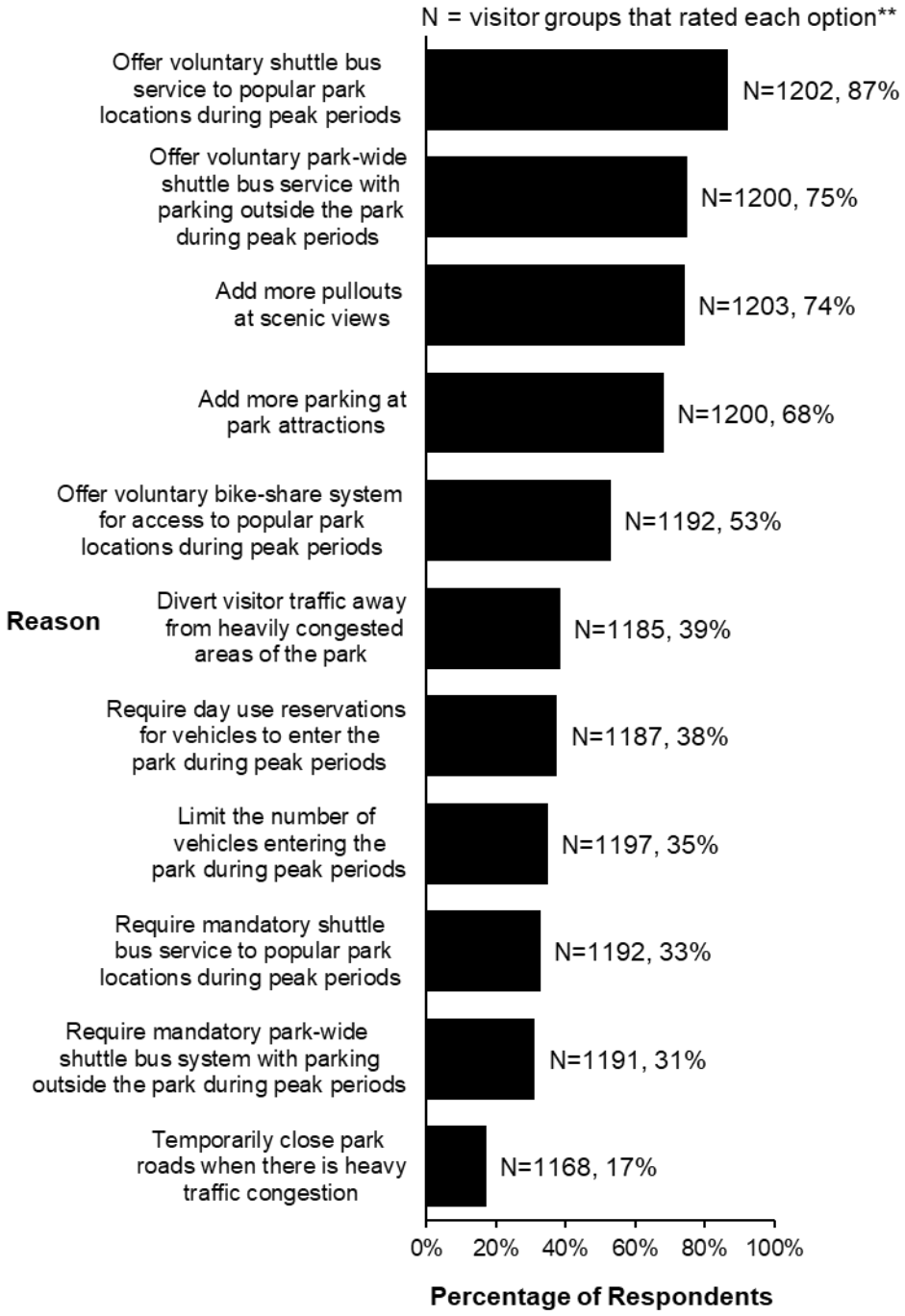


Figure 167. Support for transportation management options, includes responses for either "strongly support" or "slightly support"

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- Table 60 shows the combined proportions of "strongly support" and "slightly support" ratings for the transportation management options by entrance.
- The combined proportions of "strongly support" and "slightly support" ratings did not differ significantly by entrance for any of the listed transportation management options.

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Table 60. Support for transportation management options, by entrance, includes responses for either "strongly support" or "slightly support"

		East	North	Northeast	South	West		
Transportation Management Option	***n***	**Percentage of Respondents**					**Chi-square**	**p-value[1]**
Offer voluntary shuttle bus service to popular park locations during peak periods	1215	83%	83%	81%	86%	85%	$\chi2 = 2.021$	$p = 0.732$
Offer voluntary park-wide shuttle bus service with parking outside the park during peak periods	1217	72%	74%	71%	75%	74%	$\chi2 = 1.147$	$p = 0.887$
Add more pullouts at scenic views	1212	74%	66%	68%	68%	78%	$\chi2 = 10.955$	$p = 0.027$
Add more parking at park attractions	1214	69%	69%	57%	61%	69%	$\chi2 = 12.461$	$p = 0.014$
Offer voluntary bike-share system for access to popular park locations during peak periods	1206	49%	47%	48%	57%	50%	$\chi2 = 6.388$	$p = 0.172$
Divert visitor traffic away from heavily congested areas of the park	1202	36%	37%	35%	42%	38%	$\chi2 = 3.500$	$p = 0.478$
Require day use reservations for vehicles to enter the park during peak periods	1204	33%	35%	36%	29%	34%	$\chi2 = 3.275$	$p = 0.513$
Limit the number of vehicles entering the park during peak periods	1215	35%	36%	33%	33%	35%	$\chi2 = 0.589$	$p = 0.964$
Require mandatory shuttle bus service to popular park locations during peak periods	1210	32%	32%	25%	35%	28%	$\chi2 = 6.769$	$p = 0.149$
Require mandatory park-wide shuttle bus system with parking outside the park during peak periods	1209	31%	31%	21%	35%	28%	$\chi2 = 11.824$	$p = 0.019$
Temporarily close park roads when there is heavy traffic congestion	1191	25%	21%	20%	20%	18%	$\chi2 = 3.446$	$p = 0.392$

[1] $\alpha = 0.05$, $p \leq 0.004$ indicates significant result following Bonferroni correction to account for multiple statistical tests.

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Figure 168 through Figure 189 show ratings for each transportation management option.

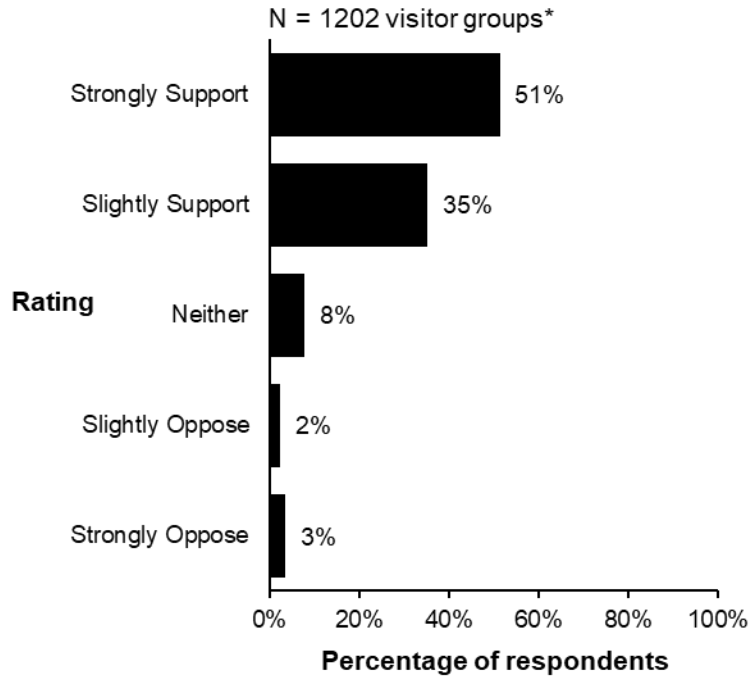


Figure 168. Support for offering voluntary shuttle bus services to popular park locations during peak periods

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

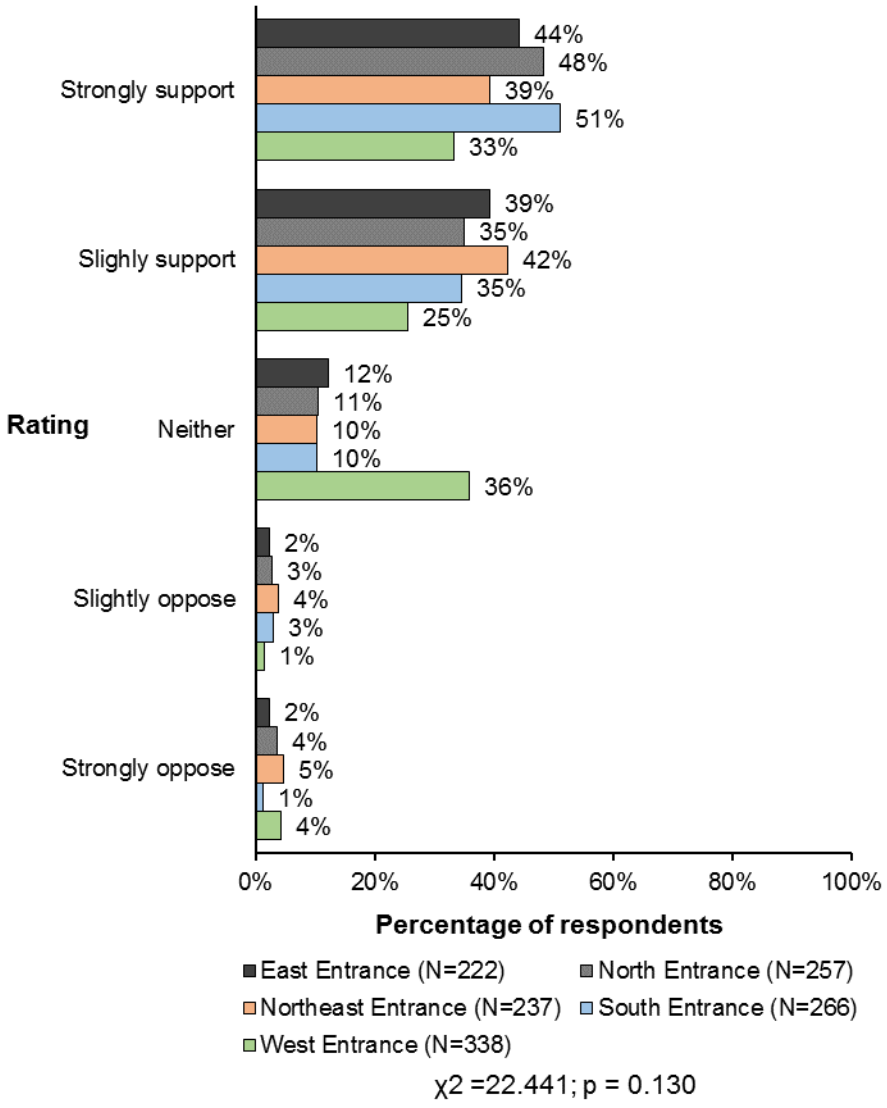


Figure 169. Support for offering voluntary shuttle bus services to popular park locations during peak periods, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

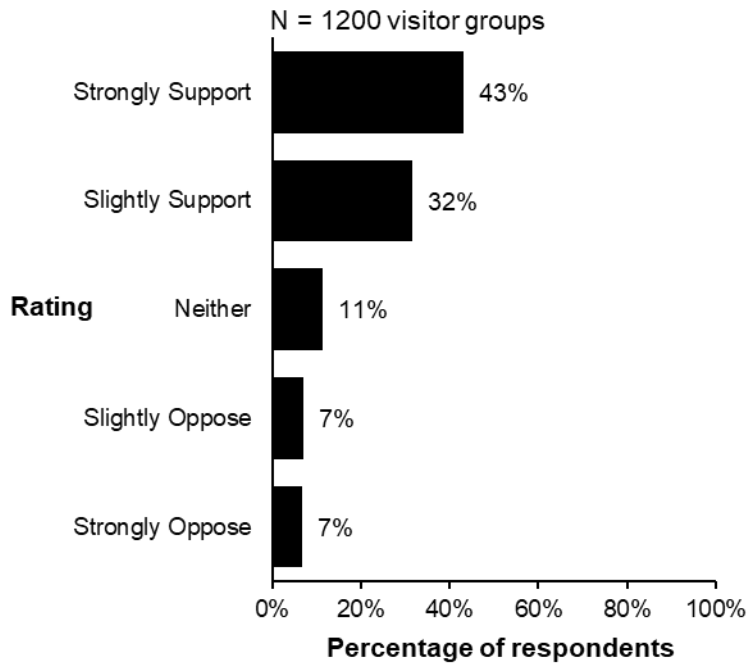


Figure 170. Support for offering voluntary park-wide shuttle bus services with parking outside the park during peak periods

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

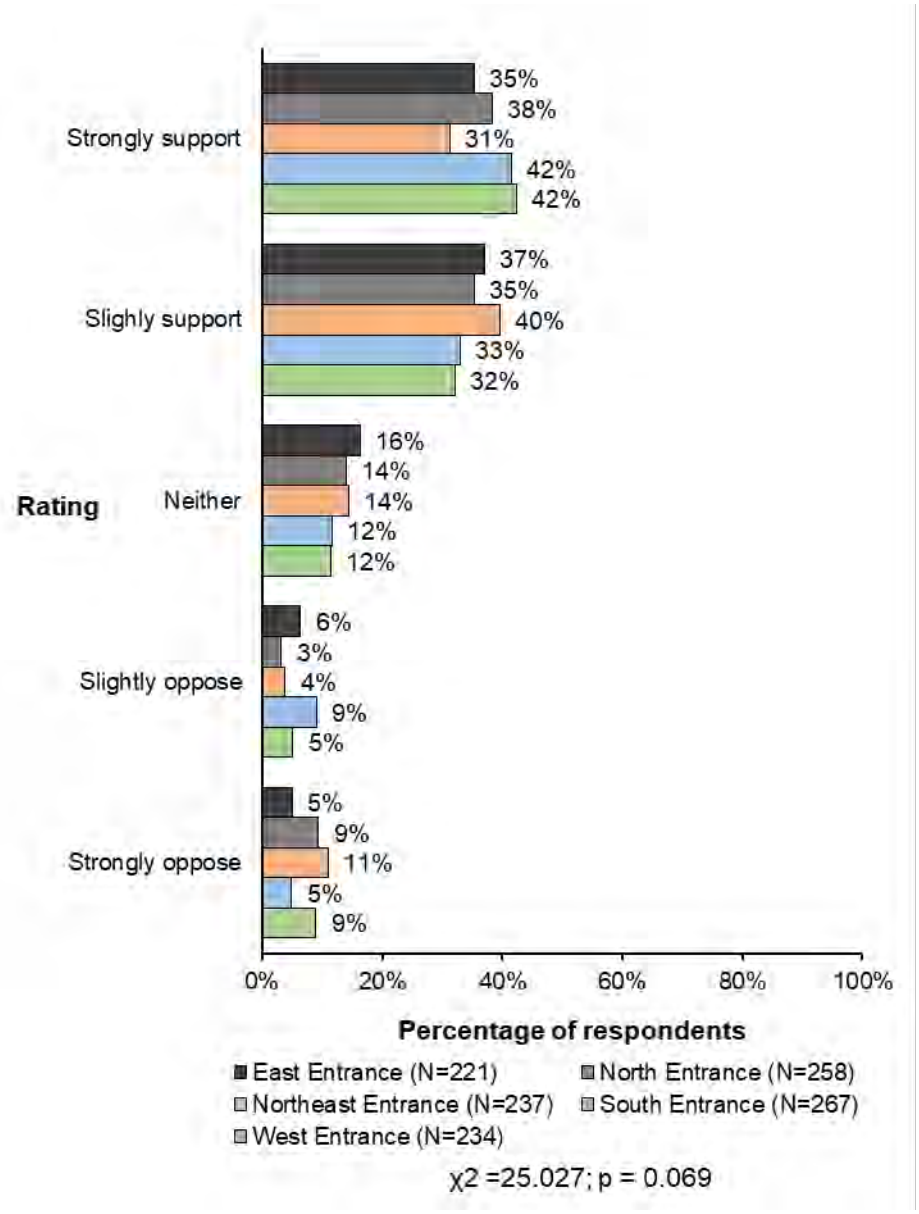


Figure 171. Support for offering voluntary park-wide shuttle bus services with parking outside the park during peak periods, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

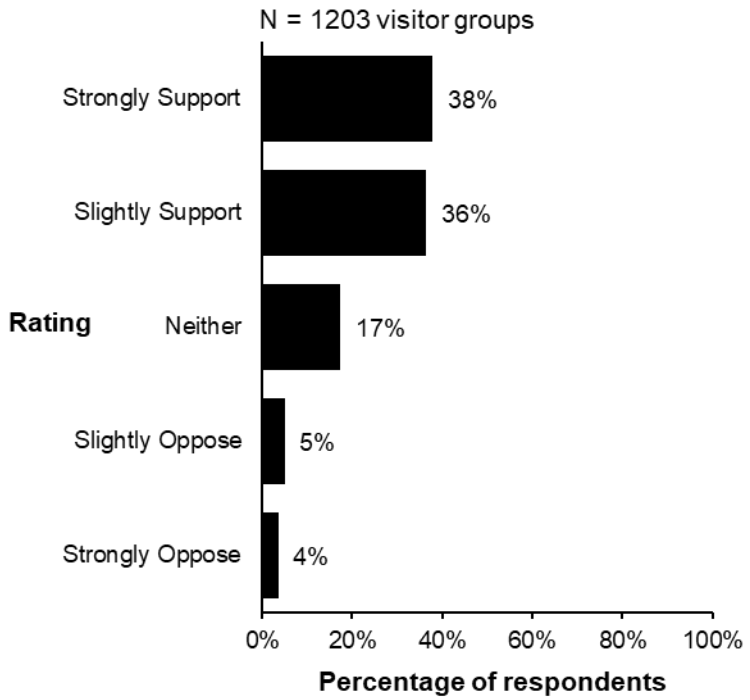


Figure 172. Support for adding more pullouts at scenic views

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

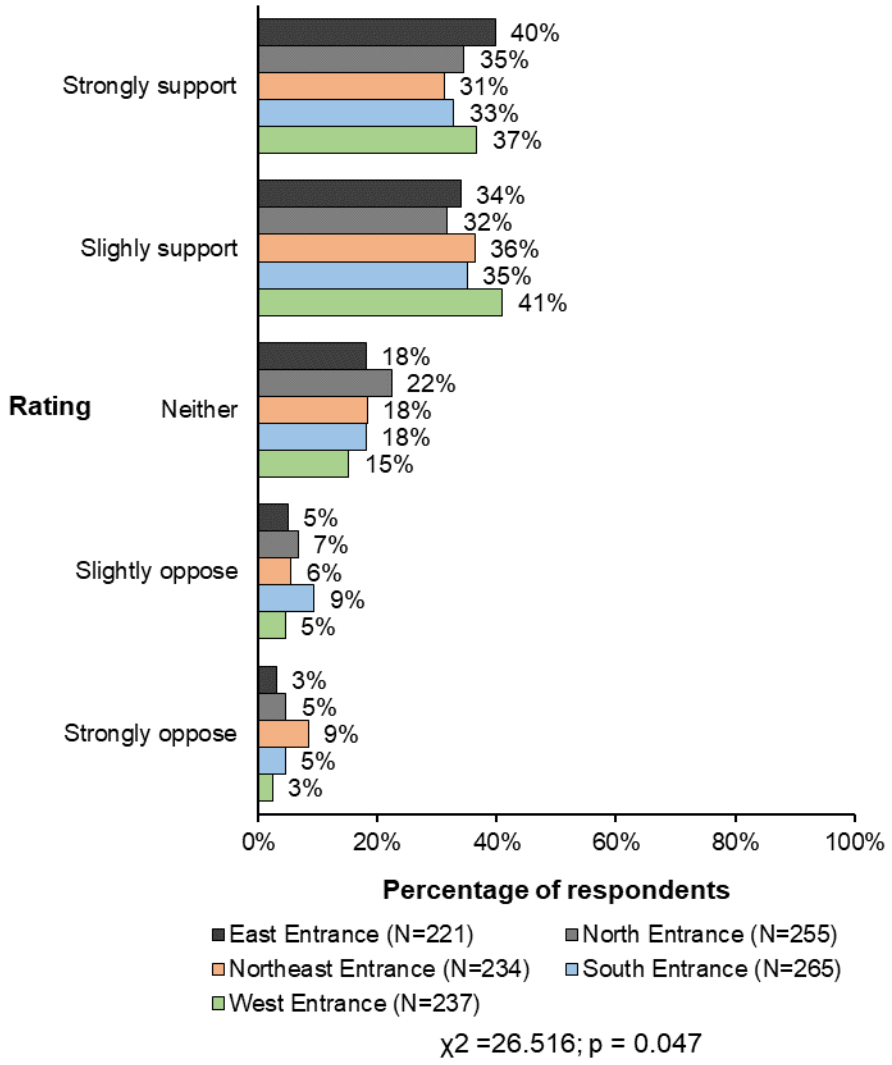


Figure 173. Support for adding more pullouts at scenic views, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

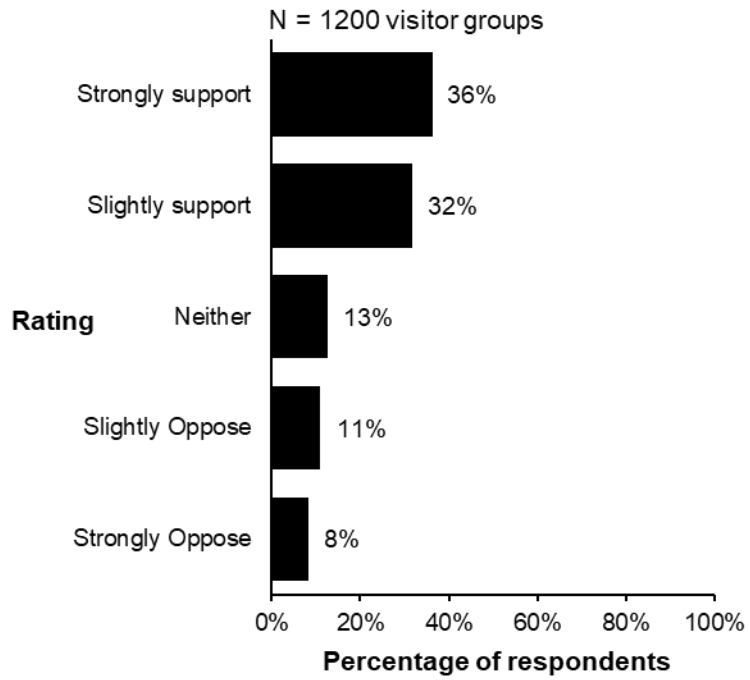


Figure 174. Support for adding more parking at park attractions

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

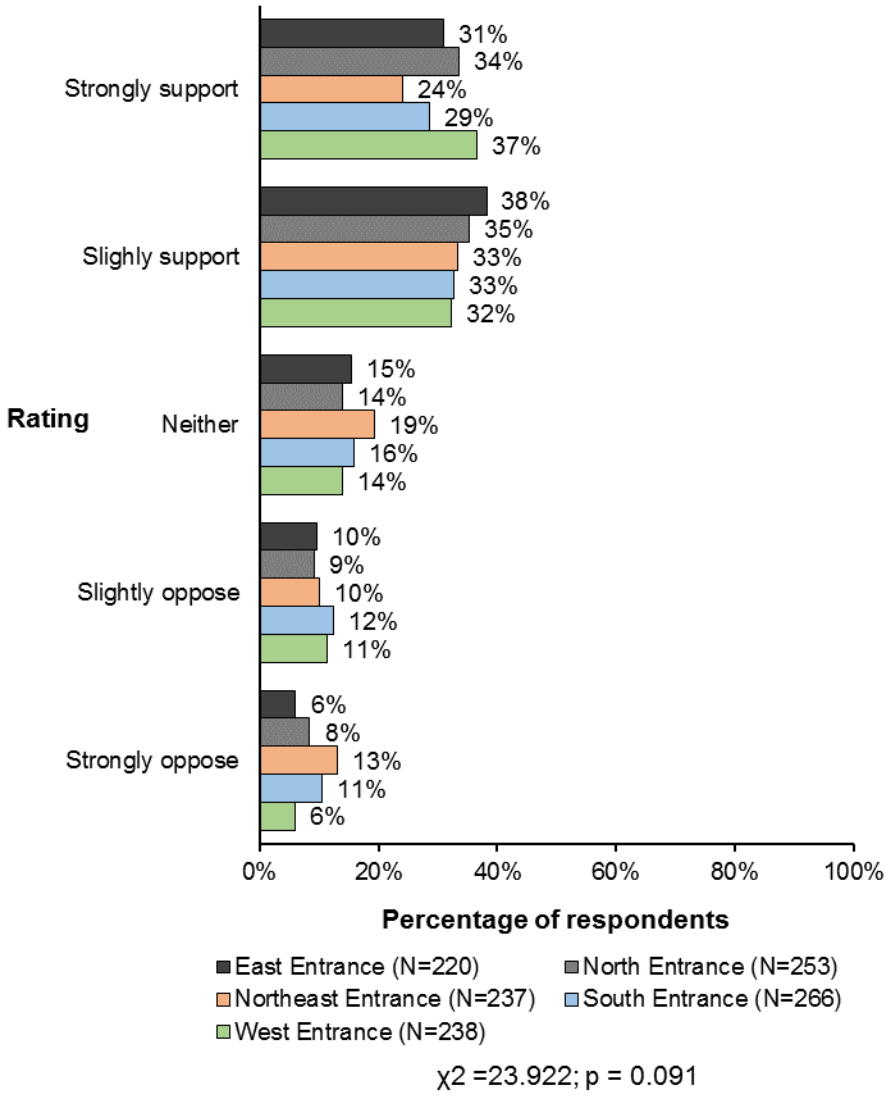


Figure 175. Support for adding more parking at park attractions, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

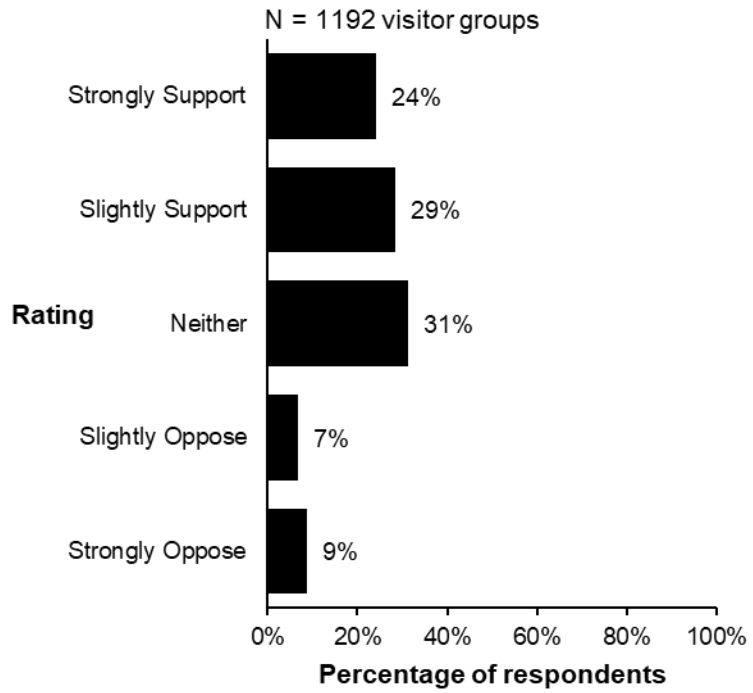


Figure 176. Support for offering voluntary bike-share system for access to popular park locations during peak period

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

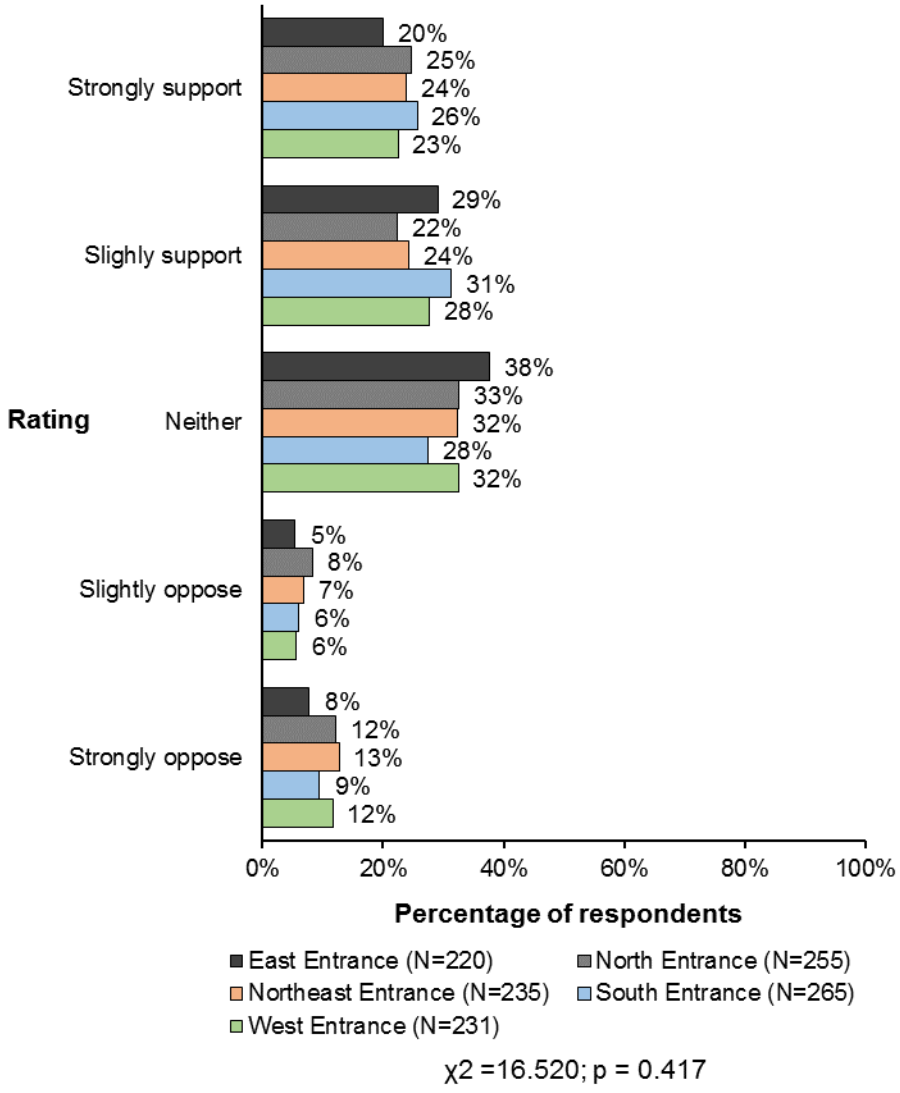


Figure 177. Support for offering voluntary bike-share system for access to popular park locations during peak period, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

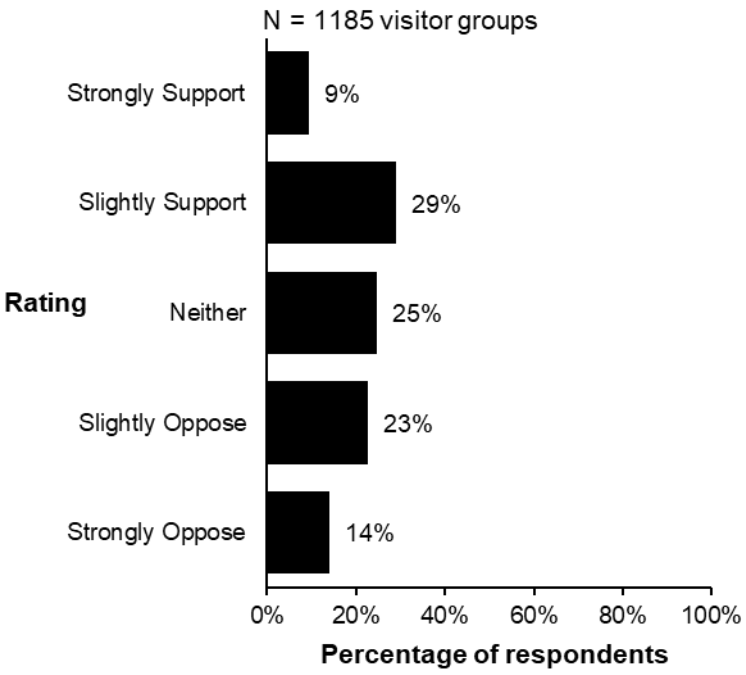


Figure 178. Support for diverting traffic away from heavily congested areas of the park

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

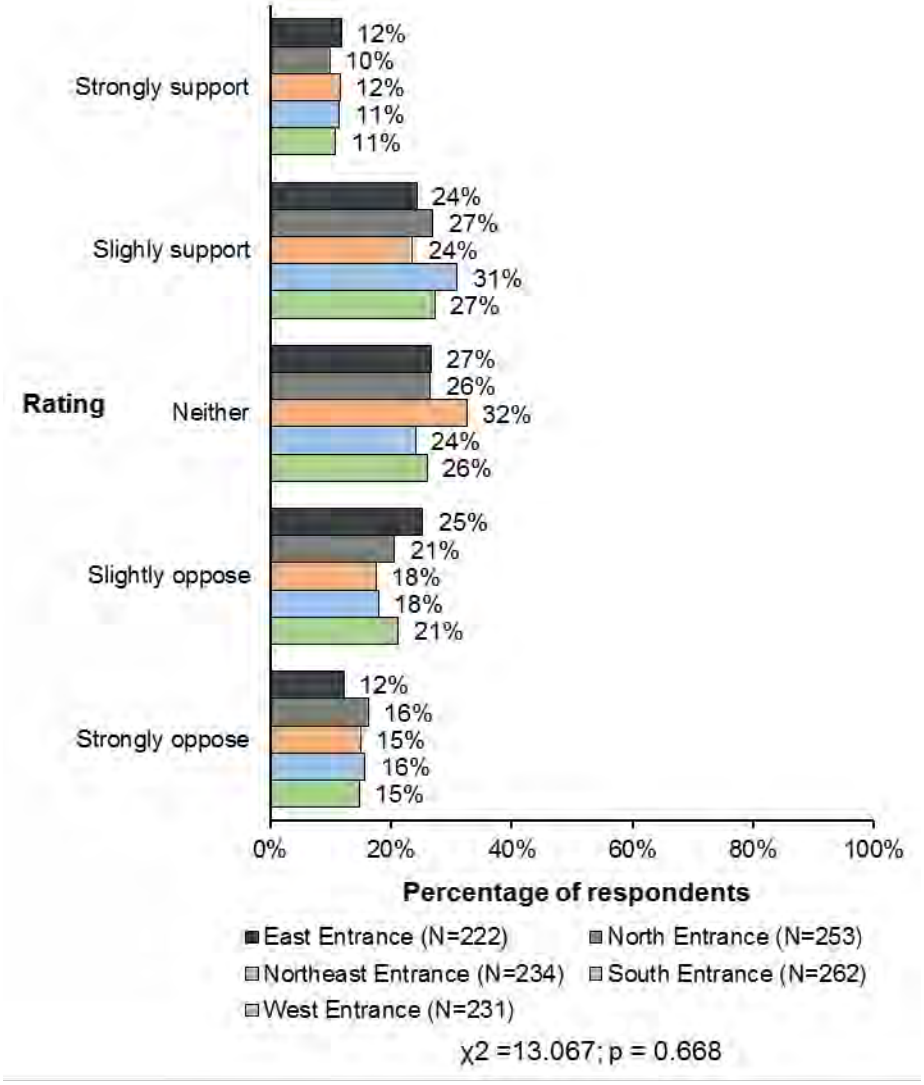


Figure 179. Support for diverting traffic away from heavily congested areas of the park, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

