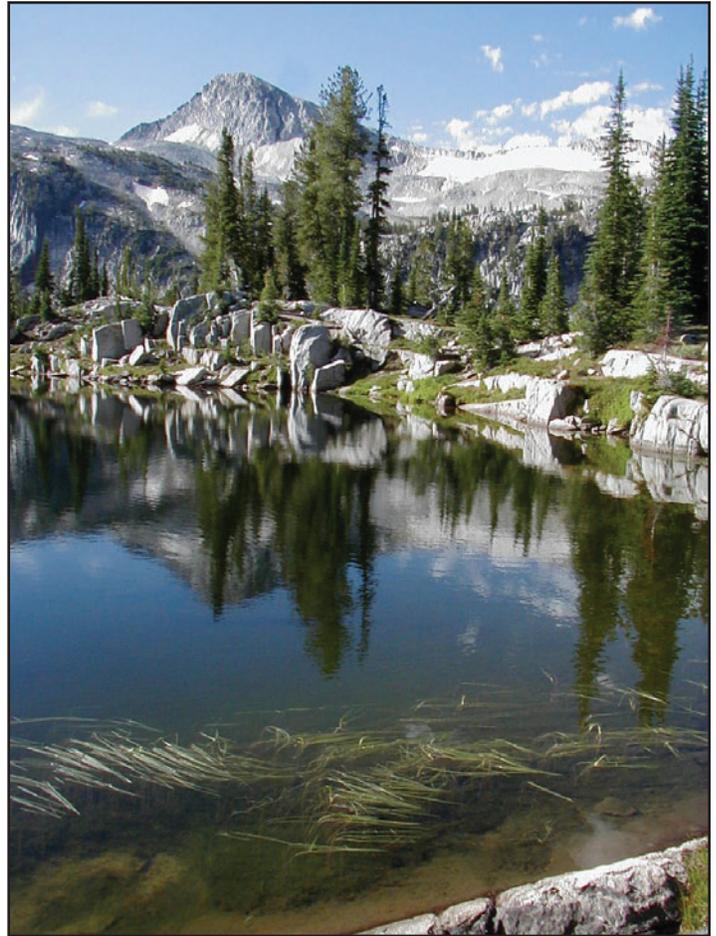


# Changes in the Motivations, Perceptions, and Behaviors of Recreation Users: Displacement and Coping in Wilderness



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Troy E. Hall and David N. Cole



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## Abstract

We describe how wilderness visitors perceive changes in wilderness use, impacts, and management. We examine how visitors have responded to change, both behaviorally and cognitively. The study was based on a sample of visitors to 19 Forest Service wildernesses in Oregon and Washington. Many respondents said the types of wilderness trips they take have changed since their earlier wilderness trips. Most perceived adverse change. Use has increased (particularly day use), resulting in crowding and a widespread sense that these places seem less like wilderness than they did in the past. Most of these visitors learned to cope with these adverse changes by either adjusting the way they think about these places or by adjusting their behavior. Cognitive coping, particularly rationalization, is very common. Most visitors do not consider changing conditions to be very problematic, probably because their coping mechanisms are successful. This explains lack of support for management actions that restrict access. Very few visitors cannot cope with crowded conditions. Displacement of visitors away from crowded places does not seem prevalent enough for concern about increased crowding and biophysical impact in places in wilderness that are currently lightly used or the validity of on-site visitor surveys.

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**Keywords:** crowding, recreation experiences, substitutability, visitor management, visitor surveys, wilderness management, wilderness recreation

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# Introduction

Wilderness areas should be managed to provide a primitive and unconfined type of recreation, as well as outstanding opportunities to seek and find solitude. However, as the population grows, this becomes more difficult and recreation management in wilderness becomes increasingly controversial. If management does not respond to increasing use, at least some places in wilderness become crowded and opportunities for solitude decline. Visitors are forced to cope with less than ideal conditions (Johnson and Dawson 2004, Miller and McCool 2003). Some visitors rationalize the situation as being appropriate or acceptable under the circumstances; others respond behaviorally and are displaced (Hall and Shelby 2000). They choose to visit less crowded places (spatial displacement) or at less crowded times (temporal displacement). If managers respond by limiting use, visitors must cope with decreased access. Again, displacement occurs (Hall and Cole 2000), although in this case there are differences in who is displaced, why they are displaced, and where they go.

To make good decisions about how to manage heavily used wilderness and places where use is increasing, managers need to know more about how visitors are affected by increasing use. Displacement and other forms of coping are the inevitable result and primary mechanisms of visitor response to increasing wilderness use. Consequently, they need to be better understood, both as a means of describing visitor response and as a foundation for recreation management planning in heavily used wilderness.

The purpose of this study was to investigate displacement and coping in the Pacific Northwest by describing the perceptions of wilderness visitors regarding changes in wilderness use, impacts, and management and how they have behaviorally and cognitively responded to changes. The Pacific Northwest is an ideal place to study displacement and coping. The population of Oregon and Washington has grown significantly in recent decades, particularly near urban areas such as Seattle, Portland, and Bend. This growth is reflected in increasing recreational use of wilderness. In the Mt. Hood Wilderness near Portland, the use of many trails has increased dramatically over a 10 to 15 year period. In the Three Sisters Wilderness, some trails (like the South Sister Climb) have more than doubled in visitation, while the use of others has been relatively constant. Additionally, day use appears to have increased substantially, while the amount of overnight use has been more stable.

