

# Influence of Ecological Impacts and Other Campsite Characteristics on Wilderness Visitors' Campsite Choices

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**ABSTRACT:** Recreational use of wilderness inevitably results in some change to resource conditions, and managers should consider both the ecological significance and social acceptability of such changes. Despite a growing body of research documenting recreation impacts, we still know very little about people's perceptions of resource conditions at campsites. This information is important for ensuring managerial effectiveness, selecting management indicators and standards, and understanding visitor behavior. This paper examines factors that influenced visitors' campsite choices at two lakes in Mt. Jefferson Wilderness, especially the effect of ecological impacts.

Prior research suggests that visitors perceive ecological impacts and are affected by them. However, many studies have relied on abstract or hypothetical survey questions that fail to capture important contextual influences. Also, questions use inherently leading wording such as "vegetation damage" that may prime visitors to notice and negatively evaluate impacts and report that impacts affect their behavior. The few on-site, open-ended surveys or observational studies that have been done tend to contradict closed-ended survey findings.

We conducted open-ended, semi-structured interviews with 51 groups at their campsites in the summer of 1999. Interviews included general questions about site-selection criteria and perceptions of overall site conditions, as well as focused questions about vegetation, tree, and soil conditions, and their effect on site selection. Two coders analyzed the interview transcripts to develop theoretically relevant categories of responses (the inter-coder reliability index was .82).

Criteria for site choice were classified in line with prior research as locational features, social conditions, ecological impacts, scenic features, and managerial conditions. The most important factors were locational, especially proximity to water and trails, and social conditions, especially privacy. Ecological impacts, such as large core areas denuded of vegetation, were usually interpreted by campers as amenities that contributed to a site's desirability. Our findings indicate that for most visitors in our study, perception and negative evaluations of impacts did not play an important role in campsite selection.

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## **Introduction**

Recreational use of wilderness areas inevitably results in some degree of change to resource conditions. A variety of impacts to soils and vegetation occur at wilderness campsites and other destinations (Cole & Marion, 1988; Leung & Marion, 2000; Marion & Cole, 1996), and research has described the rapid deterioration of some conditions over time (Cole & Hall, 1992; Marion, 1994). In accordance with contemporary planning frameworks, wilderness managers should consider both the ecological significance and social acceptability of changes to resource conditions. Research discussing the ecological significance of recreation impacts at campsites has proliferated in recent years. However, managers must also understand how visitors respond to impacts, and we still know very little about how people perceive campsite conditions and what effect their perceptions have on behavior. In particular, we do not fully understand how perceptions of ecological impacts influence wilderness visitors' campsite choices. Such information is important for several reasons.

First, understanding the effect of impacts on site choice is necessary to improve managerial effectiveness. The likelihood that people will comply with management policy depends partly on how well policy fits with visitors' perceptions of site conditions and the attributes that visitors desire from their campsites. If managers adopt policies at odds with visitors' perceptions or preferences, voluntary compliance is likely to be low. For example, policies requiring visitors to camp away from water have often been unsuccessful, because proximity to water appears to be an important element of desirable sites. This issue is especially important in high-use areas, where researchers and managers often advocate use-concentration strategies, such as designated sites. For such policies to be effective, the designated sites, which are often highly impacted, must be acceptable to visitors.

Also, visitors' perceptions of site conditions are necessary input in selecting management indicators and standards. Planning frameworks such as Limits of Acceptable Change (LAC) recognize that some change in resource conditions is inevitable, but setting thresholds for the acceptability of different levels of impact requires value judgments (Shelby, Vaske, & Harris, 1988). Public input is important, because selecting indicators and standards for resource impacts involves identifying which resource conditions are important and what levels of impacts are acceptable. One meaningful source of public input is the attitudes of recreational visitors.

In order to provide information useful in promoting managerial effectiveness and selecting indicators and standards, the primary objective of this study was to examine how visitors' perceptions of ecological impacts at campsites affected their site selection.

