

Visitor Satisfaction and Support for Park Fees: Examining the Effects of Frontcountry, Backcountry, and Information in Rocky Mountain National Park

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MANAGERS OF NATIONAL PARK SERVICE (NPS) UNITS find themselves in a continual dilemma: providing for visitor satisfaction while at the same time protecting the natural, historical, and cultural resources of their parks. In pursuing these sometimes conflicting objectives, NPS managers are also constrained by the financial resources at their respective parks, which depend in part on revenues generated from park fees and on-site pass sales. Completing the circle, the willingness of visitors to support a park through paying fees or buying passes can be affected by their satisfaction with the visitor experience at that park.

In considering visitor experiences, managers at many national parks find it helpful to distinguish between backcountry and frontcountry. These two geographic areas of national parks may appeal to different types of park visitors, at different times of the year, and for different reasons. Backcountry visitors may require or desire more solitude and fewer encounters with other park visitors (Manning 2003), while frontcountry visitors may seek more timely services and less solitude, as scenic vistas and accessibility are of greater concern (Ormiston et al. 1998).

Visitor satisfaction may also reflect another dimension of visitation. In an information age, the quality and quantity of information about the park become part of the desired park experience. For example, many park visitors enter a park unaware of the qualities of that park, and require assistance in obtaining information about the contrasts of one geographic or historical area with another, length of trails, location of amenities, and the like. Other park visitors may be bewildered by the number of trails, exhibits, and experiences that are available in a national park. And of course, not infrequently a park volunteer or ranger encounters the question, "What is there to do here?" Enjoyment of the wide array of opportunities in a park must certainly be affected by the information to make desirable choices for activities.

Providing information in attractive and accessible forms is consistent with the larger culture within which we live. While many people visit national parks to find solitude, to hear the sounds of nature, to learn and to further educate themselves, or to view scenic beauty, they bring with them their ways of knowing from outside the park. For many visitors, these ways of knowing increasingly include nearly instantaneous weather information, online research across the globe, and global positioning system (GPS) location devices. While protecting

parks and preserving their wilderness or backcountry areas, NPS managers also face increasing demands for information at their boundaries and in the frontcountry. These varied considerations all come into play in determining visitor satisfaction, which, in turn, may affect support for national parks.

Through a year-long survey involving nearly 1,300 face-to-face, on-site interviews with visitors at Rocky Mountain National Park (RMNP), we have isolated a number of dimensions of visitor satisfaction of interest to park managers. In particular, our research reveals the importance of visitor satisfaction with information and with frontcountry and backcountry experiences as influences on support for park fees. Although the research design was tailored to address some concerns specific to RMNP, as in any case study the results suggest generalizations applicable by managers at other NPS units. This paper presents the methods and key findings of that study.

Research design

In 2004, under a cooperative task agreement with RMNP, we designed a survey of visitors in the southeastern area of the park to assess overall visitor satisfaction with their park experience and to examine visitor satisfaction with specific resources, services, and amenities. The goal of the study was to provide planning information to RMNP managers for their use in maintaining the balance between resource protection and visitation. This balance is especially difficult at RMNP, which faces development pressures from population growth along the park's southeastern boundary (known as the Highway 7 Corridor), leading toward Denver.

Early in the project, we met with park staff to develop the survey instruments to be administered in the southeastern park areas. Agreement was reached to station interviewers in the parking areas at Lily Lake, Longs Peak, and Wild Basin (see Figure 1). Additionally, sampling strategies were discussed, as well as issues relating to interviewer safety, respondent consent, and weather-related concerns.

The basic survey instrument was pre-tested initially on park volunteers at each site and revised appropriately. Three area-specific questionnaires were then pre-tested on up to nine park visitors at each of the three sites, and further revised according to the suggestions of the interviewers, park staff, and the research team. Final decisions regarding the research design, methods, and survey instruments are the responsibility of the authors.