We had at least three reasons to examine displacement and coping. First, as mentioned previously, wilderness

managers are mandated by the Wilderness Act to maintain opportunities for certain types of visitor experiences, namely “outstanding opportunities for solitude or a primitive and unconfined type of recreation.” Many are concerned that visitor experiences are being degraded by increasing use. Evidence of the need to cope with undesirable conditions, regardless of whether the strategy involves temporal displacement, spatial displacement, or some type of rationalization, would suggest that there is reason for concern. Visitors are being forced to either change their behavior or to exert mental energy to deal with the conditions they find. Consequently, we attempted to quantify the proportion of wilderness visitors who were either displaced by undesirable conditions or forced to cope with those conditions in some other way. We explore the types of conditions that lead to displacement and coping, distinguishing between reactions to amount of use, biophysical impacts associated with use, and management restrictions.

A second reason to study displacement reflects concern that spatial displacement can result in increased crowding and biophysical impact in places in wilderness that are currently lightly used. The fact that relatively small increases in use can cause substantial impact in low-use places (Cole 1997) makes this a legitimate concern. Spatial displacement might occur either because people avoid high use places or because use limits are instituted there (Hall and Cole 2000). This is an issue we do not directly address in this study. However, the data we provide on frequency of spatial displacement, in response to current conditions, is suggestive of how likely visitors are to spatially alter their wilderness visitation in response to future management changes.

A third reason to investigate displacement has to do with concerns about the validity of conclusions that are drawn about visitor opinions on the basis of survey research. Clearly, the results of visitor surveys will only reflect the views of the current visitor population. A charge leveled against the use of such visitor surveys as a source of information on which to base policy, particularly in places that are heavily used, is that the opinions of a substantial number of legitimate stakeholders (people who have been displaced by crowding, conflict, or recreational impacts) are not captured in surveys (Dustin and McAvoy 1982, Vaske and others 1980). If so, stakeholder concern about the degree and type of impact to experiences caused by high levels of use might be underestimated by visitor surveys. Therefore, a goal of this study was to quantify the magnitude of the most extreme type of spatial displacement, which we refer to as “absolute displacement”—cases where people have completely stopped using particular places in wilderness.

Estimates of both absolute displacement and partial displacement—in which people still visit but less frequently than they would if conditions had not changed—provide insight into how concerned we should be about displacement as a significant source of bias in survey research results. If a substantial proportion of visitors have been absolutely displaced or have greatly reduced their use of places (and the views of displaced people are quite different from the views of people who have not been displaced), then we should be concerned.

## Previous Research

Several earlier investigations have explored how wilderness visitors react to adverse circumstances or conditions they perceive to be deteriorating. Most investigations have focused specifically on responses to crowding.

### *Displacement*

Two early studies of responses to crowded conditions on rivers (Becker 1981, Shelby and others 1988) reported that sizeable numbers of boaters went to another river to avoid crowding. Other studies have since confirmed that this reaction (intra-site or macro-spatial displacement) is a common occurrence, both in wilderness (Johnson and Dawson 2004) and in other settings (Hall and Shelby 2000, Manning and Valliere 2001). Visitors may also adjust where they go and what they do during a particular trip. Hoss and Brunson (2000) reported that 36 percent of wilderness visitors engaged in this type of micro-spatial displacement. Intra-site displacement assumes a person is aware of other opportunities, perceives them to be adequate substitutes, and has the ability to shift use to them.

Investigations of displacement have also found that temporal displacement—altering the timing of visits—is a common way for people to deal with undesirable conditions (Hall and Shelby 2000, Johnson and Dawson 2004). Conditions typically vary over time, in predictable ways, being more desirable at some times than others. Visitors learn these temporal patterns and build this knowledge into their trip planning behavior. For example, Manning and Valliere (2001) found that 65 percent of residents living around Acadia National Park used its carriage roads in the off-season and 45 percent went on weekdays to avoid deteriorating conditions, but only 25 percent said they visited less often. In some cases, changing the timing of one's visits may be less difficult than visiting another place altogether, but there

has been insufficient research to make definitive statements about the relative prevalence of different forms of displacement.

### *Cognitive Coping*

Besides behavioral strategies to cope with adverse conditions, wilderness visitors may also change the way they think about a site or experience in a process called cognitive coping (Hammitt and Patterson 1991, Hoss and Brunson 2000, Schuster and others 2003). In general, it is thought that people naturally adjust their thoughts to align with the circumstances they encounter and thereby maintain a positive affective state rather than becoming dissatisfied (Schuster and others 2006). This is especially likely where the behavior (for example, visiting a wilderness) is undertaken voluntarily. Various terms, such as rationalization, product shift, and psychological distancing, have been used to describe cognitive coping, but all involve either reassessment of expectations (sometimes the result of prior experience at the site) or reasoning away negative conditions (Manning 1999). For example, people may decide that their original goals were unrealistic or that nothing could have been done to alter the situation, so they might as well accept it (Miller and McCool 2003). Cognitive coping due to crowding has been documented as extensive (Johnson and Dawson 2004). Hoss and Brunson (2000) reported that 50 percent of wilderness visitors who encountered a negative situation on their trip rationalized it in some way.

While most research has focused on crowding or negative social encounters as the stimulus for coping, relatively few studies have explored displacement due to other factors, such as ecological impacts and management actions. Hall and Cole (2000) reported that the implementation of certain visitor regulations caused more people to be displaced than the crowded conditions the regulations were designed to correct. Clearly, if wilderness managers are to make informed decisions, they must understand what types of conditions have what types and levels of impacts on visitors. In the present study we explore the effect of recreational impacts, management restrictions, and crowding on wilderness visitors' behavior.