## **Research on Visitors' Perceptions and Evaluation of Site Impacts**

Some prior research suggests that visitors do perceive ecological impacts at campsites, can formulate acceptability judgments, and are willing

to express them (Shelby et al., 1988). Furthermore, perceptions of impacts are said to negatively affect visitor experience quality and influence behavior (Roggenbuck, Williams, & Watson, 1993). Impacts such as litter and "resource damage" have been identified as "detractors" that make campsites undesirable to visitors (Clark & Stankey, 1985), and campsite conditions such as "bare ground, erosion," "damaged trees," and "campfire remains" have been said to cause campers to reject available campsites (Lucas, 1990). It is reasonable, then, to expect that ecological impacts would figure into wilderness visitors' campsite choices. However, methodological limitations and conflicting results from previous studies raise doubts about this seemingly straightforward conclusion.

First, several studies that have investigated the acceptability of resource impacts and visitor preferences for campsites attributes have used abstract or hypothetical survey questions (e.g., Shafer & Hammitt, 1995; Vaske, Donnelly, & Shelby, 1993). This abstract or hypothetical approach forces respondents to make evaluative judgments isolated from actual behaviors and site conditions and may be ineffective for assessing campsite desirability or understanding visitor behavior (Shelby & Harris, 1985). On-site evaluation is preferable for acceptability evaluations and desirability assessments, because it allows a more complete representation of all site characteristics (Beaulieu & Schreyer, 1985).

Additionally, the wording of various survey questions used to explore visitor reactions to impacts raises concerns. For example, one study found that "the number of trees around a campsite that have been damaged by people" ranked second among 19 site indicators in terms of influence on experience quality, and "the amount of vegetation loss and bare ground around a campsite" ranked sixth (Roggenbuck et al., 1993). Similarly, Shafer and Hammit (1995) found that "the number of trees or other vegetation damaged by previous users" ranked third on a list of 35 items that respondents scored "on the basis of their level of concern for that condition as part of their recreational experience in wilderness" (p. 20). However, these findings are based on potentially biasing verbal cues, such as "damage" or "vegetation loss" rather than what respondents actually perceive on their own. It seems likely that "damage" would be perceived negatively, but this is a separate issue from whether visitors actually evaluate bare campsite conditions as "damage."

Thus, previous studies relying on abstract or hypothetical survey questions may discount the importance of context and/or use wording cues that prime respondents to notice and negatively evaluate impacts. Therefore, it remains debatable whether most visitors actually perceive (during their site visit) the kinds of resource impacts that concern recreation ecologists and managers. It is possible that in hypothetical surveys, visitors react to the idea of damage rather than a genuine *perception* of damage encountered during a visit. Moreover, even if most visitors do notice impacts, it is not entirely clear whether impacts negatively affect experience quality or influence behavior, such as campsite selection.

Although there have been very few on-site, open-ended surveys or observational studies, results have tended to contradict survey research conclusions that visitors are sensitive to impacts. For example, Knudson and Curry (1981) found that front-country campers rated ground cover and tree health at their campsites as good, even where the majority of sites were completely devoid of vegetation, and nearly all trees had some injury from chopping. In another example in a wilderness setting, Heberlein and Dunwiddie (1979) found that more parties selected and stayed longer at worn and littered sites, and campsite selection was often guided by structural needs of the group, such as the need for adequate tent space.

Differences between studies of hypothetical versus actual visitor reactions to impact conditions suggest two potential dimensions to a camper's experience and choice of site: functional and symbolic. From the functional perspective, impacts are often seen as desirable amenities and would be evaluated negatively only if they interfere with the use of a site. For example, what ecologists perceive as vegetation loss may be a nice clear tent site to a camper. However, the negative reactions to impacts found in some studies (e.g., Roggenbuck et al., 1993; Shaffer & Hammit, 1995) suggest that there is also a symbolic dimension. Visitors may perceive impacts as incompatible with wilderness *in the abstract*, and this evaluation may be separate from the direct effect of impacts on site functionality. In a real context, a negative response to the symbolic dimensions of impacts would only arise if visitors perceive and categorize impacts as anthropogenic change. Even then, the negative response to the idea of human impacts may be in conflict with, and subsidiary to, a positive reaction to the functional benefits of site changes. Where on-site behavior is concerned, the contribution of impacts to increased site functionality may be more important to most visitors than the symbolic idea of damage.

## **Methods**

### *Study Area*

This study took place at Duffy and Marion Lakes in Mt. Jefferson Wilderness, Oregon. The wilderness covers almost 4,500 ha in the central Cascades, with elevations ranging from about 914 m in the valleys to almost 3200 m at the summit of Mt. Jefferson. There are about 306 km of trail, including a 64 km stretch of the Pacific Crest National Scenic Trail. Duffy Lake and Marion Lake are popular day and overnight destinations about 5 km from trailhead parking.