Upon approval of the survey instruments by the Office of Management and Budget, training of volunteer interviewers began. The training protocols were developed and overseen by the first author, and implemented in cooperation with park personnel. Volunteer interviewers were given instruction guides, walked through the questionnaire and its purpose, and coached through practicing the questionnaire. By October 2004, interviewing commenced. In the summer of 2005, paid interviewers were recruited to augment the efforts of the volunteers; the same format for training was followed. A total of 1,371 visitors to RMNP were contacted for possible interview for this study, and 1,283 were interviewed, for a completion rate of 92.8%. During analyses for this study, 19 cases were dropped due to incomplete data, so that the final number of cases for most analyses is 1,264 cases or individuals.

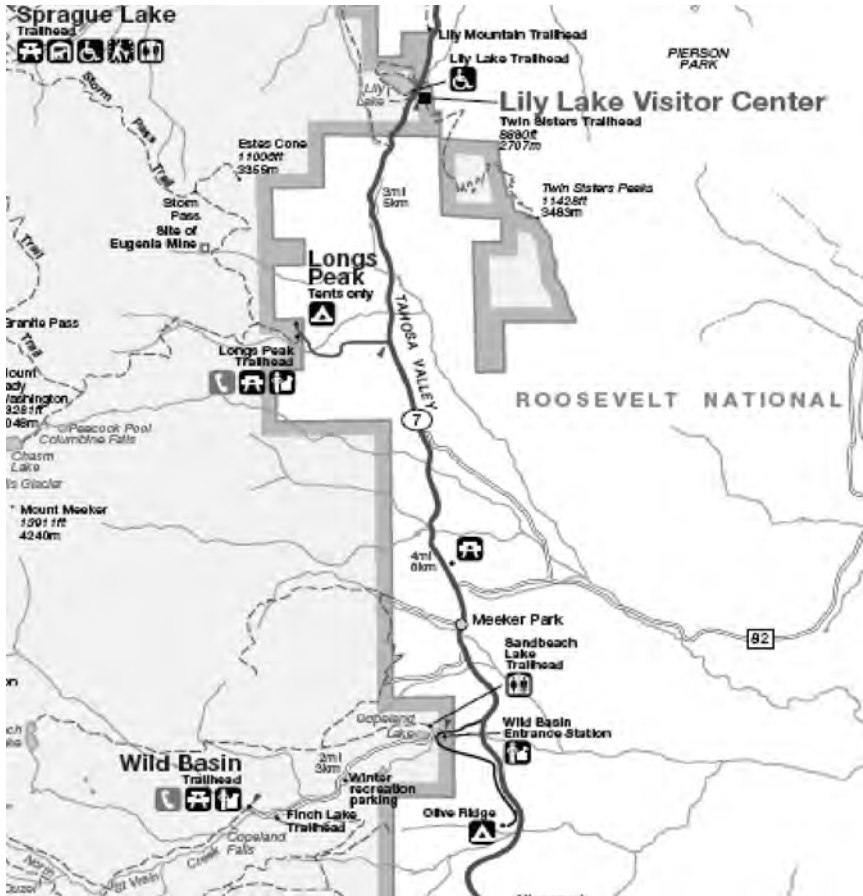


Figure 1 The Highway 7 corridor of Rocky Mountain National Park. Source: Rocky Mountain National Park.

Interviewing plan

By design, we sought to interview roughly the same number of people at each of the three sites in the park, and ultimately completed at least 412 interviews at each site. The interviewing ran for one year, even during the coldest days of December through February. Working with the Office of Research at RMNP, we systematically varied the days and time of day throughout the 52 weeks of interviewing, while concentrating the majority of the interviews in the summer months when visitation is highest. At the request of RMNP staff, five days were excluded from our sampling frame (Christmas Day, the Memorial Day three-day weekend, and July 4). However, New Year's Day did fall into the sample and we had one volunteer who managed to complete three interviews that day in the Longs Peak area. The time of day for the winter interviews was split into three blocks: approximately 8:00–11:00 AM, 11:00 AM–2:00 PM, and 2:00–5:00 PM. These times shifted slightly in the summer, to accom-

moderate visitation times, as well as longer daylight hours; 7:00–11:00 AM, 11:00 AM–2:00 PM, and 2:00–6:00 PM.