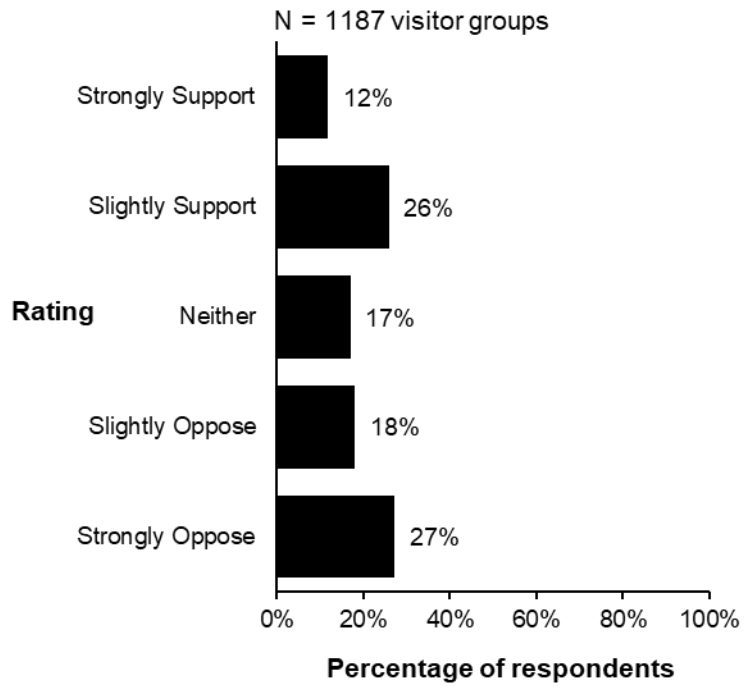


Figure 180. Support for requiring day use reservations for vehicles entering the park during peak periods

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

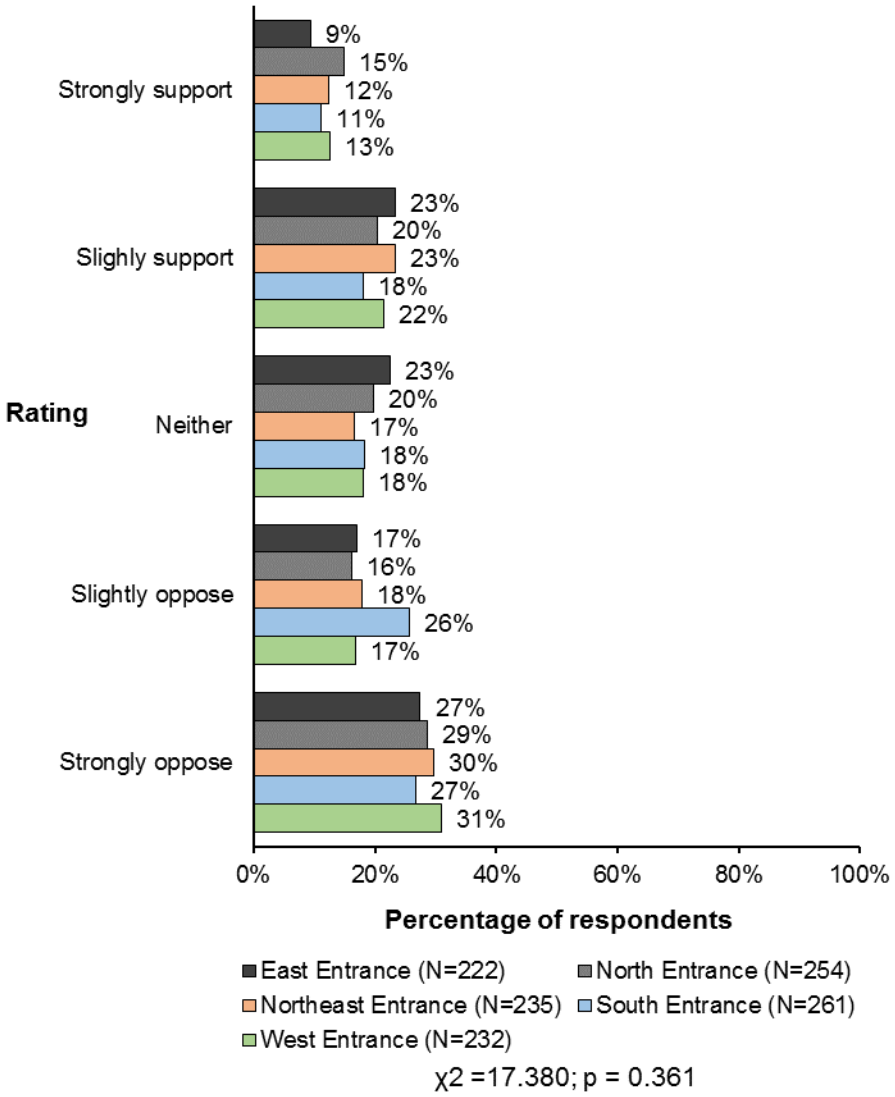


Figure 181. Support for requiring day use reservations for vehicles entering the park during peak periods, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

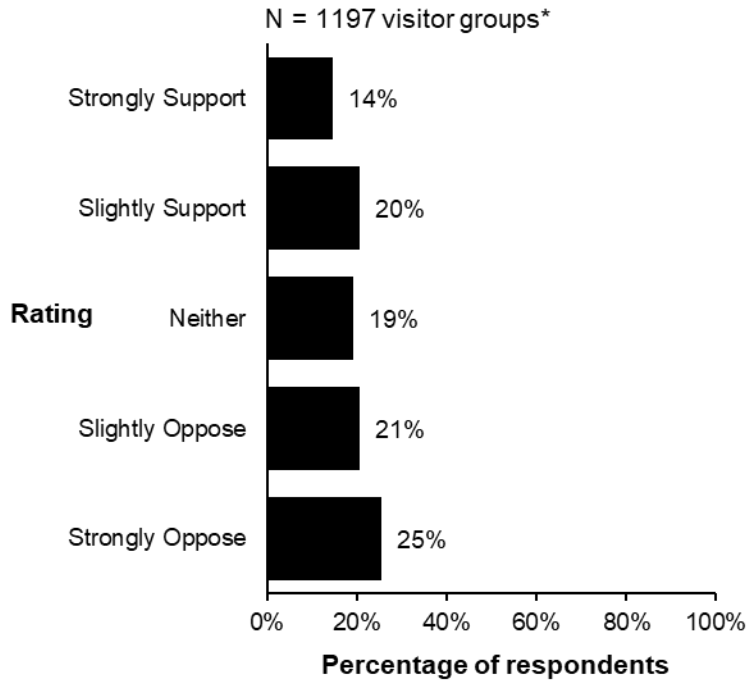


Figure 182. Support for limiting the number of vehicles entering the park during peak periods

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

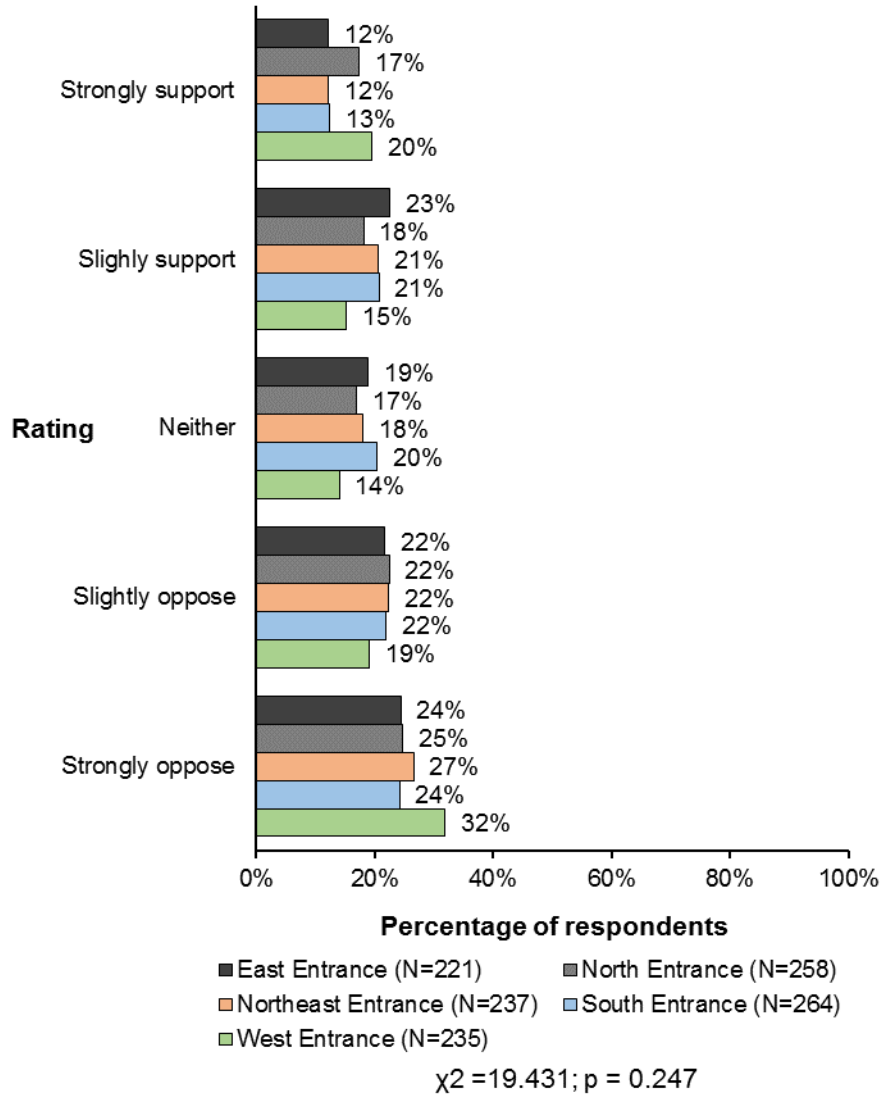


Figure 183. Support for limiting the number of vehicles entering the park during peak periods, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

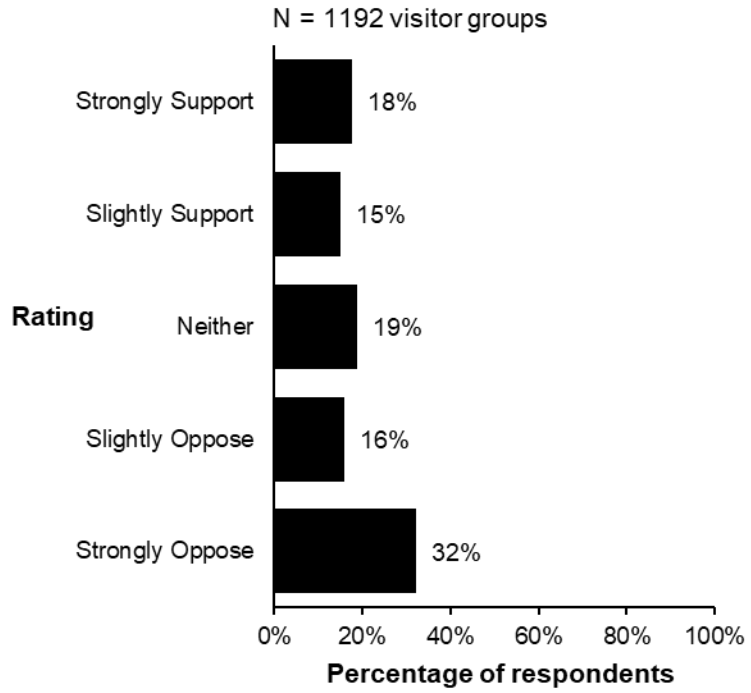


Figure 184. Support for requiring mandatory shuttle bus service to popular park locations during peak periods

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

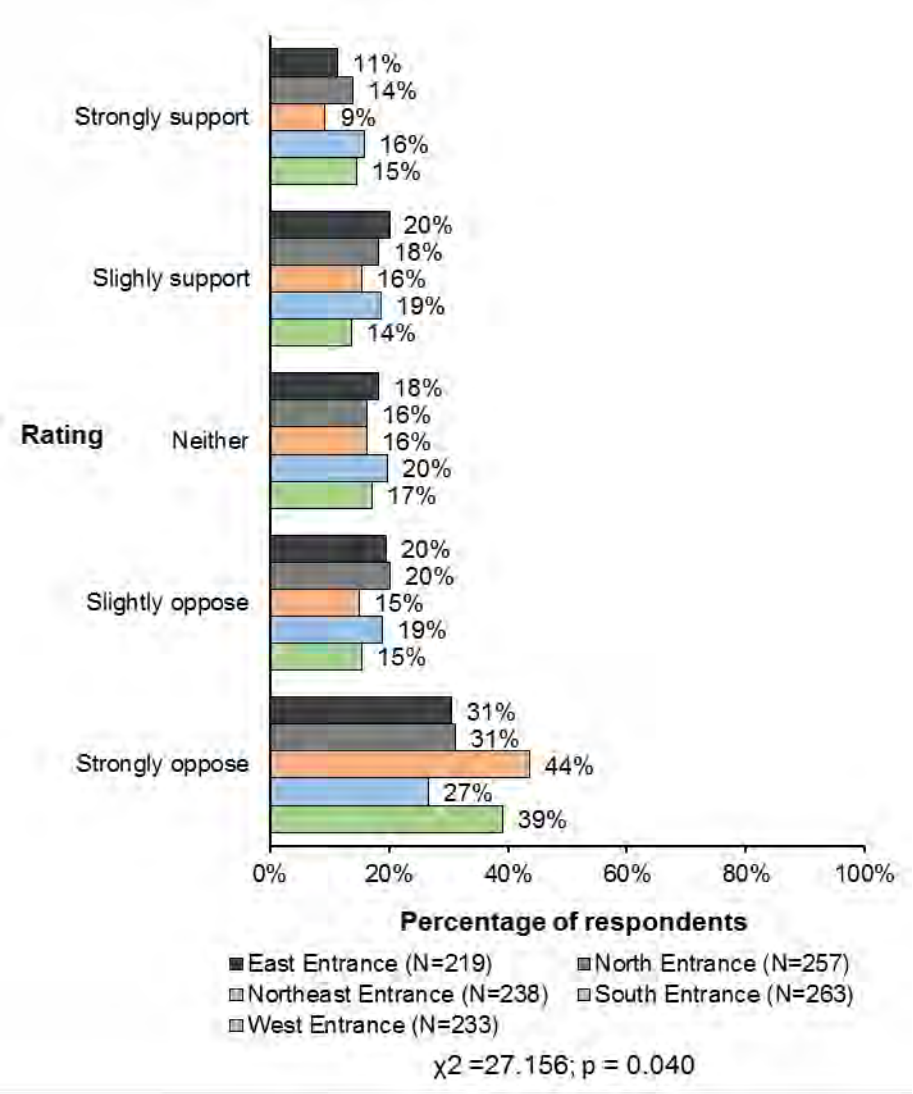


Figure 185. Support for requiring mandatory shuttle bus service to popular park locations during peak periods, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

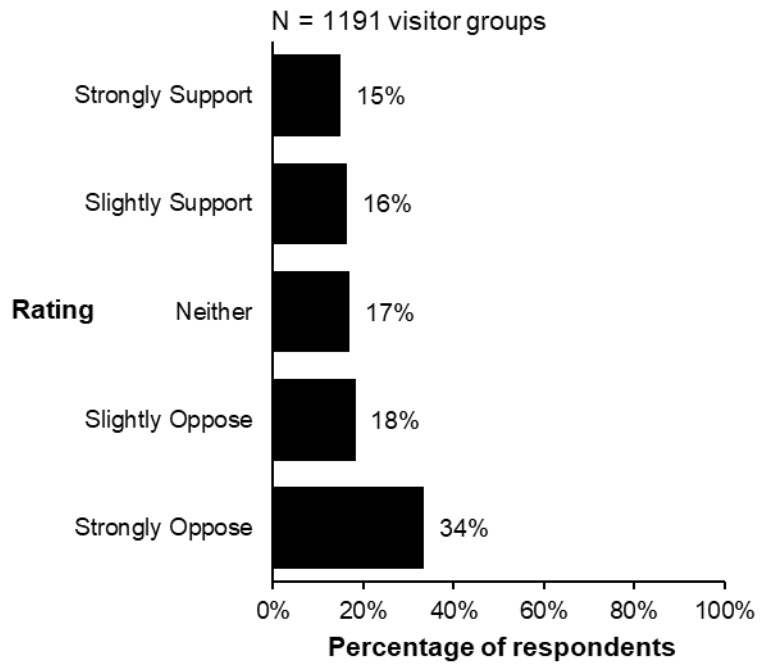


Figure 186. Support for requiring mandatory park-wide shuttle bus system with parking outside the park during peak periods

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

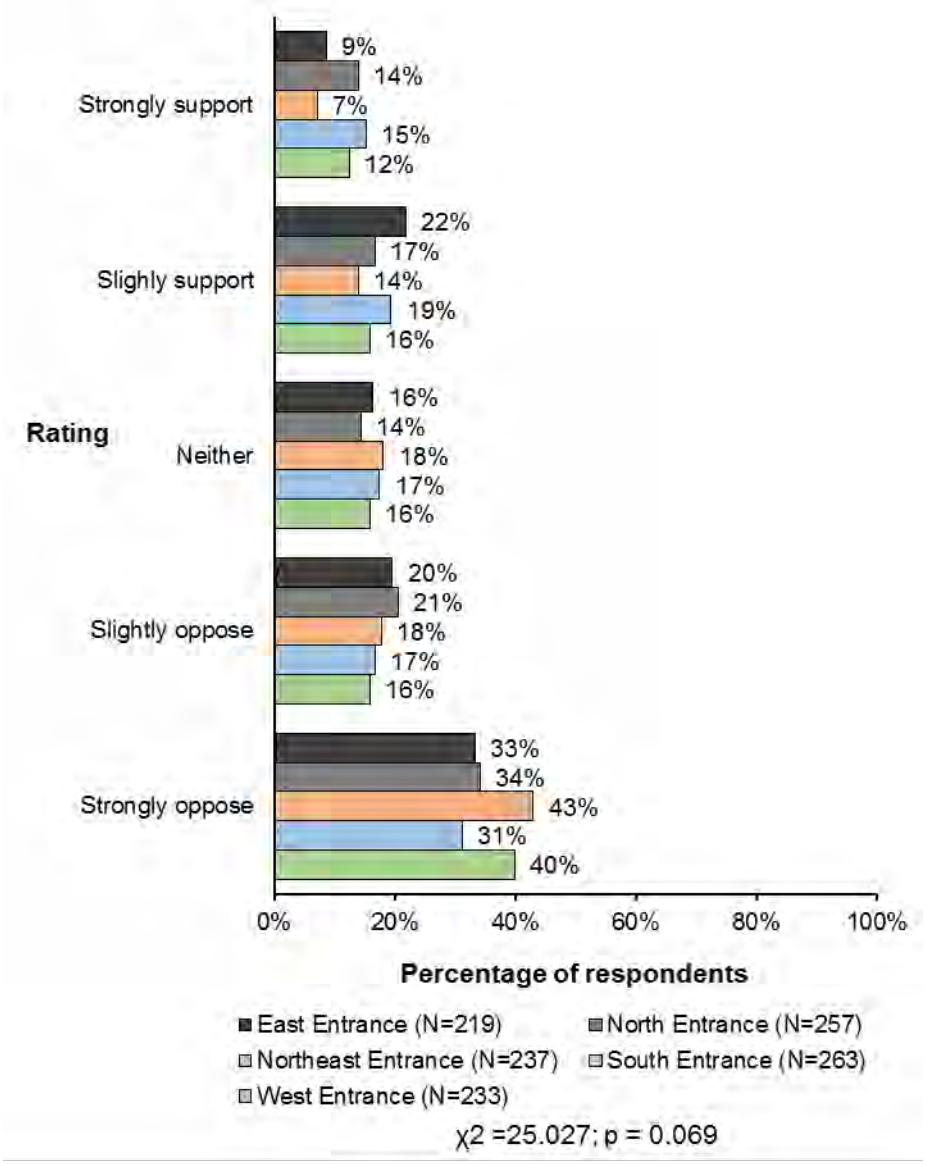


Figure 187. Support for requiring mandatory park-wide shuttle bus system with parking outside the park during peak periods, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

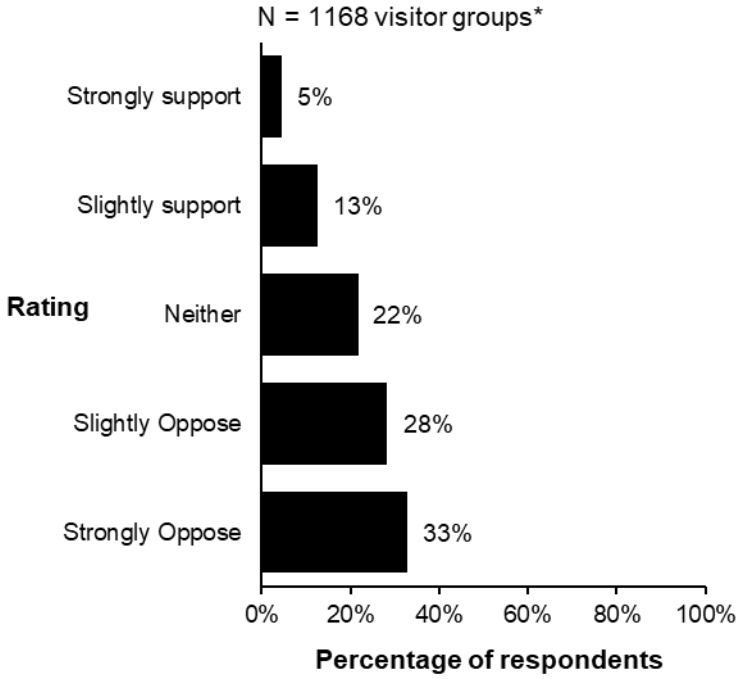


Figure 188. Support for temporarily closing park roads when there is heavy traffic congestion

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

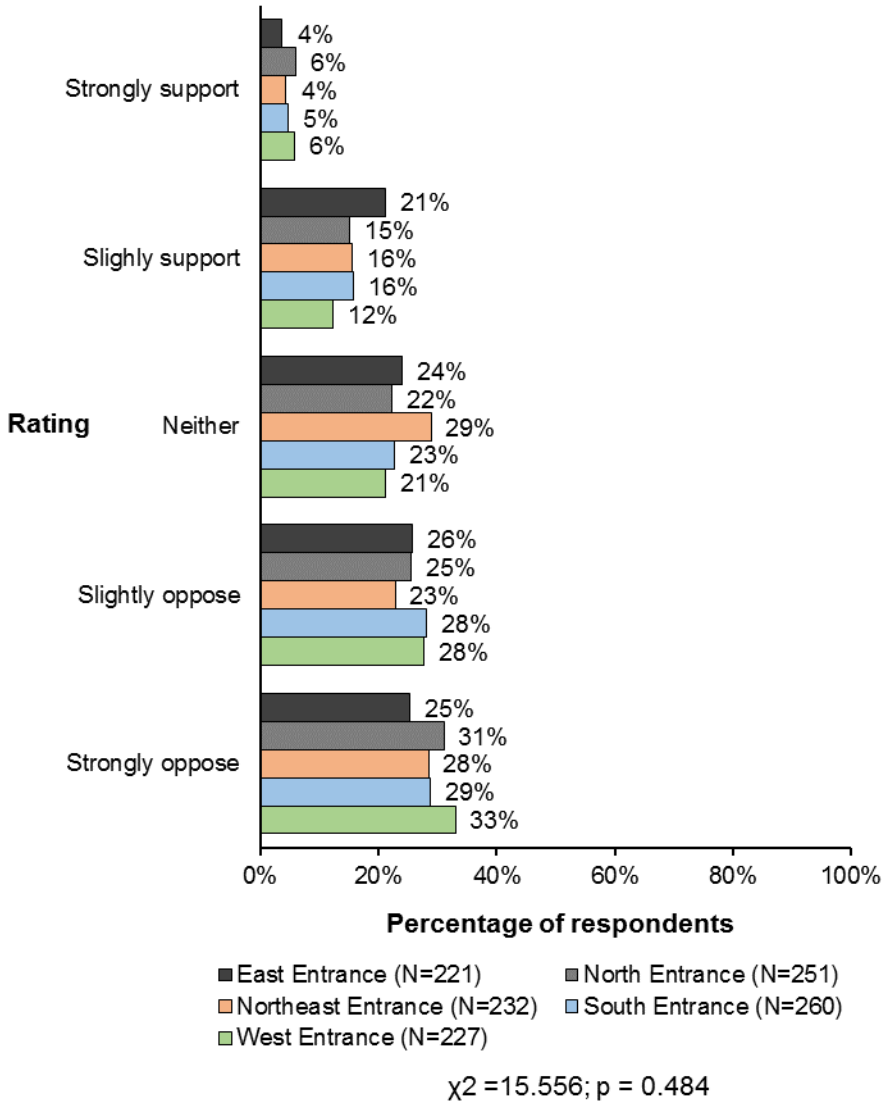


Figure 189. Support for temporarily closing park roads when there is heavy traffic congestion, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Services and Facilities

Visitors with physical conditions

Question 23a

> Did anyone in your personal group have a physical condition that made it difficult to access or participate in park activities or services, during your visit to Yellowstone NP?

Results (Figure 190, Figure 191)

- 9% of visitor groups had members with physical conditions that made it difficult to access or participate in park activities or services.

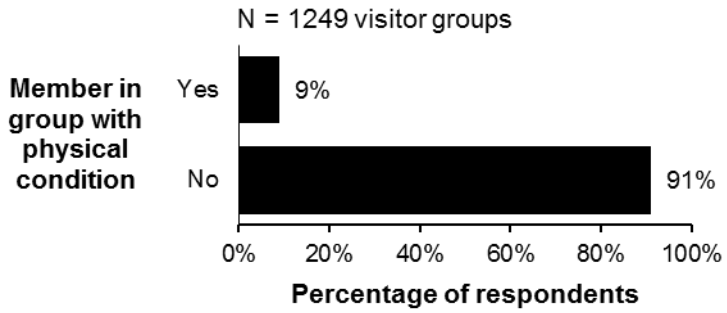


Figure 190. Visitor groups with members with physical conditions

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The number of visitor groups containing visitors with a physical condition that made it difficult to access or participate in activities or services during their visit did not significantly differ by entrance ($X^2 = 8.616$; $p = 0.071$).

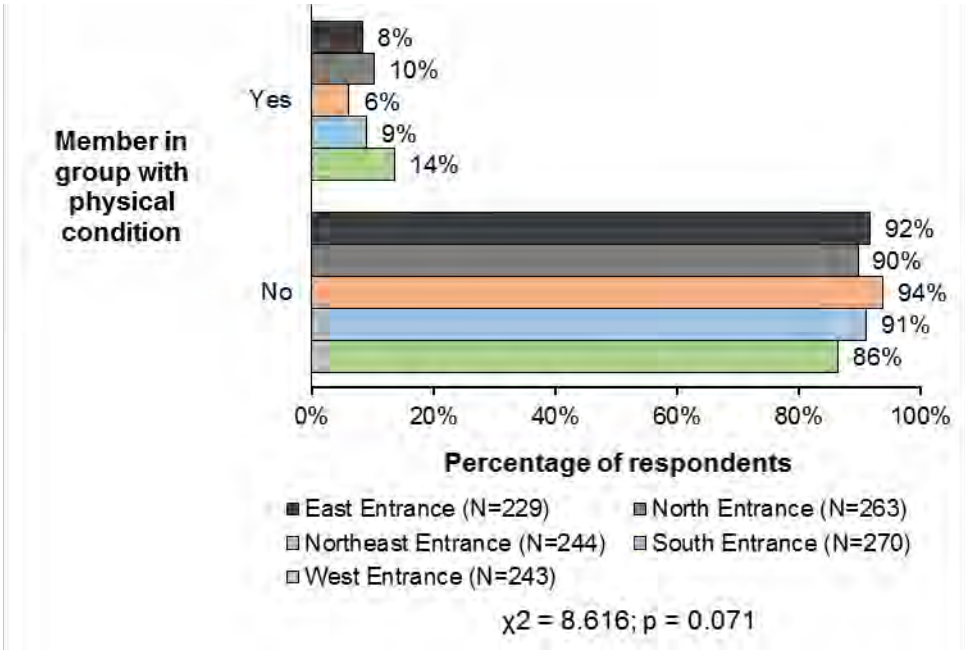


Figure 191. Visitor groups with members with physical conditions, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*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, what activities, services, or facilities did the person(s) have difficulty participating in or accessing? (open-ended)

Results (Table 61, Table 62)

- "Walking" was the activity in which members of visitor groups had difficulty participating most frequently mentioned (45%).

Table 61. Activities/services/facilities difficult to participate in/access

N = 83 comments

Some visitor groups may have made more than one comment.

Activity, service, or facility	Percent of valid responses*
Walking	45%
Hiking	15%
Climbing steps	12%
Walkways	6%
Trails	5%
Handicap accessible facilities	5%
Parking	5%
Restrooms	3%
Water filling stations	1%
Biking	1%
Other activity, service, or facility	<1%

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The activity that was most difficult for visitors with disabilities to participate in for all entrances was walking.

Table 62. Activities/services/facilities difficult to participate in/access, by entrance

CAUTION!	Percent of valid responses				
Activity, service, or facility	**East** *n = 17**	**North** *n = 27**	**Northeast** *n = 16**	**South** *n = 20**	**West** *n = 33**
Walking	29%	37%	31%	40%	48%
Hiking	29%	19%	25%	20%	6%
Climbing steps	12%	7%	13%	10%	9%
Walkways	12%	11%	0%	15%	3%
Trails	6%	4%	13%	0%	12%
Handicap accessible facilities	0%	7%	6%	0%	9%
Parking	6%	7%	6%	0%	6%
Restrooms	6%	0%	6%	5%	6%
Water filling stations	0%	0%	0%	5%	0%
Biking	0%	0%	0%	5%	0%
Other activity, service, or facility	0%	7%	0%	0%	0%

*Some visitor groups may have made more than one comment.

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Question 23c

Because of the physical condition, which specified difficulties did the person(s) have?

Results (Figure 192, Table 63)

- Of visitor groups that had at least one member with a physical condition, the member(s) had specific difficulties with:
    - 82% Mobility
    - 5% Hearing

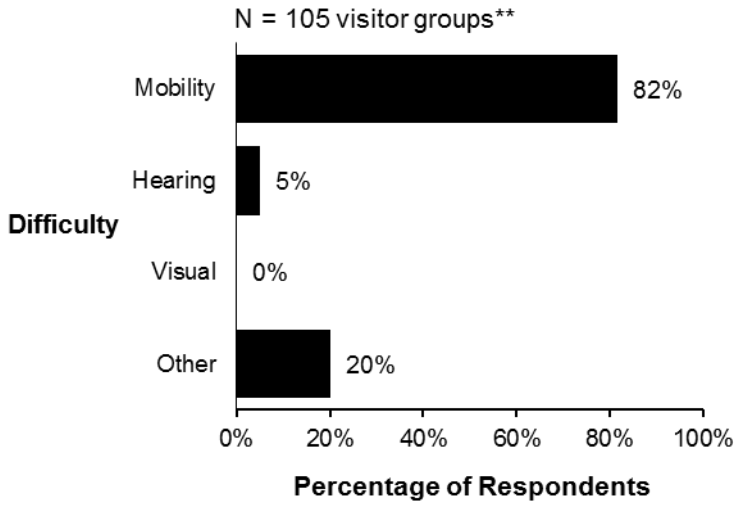


Figure 192. Specific difficulties had by visitor group member(s)

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The type of difficulty that visitors with difficulties had did not significantly differ by entrance for any of the difficulty categories.
- Across entrances, the difficulty experienced by most by visitors with a difficulty was mobility (70%-93%).

Table 63. Specific difficulties had by visitor group member(s), by entrance

	Percentage of Respondents						
CAUTION!	**East**	**North**	**Northeast**	**South**	**West**		
Difficulty Type	*n = 18***	*n = 25***	*n = 14***	*n = 23***	*n = 31***	**Chi-square**	**p-value[1]**
Mobility	89%	80%	93%	70%	81%	$\chi2 = 3.992$[1]	p = 0.407
Hearing	6%	8%	7%	0%	3%	$\chi2 = 2.186$[1]	p = 0.702
Visual	0%	0%	0%	0%	0%	N/A	N/A
Other	17%	24%	7%	30%	19%	$\chi2 = 3.271$[1]	p = 0.513

[1] $\alpha = 0.05$, $p \leq 0.020$ indicates significant result following Bonferroni correction to account for multiple statistical tests.

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Safety

Question 24a

Did you or your personal group encounter any safety issues during your visit to Yellowstone NP?

Results (Figure 193, Figure 194)

- 90% of visitor groups did not encounter any safety issues during their visit to Yellowstone NP.

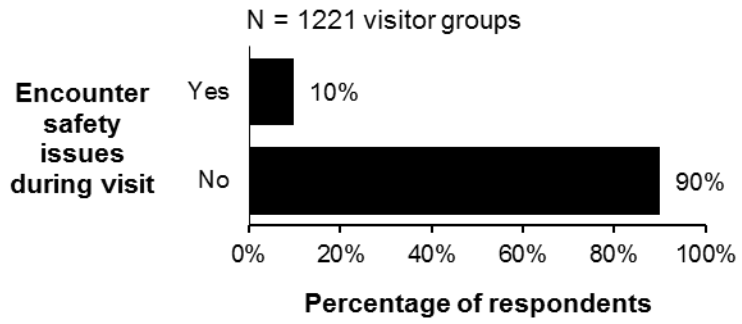


Figure 193. Visitor groups encountering safety issues during their visit to Yellowstone NP

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The number of visitor groups that encountered safety issues during their visit to Yellowstone NP did not significantly differ by entrance ($X^2 = 5.894$; $p = 0.207$).

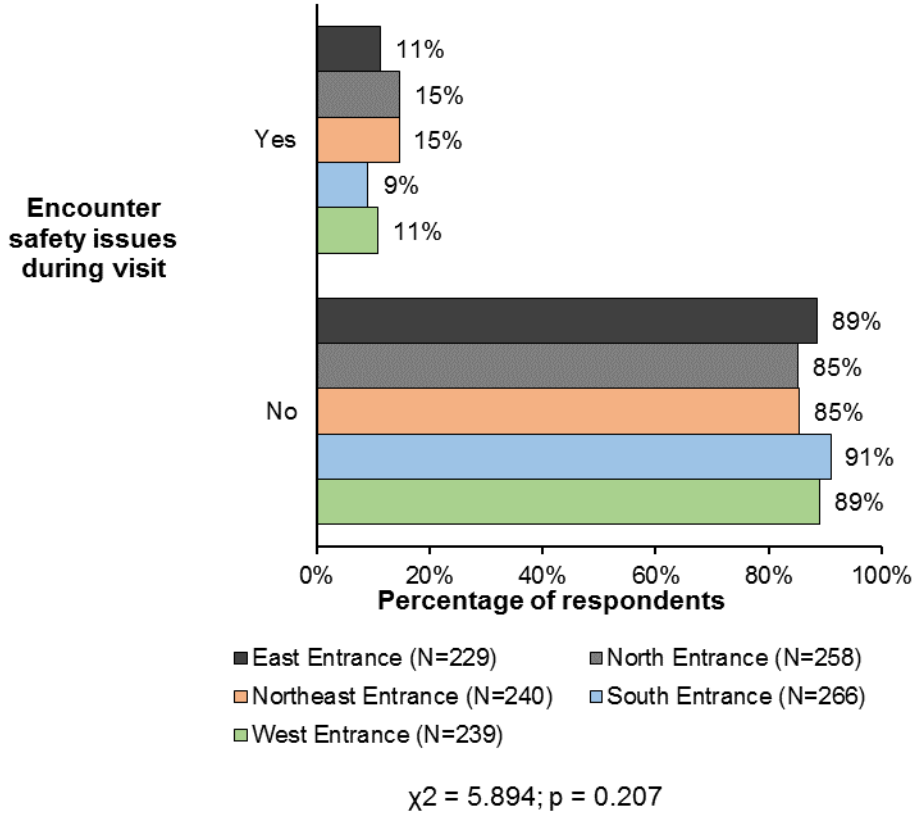


Figure 194. Visitor groups encountering safety issues during their visit to Yellowstone NP, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Question 24b

If YES, what and where was the safety issue(s)? (open-ended)

Results (Table 64, Table 65, Table 66, Table 67)

- Of those visitor groups that reported encountering safety issues, the most frequently encountered issues were:
    - 24% Unsafe driving
    - 13% Visitors getting too close to wildlife
    - 8% Condition of roads

Table 64. Safety issues encountered

N = 175 comments
Some visitor groups may have made more than one comment.