In our review of the recreation literature on coping, it became clear that attention needs to be paid to the ways in which the magnitude of displacement or coping is measured. Two issues are particularly important. The first issue is the difference between assessments of displacement based on experiences during a single trip (for example, Johnson and Dawson 2004, Miller and

McCool 2003) and assessments based on multiple trips to different places (for example, Hall and Shelby 2000, Manning and Valliere 2001). Asking about adjustment on a specific trip is a good way to understand micro-adjustments people make and how they combine different coping mechanisms (Hoss and Brunson 2000, Johnson and Dawson 2004). However, it is less well-suited to capturing macro-scale spatial adjustments and understanding the effect of conditions on decisions about where to go in the first place.

The second issue concerns the response options available for people to describe their coping actions. Some studies have simply reported the presence/absence of coping—by asking people yes/no questions (for example, Hall and Shelby 2000, Manning and Valliere 2001). Magnitude is expressed as the proportion of the population that has ever coped in a particular way. Other studies (for example, Schuster and others 2003) ask people to describe the frequency or intensity of their response. In this case, magnitude reflects both how many people respond in a particular way and how frequently those people respond in that way.

We were interested in assessing the magnitude of response to conditions, as well as the nature of that response. We reasoned that intensity of response increases with increases in the frequency and spatial scale of response. Always avoiding a particular place is a more intense response than occasionally avoiding it. Similarly, avoiding an entire wilderness is more extreme than avoiding a particular lake within a wilderness or setting up camp at the far end of a lake, away from the crowds. For our purposes, we designed our study to reveal macro-scale responses and to provide frequency measures for responses. We believe that these provide more meaningful information to wilderness managers about the intensity of coping, especially displacement.

## Study Design and Methods

Understanding the extent of displacement, especially spatial displacement, is difficult because it requires researchers to locate and contact people not present at the research site. Perhaps the ideal way to study displacement would be to survey a representative sample of the population of residents. Such surveys, which are commonly conducted to understand environmental attitudes and values, usually seek a representative sample using techniques such as random digit dialing. We decided this approach would be impractical due to the low awareness and use of wilderness among the general population.

Instead, we surveyed a representative sample of the general population of wilderness visitors in Oregon and Washington. In many wildernesses, visitors must complete a self-issued wilderness permit at the trailhead at the beginning of their trip. Usually, visitors record their names and addresses on these permits. We obtained the 2002 permits for the 19 wildernesses (out of 59 wildernesses in the two states) that require permits and that record names and addresses. Compliance rates varied among trailheads and permits were sometimes unavailable at trailheads for short periods of time. Additionally, group leaders are more likely to fill out the permit and may be more experienced (among other things) than other group members (Cole and others 1995). Therefore, the sampling frame represents only people who filled out permits, not other group members.

We sampled permits from the following wildernesses: Diamond Peak, Eagle Cap, Glacier View, Goat Rocks, Indian Heaven, Mark O. Hatfield, Mt. Adams, Mt. Hood, Mt. Jefferson, Mt. Washington, Norse Peak, Opal Creek, Pasayten, Salmon-Huckleberry, Tatoosh, Three Sisters, Trapper Creek, Waldo Lake, and William O. Douglas. These wildernesses represent a wide range of environments and use levels, although the most heavily used wilderness in the region, Alpine Lakes, was excluded because visitors are not asked for their addresses.

A 1-in-30 systematic random sample generated a database of 1,880 names for the survey mailing list. The sample included day and overnight visitors, hikers, climbers, and stock users in proportion to their representation in the population. Approximately 75 percent of permits had names and addresses. If a sampled permit did not have an address, we chose the next complete permit. The first round of surveys was sent in September 2003. Following Dillman's method (Salant and Dillman 1994), a reminder postcard was sent out 10 days following the initial mailing. Approximately 10 days after the reminder postcard, a second survey was sent to the remaining non-respondents. Of the 1,735 valid addresses, respondents completed and returned 1,038 questionnaires for a 60 percent response rate. We did not attempt to assess non-response bias by contacting and collecting information from visitors who did not return our questionnaire.

Because of the small number of stock users relative to hikers, we only obtained 66 completed questionnaires from stock users. To gather a better representation of stock users, we conducted a systematic (1-in-17) sample of the same 2002 Oregon and Washington wilderness permits, using only those that self-identified as traveling with livestock. Surveys were sent to 207 legitimate addresses in November 2003. One hundred forty-one

surveys were completed and returned, resulting in a 68 percent response rate. These surveys were combined with the 66 stock user surveys returned from the first round of mailings.

Ultimately, 1,173 completed surveys were obtained. Of these, 959 (82 percent) were from hiker permits, 207 (18 percent) were from stock user permits, and 7 were from permits where it was not possible to identify mode of travel. Respondents from three Oregon wildernesses (Three Sisters, Mt. Hood, and Mt. Jefferson) dominated the sample, reflecting the disproportionately high amount of use these areas receive.

## *Survey Instruments*

Our goal was to understand displacement at a scale larger than a single wilderness. We asked people general questions about behavioral tendencies, for instance, whether there were any wildernesses avoided due to crowding. At the same time, we wanted to gain a deeper understanding about the ways people cope cognitively with changes they perceive at some of the most heavily used individual wildernesses. To assess both regional and wilderness-specific responses, we developed two versions of a survey instrument that contained both general and wilderness-specific questions (see Appendix). Both versions of the 14-page survey contained questions that asked about use, attitudes, and perceptions of Oregon and Washington wilderness areas in general. These included questions about how motives for visiting wilderness had changed over time and several questions about temporal and spatial displacement (similar to items asked by Manning and Valliere 2001, Miller and McCool 2003). Three broad questions targeted absolute displacement (Miller and McCool 2003) by asking whether there were any wildernesses avoided because of social conditions, management restrictions, or recreational impacts.