The questionnaires were administered to park visitors as they approached parking areas returning from a walk or hike. The face-to-face interviews took approximately 10–12 minutes and were completed on paper forms. To prevent the responses of one group of visitors from affecting the responses of another group, we instructed the interviewers to wait an interval of one “group” of visitors between their interviews; they were also instructed to alternate between male and female visitors for potential participants. These rules were relaxed during the winter months when very few visitors could be counted at a particular location. The interviewing was completed on October 2, 2005, 12 months after it had begun.

Descriptive results

The questionnaire administered to RMNP visitors contained questions tapping the level of satisfaction with separate park items, covering issues relevant to both frontcountry and backcountry visitors (such as parking lots, scenic pull-offs, hiking trails, campgrounds, rest and water facilities, interpretive programs, educational exhibits/signs, etc.). The answers to these questions were scored from 1 for “not satisfied at all” to 5 for “completely satisfied.” Additional park questions provided information on the duration of park visit, whether visitors were willing to pay an increase in park fees, and demographic characteristics.

The mean values for the satisfaction items are presented in Table 1. Judging from the high mean values, most visitors were quite satisfied with the majority of the resources at RMNP. The item scoring the lowest levels of visitor satisfaction is the availability of drinking water (with a satisfaction level of only 3.22 out of a possible 5). The satisfaction score on the availability of park literature/exhibits is the only other score less than 4.0, although parking space, facilities in picnic areas, and backcountry toilets are also scored low compared with other items.

The fact that availability of drinking water scored low on visitor satisfaction is not surprising. Ninety percent of RMNP is designated as wilderness, with little development. Yet with a large urban population nearby, and RMNP’s location among the western parks, many visitors may enter the park without sufficient supplies. Indeed there are several entrances to the park that provide no appreciable services. Moreover, the Lily Lake area was only recently added to the park through a bequest, and for much of the year of interviewing the Lily Lake Visitor Center was closed. A second area of this research project included Long’s Peak, which is notable as the best access to the only 14,000-foot peak in the park. During the busiest days of late July and August, the trail may have over 200 hikers attempting to summit, and numerous other hikers heading toward nearby destinations. Yet there is only one water spigot located next to the information cabin at the trailhead and only one sign noting the presence of the water.

Multivariate analyses

Using principal components factor analysis, we found that three dimensions of visitor satis-

Survey Questions.

Could you tell me how satisfied you were with the following in this area of the park? (On a scale of 5 to 1, with 5 being completely satisfied, 4 being somewhat satisfied, 3 being neither satisfied nor dissatisfied, 2 somewhat dissatisfied, or 1 completely dissatisfied with that part of your visit.)

Questions	N	Mean	Median
... roads into the area?	1264	4.69	5.00
... the restrooms?	1262	4.52	4.00
... pedestrian safety in parking lots?	1263	4.57	5.00
... parking space for cars?	1263	4.05	4.00
... the number of picnic areas?	1264	4.38	4.00
... the facilities in the picnic areas?	1264	4.10	4.00
... availability of drinking water?	1264	3.22	3.00
... availability of park literature/exhibits?	1264	3.96	4.00
... scenic road pull-outs?	1264	4.34	5.00
... trail signs for hiking?	1263	4.62	5.00
... availability of park personnel?	1263	4.42	5.00
... amount of access for disabled persons?	1263	4.16	4.00
... the quality of educational exhibits/signs?	1264	4.27	4.00
... backcountry toilets?	1264	4.08	4.00
... the information kiosks?	1263	4.52	4.00
... the numbers of developed trails?	1264	4.75	5.00
... the availability of ranger led programs?	1264	4.14	4.00

Table 1 Satisfaction survey questions with number of respondents, means, and medians.

faction can be identified in the data described in Table 1. These three dimensions are *front-country satisfaction* (which includes satisfaction with roads into the areas visited, restrooms, parking space, the number of picnic areas, the facilities at picnic areas, pedestrian safety in the parking lots, and access for the disabled); *backcountry satisfaction* (which includes the questions for availability of water, trail signs, backcountry toilets, and developed trails); and *park information satisfaction* (which included questions on park kiosks, park literature, availability of park personnel, and ranger programs). Neither the quality of educational exhibits nor that of scenic pull-offs showed an underlying association with any of the three main factors; therefore, these items were deleted from the scale construction.