Camping at Duffy Lake is officially restricted to 12 designated sites within 61 m (100 ft) of the lakeshore, although recent monitoring inventoried an additional 27 identifiable non-designated sites in varying levels of use. Campfires are prohibited within 61 m of the water, and camping is unrestricted beyond 122 m (200 ft) from the water. Marion Lake is much larger by comparison, with approximately 120 identifiable campsites. There is no designated site camping policy at Marion, but fires are allowed only at sites at least 61 m from water.

On sites where interviews were conducted, campsite condition data were collected using a multi-parameter method (Cole, 1989). Technicians measured campsite size, percent vegetation cover on and off-site, percent mineral soil exposure on and off-site, and number of scarred and felled trees on campsites and in surrounding areas. Campsites at each lake range from large, highly impacted sites to small, lightly impacted sites. Site size ranges from 13 m<sup>2</sup> to 453 m<sup>2</sup>, with a mean of 144 m<sup>2</sup>. All of the sites where interviews were conducted had lost the majority of their vegetation cover, and two-thirds had greater amounts of mineral soil exposed on site than off site (see, Farrell, Hall, & White, in press).

Most visitors to Mt. Jefferson Wilderness are drawn from nearby Bend, Eugene, and Portland. Monitoring data on use levels and user characteristics in Mt. Jefferson Wilderness collected in 1992 provides some context for this area as compared to others. About 28,000 people visited the wilderness via 30 trailheads in 1992, with overnight visitation accounting for about 42% of that use (Hall & Shelby, 1993).

#### *Interview Procedures*

To supplement prior research and address limitations of past studies, we employed qualitative data-collection methods in this study. Open-ended, semi-structured interviews were conducted with 51 groups of wilderness users at their selected campsites (18 groups at Duffy Lake and 33 groups at Marion Lake). Interviewing occurred during July and August 1999. The specific selection of respondents was opportunistic (interviewers approached all groups who had already selected a campsite at the study site during the specified interview times). No groups declined to take part in the study, although one individual declined to be recorded.

The 51 groups were comprised of 132 individuals, 99 of them male. The most common age bracket was 30-35. Group size ranged from one to eight, with a median of two. About two-thirds of the groups interviewed included two to four people, and one-quarter of the sample was traveling alone. Within 22 groups (43%), at least one person had camped at the study lake previously, and eight groups (6%) included someone who had camped at the specific campsite before. To reduce the time burden on the respondents and promote rapport, extensive demographic and experience use history information was not collected. Therefore, one limitation of this study is the inability to compare respondents based on characteristics such as skill level or number of previous visits to wilderness. Also, respondents were not questioned about their expectations for impact conditions in general, or in wilderness specifically. Because some respondents did assess conditions based on their prior expectancies during the interviews, it is likely that gathering expectation information from all respondents would have provided useful.

The interview protocol was pre-tested on-site in early July, and some questions were slightly modified to increase clarity. The final interviews began with general questions about site selection criteria: "Can you tell me why you chose this particular campsite?" "Did you consider any other

campsites before you chose this one?" "If so, what made you pick this one instead of the other one?" Next came questions about perceptions of overall site conditions: "What do you like about this particular campsite?" "Are there any things you dislike about this particular campsite, is there anything that could be a little better, or is there anything that's less than ideal for you personally?" Then came more focused questions regarding perceptions of three specific resource conditions and their effect on site selection: "What do you think about the condition of the (ground vegetation; trees; soil) at this particular campsite?" "Did any of those factors, the condition of the vegetation, trees, or soil influence why you chose to camp at this site, or why you chose not to camp at another site?" "Can you imagine any conditions that would cause you not to camp at this site?" This approach was designed to ensure that respondents were not artificially primed to focus on impacts or to evaluate resource conditions as undesirable based on descriptors such as "damage" or "loss." The tape-recorded interviews lasted approximately 10 to 15 minutes per group.