Aspect	Percent of valid responses
Unsafe driving	24%
Visitors getting too close to wildlife	13%
Condition of roads	8%
Visitors off path/crossing barriers	6%
Inconsiderate behavior by other visitors	5%
Too crowded on boardwalks	5%
Wildlife on roads	4%
Physical condition of trails and/or boardwalks	4%
Children being unsafe	4%
Unsafe parking conditions	3%
Lack of guardrails on roads	3%
Lack of handrails on boardwalks	3%
Roadway congestion	3%
Roadway unsafe for bicyclists	2%
Aggressive wildlife	2%
Careless pedestrians	2%
Lack of enforcement of regulations	1%
Disregarding wildlife rules	1%
Other	7%

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- Table 65 reports the percent of valid responses for each safety issue encountered by entrance.

Table 65. Safety issues encountered, by entrance

	Percent of valid responses				
Safety Issue	**East** *n = 40**	**North** *n = 53**	**Northeast** *n = 57**	**South** *n = 30**	**West** *n = 43**
Unsafe driving	28%	30%	37%	23%	14%
Visitors getting too close to wildlife	13%	15%	11%	10%	14%
Condition of roads	5%	2%	4%	13%	7%
Visitors off path/crossing barriers	8%	8%	2%	10%	7%
Inconsiderate behavior by other visitors	8%	2%	4%	7%	7%
Too crowded on boardwalks	3%	6%	4%	0%	9%
Wildlife on roads	3%	4%	2%	3%	2%
Physical condition of trails and/or boardwalks	3%	6%	4%	0%	9%
Children being unsafe	3%	0%	2%	13%	2%
Unsafe parking conditions	0%	2%	0%	0%	9%
Lack or guardrails on roads	0%	0%	0%	3%	5%
Lack of handrails on boardwalks	0%	4%	7%	0%	5%
Roadway congestion	5%	4%	4%	0%	0%
Roadways unsafe for bicyclists	5%	4%	0%	7%	0%
Aggressive wildlife	0%	0%	2%	0%	2%
Careless pedestrians	3%	4%	7%	0%	0%
Lack of enforcement of regulations	3%	0%	2%	0%	2%
Disregarding wildlife rules	5%	2%	4%	3%	0%
Motorcyclists exposed when vehicles stop for wildlife	0%	2%	5%	0%	0%
Other	10%	8%	4%	7%	5%

*Some visitor groups may have made more than one comment.

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- Of the reported locations at which visitor groups encountered safety issues, the most frequently reported location was roads (57%).

Table 66. Locations of encountered safety issues

N = 99 comments
Some visitor groups may have made more than one comment.

Location	Percent of valid responses
Roads	57%
Boardwalks	6%
Grand Prismatic Hot Springs	5%
Old Faithful	5%
Thermal areas	4%
Hot springs	3%
Parking areas	3%
Norris	3%
Mudpots	2%
Mammoth	1%
Firehold Lake	1%
Backcountry	1%
Lamar Valley	1%
Grand Canyon	1%
Haydon Valley	1%
Mount Washburn Road	1%
Tower Falls	1%
West Yellowstone Highway	1%
Artists Point	1%
Geyser field	1%
Camping area	1%

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- Table 67 reports the percent of valid responses for each reported location of a safety issue by entrance.
- Across entrances, the most popular location for encountering safety issues was roads (38%-74%).
- Notably, West entrance visitor groups were the most likely to report encountering safety issues at "Hot springs" (14%).

Table 67. Locations of encountered safety issues, by entrance

CAUTION!	Percent of valid responses				
	East	North	Northeast	South	West
Location	*n = 22**	*n = 23**	*n = 32**	*n = 24**	*n = 21**
Roads	64%	74%	63%	42%	38%
Boardwalks	14%	4%	3%	4%	10%
Grand Prismatic Hot Springs	0%	0%	6%	4%	10%
Old Faithful	9%	4%	3%	0%	0%
Thermal areas	5%	0%	0%	8%	5%
Hot springs	0%	0%	3%	0%	14%
Parking areas	0%	0%	0%	4%	5%
Norris	5%	0%	0%	4%	5%
Mudpots	0%	4%	0%	8%	0%
Mammoth	0%	0%	3%	4%	0%
Firehold Lake	0%	0%	0%	4%	5%
Backcountry	0%	4%	6%	0%	0%
Lamar Valley	5%	0%	3%	0%	5%
Grand Canyon	0%	9%	0%	0%	0%
Haydon Valley	0%	0%	3%	0%	5%
Mount Washburn Road	0%	0%	3%	0%	0%
Tower Falls	0%	0%	0%	4%	0%
West Yellowstone Highway	0%	0%	3%	0%	0%
Artists Point	0%	0%	0%	4%	0%
Geyser field	0%	0%	0%	4%	0%
Camping area	0%	0%	0%	4%	0%

*Some visitor groups may have made more than one comment.

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*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 facilities, services, and recreational opportunities

Question 26

How would you rate the quality of the facilities, services, and recreational opportunities in Yellowstone NP?

Rating choices:

Very good
Good
Average
Poor
Very poor

Results (Figure 195, Table 68)

- Figure 195 shows the combined proportions of "very good" and "good" ratings for facilities, services, and recreational opportunities.
- The facilities, services, and recreational opportunities that received the highest combined proportions of "very good" and "good" ratings were:
    - 97% Visitor center
    - 92% Outdoor recreation
    - 89% Learning about nature
    - 89% Assistance from park employees
- The facilities, services, and recreational opportunities that received the lowest combined proportions of "very good" and "good" ratings were:
    - 69% Commercial services in the park
    - 69% Restrooms
- For more information on use of services and facilities by visitors, see Appendix 6: Facilities, Services, and Recreational Opportunities Used by Visitor Groups (Figure 251 and Table 81).

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

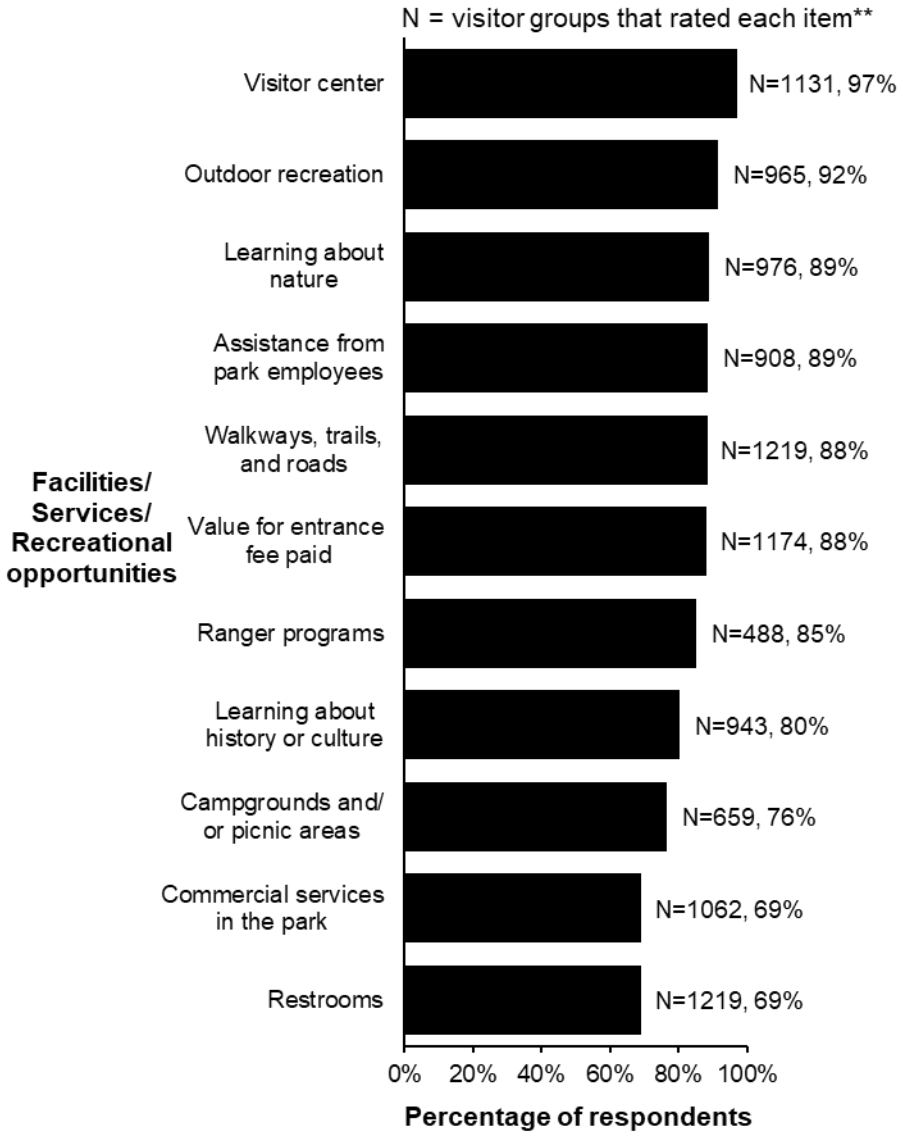


Figure 195. Quality of facilities, services, and recreational opportunities, includes responses for either "very good" or "good"

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- Table 68 shows the combined proportions of "very good" and "good" ratings for facilities, services, and recreational opportunities by entrance.
- A significant difference in the proportion of visitor groups that rated facilities to have "very good" or "good" quality was found for one of the listed facilities, services, or recreational opportunities: walkways, trails, and roads.

Table 68. Quality of facilities, services, and recreational opportunities, by entrance, includes responses for either "very good" or "good"

		East	North	Northeast	South	West		
Service	***n***	**Percentage of Respondents**					**Chi-square**	**p-value[1]**
Visitor center	1109	97%	94%	97%	96%	98%	χ2 = 5.377	p = 0.251
Outdoor recreation	968	89%	90%	92%	92%	89%	χ2 = 2.522	p = 0.641
Learning about nature	965	90%	89%	89%	89%	88%	χ2 = 0.410	p = 0.982
Assistance from park employees	955	88%	87%	90%	90%	88%	χ2 = 1.483	p = 0.830
Walkways, trails, and roads	**1221**	**86%**	**85%**	**88%**	**94%**	**83%**	**χ2 = 16.175**	**p = 0.003**
Value for entrance fee paid	1181	86%	88%	85%	88%	88%	χ2 = 1.451	p = 0.835
Ranger programs	504	86%	86%	92%	92%	86%	χ2 = 3.923	p = 0.417
Learning about history or culture	923	83%	80%	81%	80%	74%	χ2 = 5.203	p = 0.267
Campgrounds and/or picnic areas	644	81%	74%	85%	86%	81%	χ2 = 7.309	p = 0.120
Commercial services in the park	1050	72%	64%	66%	72%	60%	χ2 = 10.050	p = 0.040
Restrooms	1214	72%	67%	73%	73%	66%	χ2 = 5.853	p = 0.210

[1] $\alpha = 0.05$, $p \leq 0.004$ indicates significant result following Bonferroni correction to account for multiple statistical tests.

Figure 196 through 209 show ratings of quality for each facility, program, or recreational opportunity.

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

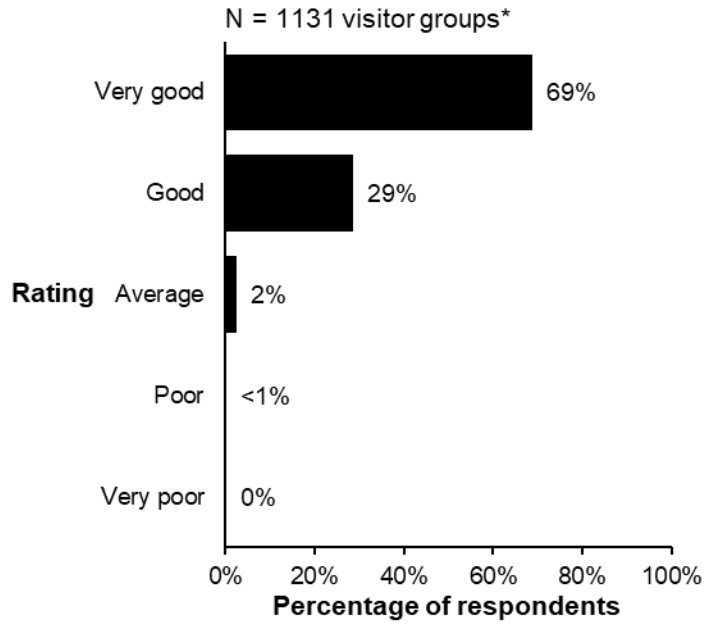


Figure 196. Quality of visitor center

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

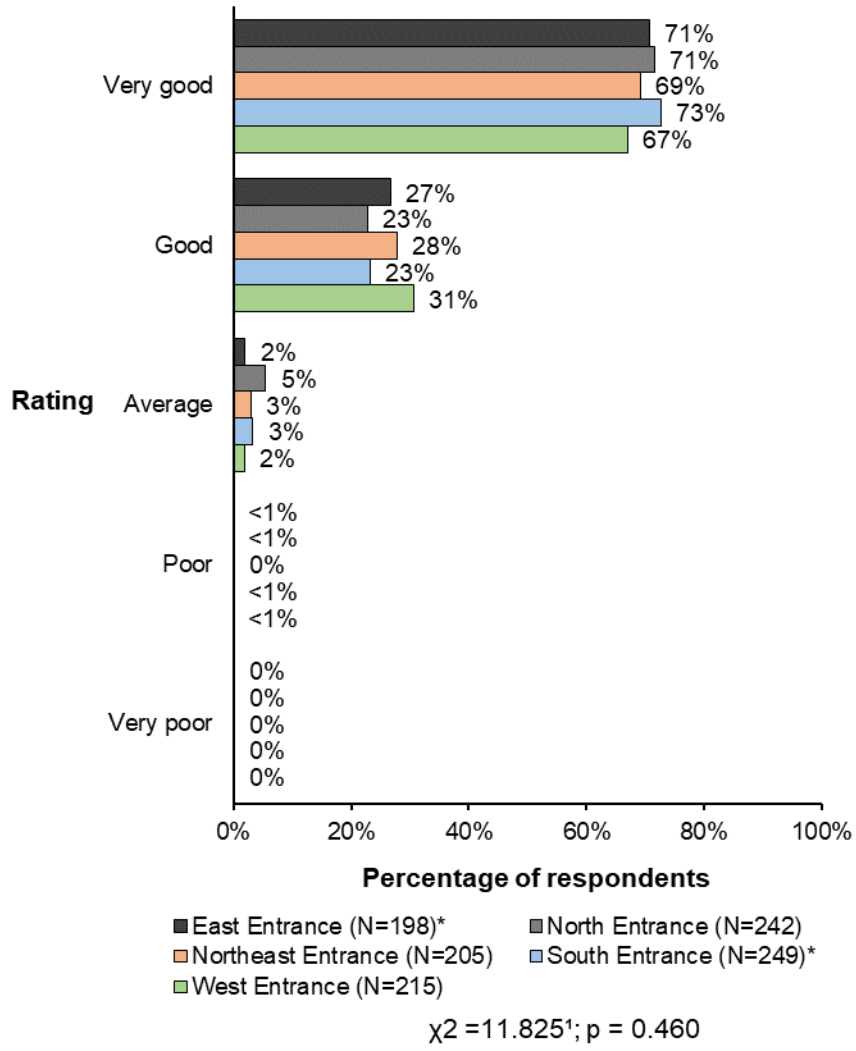


Figure 197. Quality of visitor center, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

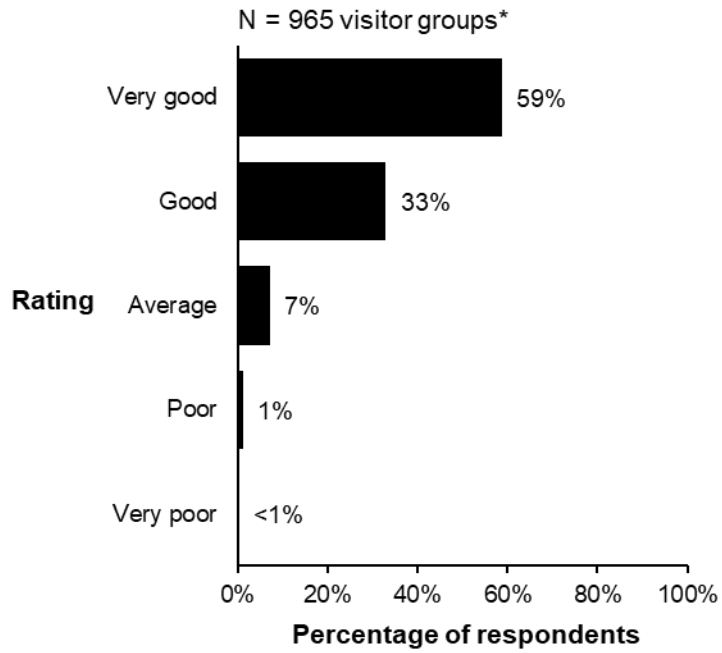


Figure 198. Quality of outdoor recreation (sightseeing, camping, bicycling, boating, hiking, etc.)

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

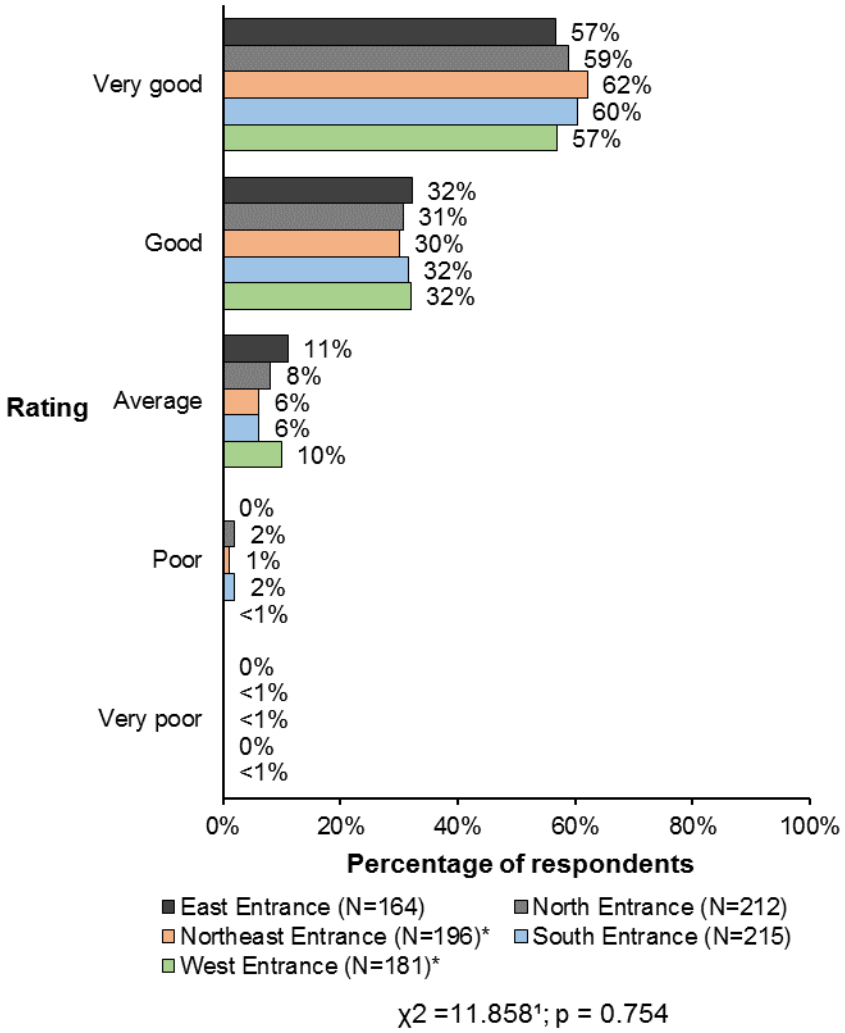


Figure 199. Quality of outdoor recreation (sightseeing, camping, bicycling, boating, hiking, etc.), by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

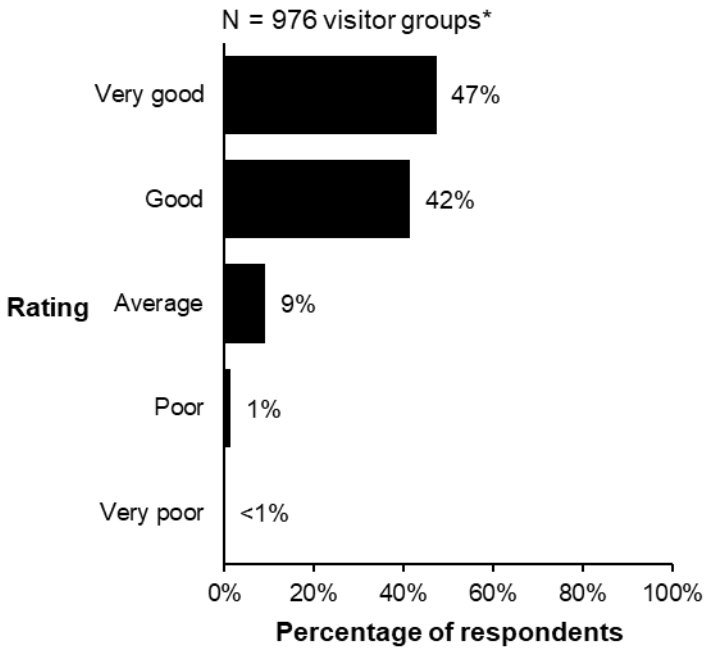


Figure 200. Quality of learning about nature

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

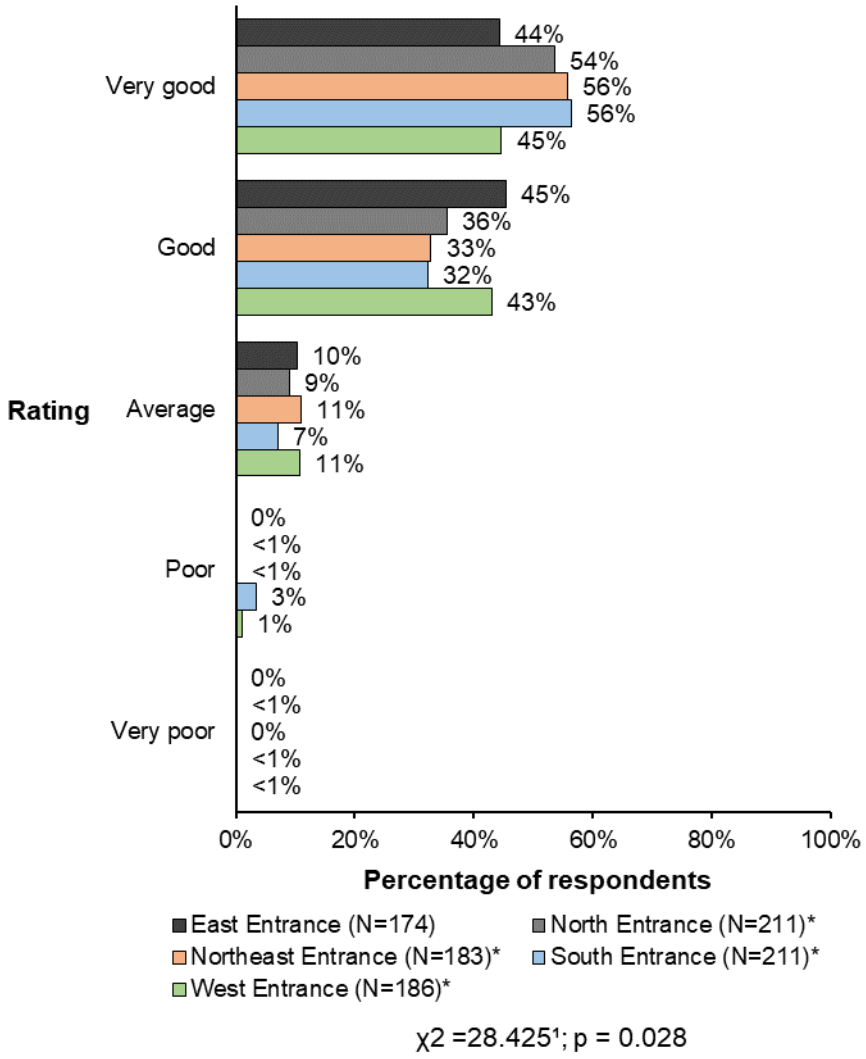


Figure 201. Quality of learning about nature, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

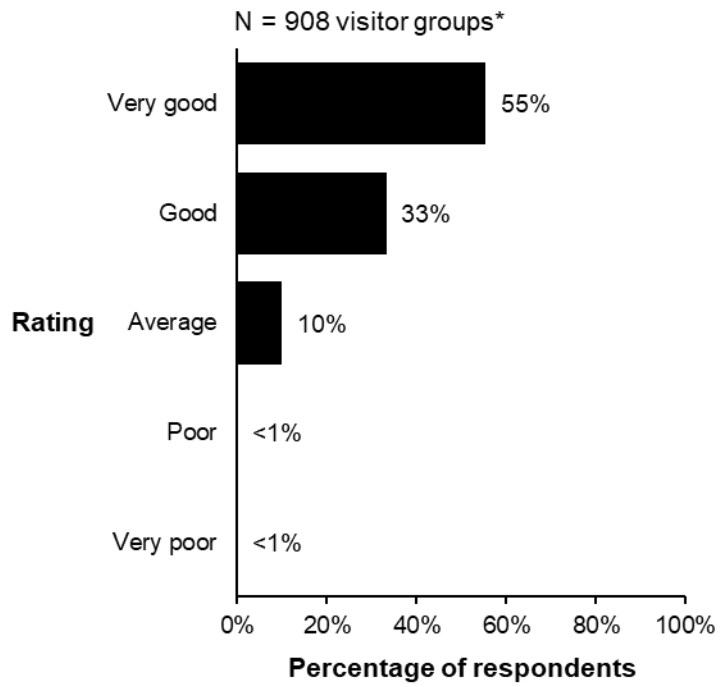


Figure 202. Quality of assistance from park employees

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

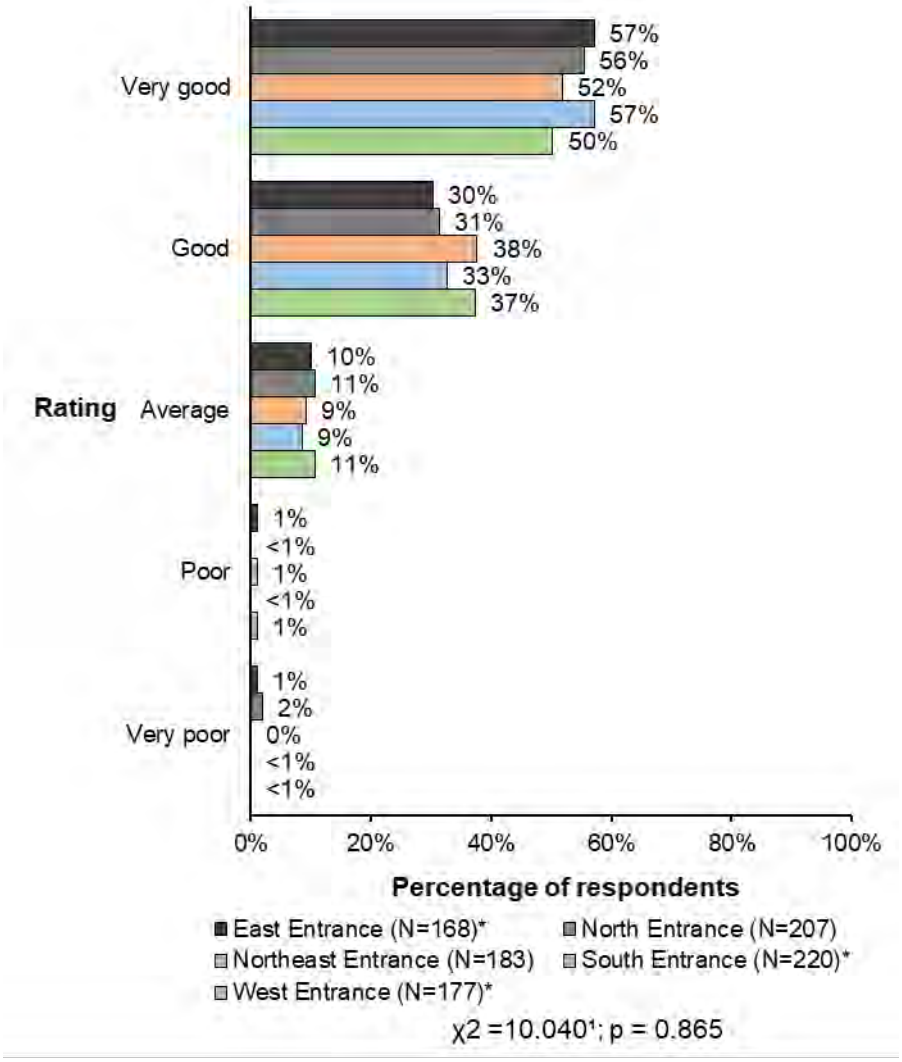


Figure 203. Quality of assistance from park employees, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

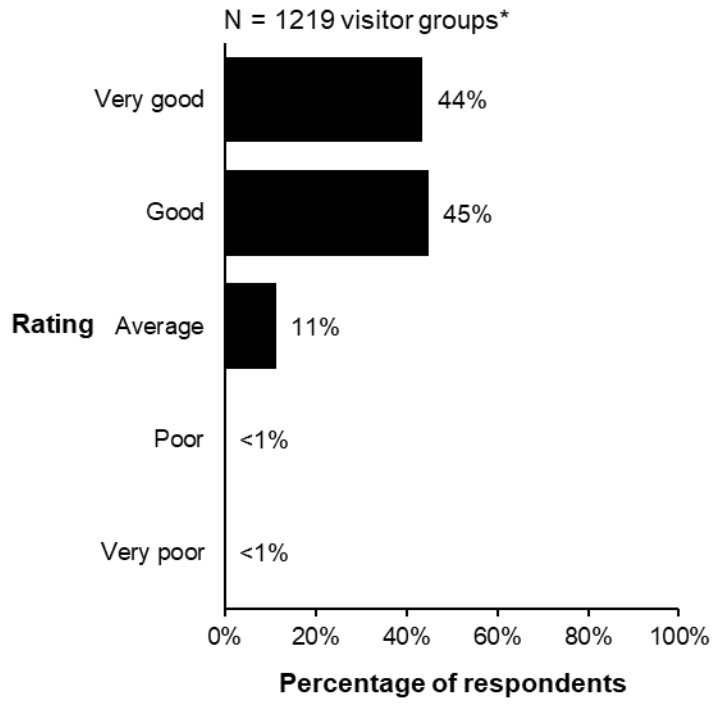


Figure 204. Quality of walkways, trails, and roads

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

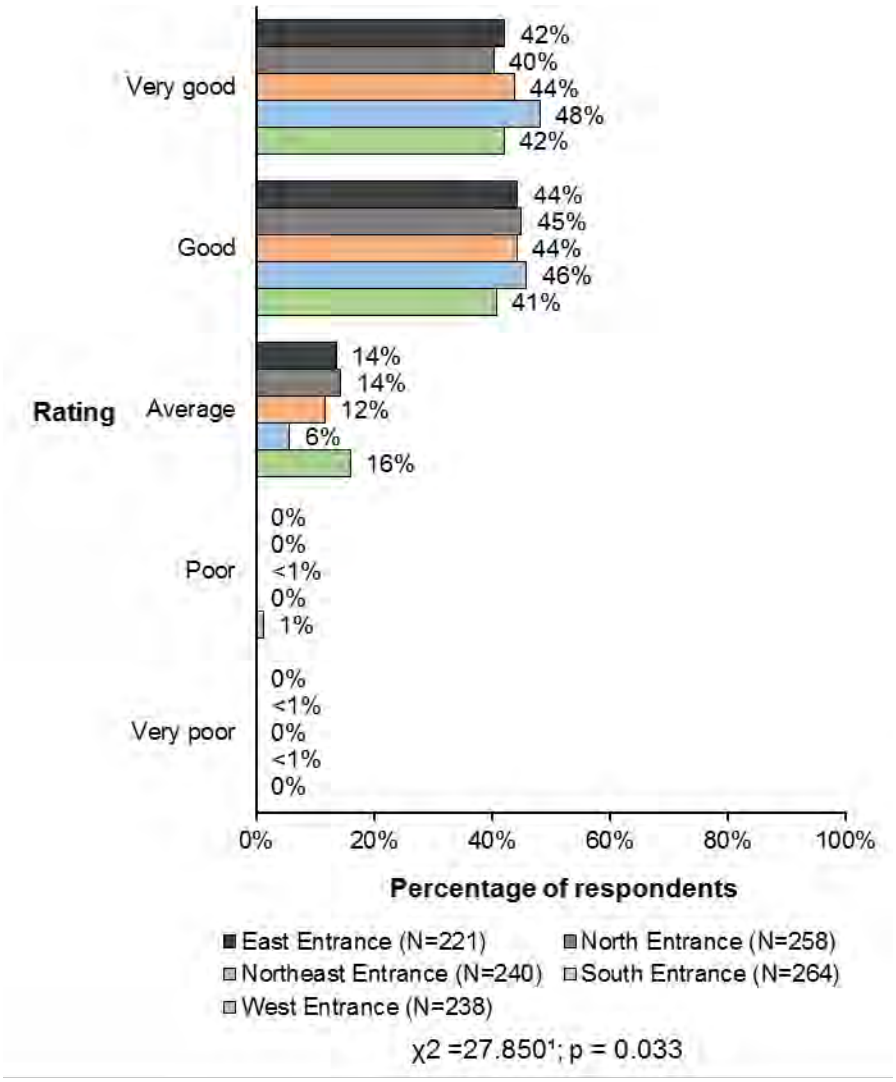


Figure 205. Quality of walkways, trails, and roads, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