Three summary scales were created, each one calculated as the average of the corresponding items so that the resulting scales range from 1.0 to 5.0. We then performed a reliability analysis on each scale and obtained a Cronbach's alpha of .64 for the frontcountry scale; .62 for the backcountry scale; and .60 for park information scale. Alpha provides a lower-bound estimate of the proportion of variance in a scale that is shared with a hypothetical perfect measure of the same construct (see Cronbach 1970). Generally, alphas of .6 or higher are considered evidence of sufficient reliability in a scale (Bartee et al. 2004).

For the park manager, being aware of these three dimensions of visitor satisfaction can help to focus park efforts toward assisting visitors, both before and during visits. And as suggested by discussions with park managers and staff, park personnel may need to help guide

the visitor to those activities for which he/she is suited by experience and preparation (Intermountain CESU 2008:3). Managers can decide to allocate resources to improving the visibility of facilities in those areas which are lower in visitor satisfaction, or, if needed, improving the facilities themselves. In addition, the relevance of these three dimensions of satisfaction can be seen in how they relate to visitor support for park fees.

As noted by Silver (2005) as well as others (LeRoy 2005; Shultis 2005), the Recreation Fee Demonstration Program of 1996 (Fee-Demo) and the subsequent Federal Lands Recreation Enhancement Act of 2004 (FLREA) have placed more entrepreneurial responsibilities on public land managers. The Fee-Demo program and the FLREA have worked to “give the federal land management agencies a chance to demonstrate to Congress that a wider range of recreation fees than had been authorized by the provisions of 16USC460l(6a) could be effectively charged and collected. The visitor who paid a fee could reasonably expect that on some future visit, the restrooms would be cleaner or the picnic tables more plentiful than would have been the case had he or she not paid the fee” (Silver 2005:70).

Knowing how such fees are related to visitor satisfaction becomes important as managers try to determine how to protect the natural, historical, and cultural resources of their public lands, while at the same time enhancing the visitors’ feeling of satisfaction with their visits to public land sites. We asked visitors to RMNP two questions regarding the payment of fees to the park. We asked if, on their current visit to RMNP, they had paid an entrance fee, used a park pass, used a National Park Pass, the Golden Eagle Passport, Golden Age pass, re-entered the park with a pass from earlier in the week, or paid nothing at all (the *payfee* variable). Because of the many access points to RMNP along the Highway 7 corridor, it is quite easy for visitors to avoid those entry gates where fees are collected and passes checked. The *payfee* variable was originally scored 1 through 7 as a nominal variable reflecting the various types of fee payment. But for statistical analysis, we collapsed the first six categories into one, so that we had a dichotomous dependent variable scored 0 and 1: 0 for not paying any fee, and 1 for paying some kind of fee to enter the park. We also asked visitors if they would favor increasing park entrance fees by \$3 “for park improvements” (*increasefee*). The *increasefee* variable was originally scored 1 through 3 as an ordinal variable: one for “decrease the fee,” two for “leave as is,” and three for “increase the fee.” For the analysis reported here, the *increasefee* variable was also dichotomized: 0 for wanting to decrease the fee or leave it as is, and 1 if willing to see the fee increase. (We also ran the analysis collapsing “leave as is” with “increase the fee,” and obtained similar results.)

To determine the relationship of the different dimensions of visitor satisfaction with each of the fee variables, we used binary logistic regression. We first regressed *payfee* and *increasefee* onto each of the satisfaction scales separately, controlling for age, education level, and ethnicity (white—nonwhite) of the respondents, and then on all three scales at once (with the same demographic controls). The results of these analyses are presented in Table 2.