The two survey versions differed in specific sections that focused on experiences in selected wildernesses. Based on a 2003 pilot study, we identified six wildernesses that received enough visitation to ensure an adequate number of respondents who had been to each of them (obtained from the regional sample). One version asked about the Mt. Adams, Eagle Cap, and Mt. Jefferson Wildernesses, while the other asked about the Mt. Hood, Alpine Lakes, and Three Sisters Wildernesses. The questions asked about each wilderness were identical, and respondents were instructed to skip sections about wildernesses they had never visited.

The sections specific to a particular wilderness contained questions about cognitive coping in addition to displacement. Coping, whether behavioral or cognitive,

is a reaction to conditions perceived as undesirable. To document the extent to which wilderness visitors perceived conditions to have deteriorated in these high use wildernesses, we asked questions about perception of change in the number of visitors, solitude opportunities, ecological impacts, freedom, and regulations. Additionally, we asked respondents whether they agreed or disagreed with the statement that the place presently “feels less like wilderness” compared to the past, and whether it felt crowded. Cognitive coping encompasses rationalizing an existing situation or changing the way one perceives it. We asked people if they thought the experiences at the six wildernesses had changed, whether they visit now for different reasons than in the past, and whether they had become accustomed to changes. We also included a limited number of agree/disagree statements about rationalization developed from Hoss and Brunson’s (2000) findings: “the area is so beautiful I visit in spite of the number of people,” “everyone should have a right to visit,” and “impacts could be worse considering the amount of use.”

To assess displacement from the six wildernesses, respondents were asked whether they visit more, less, or the same as in the past and why (Hall and Cole 2000). To understand how people might balance a desire to avoid undesirable conditions with their attraction to these wildernesses, we included items to measure place attachment and substitutability: “I don’t know of another area that offers the same opportunities,” “other places are just as good,” “there are so few places like this, I go in spite of the use,” “I have special memories of this place,” and “visiting is a tradition for me.” Finally, we included items measuring satisfaction, because previous studies have found that satisfaction remains high, possibly because people effectively cope with problems via the cognitive and behavioral mechanisms described above (Hoss and Brunson 2000, Manning and Valliere 2001). Satisfaction items included “I enjoy my visits here as much as I used to” and “I’m not as satisfied with my experiences as I used to be.”

## *Statistical Analysis*

Although most of the results that we report are descriptive statistics, we used inferential statistics some. We used Somer’s D to assess whether the proportion of visitors reporting displacement was related to how many years they had been visiting wilderness. We used two-factor analyses of variance to assess whether visitor perceptions of change in specific wildernesses and response to those changes varied between hikers and stock users or between different wildernesses. For

general questions, hikers are described separately from stock users. For the sections on specific wildernesses, sample sizes are so small that we do not make this differentiation. We pooled data from the general population and stock user samples, using stratified sampling estimators to account for the fact that we oversampled stock users. Due to our inclusion of the separate sample of stock users, stock users were 17.6 percent of our total sample, despite being only 6.4 percent of the initial representative sample of all users.

## Results

Men dominated the sample (70 percent), even though observations of on-site use in a related study suggest that men only account for about 58 percent of wilderness visitors (Cole and Hall 2005). The median age of hikers was 46 years, while the median age of stock users was 53 years (table 1). Compared to trailhead surveys of all users to 36 trails in Oregon and Washington (Cole and Hall 2005), where the median age was about 38 years, the sample for this study was older. These results are suggestive of some of the differences between the population we sampled (those who filled out permits) and the larger population of wilderness users. While almost all hikers said that hiking was their only mode of travel, 18 percent of stock users said they hike and use stock about equally.

At least someone in each of our samples (hikers and stock users) had been to each of the 59 wildernesses in Oregon and Washington. At least 10 percent of our sample had been to 38 of these wildernesses. At least 30 percent of the sample had been to each of the six specific wildernesses we studied: Alpine Lakes, Eagle Cap, Mt. Adams, Mt. Hood, Mt. Jefferson, and Three Sisters.

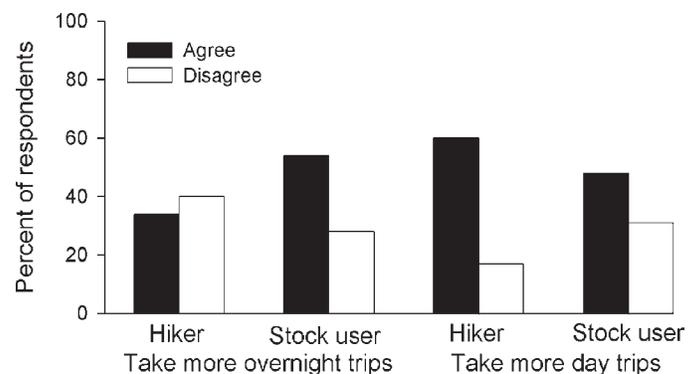
In general, stock users have been visiting these wildernesses for a longer period of time than hikers. About two-thirds of hikers and 80 percent of stock users have been visiting Oregon and Washington wilderness for more than 10 years. Eighteen percent of hikers and 34 percent of stock users first visited in the 1960s or before. The median stock user first visited in 1975, while the median hiker first visited in 1982.

To investigate displacement due to change, we felt it was most valid to consider only the responses of long-term visitors, those with the most appropriate context for evaluating change. Therefore, we only included respondents who had made at least five visits to an Oregon or Washington wilderness, with at least one of those visits having occurred at least five years ago (in 1998 or before). Most respondents, 86 percent of hikers and 72 percent of stock users, met these criteria and were considered long-term visitors.