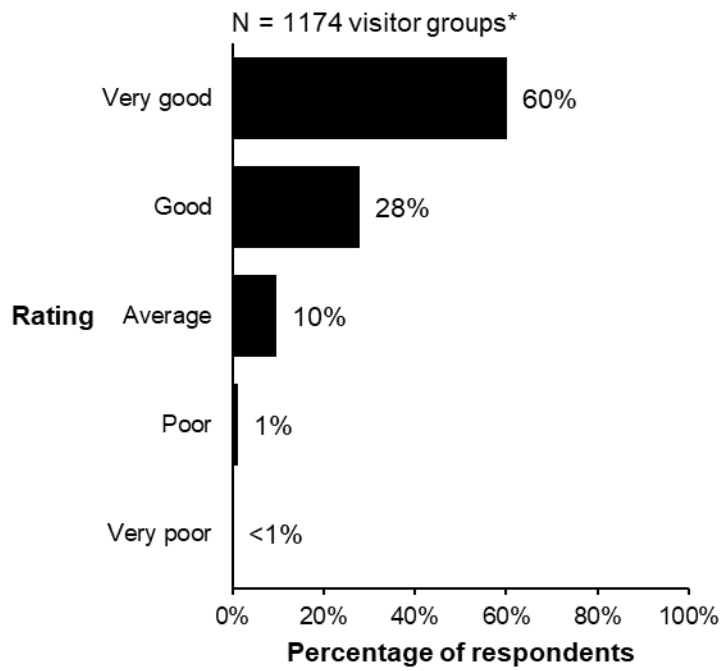


Figure 206. Quality of value for entrance fee paid

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

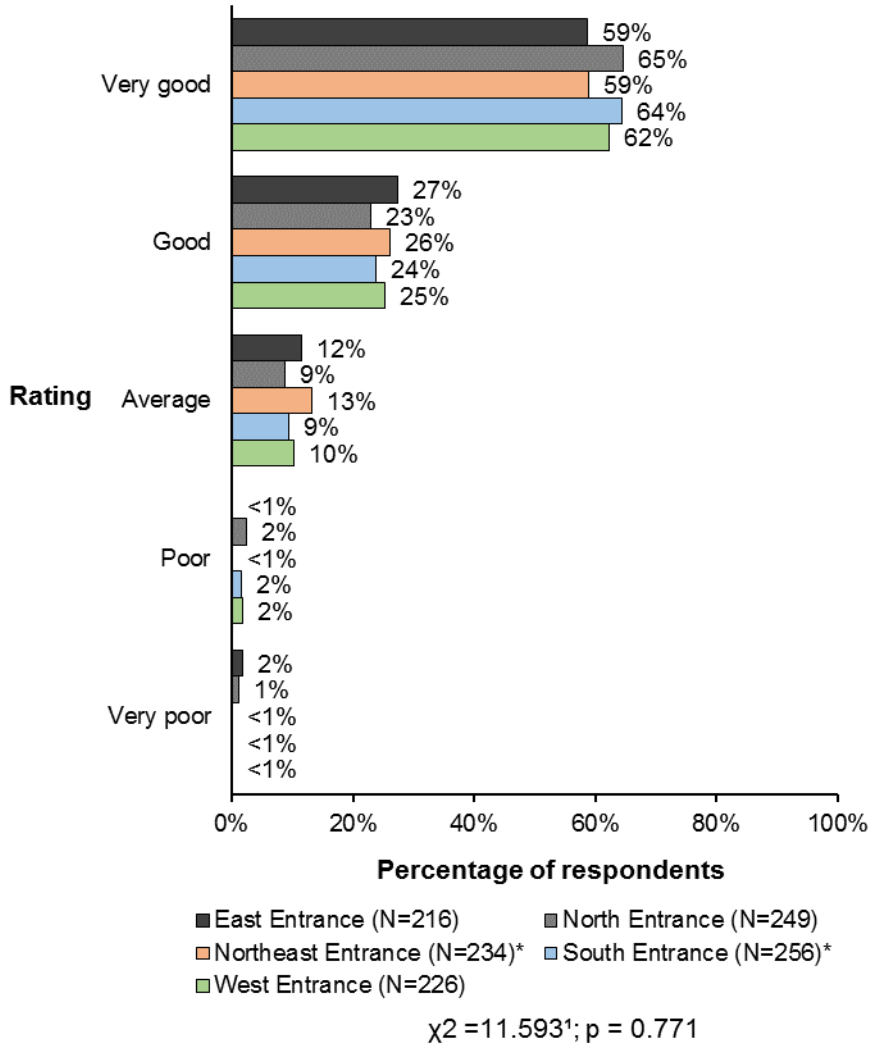


Figure 207. Quality of value for entrance fee paid, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

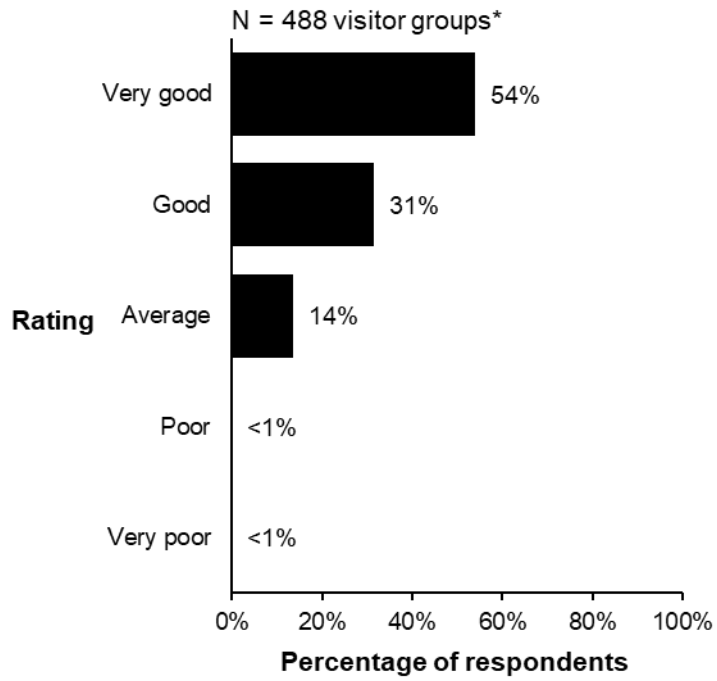


Figure 208. Quality of ranger programs

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

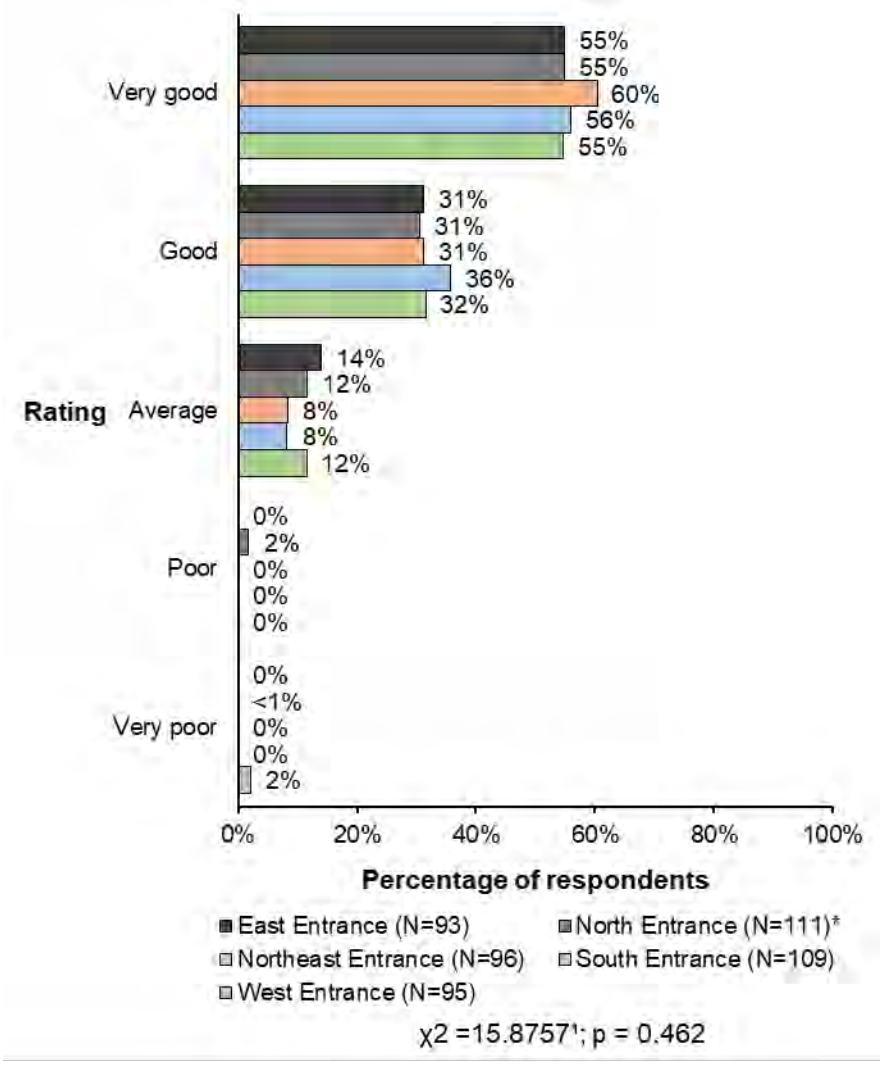


Figure 209. Quality of ranger programs, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

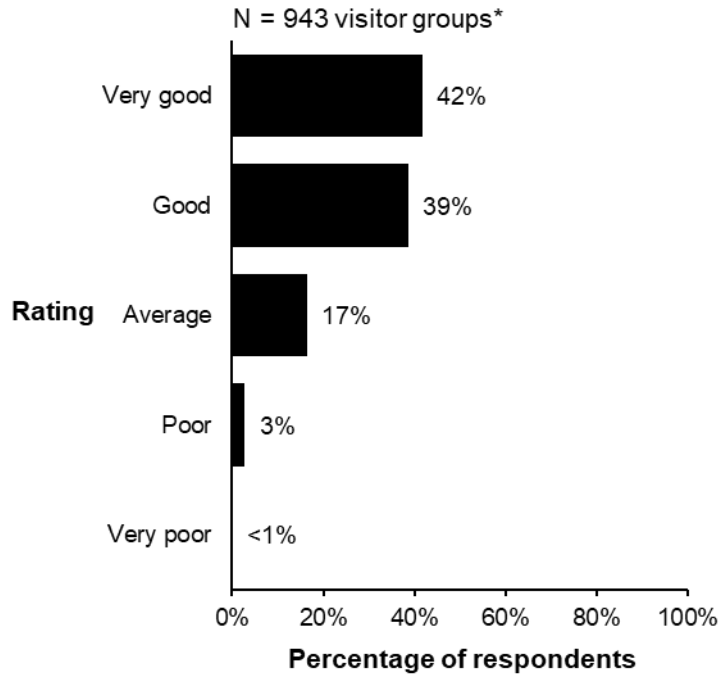


Figure 210. Quality of learning about history or culture

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

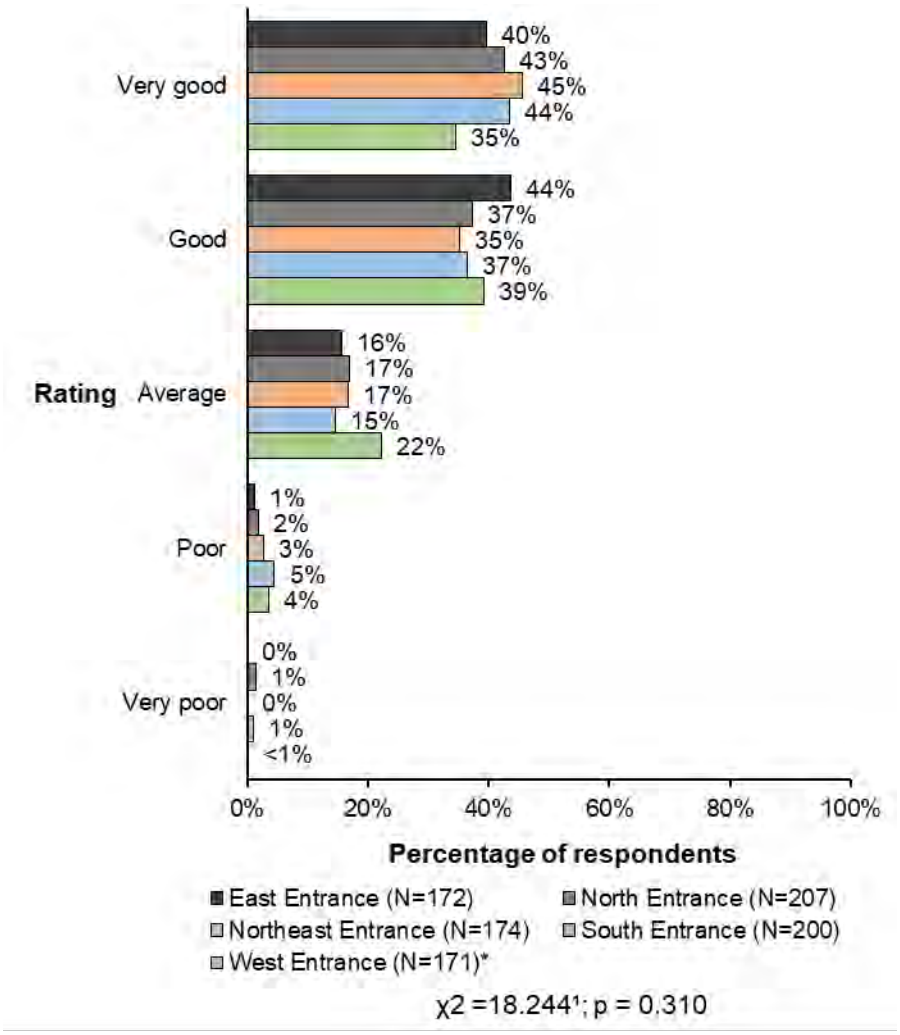


Figure 211. Quality of learning about history or culture, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

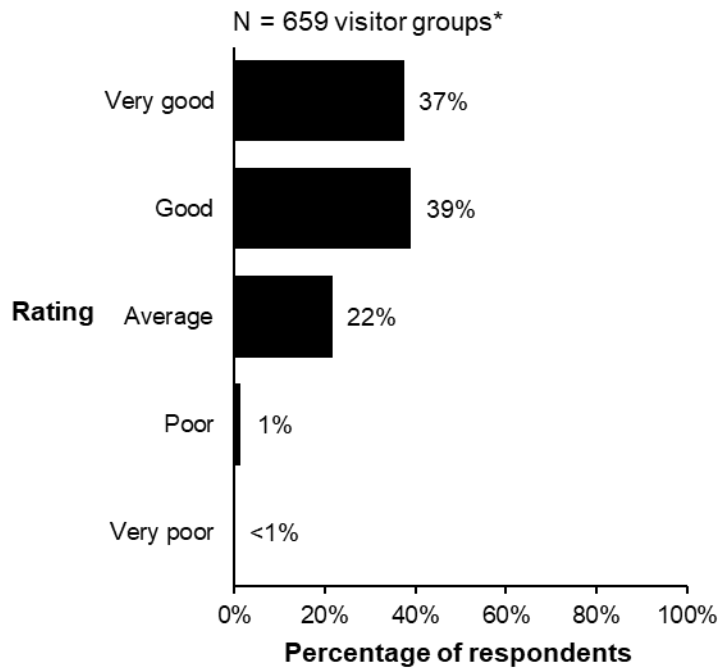


Figure 212. Quality of campgrounds and/or picnic areas

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

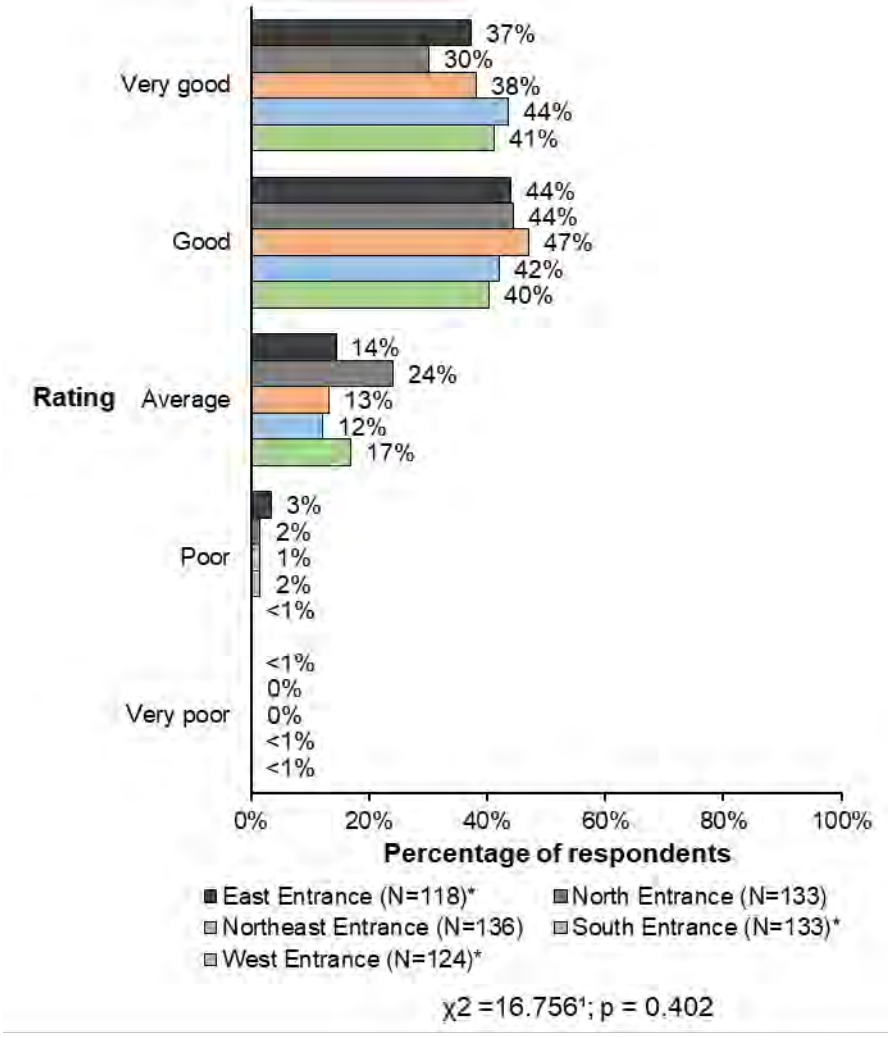


Figure 213. Quality of campgrounds and/or picnic areas, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

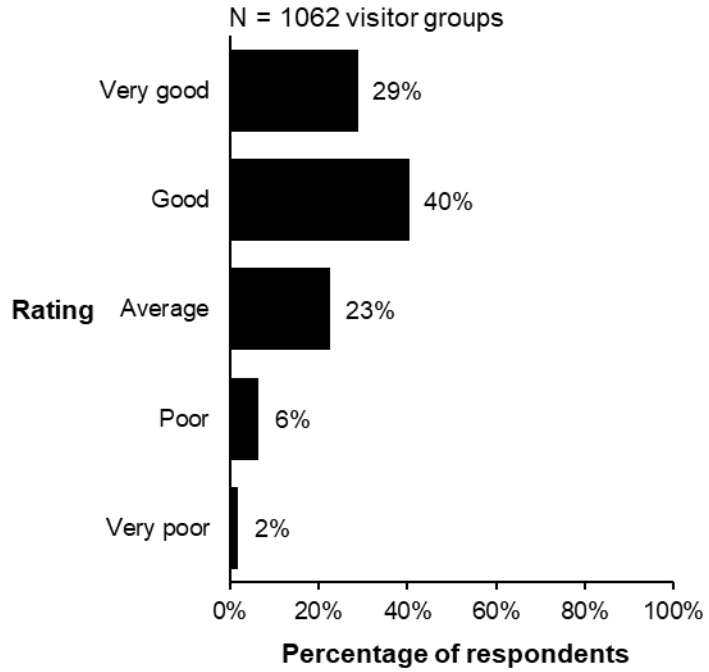


Figure 214. Quality of commercial services in the park

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

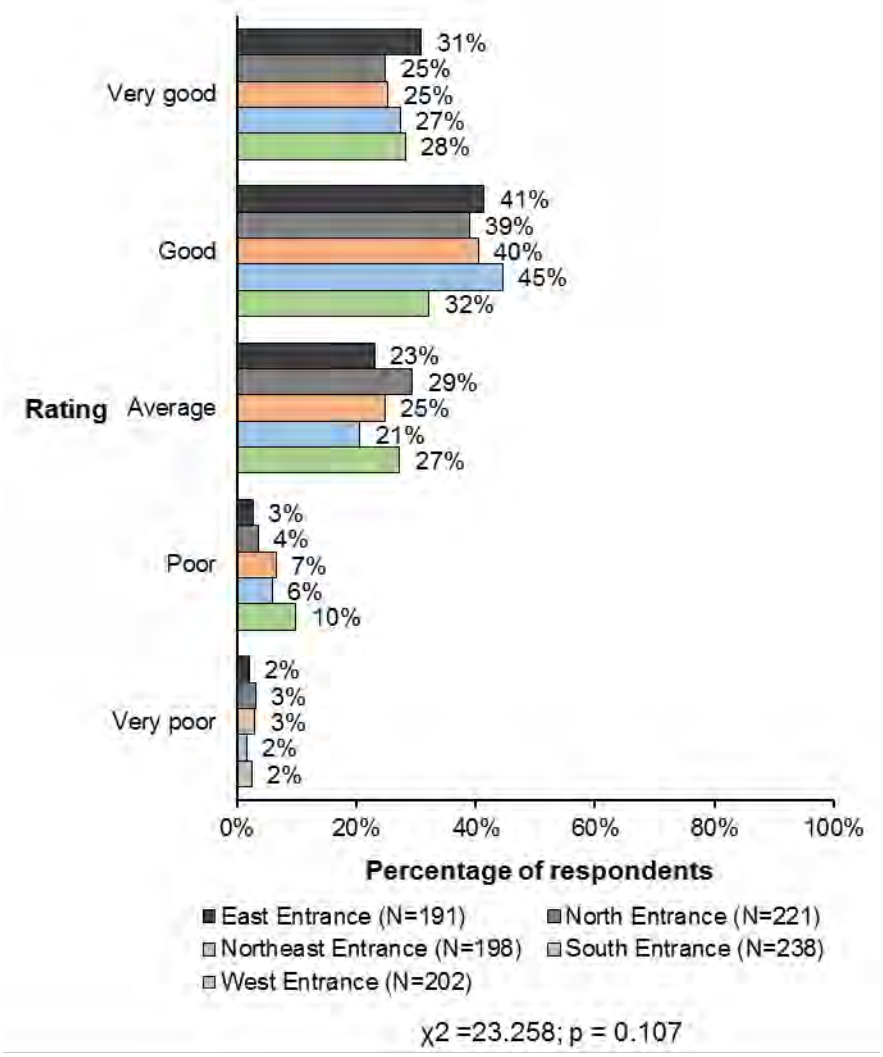


Figure 215. Quality of commercial services in the park, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

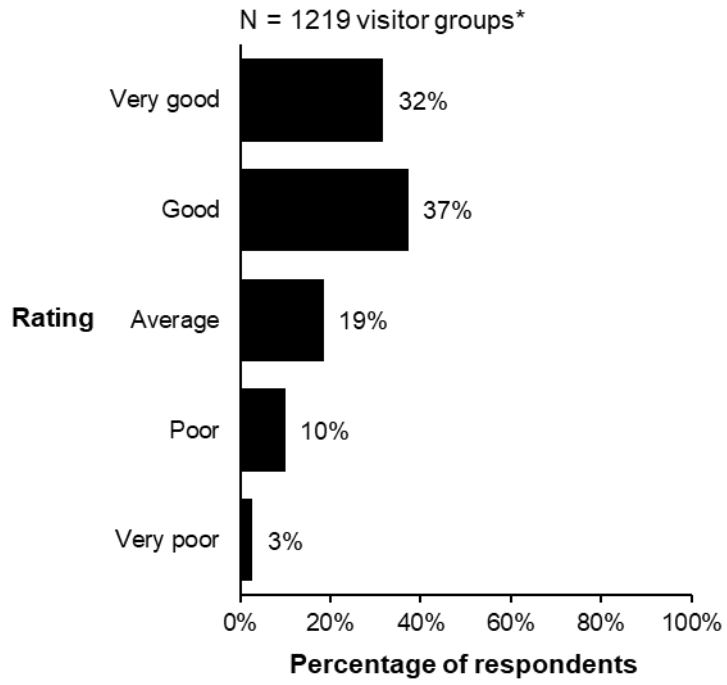


Figure 216. Quality of restrooms

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

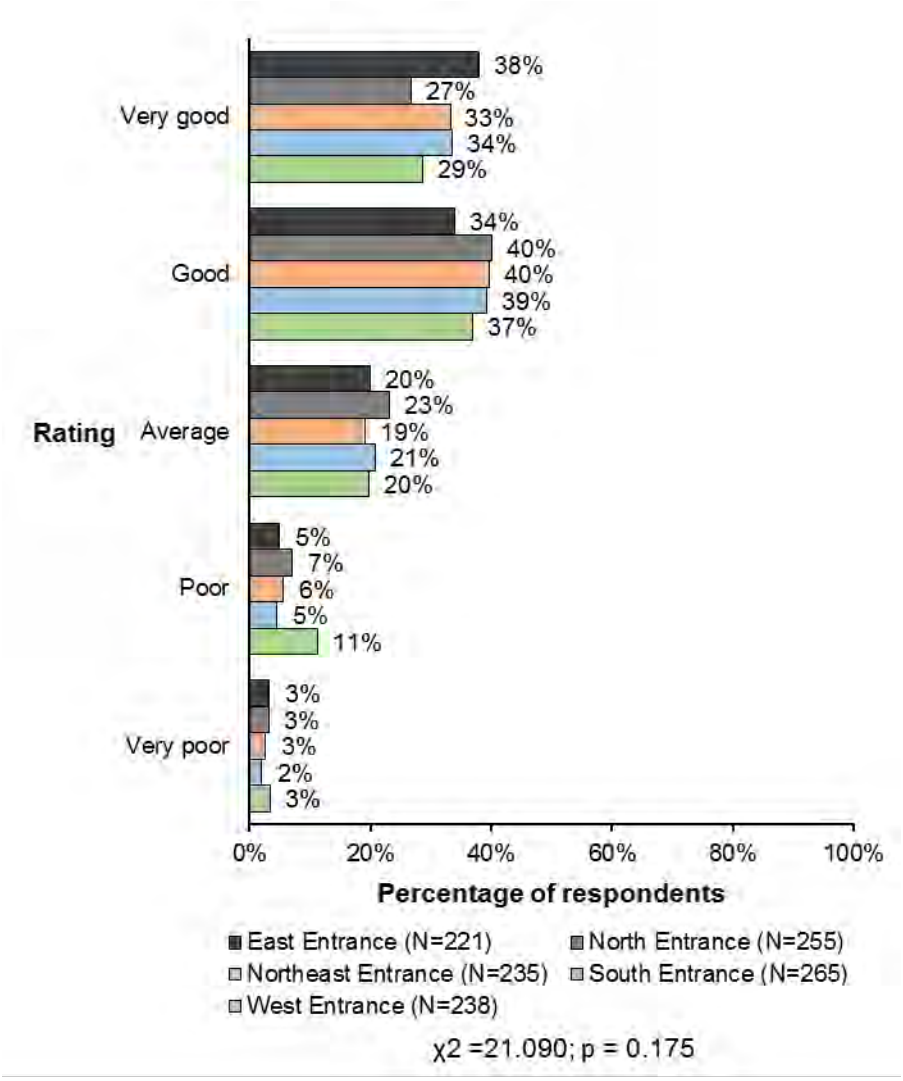


Figure 217. Quality of restrooms, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Services used

Question 23

If commercial services were used, please specify the services used.

Results (Table 69)

- Table 69 shows the services used by visitor groups for those groups that reported using commercial services during their visit. The most frequently mentioned services were:
    - 38% Food services (i.e., restaurants, supermarkets)
    - 24% Gifts

Table 69. Services used

N = 681 comments

Some visitor groups may have made more than one comment.

Service	Percent of valid responses
Food services (i.e., restaurants, supermarkets)	38%
Gifts	24%
Lodging	7%
Visitor center	5%
Restrooms	4%
Ranger programs	3%
Services too expensive/poor value	3%
Rangers/park employees	2%
Camping facilities	2%
Walkways, trails, and roads	2%
Gas	2%
Entrance fee	1%
Tours/guides	1%
Junior ranger program	1%
Commercial services (unspecified)	1%
Other specified services	1%

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- Table 70 shows the services used by visitor groups by entrance for those visitor groups that reported using commercial services during their visit.

Table 70. Services used, by entrance

	Percent valid responses				
	East	**North**	**Northeast**	**South**	**West**
Services	*n = 51***	*n = 71***	*n = 71***	*n = 72***	*n = 72***
Food services (i.e., restaurants, supermarkets)	65%	65%	76%	65%	75%
Gifts	35%	37%	35%	46%	44%
Lodging	20%	8%	20%	21%	15%
Visitor center	14%	15%	8%	7%	8%
Restrooms	12%	15%	6%	6%	7%
Ranger programs	2%	6%	6%	7%	10%
Services too expensive/poor value	2%	3%	6%	1%	13%
Rangers/park employees	8%	10%	8%	6%	0%
Camping facilities	2%	6%	4%	11%	6%
Walkways, trails, and roads	16%	6%	6%	3%	3%
Gas	8%	0%	8%	6%	6%
Entrance fee	2%	7%	4%	4%	1%
Tours/guides	0%	1%	4%	1%	3%
Junior ranger programs	0%	0%	0%	6%	1%
Commercial services (unspecified)	4%	3%	1%	0%	0%
Picnic areas	4%	4%	3%	3%	0%
Medical services	2%	0%	0%	1%	0%
Other specified services	0%	1%	0%	1%	0%

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*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 use of personal electronic devices

Question 25

How important to you was it during your visit to Yellowstone NP to use personal electronic devices to do each of the following?

Rating choices:

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

Results (Figure 218, Table 71)

- Figure 218 shows the combined proportions of "extremely important" and "very important" ratings for use of a personal electronic device.
- The uses that received the highest combined proportions of "extremely important" and "very important" ratings were:
    - 32% Make/receive cell phone calls
    - 30% Send/receive text messages
- The uses that received the lowest combined proportions of "extremely important" and "very important" ratings were:
    - 18% Share pics/videos/audio via social media
    - 9% Download an NPS podcast

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

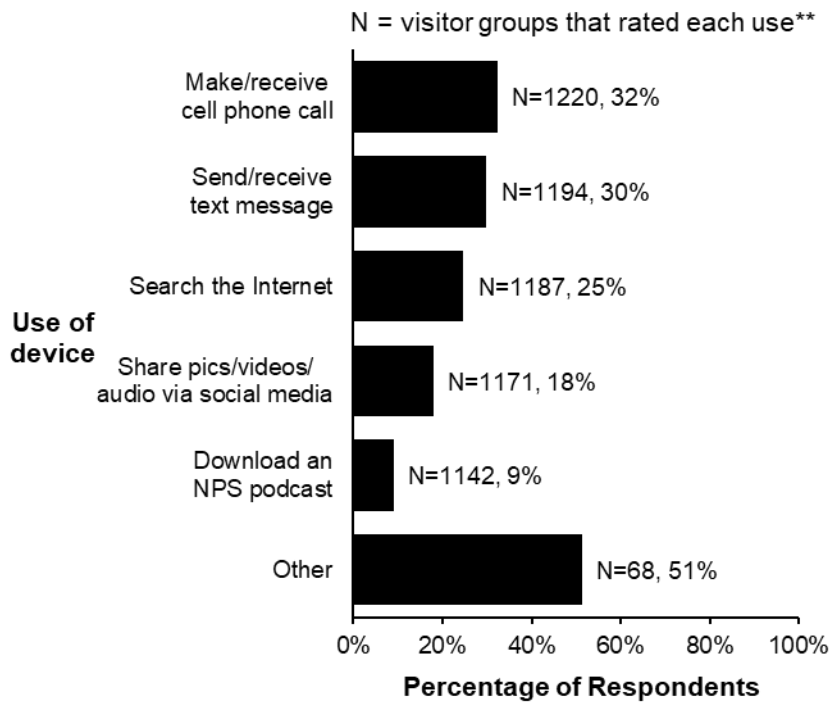


Figure 218. Importance of uses for a personal electronic device, includes responses for either "extremely important" or "very important"

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- Significant differences in the combined proportions of visitor groups that selected "extremely important" or "very important" for the importance of the use of personal electronic device services during their trip to Yellowstone NP did not significantly differ by entrance.

Table 71. Importance of using personal electronic devices, by entrance, includes responses for either "extremely important" or "very important"

		East	North	Northeast	South	West		
Service	**n**	**Percentage of Respondents**					**Chi-square**	**p-value[1]**
Make/receive cell phone call	1229	29%	30%	22%	33%	33%	$\chi2 = 10.135$	$p = 0.038$
Send/receive text message	1219	27%	25%	20%	30%	31%	$\chi2 = 9.209$	$p = 0.056$
Search the Internet	1211	21%	18%	17%	26%	22%	$\chi2 = 8.881$	$p = 0.064$
Share pics/videos/ audio via social media	1202	16%	13%	10%	19%	14%	$\chi2 = 10.106$	$p = 0.039$
Download an NPS podcast	1169	9%	3%	4%	7%	6%	$\chi2 = 9.359$	$p = 0.053$
Other	78	63%	67%	54%	48%	56%	$\chi2 = 1.389$	$p = 0.846$

[1] $\alpha = 0.05$, $p \leq 0.008$ indicates significant result following Bonferroni correction to account for multiple statistical tests.

Figure 219 through Figure 228 show ratings of importance for each use of an electronic device.