The interviews were transcribed verbatim, without intonation or other linguistic elements, but retaining pauses and verbal hedges, such as "Um" or "Hmm." This yielded 87 single-spaced pages of transcripts. To gain a broad understanding of the content, the authors read through the transcripts several times. Next, the first and third authors (coders) independently developed coding categories with separate randomly selected subsets of 10 interviews using standard content analytic procedures (Miles & Huberman, 1994; Strauss & Corbin, 1990). That is, similar responses to each interview question were grouped into conceptual categories. For example, campers' reasons for choosing a particular campsite were classified into five site selection criteria: locational features, managerial conditions, social conditions, ecological impact conditions, and scenic features. These categories were suggested by prior research (e.g., Brunson & Shelby, 1990; Lucas, 1990) and operationally defined during the coding process.

After discussion and resolution of discrepancies, the coders again independently coded a different subset of 10 randomly selected interviews. After further discussion and clarification, a final codebook was established for coding the responses from all interviews. The iterative process of testing and refining the codebook facilitates "clarity and explicit guidance for code application" (MacQueen, McLellan, Kay, & Milstein, 1998, p. 35), and promotes reliability. The reliability of the coding categories was assessed using the total proportional agreement between coders for all coding judgments, which is calculated by dividing the number of pairwise inter-coder agreements by the total number of pairwise judgments. This value can range from 0 to 1 (Rust & Cooil, 1994). The final proportional agreement was .82. Since .82 represents the total proportional agreement between judges for the finest scale of analysis, including all sub-categories within each coding category, it is therefore a rather conservative estimate for agreements at a higher level of generality. Although this level of proportional agreement is acceptable, it represents the judgments of two

coders, and, ideally, independent coders would have been assigned the final coding task. Using outside coders would have been helpful in further assessing reliability and addressing potential bias or errors introduced by having the same coders during each round of analysis.

### **Findings**

The findings are presented in order of the interview questions, so that the reader may follow the line of inquiry as it was put to the respondents.

#### *Site Selection Criteria*

The first part of the interview dealt with the criteria that campers used to select their campsites. Each group was asked the open-ended question: "Can you tell me why you chose this particular campsite?" The interviewer attempted to make certain that respondents understood that the question referred to their *specific* campsite, not the lake in general. Respondents could list as many factors as they wished and were probed until they could not think of any additional reasons (Table 1).

Locational features were the most frequently cited criteria for selecting a campsite, mentioned by 62% of the groups. This category includes proximity to water, access to trails and other campsites, access to fishing spots and boat ramps, and proximity to pit toilets (toilets were only present at Marion Lake). Proximity to water (e.g., a lake or stream) was the most often referenced locational feature. For example, locational features influenced one family's choice of site: "Uh, it was close to the fresh creek and uh, we have small kids, and there is an outhouse up here." A father and son camped at Marion Lake said they picked their site because it was "near the lake and we can fish and go to the water."

More than half (58%) of the groups mentioned social conditions that influenced site choices. For the most part these campers said they chose their site because it was unoccupied, not too close to other groups, and screened from other campers. Typical comments in this vein included: "It was separated from the other sites you see, so at least some amount of privacy at a pretty popular lake"; "It was the furthest away from any other campsite"; and "Secluded, not out in the open." Other, less frequent responses related to backpackers wanting to avoid horse users, and a few groups with a tradition of returning to the same site where they had previously camped.

Twenty-eight percent of groups independently raised the topic of ecological impacts that affected their campsite selection (e.g., fire rings, camp areas denuded of vegetation, cleared litter layer, and trees with nails). Although managers consider these changes to be negative impacts, most respondents interpreted these conditions as amenities that added to the site's desirability. For example, some groups preferred campsites that had large areas denuded of vegetation and debris, because these sites provided adequate tent space for large groups. Others noted that impact conditions were acceptable in light of their expectations for a high-use wilderness destination, or that impacts were an acceptable by-product of recreation use. No groups selected their site because it was *lightly* impacted.

Scenic features, such as views of the mountains, forests, and water, were mentioned by 20% of groups. Many people commented about the general "beauty" of the scenery around their chosen site. One group said, "Well, we wanted a view of the mountain. Three-Finger Jack is right there, and looks like a perfect view, I mean, we can see it from our tent, so we wanted to be able to enjoy that."