## Changing Use of Wilderness

Long-time wilderness users were asked how their wilderness trips have changed over time in terms of length and frequency of trips, visitation to places closer to or farther from home, and reactions to rules or site developments. The question asked, “compared to your earlier wilderness trips in Oregon and/or Washington, how have the following aspects changed? Please indicate how strongly you agree or disagree with each statement” (+3 = strongly agree; -3 = strongly disagree). The average score for most items was close to zero, suggesting either little change, or that the proportion changing in one direction was equivalent to the proportion changing in the opposing direction.

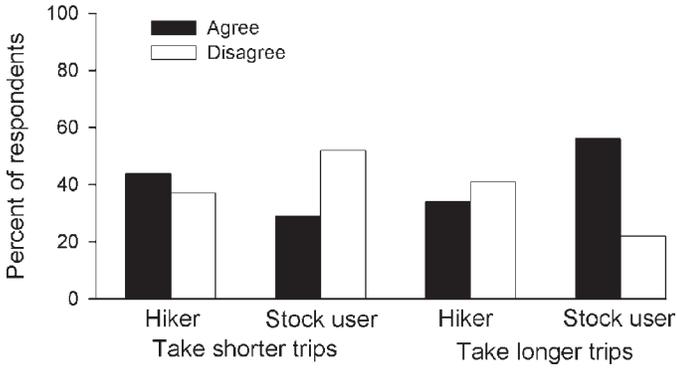
Regarding trip length, most hikers reported that they take more day trips than in the past, while relatively few hikers reported taking more overnight trips than in the



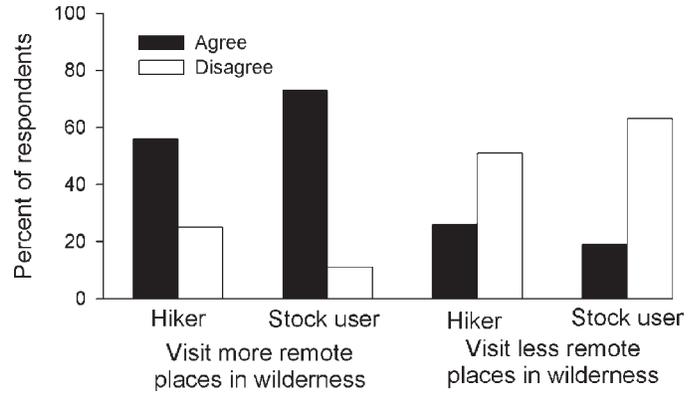
**Figure 1.** Percent of long-term hikers and stock users agreeing and disagreeing that they take (a) more overnight trips and (b) more day trips than in the past.

**Table 1.** Age distribution (percent) of respondents.

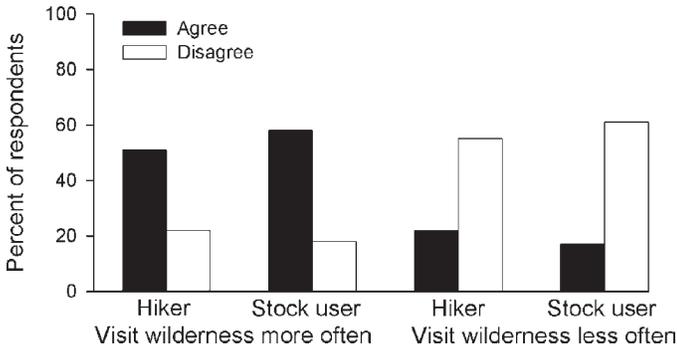
Mode of travel	Age in years				
	20 or less	21-30	31-40	41-50	More than 50
Hikers	0	14	19	29	38
Stock users	0	2	7	32	58



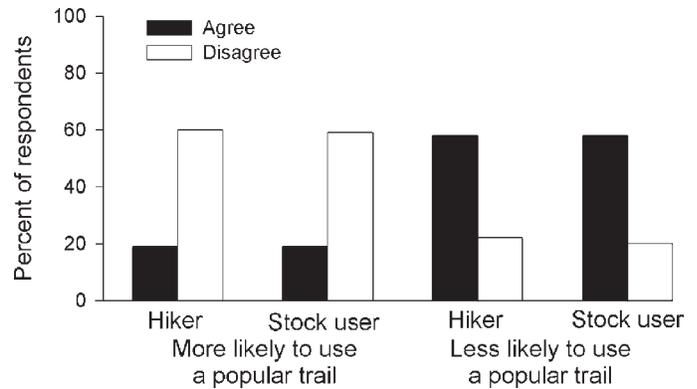
**Figure 2.** Percent of long-term hikers and stock users agreeing and disagreeing that they take (a) shorter trips and (b) longer trips than in the past.



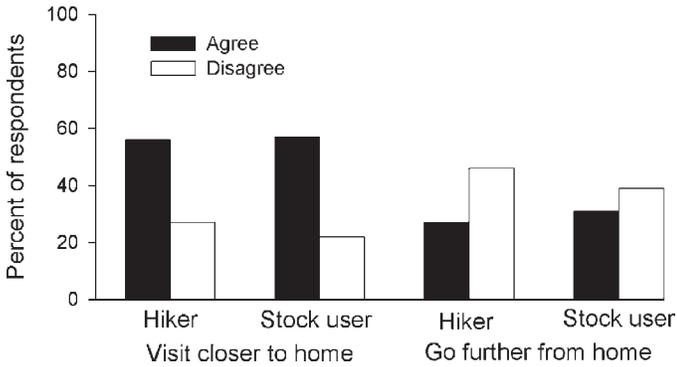
**Figure 5.** Percent of long-term hikers and stock users agreeing and disagreeing that they visit places in wilderness that are (a) more remote and (b) less remote than in the past.