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

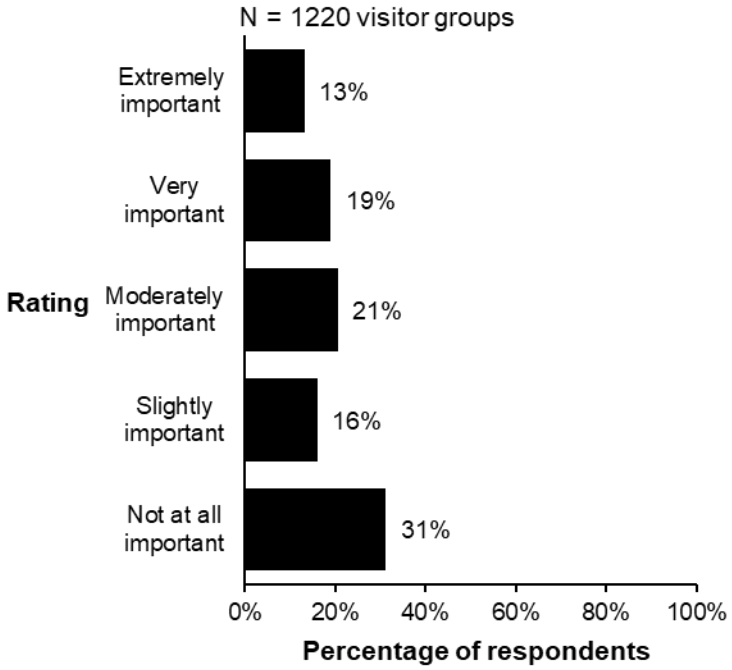


Figure 219. Importance of making/receiving phone calls

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

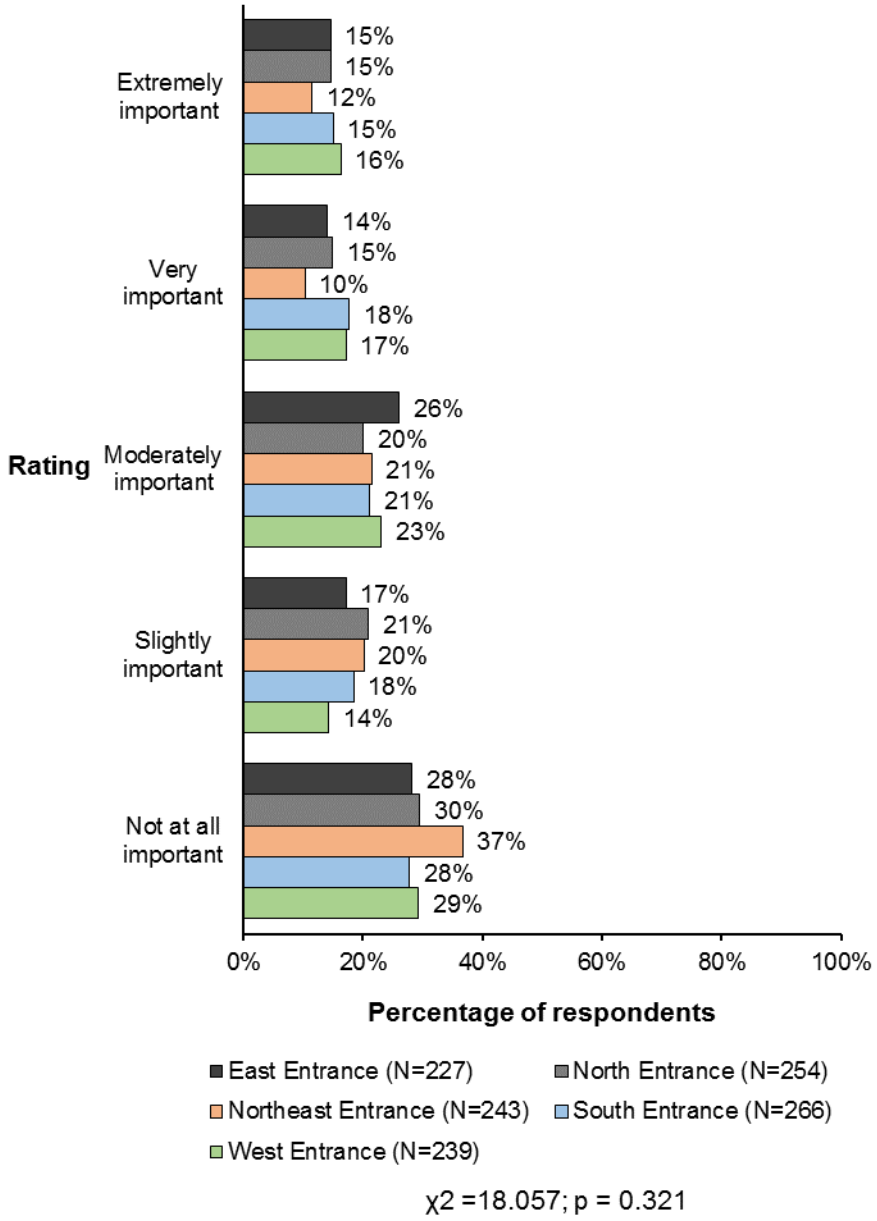


Figure 220. Importance of making/receiving phone calls, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

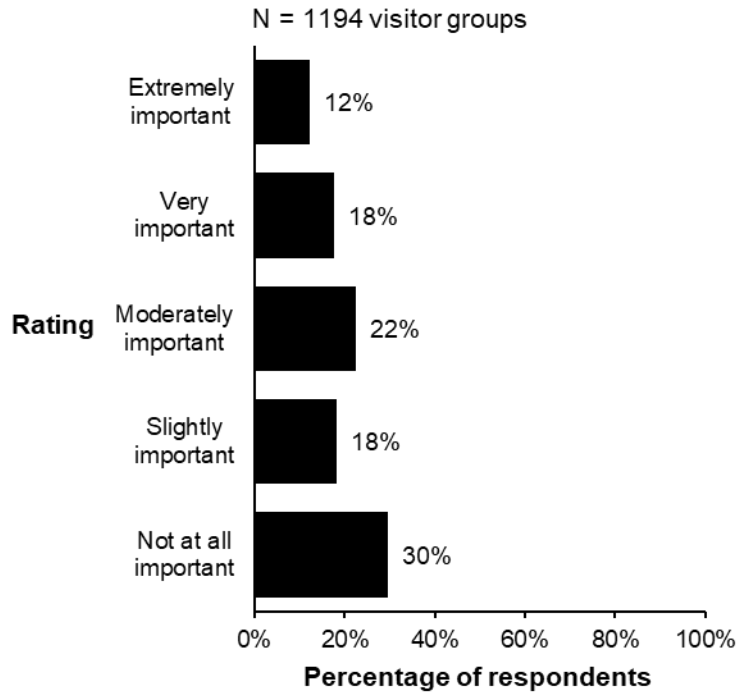


Figure 221. Importance of sending/receiving text messages

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

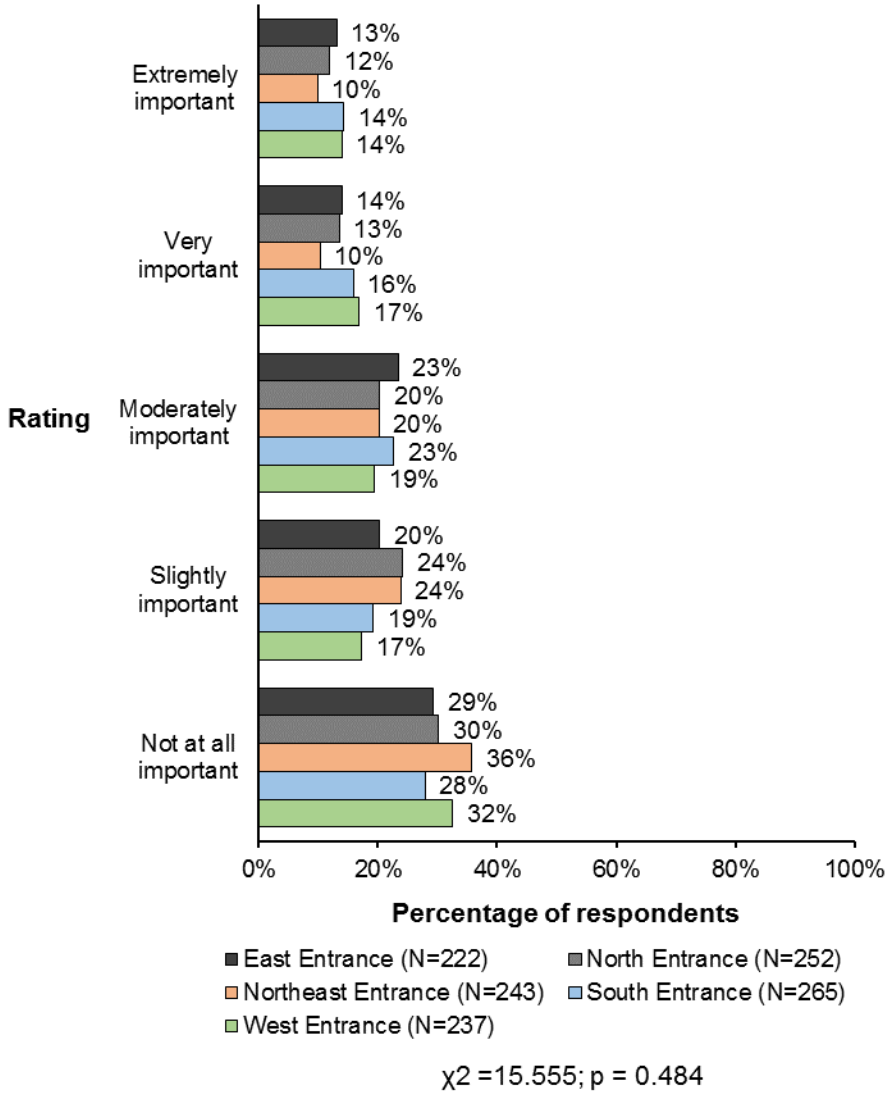


Figure 222. Importance of sending/receiving text messages, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

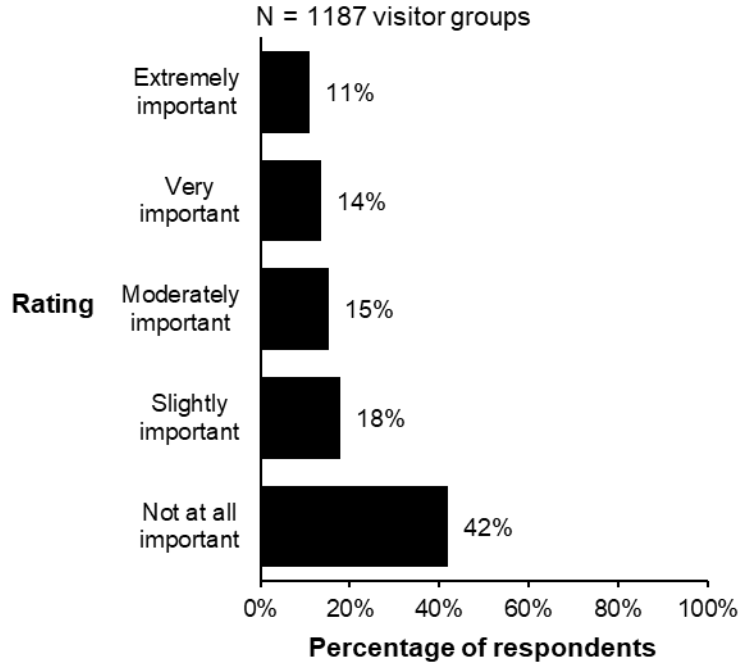


Figure 223. Importance of searching the Internet

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

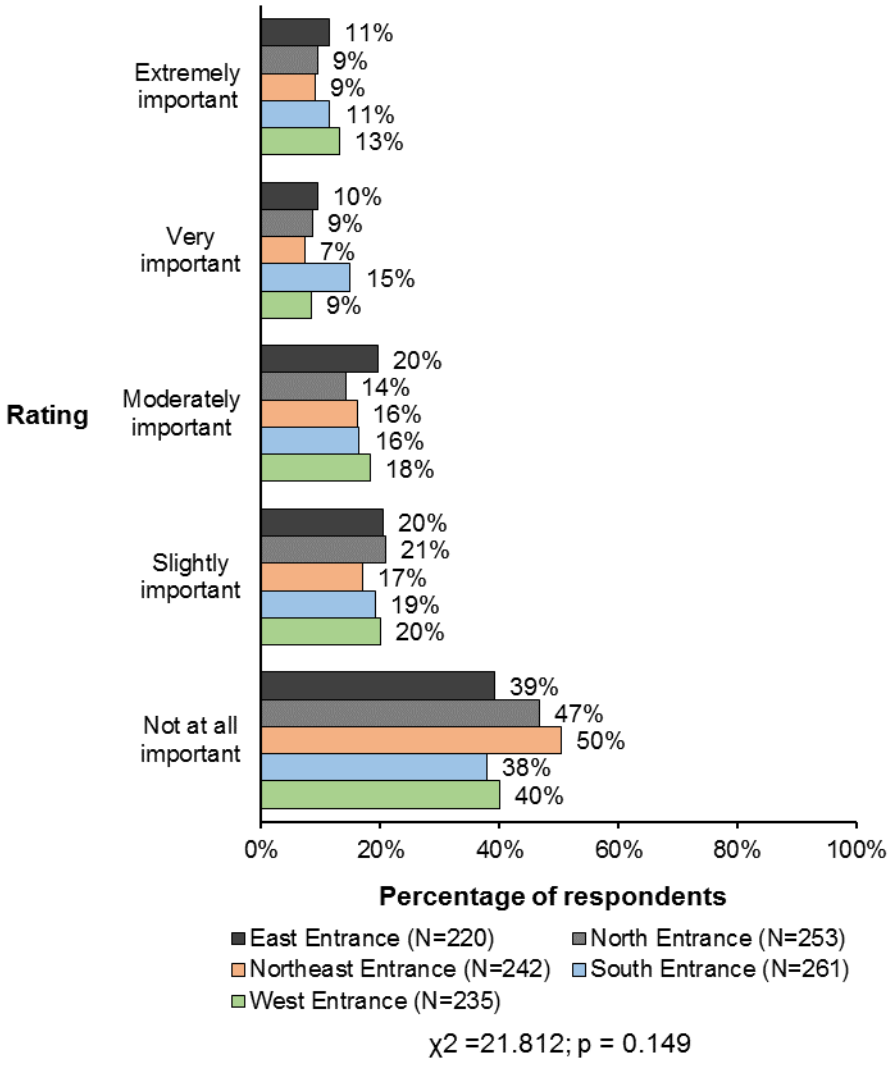


Figure 224. Importance of searching the Internet, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

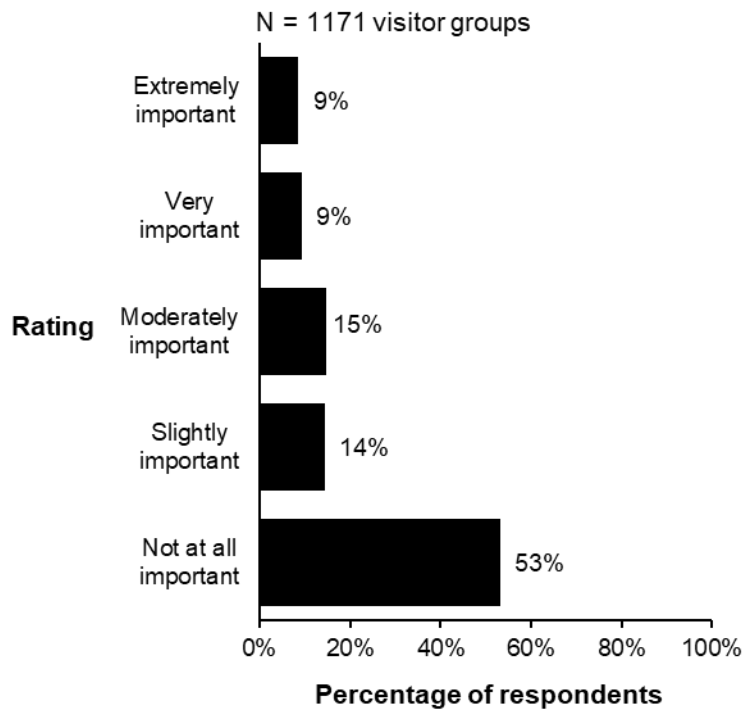


Figure 225. Importance of sharing pics/videos/audio via social media

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

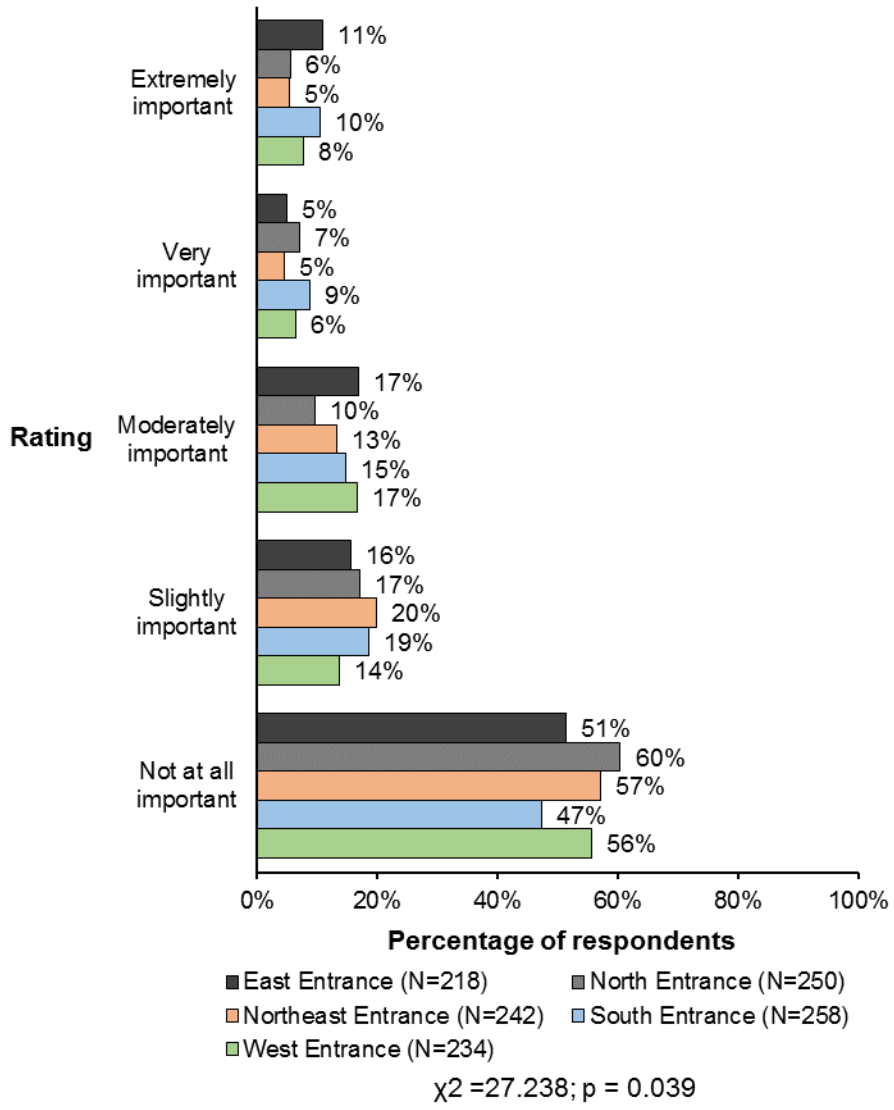


Figure 226. Importance of sharing pics/videos/audio via social media, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

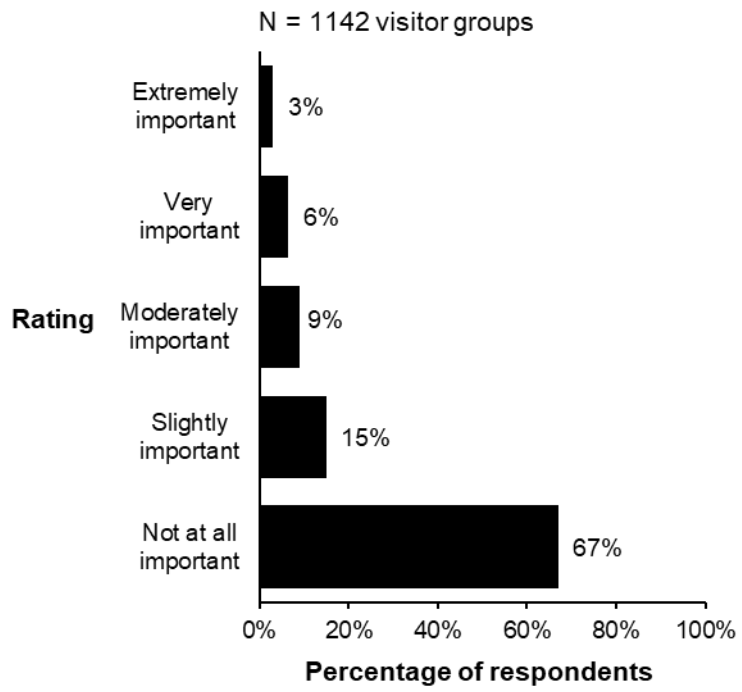


Figure 227. Importance of download an NPS podcast

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

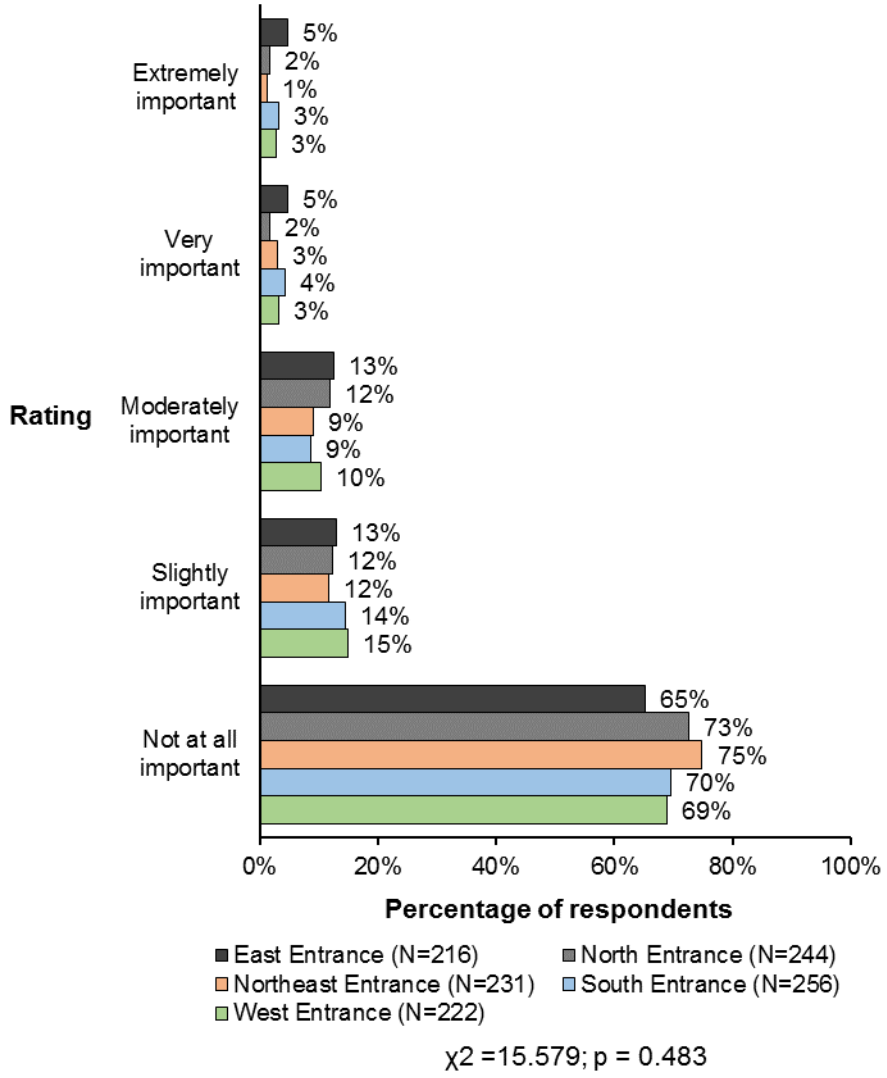


Figure 228. Importance of download an NPS podcast, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*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 service required to use personal electronic devices

Question 25

How would you rate the quality of the personal electronic device service in the park required to do each activity?

Rating choices:

Very good
Good
Average
Poor
No service at all
Not applicable

Results (Figure 229, Table 72)

- Figure 229 shows the combined proportions of "very good" and "good" ratings for quality of service required to use a personal electronic device in the park for each activity.
- The uses that received the highest combined proportions of "very good" and "good" ratings for quality of service required were:
    - 21% Make/recive phone call
    - 21% Send/receive text message
- The uses that received the lowest combined proportions of "very good" and "good" ratings for quality of service required were:
    - 15% Download an NPS podcast
    - 15% Share pics/video/audio via social media
    - 15% Search the Internet

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

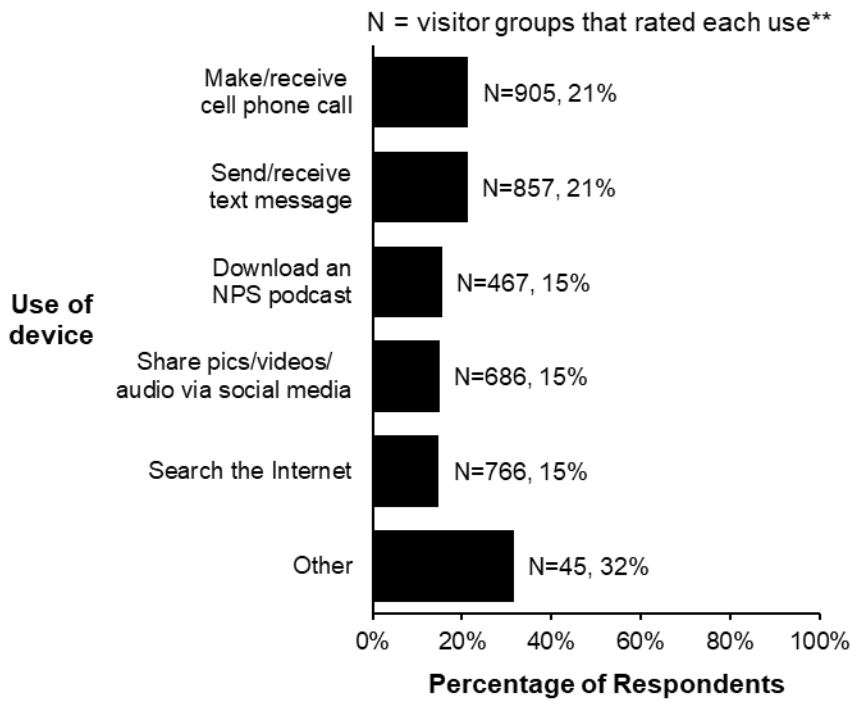


Figure 229. Quality of service required to use personal electronic devices

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- Table 72 shows the combined proportions of "very good" and "good" ratings for quality of service required use a personal electronic device in the park for each activity by entrance.
- There were no significant differences in the combined proportions of visitors who selected "very good" or "good" for the quality of service required to use a personal electronic device in the park for each activity by entrance.

Table 72. Quality of service required to use personal electronic devices, by entrance

		East	North	Northeast	South	West		
Service	***n***	**Percentage of Respondents**					**Chi-square**	**p-value[1]**
Make/receive cell phone call	905	23%	20%	18%	30%	23%	χ2 = 7.599	p = 0.107
Send/receive text message	874	21%	20%	18%	26%	22%	χ2 = 3.746	p = 0.442
Search the Internet	764	19%	14%	13%	19%	16%	χ2 = 3.475	p = 0.482
Share pics/videos/audio via social media	686	18%	17%	14%	20%	14%	χ2 = 3.563	p = 0.468
Download an NPS podcast	452	18%	12%	9%	17%	18%	χ2 = 5.159	p = 0.271
Other	58	13%	33%	33%	26%	30%	χ2 = 1.303[1]	p = 0.861

[1] $\alpha = 0.05$, $p \leq 0.008$ indicates significant result following Bonferroni correction to account for multiple statistical tests.

Figure 230 through Figure 239 show ratings for quality of service provided for each use of an electronic device.

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

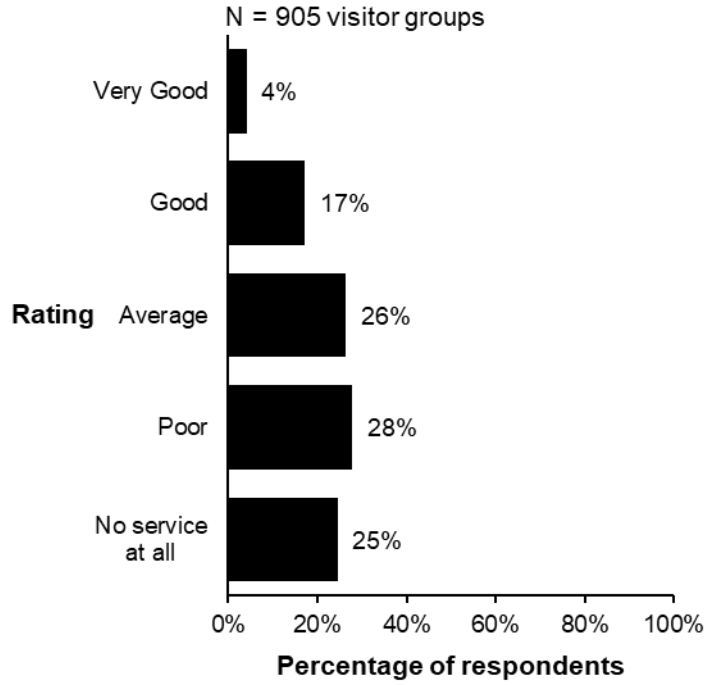


Figure 230 Quality of making/receiving phone calls

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

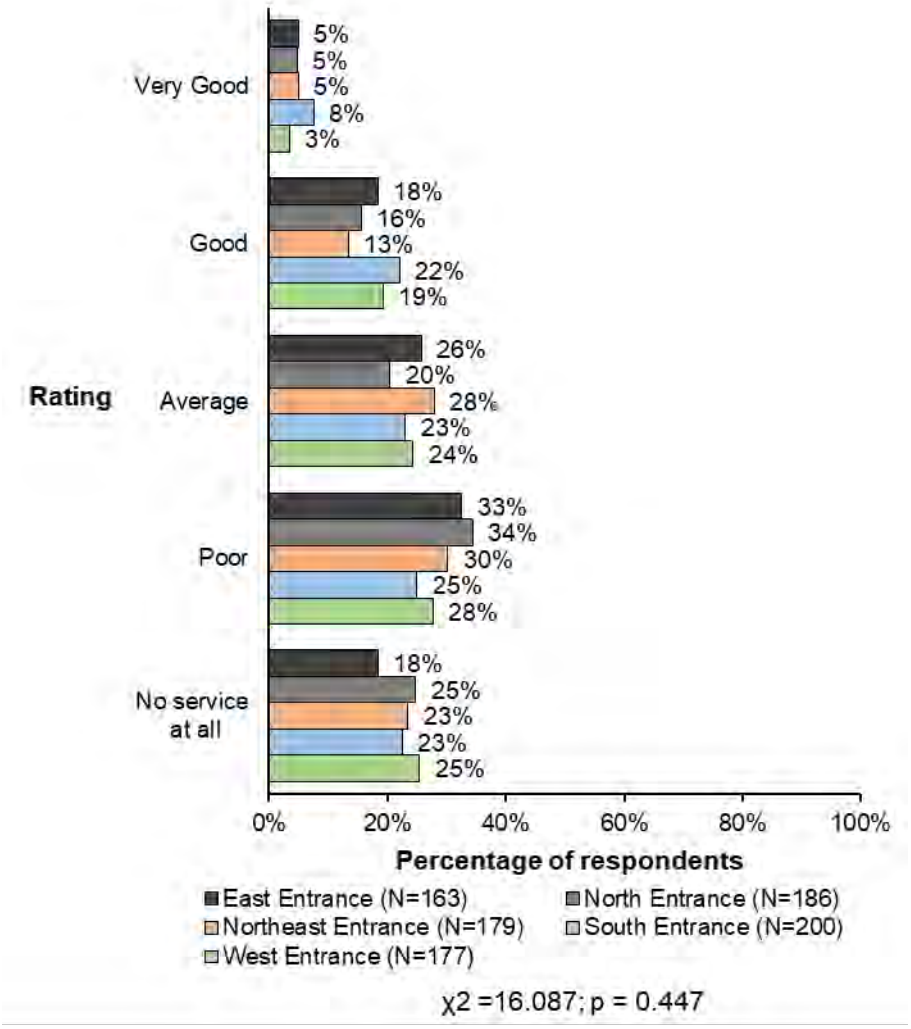


Figure 231. Quality of making/receiving phone calls, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Figure 232. Quality of sending/receiving text messages

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

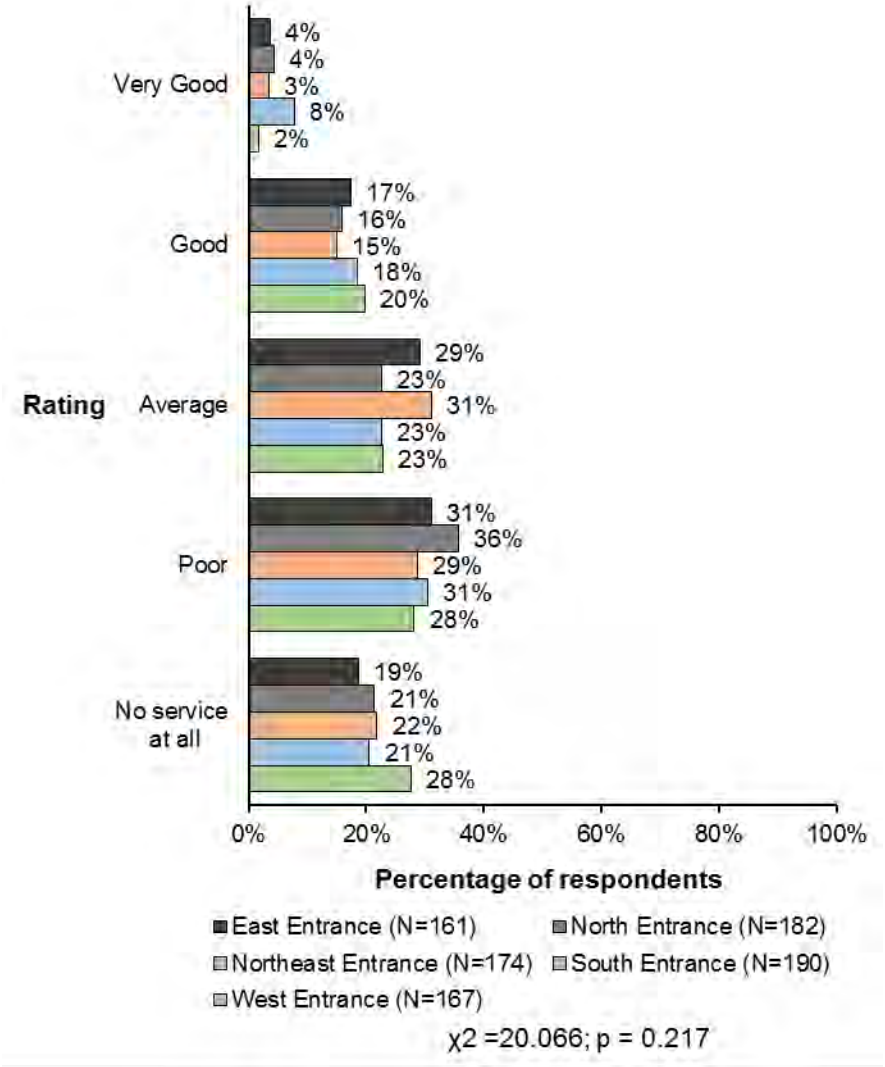


Figure 233. Quality of sending/receiving text messages, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

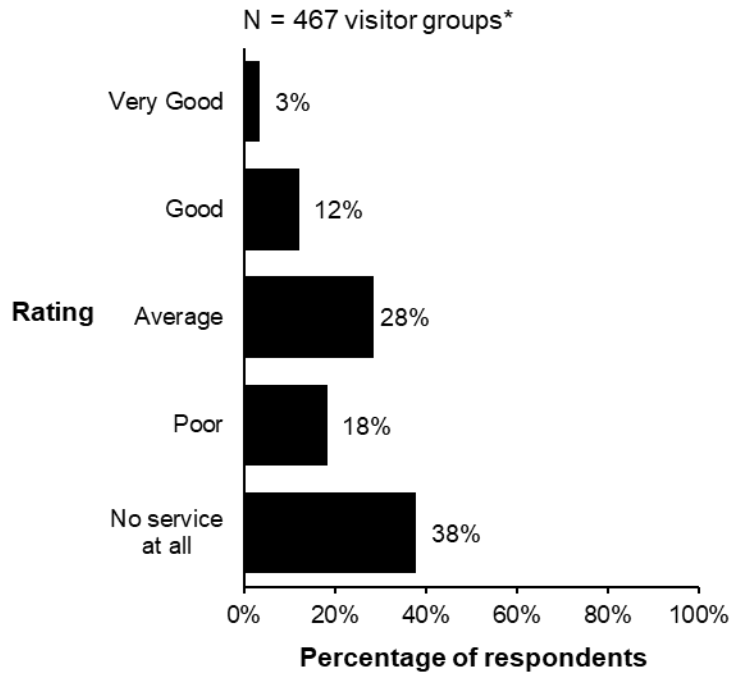


Figure 234. Quality of downloading an NPS podcast

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

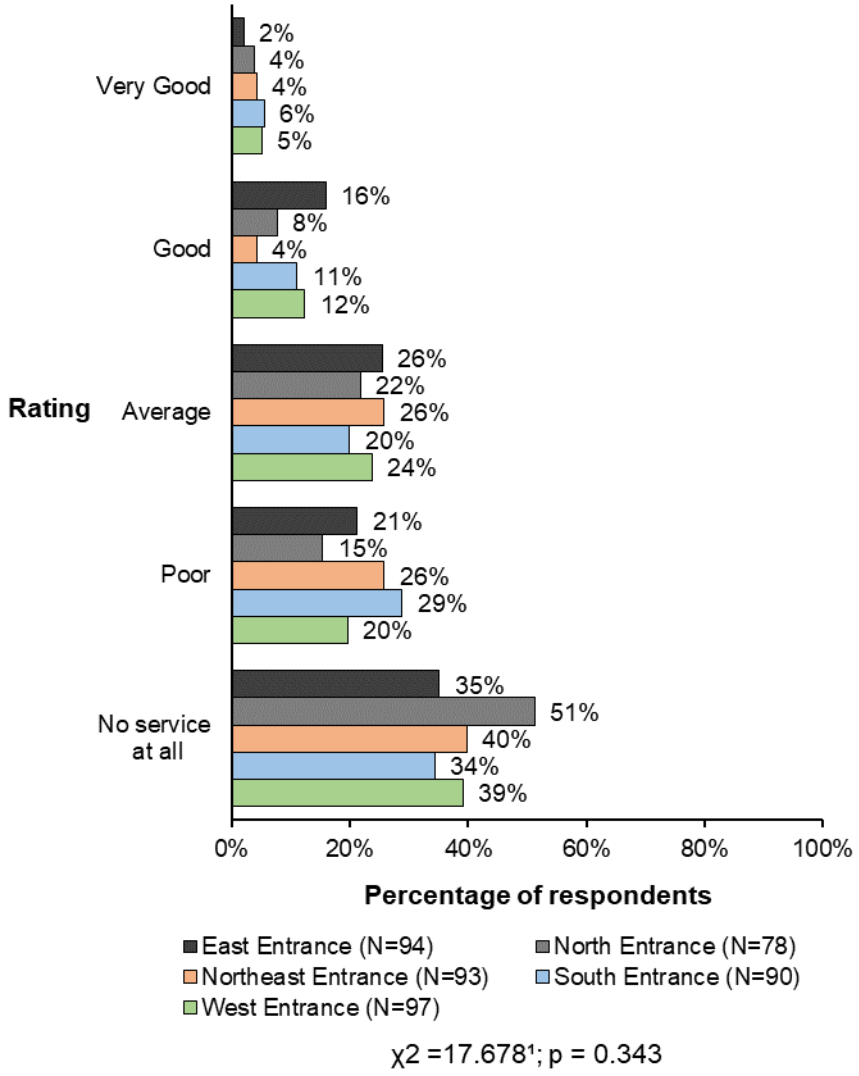


Figure 235. Quality of downloading an NPS podcast, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