In logistic regression, an estimated effect may be expressed as an odds ratio, which is the multiplicative factor by which the odds of a “Yes” on the dependent variable change for each unit increase in the independent variable. An odds ratio of greater than 1.0 indicates a positive relationship; i.e., as the independent variable increases, the odds of a “Yes” increase. An odds ratio between 0 and 1.0 indicates an inverse relationship. Table 2 reports the relevant

Independent Variable(s)	Dependent Variable	
	Payfee Odds Ratio	Increasefee Odds Ratio
Park Information Scale	1.831***	1.442***
Frontcountry Park Scale	.789	1.027
Backcountry Park Scale	1.394***	1.396**
Park Info	2.192***	1.299#
Frontcountry	.580**	.876
Backcountry	.980	1.313

Note: age, education, and ethnicity are controlled in all models.
Two-tailed significance: # p < .10; ** p < .01; *** p < .001

Table 2 Logistic regression models.

odds ratios, and shows which ones differ significantly from 1.0, which is the value of the odds ratio that corresponds to no relationship at all between the variables.

The results in the upper panels of the table suggest that satisfaction with frontcountry facilities is not significantly related to whether a visitor paid a fee to enter the park, nor to whether the visitor would favor an increase in park fees. For *increasefee* the odds ratio of 1.027 is only slightly greater than 1.0, while for *payfee* the odds ratio of .789 is a little less than 1.0; neither differs significantly from 1.0. The bottom panel of the table modifies this conclusion somewhat, as will be discussed shortly.

The upper panels further suggest that satisfaction with trail signs, backcountry toilets, developed trails, and the like is related to a willingness to pay the entrance fee and to raise entrance fees. The odds ratios are about 1.4 (1.394 and 1.396), which indicates that a one-unit increase in backcountry satisfaction (e.g., a score of 4.5 on the scale versus a score of 3.5) is associated with 40% higher odds of a “Yes” on *payfee*, and also on *increasefee*. These odds ratios are both statistically significant, controlling for the effects of age, level of educa-

tion and ethnicity. However, as shown in the bottom panel of the table, they fade to insignificance when controls are added for other dimensions of park satisfaction.

Individuals who are more satisfied with park information are more likely to have paid an entrance fee and are also more likely to support raising park entrance fees. These effects are found with only the demographic controls, and remain evident when the other dimensions of satisfaction are also controlled. An increase in satisfaction with park information of one unit is associated with an approximate doubling of the odds of paying an entry fee. This is shown by the significant odds ratio of 1.831 with only demographic controls, which increases to 2.192 when the other scales are controlled as well. Satisfaction with park information is also significantly related to support for raising the fees, but not as strongly. A one-point increase in satisfaction raises the odds of supporting higher fees by about 44% with only demographic controls (odds ratio = 1.442), or by about 30% controlling also for the other satisfaction scales (odds ratio = 1.299). Clearly, such things as talking with rangers, attending programs, the availability of different kinds of information from kiosks and volunteers are important to the satisfaction of visitors and their willingness to support the park monetarily.

Indeed, as revealed in the bottom panel of the table, satisfaction with information appears to be the linchpin that links park satisfaction to support for park fees. Satisfaction with information remains a positive predictor of both *payfee* and *increasefee*, even with the two other dimensions of satisfaction controlled. Backcountry satisfaction, on the other hand, drops to insignificance in this last model, and frontcountry satisfaction becomes a negative predictor. This suggests that contacts with representatives of the park in some form have a more direct impact on support for park fees than experiences in the backcountry or the presence of amenities in the frontcountry. Park information may help visitors to have a more satisfying experience, whether in the frontcountry or in the backcountry, by letting them know what to expect.

As an aside, we speculate that the modest inverse association between frontcountry satisfaction and fee payment in the bottom panel of the table may reflect a feedback effect. That is, with other dimensions of satisfaction held constant, the frontcountry experience may be perceived as more gratifying by those who are enjoying it for free. However, this result may well be idiosyncratic to RMNP, where the many access points along the Highway 7 corridor make it easy for visitors to avoid the entry gates where fees are collected and passes checked.