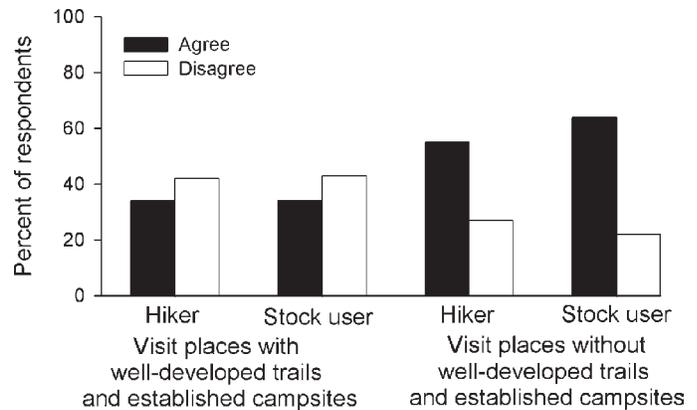
**Figure 3.** Percent of long-term hikers and stock users agreeing and disagreeing that they visit wilderness (a) more often and (b) less often than in the past.



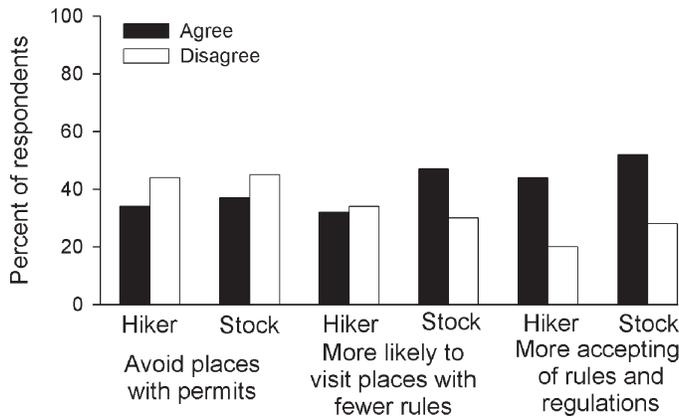
**Figure 6.** Percent of long-term hikers and stock users agreeing and disagreeing that they are (a) more likely and (b) less likely to use a popular trail than in the past.



**Figure 4.** Percent of long-term hikers and stock users agreeing and disagreeing that they visit wildernesses that are (a) closer to home and (b) further from home than in the past.



**Figure 7.** Percent of long-term hikers and stock users agreeing and disagreeing that they are more likely than in the past to visit places (a) with well-developed trails and established campsites and (b) without such facilities.



**Figure 8.** Percent of long-term hikers and stock users agreeing and disagreeing that they (a) avoid places with permits, (b) are more likely to visit places with fewer rules, and (c) are more accepting of rules and regulations than in the past.

past (fig. 1). In contrast, a slight majority of stock users reported that they take more overnight trips than in the past. For hikers, there appears to be a slight shift toward taking shorter trips, while stock users reported being more likely to take longer trips (fig. 2). Both hikers and stock users reported visiting wilderness more often than they did in the past (fig. 3). The ability to visit more often might be partially explained by the fact that both hikers and stock users stated that they are much more likely to visit wilderness areas closer to home than they were in the past (fig. 4).

Regarding where they go in wilderness, both hikers and stock users reported that they are more likely to visit remote locations (fig. 5) and less likely to use a popular

trail (fig. 6). Majorities stated that they are more likely to visit places without developments (fig. 7), although this tendency was less pronounced when people were asked about visits to well-developed sites. Rules and regulations appeared to have little influence on choices (fig. 8), perhaps because there are so few in these wildernesses. Hikers do not tend consciously to avoid places with permits, rules, and regulations, and few hikers do not accept rules and regulations. Stock users are somewhat more likely to visit places with fewer rules and regulations, but most state that they have become more accepting of regulations than in the past.

Collectively, these results suggest there may be cause for concern about displacement. Hikers are visiting wilderness more frequently, for day trips particularly, in places close to their homes. While these trends contribute to concentration of use, most hikers also reported trying to visit more remote places in wilderness, less popular trails, and places without development. Stock users differed only in that they were also taking more overnight trips and that the length of their trips was not declining. So far, neither group generally felt that rules and regulations were prevalent enough to have much effect on their patterns of use.

We asked long-time visitors how their motivations for wilderness trips have changed compared to their earlier trips. For each of 15 common reasons for taking wilderness trips, respondents could give scores between +3 (more of a motive now) and -3 (less of a motive now). For both stock users and hikers, most motivations we asked about were reported to be more of a motive for visiting wilderness now than in the past; no motivations were less of a motive now (table 2). Patterns of response were generally similar across the two user groups. Certain mo-

tivations increased in importance more than others, however. Enjoying scenery, finding peace and quiet, escaping routine/relax, getting away from people, clearing the mind, getting close to nature, and solitude were motivations that most hikers and stock users felt were much more important to them now than in the past. Exercise was much more important now than in the past for hikers, but less so for stock users. The only motives that were less important today for as much as 10 percent of the sample were easy access, develop skills, challenge and excitement. Again, this shift toward more contemplative motives for visiting wilderness suggests a potential for problems resulting from increased wilderness use, particularly if it is concentrated in day use zones in wildernesses close to large urban areas. Contemplative activities are more likely to be disrupted by heavy concentrated use.