The final category of responses, mentioned by 14% of groups, concerned managerial conditions, including the designated site camping policy (in effect at Duffy Lake only), campfire restrictions, and pack stock requirements. For example, one respondent said, "Well I had to, I had to get here because of my llama. I had to get him 200 feet back. I would normally camp out here in Moon's Point, but I would be within 50 feet of the water, which would be illegal." The influence of managerial conditions on site selection reported here is affected by the four groups who noted the designated site camping policy at Duffy Lake as a reason in their site selection; the importance of this criterion would likely vary depending on the number and type of regulations in place in a different context.

In order to further probe the factors that influenced wilderness campers' site selection, we next asked if they had considered camping at any other campsites before deciding on their final site, and if so, what made them pick the one they did. Looking at the pattern of responses among this subset of 29 groups (57%) who considered at least two sites before choosing their final site reveals the same categories of site selection criteria and a similar pattern of responses (Table 1). Locational features and social conditions remained the most commonly mentioned reasons for choosing a site; in this case these were the factors campers used to select among competing sites. Impact conditions and scenic features were mentioned by fewer groups, and no groups mentioned managerial conditions as a reason for choosing among multiple sites. All seven of the groups that did mention ecological impacts as factoring into their decision to choose between multiple sites considered the impacts to improve the site's desirability. Three groups talked about their final site being preferable because it was larger and offered more space for tents, while two groups noted that their final site was chosen in part because it had log benches, and one group each mentioned an existing fire ring and trees with nails as beneficial site amenities.

### **Campsite Condition Evaluations**

In the next part of the interview, respondents were asked their overall evaluation of the campsite, beginning with what they generally liked about the site. As might be expected, the response pattern is similar to the site selection criteria discussed above. More than two-thirds (72%) noted locational features of their sites, most often appreciating proximity to lakes and streams, as well as access to trails and fishing spots. About half the groups made positive reference to scenic features, and one-quarter noted privacy and seclusion. Almost a third of the groups said conditions



categorized as ecological impacts (trees with nails, downed logs for benches, fire rings) added to their site's desirability. A smaller number discussed managerial conditions in a positive light—mostly saying they were glad that fires were allowed.

**Table 1**

<b>Criterion</b>	<b>Influenced site choice <sup>a</sup></b>		<b>Influenced choice between multiple sites <sup>b</sup></b>
<b>Locational</b>	62		41
Close to water		38	14
Close to trails		8	10
Fishing		6	7
Near pit-toilet		6	7
Boat launch		2	3
Swimming		2	0
<b>Social</b>	58		38
Campsite availability		30	28
Private/ secluded		22	10
Open/ public		2	0
Away from conflict		2	0
Tradition		2	0
<b>Impact condition</b>		28	23
Fire rings		12	3
Large tent space		8	3
Large site size		4	7
Trees with nails		2	3
Log benches		2	7
<b>Scenic</b>	20		9
"Beautiful"		6	3
Mountains		6	3
Forests		4	3
Water		4	3
<b>Managerial</b>	14		0
Designated site policy		8	0
Campfire restrictions		4	0
Pack-stock regulations		2	0

<sup>a</sup>Percent of 51 groups mentioning each criterion as a factor in site selection.

<sup>b</sup>Percent (of 29 groups that considered multiple sites) mentioning each criterion as a factor in selecting their final site.

When asked if there was anything they disliked about their site, a third said "nothing," even after interviewers probed with "Is there anything that could be a little better?" or "Is there anything that's less than ideal for you personally?" The only factor that was regularly mentioned in a negative

light, by 14% of groups, was "too many people." Three groups (6%) cited ecological impact conditions as dislikes (one pointing out litter and two talking about graffiti on trees). Although one should be careful about inferring too much from this restricted sample, and because of possible social desirability response bias, it seems that (despite widespread ecological impacts at the two study lakes) conditions were not sufficiently altered for visitors to mention them as affecting their choice of site or evaluation of the site's attractiveness.

#### *Influence of Vegetation, Tree, and Soil Impacts on Campsite Choice*

The final interview section dealt specifically with the influence of three ecological impact conditions (vegetation, trees, and soil) on wilderness visitors' campsite selections. Respondents were asked directly, "Did any of those factors, the condition of the vegetation, trees, or soil, influence why you chose to camp at this site, or chose not to camp at another site?" Results clearly demonstrate that perception and negative evaluation of ecological impact conditions did not significantly affect these wilderness campers' site selection. Thirty-seven groups (73%) said that vegetation, tree, and soil conditions did not figure in their decision at all. Other criteria, such as social conditions were more important; "not the conditions of the trees, the soil, or the vegetation, they all seem pretty uniform, it was the other issues, the aesthetics, the privacy." Many groups noted the preeminence of locational features as compared to impact conditions: "Um, I don't think that really made the difference in the reason I camped. I think accessibility to the lake made all the difference to me."