Conclusions

The Recreation Fee Demonstration Program began as a means to allow parks some control over their own revenues. To be able to collect gate fees is a mechanism whereby park managers can gain financial resources to help maintain the natural and cultural resources in our national parks. The research at Rocky Mountain National Park suggests that visitors obtain more satisfaction if they have the appropriate information about the park. In the binary logistic regression, paying fees and willingness to pay higher fees appear at first to be associated with both satisfaction with park information and satisfaction with the backcountry experience. In this sense the frontcountry—parking lots, picnic areas, restrooms, picnic areas' facilities, pedestrian safety, and access for the disabled—may, ironically, be part of the back-

ground of the park experience. That is, these things are so taken for granted that visitors do not notice their presence. The exigencies facing the backcountry hiker and camper, however, suggested at first that the facilities that are available are important to satisfaction with the backcountry visit.

However, when all three scales are entered simultaneously into the regression analysis, only satisfaction with park information is positively related to both fee payment and support for higher fees. Satisfaction with ranger programs, the availability of park personnel, the information on the kiosks and the like is associated with a greater willingness to pay an increase in fees, as well as having paid the fee for that day's visit.

Thus, in an information age, the quality and quantity of information about the park become part of the desired park experience. Many visitors enter a park unaware of its qualities, and require assistance in obtaining information about the contrasts of one geographic or historical area with another, length of trails, location of amenities, and the like. Other park visitors may be bewildered by the number of trails, exhibits, and experiences that are available in a national park. Enjoyment of the wide array of opportunities in a park must certainly be affected by the information available to make desirable choices for activities.

Qualitative findings from our year of quantitative data collection support these conclusions. For example, survey interviewers who were dressed in the park volunteer uniform not only had excellent completion rates for the face-to-face interviews, but other visitors would approach them to ask questions about the park. On more than one occasion, the senior author (wearing the shirt and cap of a park volunteer) heard a visitor say "There's one" and approach her with a question. Often, the ensuing conversation made it clear that the visitor had mistaken the garb of a volunteer for that of a park ranger, since the two uniforms are superficially quite similar. Given the high regard for park rangers and the National Park Service in general, it is not surprising that visitors who are satisfied with the information they receive from a ranger or other park source are more supportive of park fees. The park ranger is an icon for our national parks, and embodies the protection of those characteristics that Nash (1967), Stegner (1969), and others have used to describe our physical landscape. The public's willingness to pay increased fees is a signal that they too value the natural landscape "just because it is there" (Stegner 1969).

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References

- Bartee, R. Todd, Burke D. Grandjean, and Stephen L. Bieber. 2004. Confirming the reliability of a theory-driven survey instrument. *American Journal of Health* 19, 175–179.
- Cronbach, L.J. 1970. *Essentials of Psychological Testing*. 3rd ed. New York: Harper & Row.

- Intermountain CESU [Cooperative Ecosystems Studies Unit]. 2008. Wilderness Workshop—Glacier National Park. Unpublished meeting notes by Suzy Stutzman, NPS Intermountain Region wilderness coordinator. Online at www.cfc.umt.edu/research/CESU/NEWCESU/WhatsNew/default.htm.
- LeRoy, Sylvia. 2005. Beyond the public park paradigm. *The George Wright Forum* 22:2, 33–42.
- Manning, Robert E. 2003. What to do about crowding and solitude in parks and wilderness? A reply to Stewart and Cole. *Journal of Leisure Research* 35:1, 107–118.
- Nash, Roderick, 1967. *Wilderness and the American Mind*. New Haven, Conn.: Yale University Press.
- Ormiston, David, Alphonse Gilbert, and Robert E. Manning. 1998. Indicators and standards of quality for ski resort management. *Journal of Travel Research* 36:3, 35–41.
- Shultis, John. 2005. The effects of neo-conservatism on park science, management, and administration: Examples and a discussion. *The George Wright Forum* 22:2, 51–58.
- Stegner, Wallace, 1969. *The Sound of Mountain Water*. Garden City: Doubleday & Co.
- Silver, Scott. 2005. The Recreation Fee Demonstration Program and beyond. *The George Wright Forum* 22:2, 68–74.
- Stewart, William P., and David N. Cole. 2001. Number of encounters and experience quality in Grand Canyon backcountry: Consistently negative and weak relationships. *Journal of Leisure Research* 33:1, 106–120.

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