**Table 2.** Change in motivations of long-term visitors.<sup>a</sup>

	Hikers n = 780		Stock users n = 173	
	Mean	SE	Mean	SE
Enjoy scenery	1.45	0.05	1.80	0.10
Exercise	1.49	0.04	0.91	0.11
Peace and quiet	1.41	0.04	1.59	0.10
Escape routine/relax	1.27	0.04	1.63	0.10
Clear the mind	1.26	0.04	1.37	0.10
Get away from people	1.20	0.05	1.52	0.10
Close to nature	1.19	0.05	1.53	0.10
Solitude	1.14	0.05	1.35	0.10
See wildlife	1.04	0.04	1.59	0.10
Sense of accomplishment	0.87	0.05	0.75	0.10
Friends/family	0.84	0.05	1.22	0.11
Excitement	0.74	0.05	0.80	0.11
Challenge	0.38	0.05	0.20	0.11
Develop skill	0.23	0.05	0.58	0.11
Easy access	0.19	0.05	0.13	0.11

<sup>a</sup> Scale: -3 (less of a motive now) to +3 (more of a motive now)

## Decision-Making Factors for Wilderness Trips

In order to understand how crowding compares to other factors that might influence wilderness visitation, we asked long-time visitors how much they consider each of eight factors in deciding “which places to go for wilderness trips in Oregon and/or Washington.” This general question forced respondents to consider all their trips as a whole, with responses ranging from zero (not at all a consideration) to 6 (a major consideration).

Of the short list of factors asked about, both hikers and stock users considered crowding to be most important when deciding where to go in wilderness (table 3). Trail conditions were somewhat important, particularly to stock users. Campsite conditions were less important to both groups. Rules and regulations were of little concern to hikers, but more of a concern for stock users. Most of these items had means below 3.0 (“a minor consideration”), suggesting they are not very important. Rules and regulations might have been more of a concern if they were more prevalent. In Forest Service wilderness in Oregon and Washington, amount of use is only limited in small portions of three wildernesses. Behavioral restrictions are also uncommon. The reader should remember that there are many other factors we did not ask about, such as scenery or distance to the trailhead. These may be equally or even more important in people’s decisions about where to go.

### Displacement

#### Amount and causes of displacement

Displacement can range from absolute displacement, a decision to never visit a place again, to partial displacement, which might involve continuing to frequently visit

a place but trying to avoid it on major holidays. Absolute displacement is most germane to two of the reasons why we were interested in assessing displacement: (1) whether or not on-site survey results are substantially biased as a result of displacement and (2) the likelihood of pronounced spatial shifts in use levels as a result of displacement.

Our most direct attempt to quantify absolute displacement involved asking the question, “have you ever had an experience so unpleasant that it made you decide not to return to an area?” In reference to the Forest Service wildernesses in Oregon and Washington, almost 13 percent responded affirmatively by listing at least one such place (there was space on the questionnaire to list up to three places). For each place that they no longer visit, respondents were asked why they would not return. These open-ended responses were categorized into reasons related to use (such as crowding, visitor behavior, vandalism, or the type of users), management (such as trail maintenance or fees), and environmental impacts or conditions (such as campsite impacts, trash, bugs, or aesthetics).

Fifty-seven percent of the people who were absolutely displaced provided a use-related reason for displacement. Fewer people listed management (25 percent) or environmental impacts/conditions (29 percent) as reasons for absolute displacement. Personal reasons for no longer visiting (such as aging or injury) were only mentioned by 3 percent of those who were displaced, although we know from other research that such factors are important reasons for people to cease visitation (Shindler 1993). More than one-third of the people giving a use-related reason cited crowding. Other common use-related issues were stock use, vandalism, and rude or inconsiderate behavior. The most common management-related issue was trail maintenance, while site impacts and litter were the most commonly mentioned impact-related reasons for absolute displacement. Some people mentioned that

they simply felt the environment was not appealing to them, for reasons such as a recent wildfire or steep trails. The large number of factors people cited suggests that, with the exception of crowding, the types of negative experiences that cause people not to return to a place vary considerably.

Based on these findings, we can conclude that absolute displacement occurs for a variety of reasons. In our survey, about 13 percent of the population could identify at least one place in a wilderness to which they would not return. Crowding was the most common reason for absolute displacement. About 3 percent of the sample (39 people out of a sample of 1,173) reported being

**Table 3.** Importance of factors long-term visitors use to decide the location of wilderness visits<sup>a</sup>.

	Hikers n = 808		Stock users n = 186	
	Mean	SE	Mean	SE
Crowding	4.18	0.06	3.89	0.14
Trail conditions	2.90	0.06	3.31	0.14
Amount of day use	2.85	0.07	2.45	0.15
Presence of stock use	2.71	0.08	0.74	0.12
Amount of overnight use	2.54	0.07	2.56	0.15
Presence of hikers	2.50	0.06	2.43	0.14
Campsite conditions	2.40	0.06	2.17	0.14
Rules and regulations	1.76	0.06	2.67	0.14

<sup>a</sup> Scale: 0 = not at all a consideration to 6 = a major consideration

**Table 4.** Percent of long-term visitors reporting displacement due to amount of use, regulations, and ecological impacts.

	Hikers n = 786	Stock users n = 174
Visit less often or at different times because there are too many people	52	54
Visit less often because regulations on recreation are too restrictive	15	24
Visit less often because natural environment has been too highly impacted by recreation	26	25

absolutely displaced from at least one place in an Oregon or Washington wilderness as a result of crowding. About 7 percent of the sample listed some use-related factor (including crowding) as a reason for being absolutely displaced.

To explore the amount of partial displacement, long-time visitors were asked whether they had reduced their use of any Oregon or Washington wildernesses for social, managerial, or impact-related reasons. About one-quarter of both hikers and stock users reported that they have reduced their use of at least one wilderness because “the natural environment has been too highly impacted by recreational use” (table 4). Fifteen percent of hikers and 24 percent of stock users said they visited a place less often because “regulations on recreation use are too restrictive.” Finally, more than 50 percent of both user types said they had altered the timing of their use or reduced visitation to at least one wilderness “because there are too many people there.”