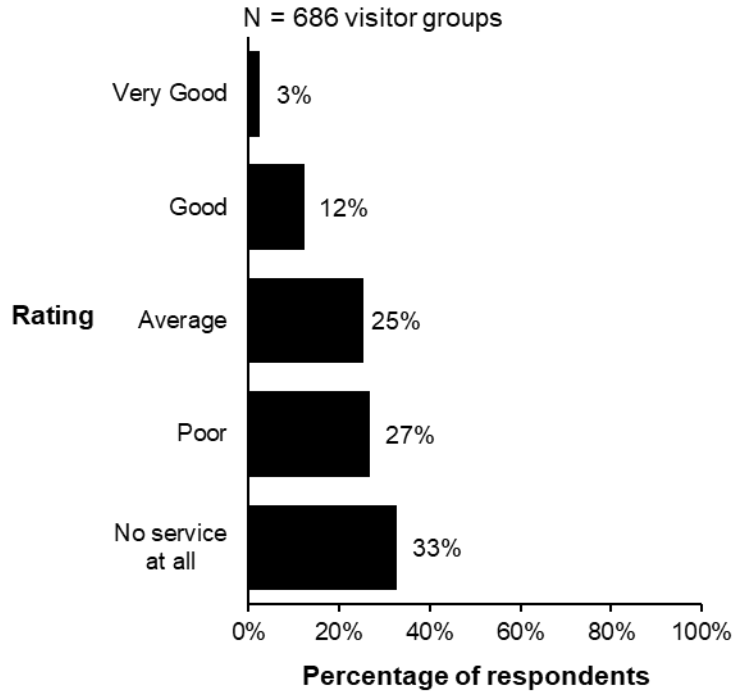


Figure 236. Quality of sharing pics/videos/audio via social media

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

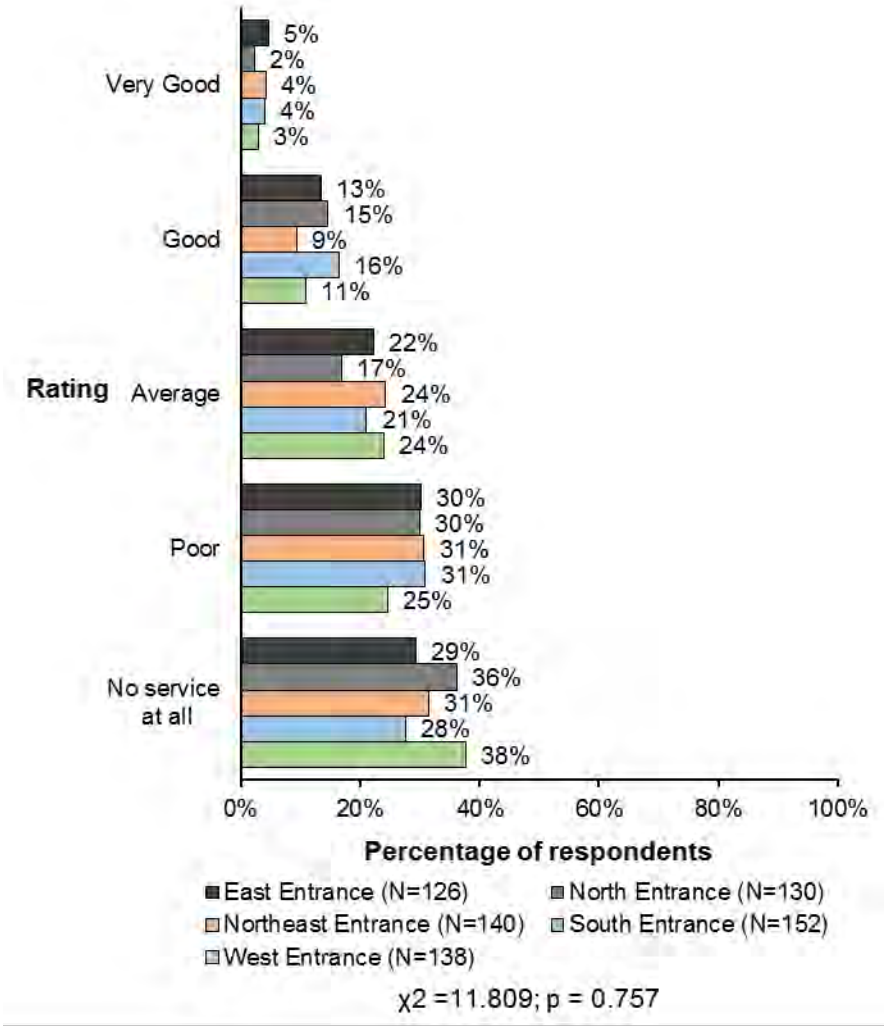


Figure 237. Quality of sharing pics/videos/audio via social media, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

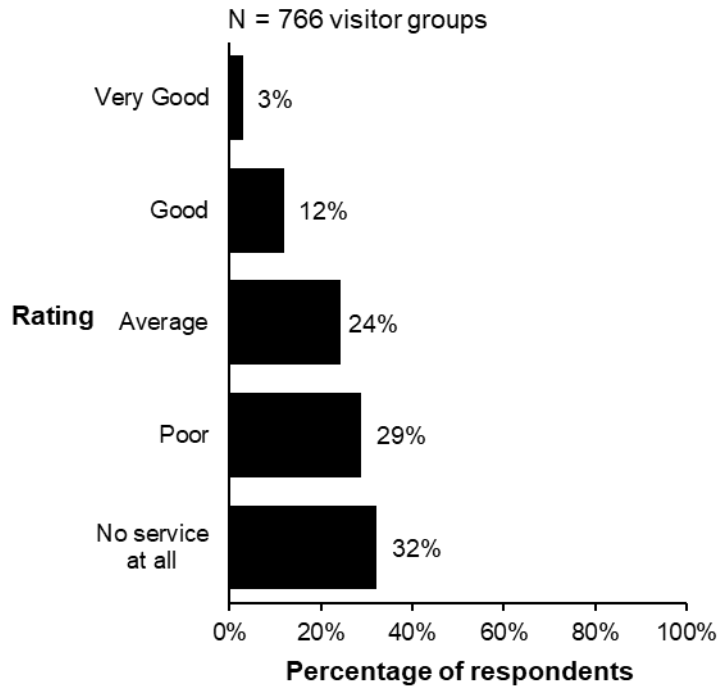


Figure 238. Quality of searching the Internet

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

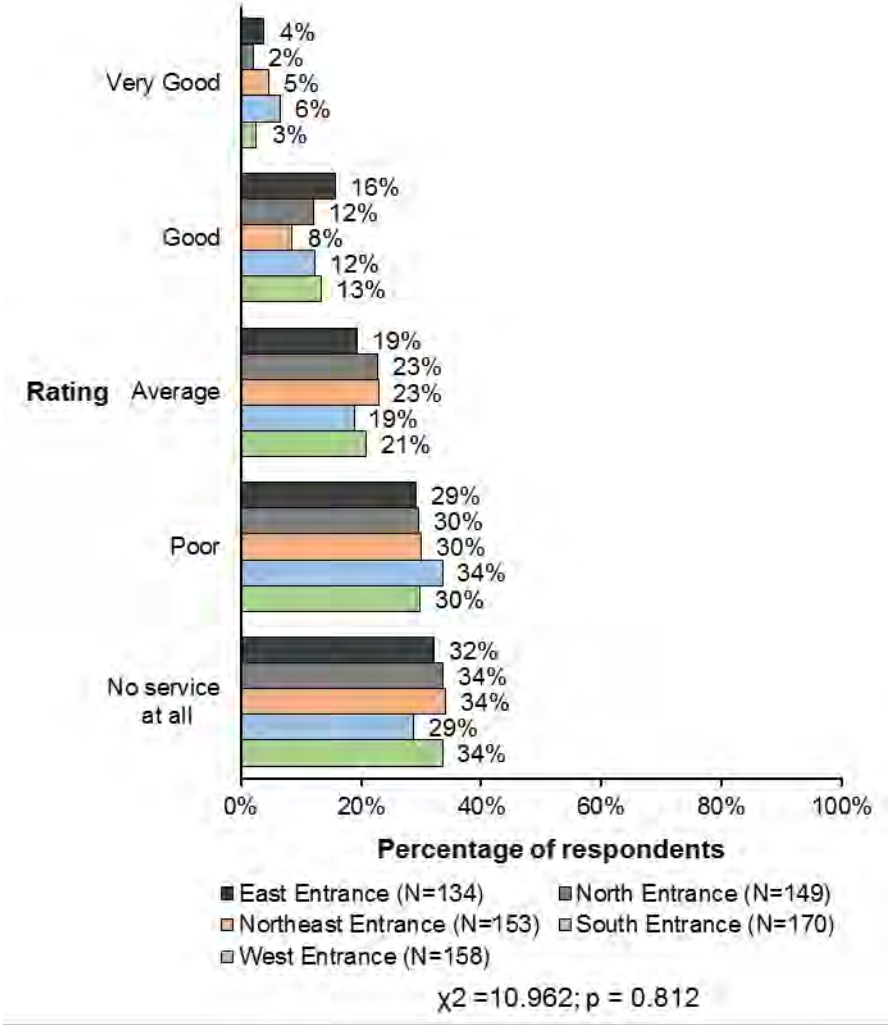


Figure 239. Quality of searching the Internet, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Mean scores of importance and quality ratings for use of personal electronic devices
Question 25

- Figure 240 shows the mean scores of importance and quality ratings for all uses of personal electronic devices.
- All uses of personal electronic devices were rated as relatively unimportant by visitor groups during their visit to Yellowstone NP, with mean scores for importance falling below the midpoint of the importance scale (moderately important).
- For all uses of personal electronic devices, the quality of service in the park required to do each activity was below average, with visitor groups most commonly selecting ratings of "poor" or "no service at all" for each activity.
- While the quality of service in the park for each use of a personal electronic device was poor, each use was also relatively unimportant for visitor groups to Yellowstone NP.

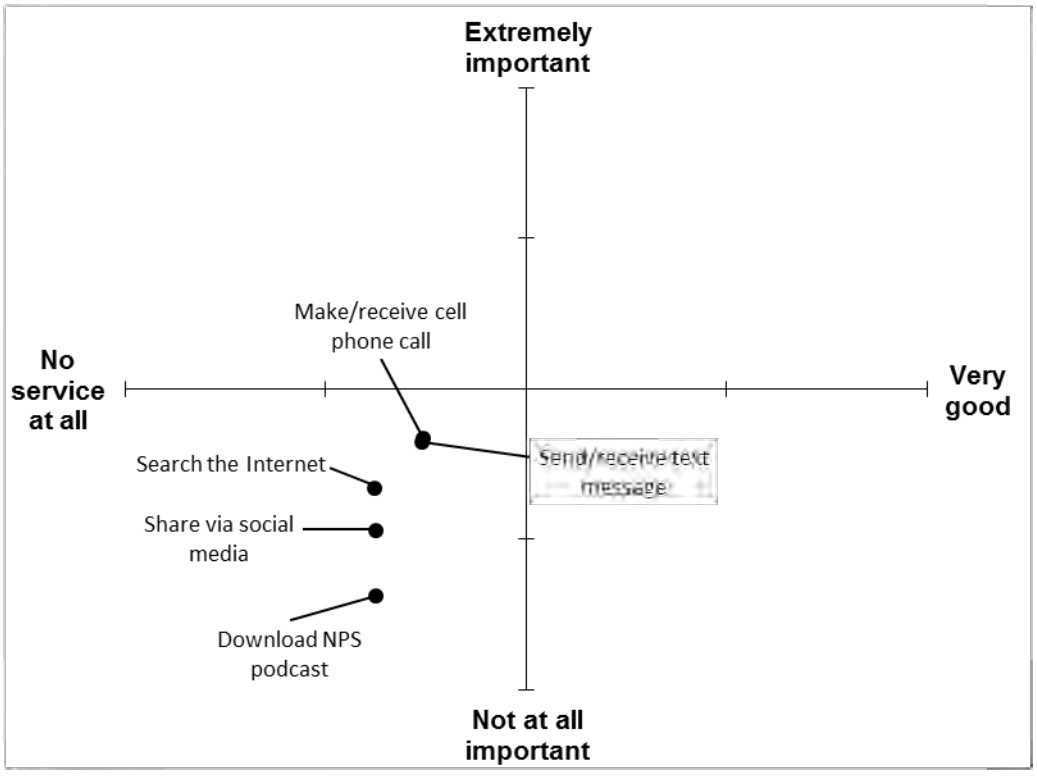


Figure 240. Mean scores for importance and quality ratings for use of personal electronic devices

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*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 visit to Yellowstone NP

Question 27

Did your visit to Yellowstone NP, on this trip, meet your expectations?

Results (Figure 241, Figure 242)

- 84% of visitor groups indicated that their visit to Yellowstone NP met their expectations.

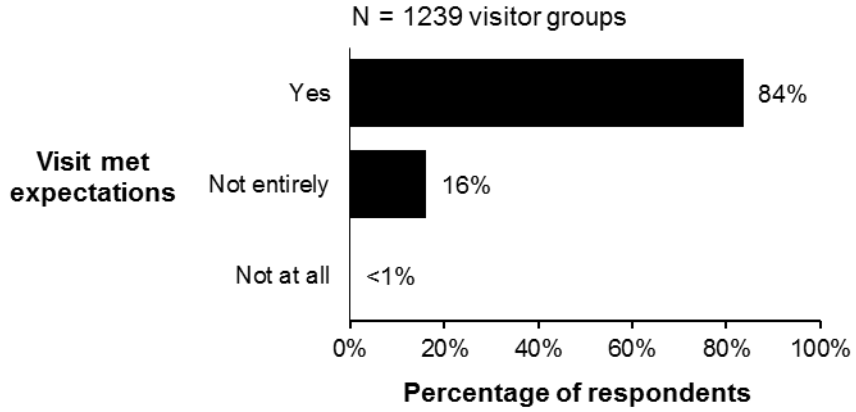


Figure 241. Meeting of expectations for visit on this trip

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- The distribution of visitor groups that had their expectations met, not entirely met, nor not met at all did not significantly differ by entrance ($X^2 = 7.358$; $p = 0.499$).

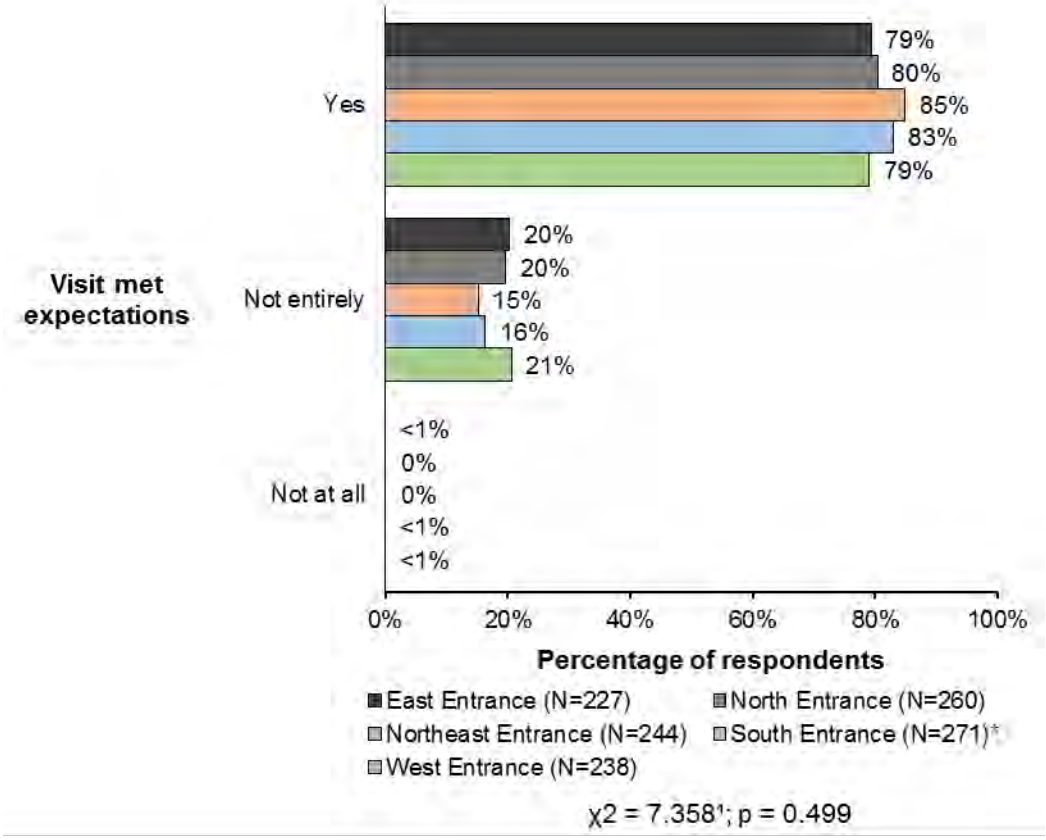


Figure 242. Meeting of expectations for visit on this trip, by entrance

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Question 27

If NOT ENTIRELY or NOT AT ALL, please explain (open-ended).

Results (Table 73)

- Table 73 shows the reasons visitor groups' exepctation were "not entirely" or "not at all" met. The most frequently mentioned reasons were:
    - 29% "Wanted to see more wildlife"
    - 17% "Too crowded"
    - 8% "No parking"
    - 8% "Traffic"

N = 271 comments

Some visitor groups may have made more than one comment.

Reason	Percent of valid responses
Wanted to see more wildlife	29%
Too crowded	17%
No parking	8%
Traffic	8%
Unable to do planned activities	7%
Not enough time	4%
Need to improve food service	2%
Need to improve camping	2%
Unable to stay in park	2%
Need to improve restrooms	2%
Need to improve lodging	2%
Poor roads	1%
Underwhelmed by Old Faithful	1%
Too noisy	1%
Other specified reasons	12%

Table 73. Reasons expectations were "not entirely" or "not at all" met

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- Across entrances, the most common reason that visitor groups reported for their trip to Yellowstone NP "not entirely" or "not at all" meeting their expectations for their visit was that visitor groups "wanted to see more wildlife," except at the South entrance where visitor groups reported "too crowded" as the most common reason.

Table 74. Reasons expectations were "not entirely" or "not at all" met, by entrance

	Percent of valid responses				
Reason	**East** *n = 47**	**North** *n = 51**	**Northeast** *n = 37**	**South** *n = 46**	**West** *n = 50**
Wanted to see more wildlife	21%	23%	30%	22%	32%
Too crowded	18%	20%	15%	31%	14%
No parking	6%	10%	15%	6%	5%
Traffic	8%	13%	3%	6%	8%
Unable to do planned activities	10%	6%	7%	4%	6%
Not enough time	6%	6%	3%	4%	5%
Improve food service	1%	1%	2%	6%	2%
Improve camping	1%	3%	2%	6%	2%
Unable to stay in park	3%	0%	2%	2%	3%
Improve restrooms	0%	0%	2%	2%	5%
Improve lodging	0%	3%	2%	2%	2%
Poor roads	1%	0%	0%	2%	3%
Underwhelmed by Old Faithful	0%	0%	2%	0%	5%
Too noisy	1%	1%	5%	0%	2%
Other	23%	15%	13%	9%	8%

*Some visitor groups may have made more than one comment.

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*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 33

Is there anything else you would like to tell us about Yellowstone NP's facilities, services, or recreational opportunities?

Results (Table 75, Table 76)

- Table 75 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:
    - "Had a great time" (8%)
    - "Want to return" (6%)
    - "Love Yellowstone NP (5%)

Table 75. Additional comments about facilities, services, or recreational opportunities

N = 833 comments
Some visitor groups may have made more than one comment.

Comment	Percent of valid responses
PERSONNEL	
Keep up the good work	3%
Friendly/helpful staff	3%
More rangers	2%
POLICIES/MANAGEMENT	
Preserve/protect	4%
Overcrowded	2%
Enforce park rules	2%
Keep Yellowstone undeveloped	1%
Limit tour buses	1%
Get rid of wolves	1%
Make more dog friendly	1%
Disagree with park policies	1%

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Table 75 (continued). Additional comments about facilities, services, or recreational opportunities

N = 833 comments
Some visitor groups may have made more than one comment.

Comment	Percent of valid responses
INTERPRETIVE AND INFORMATION SERVICES	
More information	4%
More ranger programs	1%
Improve website	1%
Improve reservation system	1%
FACILITIES AND MAINTENANCE	
Improve signage	4%
Improve roadways and parking areas	4%
Public transportation needed	3%
More/Improved restrooms	3%
Improve traffic flow	3%
Please clean restrooms	2%
More/Better food options	2%
More/Improved campgrounds	2%
Improve sell service and Wi-Fi	2%
Over priced	1%
Improve boardwalks	1%
More/Improved lodging	1%
Reduce noise and traffic	1%
GENERAL COMMENTS	
Had a great time	8%
Want to return	6%
Love Yellowstone NP	5%
Thank you	5%
Great park	4%
Beautiful park	3%
Dislike other visitors	2%
Repeat visitor	1%
Wanted to see more animals	1%
Love National Parks	1%
Comment about survey	1%
OTHER	8%

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

- Table 76 shows the percent of valid responses for categories of additional comments provided by visitor groups by entrance. Verbatim visitor comments, organized by entrance, can be found in the *Visitor Comments Appendix*, a separate volume from this report.

Table 76. Additional comments about facilities, services, or recreational opportunities, by entrance

	Percent of valid responses				
Comment	**East** *n = 95**	**North** *n = 122**	**Northeast** *n = 106**	**South** *n = 124**	**West** *n = 116**
PERSONNEL					
Keep up the good work	5%	7%	2%	8%	2%
Friendly/helpful staff	3%	3%	3%	6%	3%
More rangers	2%	3%	3%	4%	3%
POLICIES/MANAGEMENT					
Preserve/protect	5%	6%	3%	4%	5%
Overcrowded	2%	5%	3%	5%	3%
Enforce park rules	2%	2%	6%	1%	3%
Keep Yellowstone undeveloped	1%	1%	2%	2%	2%
Limit tour buses	0%	1%	1%	2%	3%
Get rid of wolves	1%	1%	1%	4%	1%
Make more dog friendly	1%	0%	0%	2%	0%
Disagree with park policies	3%	4%	1%	0%	1%
Make more bike friendly	4%	1%	1%	0%	0%
Oppose efforts to restrict access	0%	1%	2%	0%	0%
INTERPRETIVE AND INFORMATION SERVICES					
More information	2%	2%	0%	4%	6%
More ranger programs	1%	1%	2%	2%	1%
Improve website	0%	2%	0%	1%	1%
Improve reservation system	2%	1%	0%	1%	1%
Love ranger programs	0%	2%	0%	2%	0%

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*total percentages do not equal 100 due to rounding
**total percentages do not equal 100 because visitors could select more than 1 answer

Table 76 (continued). Additional comments about facilities, services, or recreational opportunities, by entrance

	Percent of valid responses				
Comment	**East** *n = 95**	**North** *n = 122**	**Northeast** *n = 106**	**South** *n = 124**	**West** *n = 116**
FACILITIES AND MAINTENANCE					
Improve signage	2%	3%	2%	9%	6%
Improve roadways and parking areas	6%	6%	6%	6%	9%
Public transportation needed	6%	4%	3%	2%	5%
More/improved restrooms	4%	1%	3%	2%	10%
Improve traffic flow	3%	1%	1%	2%	3%
Please clean restrooms	5%	2%	4%	1%	6%
More/better food options	4%	5%	5%	1%	6%
More/improved campgrounds	0%	7%	3%	2%	3%
Improve cell service and Wi-Fi	3%	3%	0%	5%	2%
Over priced	4%	3%	4%	1%	3%
Improve boardwalks	0%	1%	0%	2%	2%
More/improved lodging	2%	1%	3%	2%	3%
Reduce noise and traffic	0%	1%	8%	1%	1%
GENERAL COMMENTS					
Had a great time	16%	16%	23%	19%	8%
Want to return	8%	3%	3%	5%	6%
Love Yellowstone National Park	9%	7%	9%	6%	8%
Thank you	8%	9%	17%	8%	4%
Great park	7%	6%	5%	10%	5%
Beautiful park	6%	4%	1%	5%	4%
Dislike other visitors	3%	2%	1%	4%	3%
Repeat visitor	1%	2%	3%	4%	1%
Wanted to see more animals	1%	2%	1%	1%	3%
Love National Parks	0%	2%	1%	2%	2%
Comment about survey	1%	0%	0%	2%	2%
Will recommend to others	0%	1%	1%	1%	0%
OTHER	21%	13%	15%	10%	13%

*Some visitor groups may have made more than one comment.

[1]20% or more of the cells have expected counts less than 5. Chi-square test may not be applicable.
*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

Dey, E. L. (1997). Working with low survey response rates: The efficacy of weighting adjustment. *Research in Higher Education*, *38*(2): 215 – 227.

Dillman, D. A., J. D. Smyth, & Christian, L. M. (2014). *Internet, phone, mail, and mixed-mode surveys: The tailored design* (4th ed.). Hoboken, NJ: Wiley.

Filion, F. L. (Winter 1975 – Winter 1976). Estimating bias due to non-response in mail surveys. *Public Opinion Quarterly*, *39*(4): 482 – 492.

Fowler, F. J. (1993). *Survey research methods* (2nd ed.). Newbury Park, CA: SAGE Publications.

Rookey, B. D., Le, L., Littlejohn, M., & Dillman, D. A. (2012). Understanding the resilience of mail-back survey methods: An analysis of 20 years of change in response rates to national park surveys. *Social Science Research, 41*: 1404-1414.

Salant, P., & Dillman, D. A. (1994). *How to conduct your own survey*. U.S.: John Wiley and Sons, Inc.

Stoop, I. (2004). Surveying non-respondents. *Field methods, 16* (1): 23.

The American Association for Public Opinion Research. (2015). *Standard definitions: Final dispositions of case codes and outcome rates for surveys* (8th ed.). Retrieved from http://www.aapor.org/AAPOR_Main/media/publications/Standard-Definitions2015_8theditionwithchanges_April2015_logo.pdf

Appendix 1. The Questionnaire

[redacted]

Social Science Program
National Park Service
U.S. Department of the Interior

Yellowstone National Park

Visitor Study

2016

Paperwork Reduction and Privacy Act Statements: 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 16 USC 5931 §201. We will use this information to evaluate visitor services and facilities managed by the National Park Service. Your responses are voluntary and anonymous. Your name and address have been requested for follow-up purposes only. At the completion of this collection all names and personal information will be destroyed and 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.

Burden Estimate: We estimate that it will take an average of 20 minutes to complete this questionnaire. You may send comments concerning the burden estimates or any aspect of this information collection to the Social Science Program Chief, National Park Service, 1201 Oakridge Drive, Fort Collins, CO, 80525-5596; nps_nrss_social_science@nps.gov (email).

OMB Approval 1024-0224
Current Expiration Date: 5-30-2019

United States Department of the Interior

YELLOWSTONE NATIONAL PARK
P.O. Box 168
Yellowstone National Park, WY 82190-0168

Summer, 2016

Dear Visitor:

Thank you for participating in this study. Our goal is to learn about the expectations, opinions, and interests of visitors to Yellowstone National Park. This information will assist us in our efforts to better manage this park and to serve you.

This questionnaire is only being given to a select number of visitors, so your participation is very important. It should take about 20 minutes to complete after your visit.

When your visit is over, the adult in your group who will have the next birthday should complete this questionnaire. Seal it in the postage-paid envelope provided and drop it in any U.S. Postal Service mailbox.

If you have any questions, please contact the Social Science Program Chief, National Park Service, 1201 Oakridge Drive, Fort Collins, CO, 80525-5596; nps_nrss_social_science@nps.gov (email).

We appreciate your help.

Sincerely,

Dan Wenk
Superintendent
Yellowstone National Park

RETURN PROCEDURE

At the end of your visit:

1. Please have the adult in your group (at least 18 years old) who has the next birthday complete this questionnaire. That will help give us a statistically reliable sample.

2. For questions that use circles (O), please mark your answer by filling in the circle with ***black or blue ink***. Please do not use pencil.

Like this: ● Not like this: ✔ ✘ ∅ ⊙

3. Seal it in the postage-paid envelope provided.

4. Drop it in a U.S. Postal Service mailbox.

DIRECTIONS

Please have the adult in your group (at least 18 years old) having the next birthday complete this questionnaire.

In this questionnaire, your **personal group** is defined as you and anyone with whom you visited Yellowstone National Park on this trip, such as a spouse, family, friends, etc. This does not include the larger group that you might have traveled with, such as a school, church, scout, or tour group.

A **visit** is defined as the day in which you were contacted to complete this questionnaire. A **trip** is defined as the total extent of time away from your personal residence that could include multiple visits to Yellowstone National Park.

A. Trip Description

1. Including yourself, how many people were in your personal group during your visit to Yellowstone National Park (NP) on the day you were contacted for this survey?

   _____ Number of adults (18 years or older)

   _____ Number of children (under 18 years)

2. On this trip, did you and your personal group travel with a pet in Yellowstone NP? Please mark (•) **one.**

   O Yes (Please specify pet type(s)) _____

   O No

3. On this trip, did you travel by airplane as part of your trip from your home to Yellowstone NP? Please mark (•) **one.**

   O Yes (Please specify the airport of your last arrival before entering Yellowstone NP) _____

   O No

4. On this trip, through which park entrance did you **first enter** Yellowstone NP? Please mark (•) **one.**

- O East Entrance (nearest to Cody, WY)
- O North Entrance (nearest to Gardiner, MT)
- O Northeast Entrance (nearest to Cook City-Silver Gate, MT)
- O South Entrance (nearest to Jackson, WY)
- O West Entrance (nearest to West Yellowstone, MT)

5. On this trip, through which park entrance did you **last exit** at the end of your visit to Yellowstone NP? Please mark (•) **one.**

- O East Entrance (nearest to Cody, WY)
- O North Entrance (nearest to Gardiner, MT)
- O Northeast Entrance (nearest to Cook City-Silver Gate, MT)
- O South Entrance (nearest to Jackson, WY)
- O West Entrance (nearest to West Yellowstone, MT)

6. On how many days during this trip did you enter or re-enter Yellowstone NP? If you were on a day trip or if you camped or lodged inside the park and did not leave the park boundaries for the entire length of your stay, then answer 1 day.

_____ Number of days entering or re-entering Yellowstone NP

OR

O Don't know/Not sure

7. On this trip, how much total time did you spend within Yellowstone NP?

_____ Number of hours, if a day trip

_____ Number of days, if greater than 1 day

8. a) On this trip, did you stay overnight away from your permanent residence either inside or nearby Yellowstone NP? Please mark (•) **one.**

O Yes

O No ➔ **Go to Question 9**

b) If **YES**, please list the number of nights you stayed in Yellowstone NP and/or anywhere nearby Yellowstone NP on this trip.

Accommodation	Number of Nights
Backcountry camping in Yellowstone NP	_____
Camping in Yellowstone NP	_____
Camping outside Yellowstone NP	_____
Lodging in Yellowstone NP	_____
Lodging outside Yellowstone NP	_____
Other accommodations (e.g., friends/relatives)	_____

B. Trip Planning and Motivations

9. When did you decide to visit Yellowstone NP? Please mark (•) **one.**

O On the day of my visit

O In the week before my visit

O More than a week, but less than a month before my visit

O A month or more before my visit, but less than a year before it

O A year or more before my visit

10. Which of the following best describes your planning for this visit to Yellowstone NP? Please mark (•) **one.**

O Carefully planned

O Some pre-planning

O Very little pre-planning

O Spontaneous with no pre-planning

O Don't know/Can't recall

11. Which of the following sources of information did you use to plan your visit to Yellowstone NP, including sources you used prior to and during your visit to the park? Please mark (•) **all that apply**

- O Inquiry to park via phone, mail, or email
- O In-person communication with park staff
- O Yellowstone NP Visitor Center
- O Yellowstone NP website (nps.gov/yell)
- O Other website (Please specify) _____
- O Yellowstone NP park map
- O Yellowstone NP newspaper or other printed material
- O Yellowstone NP Facebook/Twitter/social media
- O Other social media (Please specify)_____
- O Yellowstone NP smartphone app
- O Other smartphone app (Please specify)_____
- O State welcome center/visitors bureau/chamber of commerce
- O 1610 AM radio in or nearby park area
- O Local/regional business (hotel, motel, tour company, restaurant, etc.)
- O Travel guides/tour books (such as AAA, etc.)
- O Newspaper/magazine articles
- O Other (Please specify) _____

OR

- O I did not use any information sources to plan my visit. ➔ **Go to Question 13**

12. Of the information sources listed in Question 11, which were the most useful for you?

_____

_____

13. Please indicate the importance of each of the following reasons for visiting Yellowstone NP on this trip and your level of satisfaction with each. For each item, please mark (•) **one for importance and one for satisfaction.**

	IMPORTANCE					SATISFACTION					
	Extremely Important	Very Important	Moderately Important	Slightly Important	Not at all Important	Very Satisfied	Somewhat Satisfied	Neither	Somewhat Unsatisfied	Very Unsatisfied	Not Applicable
To experience a wild place	O	O	O	O	O	O	O	O	O	O	O
To view natural scenery	O	O	O	O	O	O	O	O	O	O	O
To relax	O	O	O	O	O	O	O	O	O	O	O
To view geysers and other thermal features	O	O	O	O	O	O	O	O	O	O	O
To drive for pleasure	O	O	O	O	O	O	O	O	O	O	O
To view wildlife in their natural habitat	O	O	O	O	O	O	O	O	O	O	O
To hear the sounds of nature/quiet	O	O	O	O	O	O	O	O	O	O	O
To experience solitude	O	O	O	O	O	O	O	O	O	O	O
Other (Please specify) _____	O	O	O	O	O	O	O	O	O	O	O
Other (Please specify) _____	O	O	O	O	O	O	O	O	O	O	O

14. Of the reasons for visiting Yellowstone NP on this trip listed in Question 13, which two were the ***most important*** to you?

1. _____

2. _____

C. Visitor Experience

15. Please indicate the importance to you of each of the following resources of Yellowstone NP. Please mark (●) **one for each row**.

	Extremely Important	Very Important	Moderately Important	Slightly Important	Not at all Important
Old Faithful Geyser	O	O	O	O	O
Grand Prismatic Hot Spring	O	O	O	O	O
Grand Canyon of Yellowstone	O	O	O	O	O
Yellowstone Lake	O	O	O	O	O
Bison	O	O	O	O	O
Elk	O	O	O	O	O
Bears	O	O	O	O	O
Wolves	O	O	O	O	O
Birds (e.g., eagles, waterfowl)	O	O	O	O	O
Plants (e.g., trees, wildflowers)	O	O	O	O	O
A largely intact ecosystem	O	O	O	O	O
Hiking	O	O	O	O	O
Fishing	O	O	O	O	O
Backcountry travel	O	O	O	O	O
Photography	O	O	O	O	O
Other (Please specify) _____	O	O	O	O	O
Other (Please specify) _____	O	O	O	O	O

16. Of the resources of Yellowstone NP listed in Question 15, which two are the ***most important*** to you?

1. _____

2. _____

17. How much of a problem do you think the following issues are in Yellowstone NP? Please mark (•) **one for each row**.

	Not a Problem	Small Problem	Moderate Problem	Big Problem	Don't Know
Too many people in the park	O	O	O	O	O
Traffic congestion at park entrances	O	O	O	O	O
Traffic congestion on park roads	O	O	O	O	O
Difficulty finding a parking space	O	O	O	O	O
Other visitors acting unsafe around wildlife	O	O	O	O	O
Not enough park staff present	O	O	O	O	O
Other visitors acting unsafe around thermal features	O	O	O	O	O
Not enough restrooms	O	O	O	O	O
Not enough overnight accommodations	O	O	O	O	O
Vegetation loss along roads and trails	O	O	O	O	O
Too much noise	O	O	O	O	O
Other (Please specify) _____	O	O	O	O	O

18. On this visit to Yellowstone NP, did you learn anything from park staff, programs, exhibits, and/or the park itself about American history, nature, and/or culture? Please mark (•) **one**.