Those groups (27%) that did mention resource conditions as a factor in their site choice usually interpreted site impacts as amenities that contributed positively to their site choice. For example, one respondent camped at Marion Lake commented on the lack of vegetation and numerous downed trees as beneficial site characteristics: "I would say yeah. There's a lot of open area. There's a lot of, actually having the trees down, a lot of good bench areas."

The final question in the interview asked: "Could you imagine any conditions that would cause you not to camp at this site?" The most frequent responses here did relate to site impacts; specifically, 22 groups, or 43% of our sample said they would not camp in the site if there were garbage, litter, or human waste around. However, nine groups (6%) said they would not camp at an "unimpacted" site (e.g., too much vegetation, insufficient room for tents, or no firepit). The only other criterion listed by campers that would turn them away from a site related to social conditions, as 33% responded with comments like "too many people around."

#### **Discussion**

Our findings indicate that ecological impacts did not influence campsite selection for most visitors in our sample of campers at Duffy and Marion Lakes. Rather, locational features and social conditions were more important determinants of site choice. Of those visitors who did consider site

impacts as part of their decision-making, most evaluated impacts positively as amenities that added to a site's appeal. Although these findings are limited to this study's context of two heavily impacted wilderness lakes, there are wider implications for understanding visitor behavior and promoting managerial effectiveness.

#### *Importance of Impacts*

Based on the discrepancies between our findings and those of some prior survey research, it appears that in an abstract or hypothetical situation, respondents are more likely to say that they consider ecological impacts in the campsite selection process than during an actual site visit. Perhaps this is because the symbolic dimensions are most salient in an off-site survey context where terms such as "damage" cue a negative evaluation. During the on-site recreation experience, on the other hand, wilderness visitors are more likely to make tradeoffs regarding their evaluation of impacts and the desirability of the site in relation to its functional amenities. For most visitors in this study, the positive functional attributes apparently outweighed negative symbolic connotations.

It is important to note that our questions were largely restricted to site choice and did not cover the full range of ways that impacts could affect visitors' experiences. Nevertheless, even when probed persistently about "anything they didn't like" about the site "anything that could be better" or "anything that was less than ideal", almost no one mentioned ecological impacts. This leads us to believe that impact conditions—at least regarding vegetation, trees, and soil—were not major negative influences on experiences for these respondents. If they had been negative influences, respondents should have mentioned that impacts affected site choice or had some type of negative effect. Respondents were not reluctant to mention other negative impacts on their experiences, such as other visitors, weather, or mosquitoes. Therefore, the absence of negative comments about ecological conditions can cautiously be inferred to mean impacts were not major factors in experience quality. It could be that the questions we asked involved some recall and self-reporting bias (a problem inherent in all interviews), but we believe that this approach has greater validity than approaches asking people to predict how they think they might act under hypothetical conditions.

#### *Managerial Relevance*

Understanding how visitors perceive and react to sites is necessary if managers are to design effective policies to address ecological impacts. Management policies that are at odds with visitor perceptions and evaluations are likely to generate low levels of compliance. Indeed, efforts to disperse use or to restore sites have failed because of visitor noncompliance (Cole & Ranz, 1983).

One policy often recommended for high-use wilderness destinations is use concentration. Such strategies are intended to reduce cumulative impacts but do result in a smaller number of highly impacted sites. Actions and policies can be heavy-handed (e.g., designated sites) or more subtle

(e.g., installation of fixed fire rings to attract visitors). It is therefore important to understand how visitors are likely to react to the appearance of those sites. Our findings have several implications for use concentration strategies.