O Yes (Please specify the most important subjects you learned about.)

_____

_____

O No

19. If you were to visit Yellowstone NP in the future, are there specific subjects you would like to learn about? Please mark (•) **one**.

O Yes (Please specify subjects you would like to learn about.)

_____

_____

O No

20. What do you value most about Yellowstone NP?

_____

_____

_____

D. Visitor Access and Transportation

21. a) On this trip, were you able to visit all of the locations in Yellowstone NP that you planned to visit? Please mark (•) **one.**

O Yes → **Go to Question 22**

O No

b) If you were unable to visit a location(s) that you had planned to visit, what prevented you from visiting it? Please mark (•) **all that apply.**

O Not enough time

O Could not find a place to park

O Travel times inside park greater than expected

O Travel times outside park greater than expected

O Trail closure

O Road closure

O Traffic at entrance gates

O Traffic inside park

O Bad weather

O Inadequate display of road/map signs

O Inadequate display of safety information

O Unsafe road

O Other (Please specify) _____

22. During peak periods, traffic congestion and parking shortages can occur in Yellowstone NP. Please rate your level of support or opposition for each of the following potential transportation management options to address these issues. Please mark (•) **one for each row.**

	Strongly Support	Slightly Support	Neither	Slightly Oppose	Strongly Oppose
Add more parking at park attractions	O	O	O	O	O
Temporarily close park roads when there is heavy traffic congestion	O	O	O	O	O
Add more pullouts at scenic views	O	O	O	O	O
Divert visitor traffic away from heavily congested areas of the park	O	O	O	O	O
Limit the number of vehicles entering the park during peak periods	O	O	O	O	O
Require day use reservations for vehicles to enter the park during peak periods	O	O	O	O	O
Offer voluntary park-wide shuttle bus service with parking outside the park during peak periods	O	O	O	O	O
Require mandatory park-wide shuttle bus system with parking outside the park during peak periods	O	O	O	O	O
Offer voluntary shuttle bus service to popular park locations during peak periods	O	O	O	O	O
Require mandatory shuttle bus service to popular park locations during peak periods	O	O	O	O	O
Offer voluntary bike-share system for access to popular park locations during peak periods	O	O	O	O	O

E. Services and Facilities

23. a) Did anyone in your personal group have a physical condition that made it difficult to access or participate in park activities or services, during your visit to Yellowstone NP? Please mark (•) **one**.

- O Yes
- O No ➔ **Go to Question 24**

b) If YES, what activities, services, or facilities did the person(s) have difficulty participating in or accessing? Please be specific.

_____

_____

c) Because of the physical condition, which specific difficulties did the person(s) have? Please mark (•) **all that apply**.

- O Hearing (difficulty hearing ranger programs, bus drivers, audio-visual exhibits or programs, or information desk staff even with hearing aid)
- O Visual (difficulty in seeing exhibits, directional signs, visual aids that are part of programs even with prescribed glasses or due to blindness)
- O Mobility (difficulty in accessing facilities, services, or programs even with walking aid and/or wheelchairs)
- O Other (Please specify) _____

24. a) Did you or your personal group encounter any safety issues during your visit to Yellowstone NP? Please mark (•) **one**.

- O Yes
- O No ➔ **Go to Question 25**

b) If YES, what and where was the safety issue(s)?

_____

_____

25. How important to you was it during your visit to Yellowstone NP to use personal electronic devices to do each of the following, and how would you rate the quality of the service in the park required to do each? For each item, please mark (●) **one for importance and one for quality of service needed.**

	IMPORTANCE					QUALITY OF SERVICE REQUIRED					
	Extremely Important	Very Important	Moderately Important	Slightly Important	Not at all Important	Very Good	Good	Average	Poor	No Service at all	Not Applicable
Make/receive cell phone call	O	O	O	O	O	O	O	O	O	O	O
Send/receive text message	O	O	O	O	O	O	O	O	O	O	O
Search the Internet	O	O	O	O	O	O	O	O	O	O	O
Share pics/videos/audio via social media (Facebook, Twitter, etc.)	O	O	O	O	O	O	O	O	O	O	O
Download an NPS podcast	O	O	O	O	O	O	O	O	O	O	O
Other (Please specify) _____	O	O	O	O	O	O	O	O	O	O	O

26. How would you rate the quality of the facilities, services, and recreational opportunities in Yellowstone NP? Please mark (•) **one for each row**.

	Very Good	Good	Average	Poor	Very Poor	Not Used or Not Available
Park Facilities						
Visitor center	O	O	O	O	O	O
Restrooms	O	O	O	O	O	O
Walkways, trails, and roads	O	O	O	O	O	O
Campgrounds and/or picnic areas	O	O	O	O	O	O
Visitor Services						
Assistance from park employees	O	O	O	O	O	O
Ranger programs	O	O	O	O	O	O
Value for entrance fee paid	O	O	O	O	O	O
Commercial services in the park (food, lodging, gifts, rental, etc.)	O	O	O	O	O	O
Recreational Opportunities						
Learning about nature	O	O	O	O	O	O
Learning about history or culture	O	O	O	O	O	O
Outdoor recreation (sightseeing, camping, bicycling, boating, hiking, etc.)	O	O	O	O	O	O

Please specify services used: _____

27. Did your visit to Yellowstone NP, on this trip, meet your expectations? Please mark (•) **one**.

O Yes

O Not entirely (Please explain)

_____

_____

O Not at all (Please explain)

_____

_____

F. Background

28. For you and your personal group during your visit to Yellowstone NP 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 Yellowstone NP in last 12 months, including this trip	Number of visits to other NPS sites in the last 12 months
Yourself				
Member #2				
Member #3				
Member #4				
Member #5				
Member #6				
Member #7				

29. For you and your personal group during your visit to Yellowstone NP on the day you were contacted for this survey, please provide the following information. Please mark (•) **one for each group member, including yourself, for gender and Hispanic or Latino. (If you don't know the answer, mark (•) "Don't know.")**

		Additional members of your personal group					
	Yourself	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**
Male	O	O	O	O	O	O	O
Female	O	O	O	O	O	O	O
Hispanic or Latino	O	O	O	O	O	O	O
Not Hispanic or Latino	O	O	O	O	O	O	O
Don't know	—	O	O	O	O	O	O

30. For you and your personal group during your visit to Yellowstone NP on the day you were contacted for this survey, please provide the following information. Please mark (●) **one or more for each group member, including yourself. (If you don't know the answer, mark (●) "Don't know.")**

	Yourself	#2	#3	#4	#5	#6	#7
American Indian or Alaska Native	O	O	O	O	O	O	O
Asian	O	O	O	O	O	O	O
Black or African American	O	O	O	O	O	O	O
Native Hawaiian or other Pacific Islander	O	O	O	O	O	O	O
White	O	O	O	O	O	O	O
Don't know	–	O	O	O	O	O	O

31. For you and your personal group during your visit to Yellowstone NP on the day you were contacted for this survey, what is the highest level of formal education completed by each member of your group? Please mark (●) **one for each group member, including yourself. (If you don't know the answer, mark (●) "Don't know.")**

	Yourself	#2	#3	#4	#5	#6	#7
Less than high school	O	O	O	O	O	O	O
Some high school	O	O	O	O	O	O	O
High school graduate or GED	O	O	O	O	O	O	O
Some college, business, or trade school	O	O	O	O	O	O	O
College, business, or trade school graduate	O	O	O	O	O	O	O
Some graduate school	O	O	O	O	O	O	O
Master's, doctoral, or professional degree	O	O	O	O	O	O	O
Don't know	–	O	O	O	O	O	O

32. Which category best represents your annual household income? Please mark (•) **one**.

- O Less than $24,999
- O $25,000-$34,999
- O $35,000-$49,999
- O $50,000-$74,999
- O $75,000-$99,999
- O $100,000-$149,999
- O $150,000-$199,999
- O $200,000 or more
- O Do not wish to answer

33. Is there anything else you would like to tell us about Yellowstone NP's facilities, services, or recreational opportunities?

_____

_____

_____

This page intentionally left blank.

Thank you for your help!

Please place the questionnaire in the envelope provided and drop it in any U.S. Postal Service mailbox.

社会科学计划
美国国家公园管理局
美国内政部

黄石国家公园

游客调查

2016

文书削减法案和隐私法案声明： 文书削减法案要求我们告诉您我们收集此信息的原因、信息将被如何使用，以及您答复与否是否属于自愿。美国国家公园管理局将依据 16 USC 5931 §201 的法定权利使用此信息。我们将使用此信息来评估美国国家公园管理局所管理的游客服务和设施。您的回答是自愿和匿名的。我们要求您提供姓名和地址仅出于后续跟进目的。本次收集工作完成时，将销毁所有姓名和个人信息，并且决不会以任何方式将这些内容与本次调查的结果相联系。除非显示当前有效的 OMB 控制编号，否则联邦机构不得开展或赞助信息收集，您也不必作出答复。

估计用时：我们估计平均需要 20 分钟来完成本调查问卷。您可以将有关本次信息收集的估计用时或任何其他方面的意见发送至 Social Science Program Chief, National Park Service, 1201 Oakridge Drive, Fort Collins, CO, 80525-5596; nps_nrss_social_science@nps.gov（电子邮件）。

OMB 批准编号 1024-0224
当前到期日：5-30-2019

美国内政部

黄石国家公园
P.O. Box 168
Yellowstone National Park, WY
82190-0168

2016 年夏

尊敬的游客：

感谢您参与本次调查。我们的目标是了解游客对黄石国家公园的期望、意见和兴趣。这些信息将帮助我们更好地管理这座公园和为您提供更优质的服务。

本调查问卷将只发放给一定数量的游客，因此您的参与非常重要。在您游览结束后，大约需要 20 分钟来完成本调查问卷。

当您游览结束时，您的团体中距下一次过生日最近的成年人应完成本调查问卷。将其密封在我们提供的邮资付讫的信封中，然后将其投入美国邮政署的任意邮箱中。

如果您有任何疑问，请联系 Social Science Program Chief, National Park Service, 1201 Oakridge Drive, Fort Collins, CO, 80525-5596; nps_nrss_social_science@nps.gov（电子邮件）。

非常感谢您的帮助。

此致

Dan Wenk
主管人
黄石国家公园

回复步骤

在您游览结束时：

1. 请让您的团体中距下一次过生日最近的成年人（已满 18 周岁）完成本调查问卷。这将有助于为我们提供具有可靠统计学意义的样本。

2. 对于使用圆圈 (O) 的问题，请通过用***黑色或蓝色墨水***填充圆圈来标注您的答案。请勿使用铅笔。

正确： ● 错误： ✔ ✘ ∅ ⊙

3. 将调查问卷密封在我们提供的邮费付讫的信封中。

4. 将信封投入美国邮政署的邮箱中。

说明

请让您的团体中距下一次过生日最近的成年人（已满 18 周岁）完成本调查问卷。

在本调查问卷中，您的**个人团体**是指您以及在这次旅行中与您一起游览黄石国家公园的人，例如配偶、家人、朋友等。这不包括您可能随同旅游的大型团体，例如学校、教会、童子军或旅游团。

游览是指我们联系您完成本调查问卷那一天的游览。**旅行**是指您从离开个人住宅起的总时间跨度，可能包括多次游览黄石国家公园。

A. 旅行说明

1. 在我们联系您参加本次调查那一天，您游览黄石国家公园（NP）期间的个人团体包含多少人（包括您自己在内）？

   _____ 成人人数（18 周岁或以上）

   _____ 未成年人数（未满 18 周岁）

2. 在这次旅行中，您和您的个人团体在游览黄石国家公园时是否带着宠物？请标注 (●) **一项。**

   O 是（请注明宠物类型）_____

   O 否

3. 在这次旅行中，您从家里到黄石国家公园的旅程中是否搭乘过飞机？请标注 (●) **一项。**

   O 是（请注明您在进入黄石国家公园之前最后降落的机场）_____

   _____

   O 否

4. 在这次旅行中，您最初通过哪个公园入口**进入**黄石国家公园？请标注 (●) **一项。**

O 东入口（最靠近怀俄明州科迪）
O 北入口（最靠近蒙大拿州加德纳）
O 东北入口（最靠近蒙大拿州库克市银门）
O 南入口（最靠近怀俄明州杰克逊市）
O 西入口（最靠近蒙大拿州西黄石）

5. 在这次旅行中，您在游览黄石国家公园结束时最后通过哪个公园入口**离开**？请标注 (●) **一项。**

O 东入口（最靠近怀俄明州科迪）
O 北入口（最靠近蒙大拿州加德纳）
O 东北入口（最靠近蒙大拿州库克市银门）
O 南入口（最靠近怀俄明州杰克逊市）
O 西入口（最靠近蒙大拿州西黄石）

6. 在这次旅行中，您在多少天中进入或再次进入了黄石国家公园？如果您是一日游，或者在公园内扎营或住宿并且在整个停留期间都没有离开过公园边界，那么回答 1 天。

_____ 进入或再次进入黄石国家公园的天数

或

O 不知道/不确定

7. 在这次旅行中，您在黄石国家公园内总共度过多长时间？

_____ 小时数（如果是一日游）

_____ 天数（如果超过 1 天）

8. a) 在这次旅行中，您在离开常住地后是否曾在黄石国家公园内部或附近过夜？请标注 (●) **一项。**

O 是

O 否 ➔ **转到问题 9**

b) 如果回答**是**，请列出在这次旅行中，您在黄石国家公园内和/或附近的任何地点度过的夜晚数。

住处	夜晚数
黄石国家公园中野外宿营	_____
黄石国家公园中露营	_____
黄石国家公园外露营	_____
黄石国家公园内住宿	_____
黄石国家公园外住宿	_____
其他住处（例如朋友/亲属家中）	_____

B. 旅行规划和动机

9. 您在何时决定游览黄石国家公园？请标注 (●) **一项。**

O 在游览当天

O 在游览之前一周内

O 在游览之前一周以上，但不到一个月

O 在游览之前一个月或以上，但不到一年

O 在游览之前一年或更久以前

10. 以下哪一项最准确地描述了您对这次游览黄石国家公园的规划情况？请标注 (●) **一项。**

O 认真规划

O 一些前期规划

O 很少的前期规划

O 临时决定，没有前期规划

O 不知道/不记得了

11. 您使用了以下哪些信息源来规划黄石国家公园游览，包括您在游览公园之前以及游览期间使用过的信息源？请标注 **(•) 所有适用项**

- O 通过电话、邮件或电子邮件向公园方面咨询
- O 与公园工作人员当面沟通
- O 黄石国家公园游客中心
- O 黄石国家公园网站（nps.gov/yell）
- O 其他网站（请注明）_____
- O 黄石国家公园园区地图
- O 黄石国家公园报纸或其他印刷材料
- O 黄石国家公园的 Facebook/Twitter/社交媒体
- O 其他社交媒体（请注明）_____
- O 黄石国家公园智能手机应用
- O 其他智能手机应用（请注明）_____
- O 州游客中心/旅游局/商会
- O 园区内部或附近的 1610 AM 广播
- O 本地/地区商业机构（酒店、汽车旅馆、旅游公司、饭店等）
- O 旅游指南/旅游书籍（例如 AAA 等）
- O 报纸/杂志文章
- O 其他（请注明）_____

或

- O 我未使用任何信息源来规划我的游览。**➔转到问题 13**

12. 在问题 11 所列出的信息源中，哪个信息源对您来说最有用？

_____

_____

13. 请指出以下各项原因对于您在这次旅行中游览黄石国家公园的重要性，以及您对各项因素的满意度。对于每一项，请为**重要性标注（●）一项，并为满意度标注一项。**

	重要性					满意度					
	极其重要	非常重要	一般重要	有点重要	根本不重要	非常满意	比较满意	不置可否	不太满意	非常不满意	不适用
体验野生环境	O	O	O	O	O	O	O	O	O	O	O
观赏自然风景	O	O	O	O	O	O	O	O	O	O	O
放松	O	O	O	O	O	O	O	O	O	O	O
参观间歇喷泉及其他热液景观	O	O	O	O	O	O	O	O	O	O	O
享受驾驶乐趣	O	O	O	O	O	O	O	O	O	O	O
观看自然栖息地中的野生动物	O	O	O	O	O	O	O	O	O	O	O
聆听大自然的声音/体验大自然的宁静	O	O	O	O	O	O	O	O	O	O	O
体验孤独	O	O	O	O	O	O	O	O	O	O	O
其他（请注明）_____	O	O	O	O	O	O	O	O	O	O	O
其他（请注明）_____	O	O	O	O	O	O	O	O	O	O	O

14. 在问题 13 所列出的在这次旅行中游览黄石国家公园的原因中，哪两个原因对您来说***最重要***?

1. _____

2. _____

C. 游客体验

15. 请指出黄石国家公园的以下各项资源对您而言的重要性。请在**每行中标注（●）一项。**

	极其重要	非常重要	一般重要	有点重要	根本不重要
老忠实间歇泉	O	O	O	O	O
大棱镜温泉	O	O	O	O	O
黄石大峡谷	O	O	O	O	O
黄石湖	O	O	O	O	O
野牛	O	O	O	O	O
马鹿	O	O	O	O	O
熊	O	O	O	O	O
狼	O	O	O	O	O
鸟类（例如鹰、水鸟）	O	O	O	O	O
植物（例如树木、野花）	O	O	O	O	O
近乎完好的大型自然生态系统	O	O	O	O	O
徒步旅行	O	O	O	O	O
钓鱼	O	O	O	O	O
野外旅行	O	O	O	O	O
摄影	O	O	O	O	O
其他（请注明）_____	O	O	O	O	O
其他（请注明）_____	O	O	O	O	O

16. 在问题 15 所列出的黄石国家公园资源中，哪两种资源对您来说***最重要***?

1. _____

2. _____

17. 您认为黄石国家公园中的以下问题有多严重？请在每行中标注 (•) 一项。

	不是问题	小问题	一般问题	大问题	不知道
公园里的人太多	O	O	O	O	O
公园入口处的交通拥堵	O	O	O	O	O
公园道路上的交通拥堵	O	O	O	O	O
很难找到停车位	O	O	O	O	O
其他游客在野生动物附近的不安全举动	O	O	O	O	O
园区工作人员不足	O	O	O	O	O
其他游客在热液景观附近的不安全举动	O	O	O	O	O
没有足够的厕所	O	O	O	O	O
没有足够的夜间住宿场所	O	O	O	O	O
道路和小径附近的植被遭到破坏	O	O	O	O	O
太嘈杂	O	O	O	O	O
其他（请注明）_____	O	O	O	O	O

18. 在这次游览黄石国家公园的过程中，您是否从园区工作人员、项目、展览和/或公园本身处了解到有关美国历史、自然和/或文化的任何信息？请标注 (•) **一项**。

O 是（请注明您了解到的最重要的主题。）

_____

_____

O 否

19. 如果您将来游览黄石国家公园，您是否想要了解某些特定主题？请标注 (•) **一项**。

O 是（请注明您想要了解的主题。）

_____

_____

O 否

20. 您最看重黄石国家公园的哪个方面？

_____

_____

_____

D. 游客参观和交通

21. a) 在这次旅行中，您是否有机会游览黄石国家公园中您原本打算参观的所有地点？请标注 (•) **一项。**

O 是 ➔ **转到问题 22**

O 否

b) 如果您未能游览原本打算参观的某个或某些地点，导致您未能成行的原因是什么？请标注 (•) **所有适用项。**

O 没有足够的时间
O 找不到地方停车
O 在公园内的游览时间超出预期
O 在公园外的游览时间超出预期
O 小径封闭
O 道路封闭
O 入口大门处的车流
O 园区内的车流
O 坏天气
O 路牌/地图标志显示不足
O 安全信息显示不足
O 道路不安全
O 其他（请注明） _____

22. 在高峰期，黄石国家公园内可能发生交通拥堵和停车位短缺。请指出您在多大程度上支持或反对以下各项旨在解决这些问题的可能的交通管理方案。请在每行中标注 (●) **一项**。

	强烈支持	有点支持	不置可否	有点反对	强烈反对
在公园景点添加更多停车位	O	O	O	O	O
在发生严重交通拥堵时暂时封闭公园道路	O	O	O	O	O
在观景区增加更多路边临时停车点	O	O	O	O	O
引导游客避开严重拥堵的公园区域	O	O	O	O	O
在高峰期限制进入公园的车辆数	O	O	O	O	O
要求进行日间使用预定才允许车辆在高峰期进入公园	O	O	O	O	O
在高峰期提供自愿使用的园区范围穿梭巴士服务，并将车停在公园外	O	O	O	O	O
在高峰期要求强制使用园区范围的穿梭巴士系统，并将车停在公园外	O	O	O	O	O
在高峰期提供前往受欢迎公园地点的自愿使用的穿梭巴士服务	O	O	O	O	O
在高峰期要求强制使用穿梭巴士服务前往受欢迎的公园地点	O	O	O	O	O
在高峰期提供自愿使用的自行车共享系统以前往受欢迎的公园地点	O	O	O	O	O

E. 服务和设施

23. a) 在您游览黄石国家公园期间，您的个人团体中是否有人由于身体状况原因而无法参与或使用公园的活动或服务？请标注 (•) **一项**。

O 是

O 否 ➔ **转到问题 24**

b) 如果回答是，该人或这些人难以参加或使用哪些活动、服务或设施？请具体说明。

_____

_____

c) 由于身体状况原因，该人或这些人遇到了哪些具体困难？请标注 **(•) 所有适用项**。

O 听力（即使带着助听器，也难以听清巡逻员讲解节目、巴士司机、视听展示或节目、服务台工作人员的声音）

O 视力（即使带着矫正眼镜或由于失明，难以看清展览、指路标志、属于项目一部分的视觉辅助道具等）

O 移动能力（即使借助助行器和/或轮椅也难以使用设施、服务或项目）

O 其他（请注明） _____

24. a) 在您游览黄石国家公园期间，您或您的个人团体是否遇到了任何安全问题？请标注 (•) **一项**。

O 是

O 否 ➔ **转到问题 25**

b) 如果回答是，在哪里遇到了什么安全问题？

_____

_____

25. 在您游览黄石国家公园期间，使用个人电子设备进行以下各项活动对您来说有多重要？您如何评价进行各项活动所需的公园服务的质量？对于每一项活动，请为**重要性标注 (●) 一项，并为所需服务的质量标注一项。**

	重要性					**所需服务的质量**					
	极其重要	**非常重要**	**一般重要**	**有点重要**	**根本不重要**	**很好**	**较好**	**一般**	**差**	**根本没有服务**	**不适用**
拨打/接听手机通话	O	O	O	O	O	O	O	O	O	O	O
发送/接收短信	O	O	O	O	O	O	O	O	O	O	O
搜索互联网	O	O	O	O	O	O	O	O	O	O	O
通过社交媒体（Facebook、Twitter 等）分享图片/视频/音频	O	O	O	O	O	O	O	O	O	O	O
下载 NPS 播客	O	O	O	O	O	O	O	O	O	O	O
其他（请注明）	O	O	O	O	O	O	O	O	O	O	O

26. 您如何评价黄石国家公园中的设施、服务和娱乐项目的质量？请在**每行中标注 (•) 一项。**

	很好	较好	一般	差	很差	未使用或不可用
公园设施						
游客中心	O	O	O	O	O	O
厕所	O	O	O	O	O	O
人行道、小径和道路	O	O	O	O	O	O
露营地和/或野餐区	O	O	O	O	O	O
游客服务						
公园员工提供的帮助	O	O	O	O	O	O
巡逻员讲解节目	O	O	O	O	O	O
支付的门票费的价值	O	O	O	O	O	O
公园内的商业服务（餐饮、住宿、礼品、租赁等）	O	O	O	O	O	O

请注明所使用的服务：_____

娱乐项目						
了解大自然	O	O	O	O	O	O
了解历史或文化	O	O	O	O	O	O
户外娱乐（观光、野营、骑自行车、划船、徒步旅行等）	O	O	O	O	O	O

27. 在这次旅行中，您游览黄石国家公园是否达到了期望？ 请标注 (•) 一项。

O 是

O 未完全达到（请说明）

_____

_____

O 根本未达到（请说明）

_____

_____

F. 背景信息

28. 在我们联系您参加本调查的当天，针对您以及与您一起游览黄石国家公园的个人团体，请提供以下信息。（**如果您不知道答案，请填入“不知道”。**）

	当前的年龄	**美国邮政编码或美国以外国家/地区的名称**	**在过去 12 个月内游览黄石国家公园的次数（包括这次旅行）**	**在过去 12 个月内游览其他美国国家公园管理局（NPS）景点的次数**
您自己	_____	_____	_____	_____
成员 2	_____	_____	_____	_____
成员 3	_____	_____	_____	_____
成员 4	_____	_____	_____	_____
成员 5	_____	_____	_____	_____
成员 6	_____	_____	_____	_____
成员 7	_____	_____	_____	_____

29. 在我们联系您参加本调查的当天，针对您以及与您一起游览黄石国家公园的个人团体，请提供以下信息。针对性别以及是否为西班牙裔或拉丁裔，请为每位团体成员（包括您自己）标注 (•) 一项。**（如果您不知道答案，请标注 (•) “不知道”。）**

		您个人团体中的其他成员					
	您自己	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**
男	O	O	O	O	O	O	O
女	O	O	O	O	O	O	O
西班牙裔或拉丁裔	O	O	O	O	O	O	O
非西班牙裔或拉丁裔	O	O	O	O	O	O	O
不知道	—	O	O	O	O	O	O

30. 在我们联系您参加本调查的当天，针对您以及与您一起游览黄石国家公园的个人团体，请提供以下信息。请**为每位团体成员（包括您自己）标注 (●) 一项或多项。（如果您不知道答案，请标注 (●) “不知道”。）**

	您自己	#2	#3	#4	#5	#6	#7
印第安人或阿拉斯加原住民	O	O	O	O	O	O	O
亚裔	O	O	O	O	O	O	O
黑人或非裔美国人	O	O	O	O	O	O	O
夏威夷原住民或其他太平洋岛民	O	O	O	O	O	O	O
白种人	O	O	O	O	O	O	O
不知道	–	O	O	O	O	O	O

31. 在我们联系您参加本调查的当天，针对您以及与您一起游览黄石国家公园的个人团体，您的团体中每位成员已完成的最高正式教育程度是什么？请为每位团体成员（包括您自己）标注 (●) **一项。（如果您不知道答案，请标注 (●) “不知道”。）**

	您自己	#2	#3	#4	#5	#6	#7
高中以下	O	O	O	O	O	O	O
高中肄业	O	O	O	O	O	O	O
高中毕业或高中同等学力	O	O	O	O	O	O	O
大学、商学院或大专肄业	O	O	O	O	O	O	O
大学、商学院或大专毕业	O	O	O	O	O	O	O
研究生肄业	O	O	O	O	O	O	O
硕士、博士或专业学位	O	O	O	O	O	O	O
不知道	–	O	O	O	O	O	O

32. 以下哪个范围最符合您的家庭年收入？请标注 (●) **一项**。

- O 24,999 美元以下
- O 25,000-34,999 美元
- O 35,000-49,999 美元
- O 50,000-74,999 美元
- O 75,000-99,999 美元
- O 100,000-149,999 美元
- O 150,000-199,999 美元
- O 200,000 美元或以上
- O 不想回答

33. 关于黄石国家公园的设施、服务或娱乐项目，您是否还有其他想要告诉我们的？

_____

_____

_____

感谢您的帮助！

请将调查问卷放入我们提供的信封中，然后将信封投入美国邮政署的任意邮箱中。

Appendix 2. The Thank You/Reminder Postcard

Postcard mailed to respondents with English questionnaire

YELLOWSTONE NATIONAL PARK

Dear Yellowstone National Park Visitor,

About two weeks ago we contacted you to participate in a survey about your recent trip to Yellowstone 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.

Dan Wenk
Superintendent
Yellowstone National Park

Postcard mailed to respondents with Mandarin questionnaire

尊敬的黄石国家公园游客：

大约两星期以前，我们联系您参加关于您最近游览黄石国家公园的调查。如果您是众多已答复的人之一，那么对您表示感谢！

但是，如果您尚未抽出时间完成调查，请填写调查问卷。我们只联系了一定数量的游客参加本次调查，因此您的意见非常重要！请在您方便时尽早完成并寄回调查问卷册。如果您丢失了调查问卷，我们将在大约两星期内邮寄给您另一份问卷。

Dan Wenk
主管人
黄石国家公园

Appendix 3. The Replacement Mailing Cover Letter

Cover letter mailed with replacement English questionnaire to respondents

UNITED STATES DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE
Yellowstone National Park
P.O. Box 168
Yellowstone National Park, WY 82190-0168

[Month] [Day], 2016

Dear [Name],

The National Park Service would like to thank you for agreeing to participate in the Yellowstone National Park visitor study. As you are aware, we selected 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 Yellowstone 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.

If you have any questions regarding your questionnaire, please contact the Social Science Program Chief, National Park Service, 1201 Oakridge Drive, Fort Collins, CO, 80525-5596; nps_nrss_social_science@nps.gov (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 this park.

Sincerely,

Dan Wenk
Superintendent
Yellowstone National Park

Cover letter mailed with replacement Mandarin questionnaire to respondents

美国内政部

美国国家公园管理局
黄石国家公园
P. O. Box 168
Yellowstone National Park, WY 82190-0168

2016 年 [Month] 月 [Day] 日

尊敬的 [姓名]：

美国国家公园管理局感谢您同意参加黄石国家公园游客调查。如您所知，我们选择了少数游客参加本次调查，因此，每份调查问卷的返回都非常重要。您提供的信息将帮助我们更好地管理黄石国家公园，以及为您 - 我们尊敬的游客提供更优质的服务。

如果您已经寄回了调查问卷，我们对此表示感谢。但是，如果您尚未寄回，我们恳请您今天通过邮件将问卷寄回。由于我们在寄出这封信之前尚未收到您的调查问卷，我们附上了备用问卷以方便您填写。

如果您对调查问卷有任何疑问，请联系 Social Science Program Chief, National Park Service, 1201 Oakridge Drive, Fort Collins, CO, 80525-5596; nps_nrss_social_science@nps.gov（电子邮件）。

感谢您帮助我们开展这项重要调查。您的意见很宝贵，我们感谢您与我们分享。这将帮助我们改进对这座公园的管理。

此致

Dan Wenk
主管人
黄石国家公园

Appendix 4. Detailed Sampling Procedures

Site Schematics

As noted, the visitor survey was administered at the five entrance locations to Yellowstone NP. A specific survey administration point was identified near each entrance location, based on analysis of aerial site photos, onsite scoping, and recommendations from the Yellowstone NP 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 243 through Figure 247). A red line was used in each site schematic to denote the boundary at which visitor groups traveling in vehicles along park roads 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 in vehicles were intercepted.

Timed-Interval Sampling Procedures

At all five sampling locations, 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 was able to 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 entered the study area as the next arriving vehicle at the start of the timed interval, survey administrators intercepted the tour bus 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 buses into the pre-identified pull-over location for survey administration. Once the bus was safely stopped, the survey administrator briefly introduced the study to the tour bus operator and requested permission to board the bus and administer the survey. If given permission, the survey administrator entered the bus, contacted the visitor group seated immediately behind the tour bus operator on the right-hand 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 the 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.

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.

Figure 243. East Entrance sampling location

Figure 244. Northeast Entrance sampling location

Figure 245. North Entrance sampling location

Figure 246. West Entrance sampling location

Figure 247. South Entrance sampling location

Appendix 5. Non-response Bias Analysis - Effects on Survey Reponses due to Vehicle Type, Number of Adult Group Members, and Preferred Language

This study used answers to five, pre-selected non-response bias questions and two observable characteristics (vehicle type and 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 Yellowstone NP survey do differ significantly from non-respondents, with respect to vehicle type ($\chi 2 = 38.129$; $p < 0.001$), number of adult group members ($\chi 2 = 19.420$; $p < 0.001$), and visitors' preferred languages ($\chi 2 = 17.804$; $p = 0.001$). Specifically, groups on tour buses and groups using recreational vehicles were more likely to respond to the survey than groups using other forms of transportation; groups with one, two, or five or more adults were more likely to respond to the survey than groups with three or four adults; and groups that preferred to use English in the park were more likely to respond to the survey than groups with other language preferences.

The potential impact of this non-response bias on the results of the Yellowstone NP survey was further explored. Specifically, effects due to vehicle type, number of adult group members, and visitors' preferred language were examined for 61 key questions in the Yellowstone NP survey. These key questions assessed use of information sources for trip planning, motivations for visiting Yellowstone NP, the extent to which issues were a problem during their visit, and preferences for traffic and parking congestion management. A Bonferroni correction was applied to account for the fact that 61 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 0.0008 are assumed to be statistically significant.

To increase the validity of the use of chi-square analyses for non-response bias testing among respondents, response categories for vehicle type and preferred language were grouped to consolidate categories with low subsample values into larger categories for more robust statistical testing. Specifically, the numbers of respondents that reported bicycle (n=1), motorcycle (n=26), or other vehicle type (n=4) were deemed to be too small for chi-square testing, which is most robust with a minimum response per category of n=30. Therefore, these respondents were grouped together into the category "other vehicle type" (n=31) and compared to respondents that traveled in automobiles (n=984), recreational vehicles (n=78), or tour buses (n=165). Similarly, the numbers of respondents indicating their preferred language was German (n=9) or Spanish (n=16) were deemed to be too small for robust chi-square testing as standalone categories. Therefore, these respondents were grouped together into the category "other languages" (n=61) and compared to respondents whose preferred language was either English (n=1125) or Mandarin (n=71).

Statistically significant effects of vehicle type on survey responses were observed for 41 of the 61 questions that were assessed and are emphasized with bold text in Table 77. Statistically significant effects of number of adult group members on survey responses were observed for 30 of the 61 questions that were assessed and are emphasized with bold text in Table 78. Statistically significant effects of visitors' preferred languages on survey responses were observed for 42 of the 61 questions that were assessed and are emphasized with bold text in Table 79. 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 using tour buses and recreational vehicles, groups with one, two, or five or more adults, and groups preferring to use English while in the park.

Table 77. Statistical tests of vehicle type effects on key questions in Yellowstone NP survey

Question	Response scale	N	Chi-square; p-value
Which of the following sources of information did you use to plan your visit to Yellowstone NP, including sources you used prior to and during your visit to the park? Please mark all that apply. (Q11)	0 = No 1 = Yes		
Inquiry to park via phone, mail, or email		1252	χ^2 = 16.880; p = 0.001
In-person communication with park staff		1250	χ^2 = 7.656; p = 0.054
Yellowstone NP Visitor Center		**1252**	**χ^2 = 20.515; p < 0.001**
Yellowstone NP website (nps.gov/yell)		1253	χ^2 = 8.831; p = 0.032
Other website		1251	χ^2 = 9.869; p = 0.020
Yellowstone NP park map		1252	χ^2 = 0.992; p = 0.803
Yellowstone NP newspaper or other printed material		1251	χ^2 = 8.623; p = 0.035
Yellowstone NP Facebook/Twitter/social media		1251	χ^2 = 7.278; p = 0.064
Other social media		1252	χ^2 = 6.692; p = 0.072
Yellowstone NP smartphone app		1252	χ^2 = 3.322; p = 0.345
Other smartphone app		1251	χ^2 = 11.777; p = 0.008
State welcome center/visitors bureau/chamber of commerce		**1250**	**χ^2 = 42.817; p < 0.001**
1610 AM radio in or nearby park area		1252	χ^2 = 11.244; p = 0.010
Local/regional business (hotel, motel, tour company, restaurant, etc.)		**1252**	**χ^2 = 58.121; p < 0.001**
Travel guides/tour books (such as AAA, etc.)		**1252**	**χ^2 = 53.825; p < 0.001**
Newspaper/magazine articles		1251	χ^2 = 13.245; p = 0.004
I did not use any information sources to plan my visit.		1252	χ^2 = 8.837; p = 0.032

Please indicate the importance of each of the following reasons for visiting Yellowstone NP on this trip. For each item, please mark one for importance and one for satisfaction. (Q13)	1 = "Extremely important" to 5 = "Not at all important"		
To experience a wild place		**1194**	**$\chi^2 = 46.349$; $p < 0.001$**
To view natural scenery		1231	$\chi^2 = 21.068$; $p = 0.049$
To relax		1172	$\chi^2 = 15.066$; $p = 0.238$
To view geysers and other thermal features		**1230**	**$\chi^2 = 57.691$; $p < 0.001$**
To drive for pleasure		**1180**	**$\chi^2 = 95.919$; $p < 0.001$**
To view wildlife in their natural habitat		**1236**	**$\chi^2 = 60.161$; $p < 0.001$**
To hear the sounds of nature/quiet		1179	$\chi^2 = 24.125$; $p = 0.020$
To experience solitude		**1149**	**$\chi^2 = 188.818$; $p < 0.001$**
Please indicate the importance to you of each of the following resources of Yellowstone NP. Please mark one for each row. (Q15)	1 = "Extremely important" to 5 = "Not at all important"		
Old Faithful Geyser		1225	$\chi^2 = 30.910$; $p = 0.002$
Grand Prismatic Hot Spring		**1168**	**$\chi^2 = 64.810$; $p < 0.001$**
Grand Canyon of Yellowstone		**1192**	**$\chi^2 = 140.362$; $p < 0.001$**
Yellowstone Lake		1191	$\chi^2 = 34.622$; $p = 0.001$
Bison		1221	$\chi^2 = 32.281$; $p = 0.001$
Elk		**1204**	**$\chi^2 = 87.201$; $p < 0.001$**
Bears		**1209**	**$\chi^2 = 109.236$; $p < 0.001$**
Wolves		**1170**	**$\chi^2 = 80.263$; $p < 0.001$**
Birds (e.g., eagles, waterfowl)		**1197**	**$\chi^2 = 97.543$; $p < 0.001$**
Plants (e.g., trees, wildflowers)		**1194**	**$\chi^2 = 71.512$; $p < 0.001$**
A largely intact ecosystem		**1193**	**$\chi^2 = 78.853$; $p < 0.001$**
Hiking		**1193**	**$\chi^2 = 185.757$; $p < 0.001$**
Fishing		**1187**	**$\chi^2 = 60.775$; $p < 0.001$**

Backcountry travel		**1172**	**$\chi^2 = 77.639$; $p < 0.001$**
Photography		**1201**	**$\chi^2 = 115.682$; $p < 0.001$**
How much of a problem do you think the following issues are in Yellowstone NP? Please mark one for each row. (Q17)	1 = "Not a problem" to 5 = "Big problem"		
Too many people in the park		**1223**	**$\chi^2 = 95.688$; $p < 0.001$**
Traffic congestion at park entrances		**1224**	**$\chi^2 = 178.554$; $p < 0.001$**
Traffic congestion on park roads		1218	$\chi^2 = 25.258$; $p = 0.014$
Difficulty finding a parking space		**1230**	**$\chi^2 = 66.552$; $p < 0.001$**
Other visitors acting unsafe around wildlife		**1223**	**$\chi^2 = 50.821$; $p < 0.001$**
Not enough park staff present		**1218**	**$\chi^2 = 108.843$; $p < 0.001$**
Other visitors acting unsafe around thermal features		**1216**	**$\chi^2 = 75.029$; $p < 0.001$**
Not enough restrooms		**1230**	**$\chi^2 = 61.819$; $p < 0.001$**
Not enough overnight accommodations		**1221**	**$\chi^2 = 152.319$; $p < 0.001$**
Vegetation loss along roads and trails		**1218**	**$\chi^2 = 65.296$; $p < 0.001$**
Too much noise		**1213**	**$\chi^2 = 43.431$; $p < 0.001$**

During peak periods, traffic congestion and parking shortages can occur in Yellowstone NP. Please rate your level of support or opposition for each of the following potential transportation management options to address these issues. Please mark one for each row. (Q22)	1 = "Strongly agree" to 5 = "Strongly disagree"		
Add more parking at park attractions		**1201**	**$\chi^2 = 59.234$; $p < 0.001$**
Temporarily close park roads when there is heavy traffic congestion		**1168**	**$\chi^2 = 78.004$; $p < 0.001$**
Add more pullouts at scenic views		1202	$\chi^2 = 31.972$; $p = 0.001$
Divert visitor traffic away from heavily congested areas of the park		**1185**	**$\chi^2 = 65.660$; $p < 0.001$**
Limit the number of vehicles entering the park during peak periods		**1198**	**$\chi^2 = 50.206$; $p < 0.001$**
Require day use reservations for vehicles to enter the park during peak periods		**1186**	**$\chi^2 = 143.613$; $p < 0.001$**
Offer voluntary park-wide shuttle bus service with parking outside the park during peak periods		**1202**	**$\chi^2 = 104.225$; $p < 0.001$**
Require mandatory park-wide shuttle bus system with parking outside the park during peak periods		**1190**	**$\chi^2 = 46.936$; $p < 0.001$**
Offer voluntary shuttle bus service to popular park locations during peak periods		**1201**	**$\chi^2 = 54.914$; $p < 0.001$**
Require mandatory shuttle bus service to popular park locations during peak periods		**1192**	**$\chi^2 = 74.438$; $p < 0.001$**
Offer voluntary bike-share system for access to popular park locations during peak periods		**1190**	**$\chi^2 = 40.428$; $p < 0.001$**

Table 78. Statistical tests of number of adult group members on key questions in the Yellowstone NP survey

Question	Response scale	N	Chi-square; p-value
Which of the following sources of information did you use to plan your visit to Yellowstone NP, including sources you used prior to and during your visit to the park? Please mark all that apply. (Q11)	0 = No 1 = Yes		
Inquiry to park via phone, mail, or email		1251	$\chi^2 = 3.198$; $p = 0.362$
In-person communication with park staff		1251	$\chi^2 = 14.678$; $p = 0.002$
Yellowstone NP Visitor Center		1251	$\chi^2 = 13.769$; $p = 0.003$
Yellowstone NP website (nps.gov/yell)		1254	$\chi^2 = 7.629$; $p = 0.054$
Other website		1252	$\chi^2 = 17.185$; $p = 0.001$
Yellowstone NP park map		1250	$\chi^2 = 9.218$; $p = 0.027$
Yellowstone NP newspaper or other printed material		1251	$\chi^2 = 12.571$; $p = 0.006$
Yellowstone NP Facebook/Twitter/social media		1251	$\chi^2 = 5.490$; $p = 0.139$
Other social media		1252	$\chi^2 = 2.196$; $p = 0.533$
Yellowstone NP smartphone app		1254	$\chi^2 = 12.073$; $p = 0.007$
Other smartphone app		1252	$\chi^2 = 5.699$; $p = 0.127$
State welcome center/visitors bureau/chamber of commerce		**1252**	**$\chi^2 = 45.047$; $p < 0.001$**
1610 AM radio in or nearby park area		1251	$\chi^2 = 0.852$; $p = 0.837$
Local/regional business (hotel, motel, tour company, restaurant, etc.)		1253	$\chi^2 = 13.926$; $p = 0.003$
Travel guides/tour books (such as AAA, etc.)		1251	$\chi^2 = 6.405$; $p = 0.093$
Newspaper/magazine articles		1252	$\chi^2 = 2.807$; $p = 0.422$
I did not use any information sources to plan my visit.		1251	$\chi^2 = 2.505$; $p = 0.474$

Please indicate the importance of each of the following reasons for visiting Yellowstone NP on this trip. For each item, please mark one for importance and one for satisfaction. (Q13)	1 = "Extremely important" to 5 = "Not at all important"		
To experience a wild place		**1196**	**$\chi^2 = 110.540$; $p < 0.001$**
To view natural scenery		1231	$\chi^2 = 27.301$; $p = 0.007$
To relax		1170	$\chi^2 = 33.107$; $p = 0.001$
To view geysers and other thermal features		**1230**	**$\chi^2 = 40.845$; $p < 0.001$**
To drive for pleasure		1179	$\chi^2 = 24.948$; $p = 0.015$
To view wildlife in their natural habitat		**1236**	**$\chi^2 = 40.771$; $p < 0.001$**
To hear the sounds of nature/quiet		**1177**	**$\chi^2 = 60.193$; $p < 0.001$**
To experience solitude		**1148**	**$\chi^2 = 50.153$; $p < 0.001$**
Please indicate the importance to you of each of the following resources of Yellowstone NP. Please mark one for each row. (Q15)	1 = "Extremely important" to 5 = "Not at all important"		
Old Faithful Geyser		**1226**	**$\chi^2 = 35.770$; $p < 0.001$**
Grand Prismatic Hot Spring		1165	$\chi^2 = 16.529$; $p = 0.168$
Grand Canyon of Yellowstone		1191	$\chi^2 = 18.258$; $p = 0.108$
Yellowstone Lake		**1191**	**$\chi^2 = 53.715$; $p < 0.001$**
Bison		**1221**	**$\chi^2 = 39.600$; $p < 0.001$**
Elk		**1203**	**$\chi^2 = 51.673$; $p < 0.001$**
Bears		**1209**	**$\chi^2 = 40.745$; $p < 0.001$**
Wolves		1173	$\chi^2 = 27.634$; $p = 0.006$
Birds (e.g., eagles, waterfowl)		**1198**	**$\chi^2 = 39.865$; $p < 0.001$**
Plants (e.g., trees, wildflowers)		1192	$\chi^2 = 26.131$; $p = 0.010$
A largely intact ecosystem		**1195**	**$\chi^2 = 70.823$; $p < 0.001$**
Hiking		**1192**	**$\chi^2 = 37.718$; $p < 0.001$**
Fishing		**1186**	**$\chi^2 = 51.600$; $p < 0.001$**

Backcountry travel		1170	$\chi^2 = 31.464$; $p = 0.002$
Photography		**1200**	**$\chi^2 = 86.693$; $p < 0.001$**
How much of a problem do you think the following issues are in Yellowstone NP? Please mark one for each row. (Q17)	1 = "Not a problem" to 5 = "Big problem"		
Too many people in the park		**1225**	**$\chi^2 = 61.687$; $p < 0.001$**
Traffic congestion at park entrances		**1227**	**$\chi^2 = 148.797$; $p < 0.001$**
Traffic congestion on park roads		1220	$\chi^2 = 30.232$; $p = 0.002$
Difficulty finding a parking space		1230	$\chi^2 = 21.318$; $p = 0.046$
Other visitors acting unsafe around wildlife		**1223**	**$\chi^2 = 58.865$; $p < 0.001$**
Not enough park staff present		**1216**	**$\chi^2 = 72.284$; $p < 0.001$**
Other visitors acting unsafe around thermal features		**1218**	**$\chi^2 = 79.520$; $p < 0.001$**
Not enough restrooms		**1229**	**$\chi^2 = 39.700$; $p < 0.001$**
Not enough overnight accommodations		**1220**	**$\chi^2 = 113.834$; $p < 0.001$**
Vegetation loss along roads and trails		**1219**	**$\chi^2 = 47.044$; $p < 0.001$**
Too much noise		1216	$\chi^2 = 32.559$; $p = 0.001$

During peak periods, traffic congestion and parking shortages can occur in Yellowstone NP. Please rate your level of support or opposition for each of the following potential transportation management options to address these issues. Please mark one for each row. (Q22)	1 = "Strongly agree" to 5 = "Strongly disagree"		
Add more parking at park attractions		**1200**	**$\chi^2 = 54.231$; $p < 0.001$**
Temporarily close park roads when there is heavy traffic congestion		**1168**	**$\chi^2 = 40.190$; $p < 0.001$**
Add more pullouts at scenic views		1204	$\chi^2 = 16.876$; $p = 0.154$
Divert visitor traffic away from heavily congested areas of the park		**1185**	**$\chi^2 = 59.864$; $p < 0.001$**
Limit the number of vehicles entering the park during peak periods		**1197**	**$\chi^2 = 35.188$; $p < 0.001$**
Require day use reservations for vehicles to enter the park during peak periods		**1186**	**$\chi^2 = 70.108$; $p < 0.001$**
Offer voluntary park-wide shuttle bus service with parking outside the park during peak periods		1201	$\chi^2 = 34.527$; $p = 0.001$
Require mandatory park-wide shuttle bus system with parking outside the park during peak periods		1191	$\chi^2 = 29.968$; $p = 0.003$
Offer voluntary shuttle bus service to popular park locations during peak periods		1202	$\chi^2 = 29.154$; $p = 0.004$
Require mandatory shuttle bus service to popular park locations during peak periods		**1191**	**$\chi^2 = 84.770$; $p < 0.001$**
Offer voluntary bike-share system for access to popular park locations during peak periods		1192	$\chi^2 = 26.881$; $p = 0.008$

Table 79. Statistical tests of visitors' preferred speaking languages on key questions in Yellowstone NP survey

Question	Response scale	N	Chi-square; p-value
Which of the following sources of information did you use to plan your visit to Yellowstone NP, including sources you used prior to and during your visit to the park? Please mark all that apply. (Q11)	0 = No 1 = Yes		
Inquiry to park via phone, mail, or email		1251	$\chi^2 = 13.308$; $p = 0.001$
In-person communication with park staff		1252	$\chi^2 = 6.192$; $p = 0.045$
Yellowstone NP Visitor Center		1252	$\chi^2 = 10.218$; $p = 0.006$
Yellowstone NP website (nps.gov/yell)		**1252**	**$\chi^2 = 19.891$; $p < 0.001$**
Other website		1251	$\chi^2 = 1.751$; $p = 0.417$
Yellowstone NP park map		1252	$\chi^2 = 7.114$; $p = 0.029$
Yellowstone NP newspaper or other printed material		1252	$\chi^2 = 2.428$; $p = 0.297$
Yellowstone NP Facebook/Twitter/social media		1251	$\chi^2 = 4.498$; $p = 0.106$
Other social media		1251	$\chi^2 = 0.792$; $p = 0.673$
Yellowstone NP smartphone app		1251	$\chi^2 = 3.186$; $p = 0.203$
Other smartphone app		1251	$\chi^2 = 2.973$; $p = 0.226$
State welcome center/visitors bureau/chamber of commerce		1252	$\chi^2 = 7.919$; $p = 0.019$
1610 AM radio in or nearby park area		1252	$\chi^2 = 3.302$; $p = 0.192$
Local/regional business (hotel, motel, tour company, restaurant, etc.)		1252	$\chi^2 = 6.957$; $p = 0.031$
Travel guides/tour books (such as AAA, etc.)		**1251**	**$\chi^2 = 23.628$; $p < 0.001$**
Newspaper/magazine articles		1251	$\chi^2 = 6.972$; $p = 0.031$
I did not use any information sources to plan my visit.		1252	$\chi^2 = 7.468$; $p = 0.024$

Please indicate the importance of each of the following reasons for visiting Yellowstone NP on this trip. For each item, please mark one for importance and one for satisfaction. (Q13)	1 = "Extremely important" to 5 = "Not at all important"		
To experience a wild place		**1197**	**$\chi^2 = 39.402$; $p < 0.001$**
To view natural scenery		1232	$\chi^2 = 18.035$; $p = 0.021$
To relax		**1171**	**$\chi^2 = 103.827$; $p < 0.001$**
To view geysers and other thermal features		**1231**	**$\chi^2 = 31.413$; $p < 0.001$**
To drive for pleasure		1180	$\chi^2 = 47.236$; $p < 0.001$
To view wildlife in their natural habitat		**1237**	**$\chi^2 = 199.336$; $p < 0.001$**
To hear the sounds of nature/quiet		**1179**	**$\chi^2 = 73.963$; $p < 0.001$**
To experience solitude		**1150**	**$\chi^2 = 65.940$; $p < 0.001$**
Please indicate the importance to you of each of the following resources of Yellowstone NP. Please mark one for each row. (Q15)	1 = "Extremely important" to 5 = "Not at all important"		
Old Faithful Geyser		**1226**	**$\chi^2 = 81.902$; $p < 0.001$**
Grand Prismatic Hot Spring		**1166**	**$\chi^2 = 79.519$; $p < 0.001$**
Grand Canyon of Yellowstone		**1190**	**$\chi^2 = 165.615$; $p < 0.001$**
Yellowstone Lake		**1192**	**$\chi^2 = 80.576$; $p < 0.001$**
Bison		**1223**	**$\chi^2 = 54.553$; $p < 0.001$**
Elk		**1202**	**$\chi^2 = 223.140$; $p < 0.001$**
Bears		**1209**	**$\chi^2 = 249.976$; $p < 0.001$**
Wolves		**1172**	**$\chi^2 = 170.687$; $p < 0.001$**
Birds (e.g., eagles, waterfowl)		**1198**	**$\chi^2 = 123.630$; $p < 0.001$**
Plants (e.g., trees, wildflowers)		**1194**	**$\chi^2 = 93.317$; $p < 0.001$**
A largely intact ecosystem		**1193**	**$\chi^2 = 206.803$; $p < 0.001$**
Hiking		**1192**	**$\chi^2 = 82.768$; $p < 0.001$**
Fishing		**1183**	**$\chi^2 = 117.585$; $p < 0.001$**

Backcountry travel		**1171**	**$\chi^2 = 110.949$; $p < 0.001$**
Photography		**1200**	**$\chi^2 = 63.463$; $p < 0.001$**
How much of a problem do you think the following issues are in Yellowstone NP? Please mark one for each row. (Q17)	1 = "Not a problem" to 5 = "Big problem"		
Too many people in the park		**1222**	**$\chi^2 = 100.934$; $p < 0.001$**
Traffic congestion at park entrances		**1227**	**$\chi^2 = 48.433$; $p < 0.001$**
Traffic congestion on park roads		**1219**	**$\chi^2 = 64.982$; $p < 0.001$**
Difficulty finding a parking space		**1231**	**$\chi^2 = 30.364$; $p < 0.001$**
Other visitors acting unsafe around wildlife		**1222**	**$\chi^2 = 68.816$; $p < 0.001$**
Not enough park staff present		**1217**	**$\chi^2 = 206.960$; $p < 0.001$**
Other visitors acting unsafe around thermal features		**1217**	**$\chi^2 = 89.590$; $p < 0.001$**
Not enough restrooms		**1228**	**$\chi^2 = 160.513$; $p < 0.001$**
Not enough overnight accommodations		**1221**	**$\chi^2 = 65.300$; $p < 0.001$**
Vegetation loss along roads and trails		**1218**	**$\chi^2 = 84.905$; $p < 0.001$**
Too much noise		1216	$\chi^2 = 27.048$; $p = 0.001$

During peak periods, traffic congestion and parking shortages can occur in Yellowstone NP. Please rate your level of support or opposition for each of the following potential transportation management options to address these issues. Please mark one for each row. (Q22)	1 = "Strongly agree" to 5 = "Strongly disagree"		
Add more parking at park attractions		**1200**	**$\chi^2 = 49.325$; $p < 0.001$**
Temporarily close park roads when there is heavy traffic congestion		**1169**	**$\chi^2 = 28.737$; $p < 0.001$**
Add more pullouts at scenic views		**1202**	**$\chi^2 = 57.967$; $p < 0.001$**
Divert visitor traffic away from heavily congested areas of the park		**1186**	**$\chi^2 = 78.693$; $p < 0.001$**
Limit the number of vehicles entering the park during peak periods		**1195**	**$\chi^2 = 90.180$; $p < 0.001$**
Require day use reservations for vehicles to enter the park during peak periods		**1190**	**$\chi^2 = 77.409$; $p < 0.001$**
Offer voluntary park-wide shuttle bus service with parking outside the park during peak periods		1202	$\chi^2 = 20.948$; $p = 0.007$
Require mandatory park-wide shuttle bus system with parking outside the park during peak periods		**1191**	**$\chi^2 = 143.078$; $p < 0.001$**
Offer voluntary shuttle bus service to popular park locations during peak periods		1201	$\chi^2 = 16.400$; $p = 0.037$
Require mandatory shuttle bus service to popular park locations during peak periods		**1190**	**$\chi^2 = 97.937$; $p < 0.001$**
Offer voluntary bike-share system for access to popular park locations during peak periods		**1192**	**$\chi^2 = 53.732$; $p < 0.001$**

Data for two variables, vehicle type (Figure 248 and Figure 249) and language preference (Figure 250, Table 80, and Figure 251), were collected as part of the initial contact as non-response bias questions and were not included as part of the mail-back questionnaire. These variables were analyzed for by-entrance differences as part of an initial summary of survey contact log form information that was produced for the park in November 2016. At the request of the park, the park-wide and by-entrance analyses for these variables are reported below. Additional park-wide results for mode of transportation and language preference are reported as part of the explanation of non-response bias in the Methods section of this report.

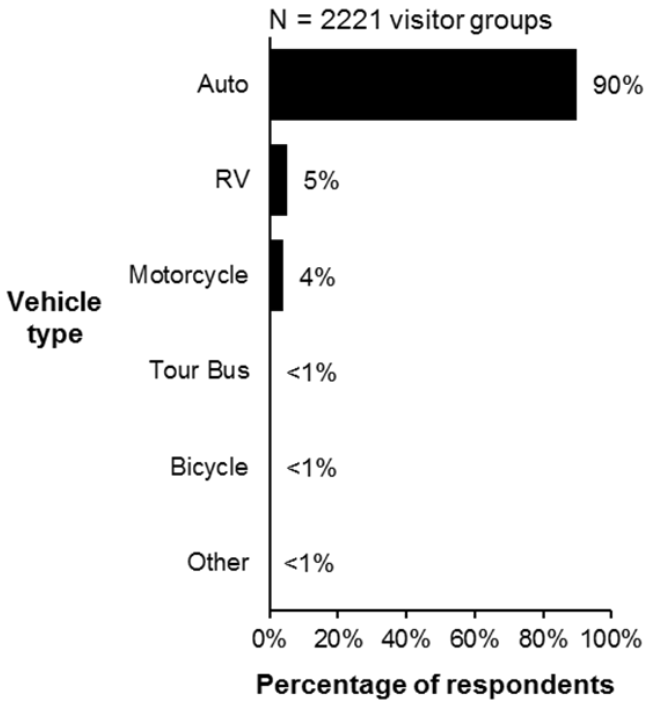


Figure 248. Vehicle type

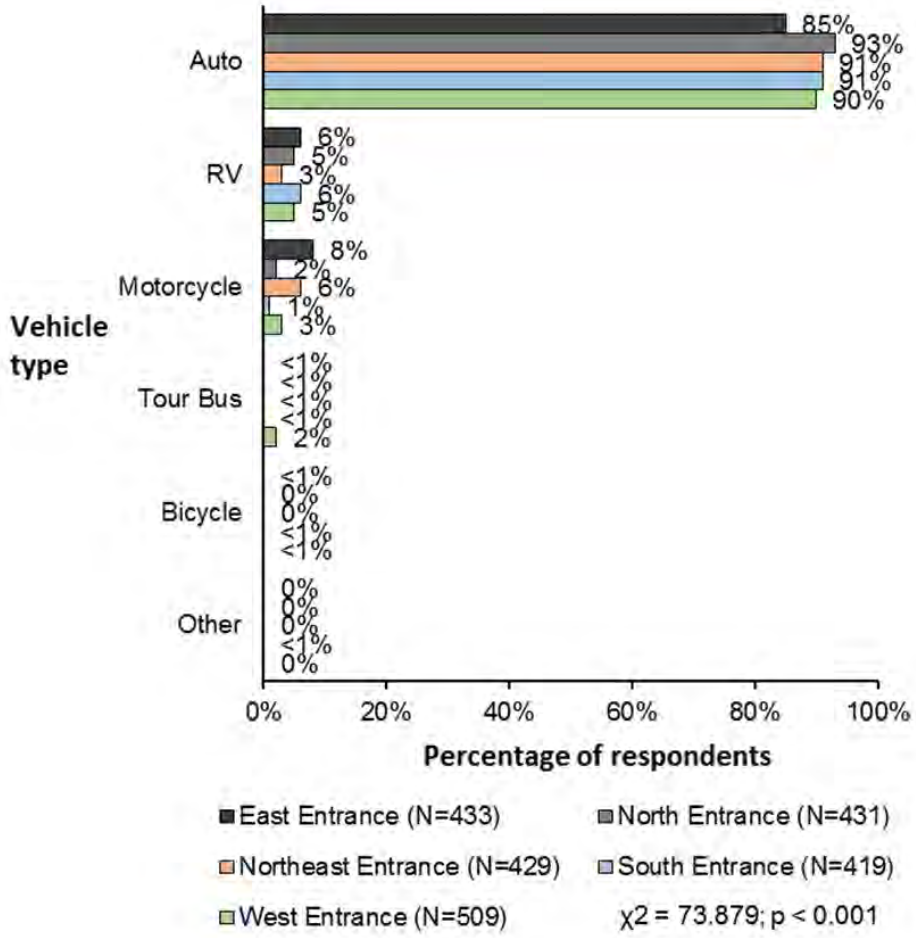


Figure 249. Vehicle type, by entrance

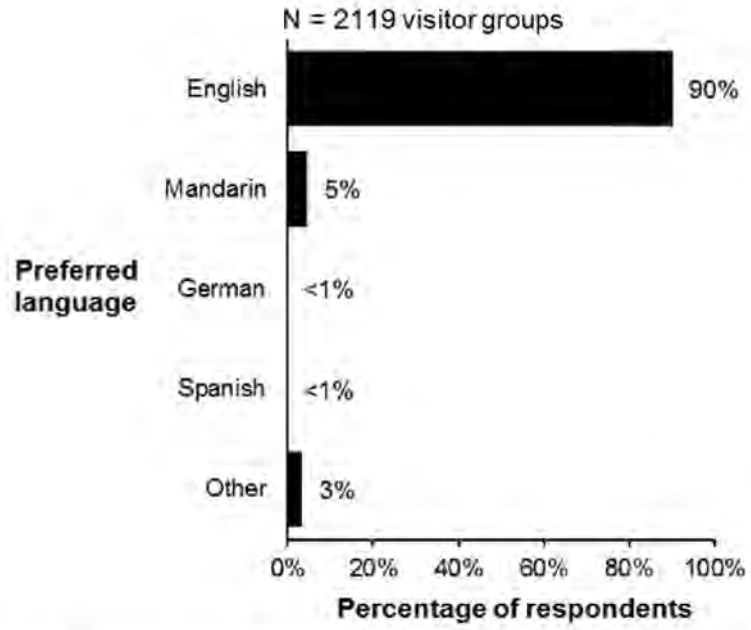


Figure 250. Language preference

Table 80. Preferred language

Other Language*	Frequency	Valid Percent**
French	30	42.9%
Italian	14	20.0%
Japanese	8	11.4%
Korean	6	8.6%
Dutch	4	5.7%

**Data collected if contact was able to communicate in English, selected "Other Language", and provided preferred other language.*

***Reported if Valid Percent > 5%.*

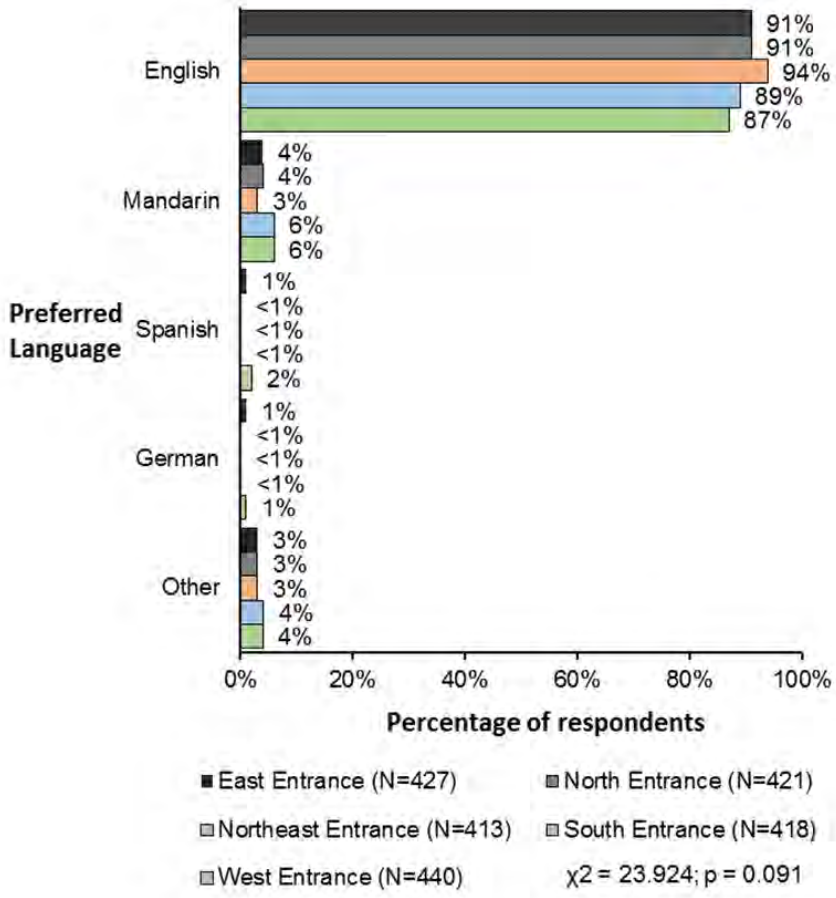


Figure 251. Language preference, by entrance

Appendix 6. Facilities, Services, and Recreational Opportunities Used by Visitor Groups

This appendix presents results for the facilities, services, and recreational opportunities used by visitor groups, park-wide and by-entrance. The percentage of visitor groups who used each facility, service, or recreational opportunity was determined by calculating the proportion of the number of visitor groups selecting a rating of quality for each facility, service, or recreational opportunity to the total number of visitor groups that returned a completed questionnaire (N=1257). Thus, any visitor group that provided a quality rating was assumed to have used the facility, service, or recreational opportunity and any visitor group that selected "Not Used or Not Available" or did not provide a response was assumed not to have used the facility, service, or recreational opportunity on their visit to the park.

Results (Figure 252, Table 81)

- The most common facilities, services, or recreational opportunities used by visitor groups were:
    - 97% Walkways, trails, and roads
    - 97% Restrooms
    - 93% Value for entrance fee paid
    - 90% Visitor Center
    - 84% Commercial services in the park
- The least common facilities, services, or recreational opportunities used by visitor groups were:
    - 52% Campgrounds and/or picnic areas
    - 39% Ranger programs

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

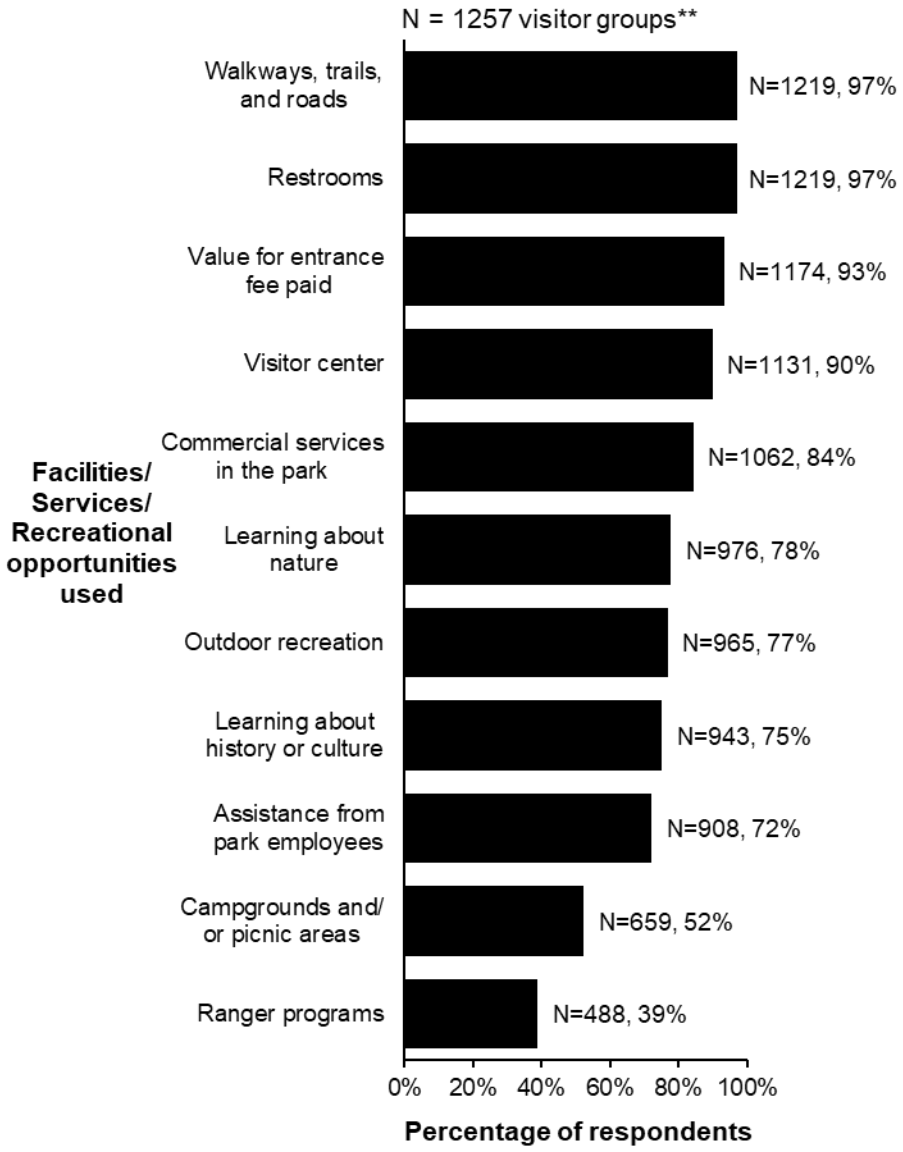


Figure 252. Facilities, services, and recreational opportunities used by visitor groups

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

- The distribution of the number of visitor groups that used each facility, service, or recreational opportunity did not significantly differ by entrance for any of the listed facilities, services, or recreational opportunities.

Table 81. Facilities, services, and recreational opportunities used by visitor groups, by entrance

		East	North	Northeast	South	West		
Facility/Service/ Recreational Opportunity	***n***	*n=230***	*n=264***	*n=245***	*n=273***	*n=245***	**Chi-square**	**p-value[1]**
Walkways, trails, and roads	1219	96%	98%	98%	97%	97%	χ2 = 2.022	p = 0.732
Restrooms	1219	96%	97%	96%	97%	97%	χ2 = 0.927	p = 0.921
Value for entrance fee paid	1174	94%	94%	96%	94%	92%	χ2 = 2.382	p = 0.666
Visitor Center	1131	86%	92%	84%	91%	88%	χ2 = 11.300	p = 0.023
Commercial services in the park	1062	83%	84%	81%	87%	82%	χ2 = 4.209	p = 0.378
Learning about nature	976	76%	80%	75%	77%	76%	χ2 = 2.367	p = 0.669
Outdoor recreation	965	71%	80%	80%	79%	74%	χ2 = 8.910	p = 0.063
Learning about history or culture	943	75%	78%	71%	73%	70%	χ2 = 6.230	p = 0.183
Assistance from park employees	908	73%	78%	75%	81%	72%	χ2 = 7.208	p = 0.125
Campgrounds and/or picnic areas	659	51%	50%	56%	49%	51%	χ2 = 2.600	p = 0.627
Ranger programs	488	40%	42%	39%	40%	39%	χ2 = 0.695	p = 0.952

[1] $\alpha = 0.05$, $p \leq 0.004$ indicates significant result following Bonferroni correction to account for multiple statistical tests.

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


NATIONAL
PARK
SERVICE