First, campers' responses to site sizes (none said sites were too large) offer hope that the highly altered sites that result from use concentration will not be perceived negatively and that most visitors will voluntarily choose large sites. Second, in order to ensure compliance, sites selected for use concentration strategies should have the amenities that campers desire. For example, sites should not be too far from water if we expect people to use them. Third, because many visitors are more sensitive to privacy concerns than biophysical impact levels, sites should be isolated or screened from each other. Designated site policies may be especially effective in this regard, because they can assure the visitor that no one will arrive and set up a tent right next to them. Designated sites can be criticized because they restrict freedom, but people may be willing to trade some freedom for assurances of privacy. Finally, use dispersal strategies, recommended in low-use areas, may fail if flat, unvegetated sites are not available.

It is likely that managers will continue to be concerned about campsite impacts in wilderness areas, given legislative mandates. Our findings suggest some points of similarity—for example, managers and visitors seem to agree about the desirability of campsite solitude and undesirability of litter. However, there is substantial divergence between managers, who act to mitigate impacts such as vegetation loss, and visitors, who view such impacts as beneficial when selecting sites. Of course, managers' concerns may arise from more than just concern for experience quality, such as broader directives to preserve naturalness, but regardless of the reasons, there seems to be a difference in perception. Wilderness managers are trained to attend to such impacts and detect small changes from natural conditions. They may also, because of professional training, be more aware of the repercussions of recreation impacts on ecological processes and functions. Wilderness visitors may have different backgrounds and training than professional managers, and therefore perceive impacts differently. Furthermore, during a visit, wilderness campers are probably more concerned with immediate physical comfort than the less tangible implications of impacts.

These differences should lead managers to ponder the proper role for public input in wilderness planning. They should recognize that they might start from a different view of the importance of recreational impacts than the public. Although wilderness visitors do care about protecting nature from harm, they do not appear to be adversely affected by the types of impacts studied here, and desire many of these "impacts" at their sites. Visitors' desires for functional, well-located sites will have to be weighed against divergent managerial directives. Throughout the process, then, managers may need to be as explicit as possible about the rationale underlying any management decisions or policies.

## Conclusions and Future Research

This study highlights the diversity of lenses through which people perceive and experience their environment, and demonstrates that the ecological impacts managers usually consider so problematic are interpreted differently by different parties. For visitors, the functionality, convenience, and social characteristics of a site are paramount. For managers, the symbolic status of site impacts may be most important.

However, this study was limited to two high-use destinations only a few kilometers from trailhead parking in a popular wilderness area during the summer months. It is possible that the campsite selection criteria used by our respondents differ from those of different types of visitors in other settings. For example, impacts may play a larger role in campsite selection for more experienced campers visiting remote, low-use areas, or during "shoulder seasons." More experienced and knowledgeable users may have more exposure to educational programs such as Leave No Trace, and therefore might be more attuned to negative implications of recreation impacts. Furthermore, it is well known that expectations affect experience quality. Visitors with prior experience at a specific site may have more accurate expectations and therefore be less likely to feel negatively about the conditions they encounter. In this study, 43% of groups had at least one member who had been to the area previously. Perhaps this high degree of prior experience was related to visitors' positive reactions to site conditions. At a different, unknown site, the same visitors might have a different reaction if the conditions there diverge significantly from their expectations. Further research in different areas, asking more pointed questions about prior experience and expectations, would help clarify the generality of the conclusions drawn here.

Additionally, there remain other questions about the actual effects of resource impacts on visitor experiences (apart from the limited question of site choice studied here). Our study did not address this possibility directly, although we suspect that the widespread vegetation, tree, and soil impacts present at our study sites did not have an adverse impact on visitors' experiences. Therefore, we suspect, but cannot prove, that other studies' conclusions drawn from hypothetical questions may have overstated the importance of biophysical impacts on the wilderness experience. More research is necessary to adequately assess the actual importance of impacts to visitors' experiences. Approaches that capture contextual factors and allow for development of shared understanding between researcher and respondent are likely to be most effective in future research.

Campers at Duffy and Marion Lake appeared to view biophysical impacts as amenities, when they noticed them at all. However, other visitors in other locations may perceive such impacts negatively. It is unlikely that managers can accommodate the desires of all users, and if there are systematic differences, managers need to clearly understand the perspectives of different groups to deliberately choose which experiences to provide and whose desires to fulfill. Managers might benefit from further

studies that incorporate variables that help distinguish among types of users. In particular, future research should assess visitors' past experience, expectations, wilderness knowledge, and wilderness-dependency, because these variables are likely to distinguish among groups and are especially relevant for wilderness managers.

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