These results suggest that use density is currently a more substantial source of displacement than regulations or recreational impacts. However, the question we asked regarding “too many people” differed from the questions we asked regarding regulations and impacts, as it included the option of changing the timing of use. Visitors can respond to use density by changing when they visit as well as changing the frequency of use. Consequently, the larger proportion of people displaced because of “too many people” include those who have been temporally displaced, as well as those who have been spatially displaced. It is quite possible that the proportion of people that visit less often (as opposed to at different times) because there are too many people is no greater than the proportion that visit less often for other reasons. Nevertheless, these results suggest that substantial displacement is occurring, with one-half of all long-term visitors reporting that they have at least occasionally altered the timing of their visits due to concerns about crowding.

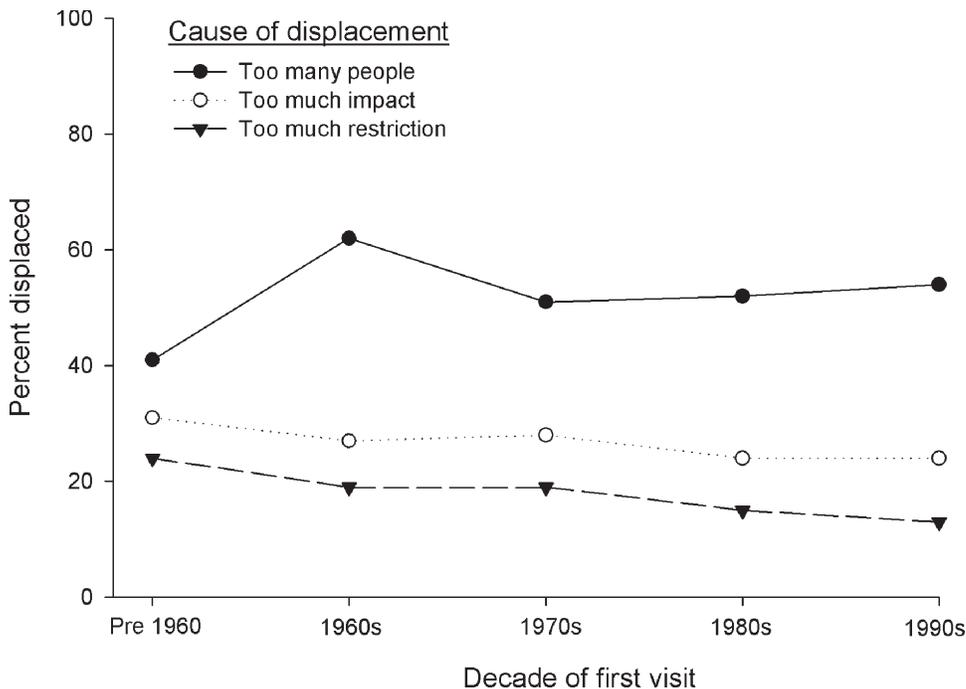
The effects of management actions on frequency of visitation should be interpreted in light of the relatively low level of regulation imposed in most wildernesses in the region. Few Forest Service wildernesses in Oregon and Washington have regulations that significantly impact

visitor behaviors, such as use limits, camping closures, or campfire bans. Visitors respect and endorse most of the regulations in place, such as the requirement to pack out trash. Therefore it is difficult to directly compare the magnitude of displacement caused by regulations to that caused by environmental or social conditions. Other studies (Hall and Cole 2000, Shelby and others 1988) have demonstrated that use limit policies lead to as much or more displacement than crowding.

Some have argued that long-time visitors are more likely to be displaced than newcomers because they are more sensitive to changes in conditions and are able to compare current conditions to those they first experienced (Kuentzel and Heberlein 1992). We found that displacement due to restrictive regulations was higher among long-time visitors (fig. 9). The proportion of displaced visitors decreased significantly as year of first visit increased (Somers’  $d = -0.38$ ,  $p = 0.01$ ). However, displacement due to environmental impacts or too many people was not higher among long-term visitors (Somers’  $d = -0.20$  and  $0.01$ ,  $p = 0.25$  and  $0.80$ , respectively).

### Displacement behavior

In addition to assessing how many visitors had ever been displaced, we were also interested in how frequently they used specific behavioral responses. For this purpose, visitors were asked how often they engaged in a particular behavior, responding on a 7-point scale from never (0) to always (6). The most common behavior, to avoid holidays and peak weekends, had a mean rating of 3.5, suggesting frequency of use is typically somewhere between occasional and often (table 5). Other temporal displacement behaviors, such as visiting on weekdays and earlier or later in the season, were also fairly common. Spatial displacement was less common than temporal displacement. Avoidance of crowded trails and highly impacted places within a wilderness was more common than going to an entirely different wilderness. Hikers were more likely to say they avoid places with stock use, while stock users were more likely to say they avoided places with regulations on stock use. Stock users were also more likely to avoid places with regulations of any kind. Otherwise, responses were similar between the two types of visitors.



**Figure 9.** Relationship between how long people have been visiting wilderness and frequency of displacement due to too many people, too much impact, or too much restriction.

**Table 5.** Frequency of use<sup>a</sup> for varied displacement behaviors—long-term users.

	Hikers n = 784		Stock users n = 172	
	Mean	SE	Mean	SE
Avoid holiday or peak weekends	3.47	0.07	3.49	0.17
Go to trails that are less crowded	3.13	0.06	3.24	0.15
Visit on weekdays	2.83	0.07	3.06	0.16
Visit earlier or later in season	2.79	0.06	2.63	0.15
Avoid highly impacted places	2.71	0.07	3.04	0.16
Go to other Wildernesses that are less crowded	2.21	0.06	2.22	0.16
Avoid places with pack stock use	1.68	0.07	0.30	0.07
Avoid places that charge fees	1.35	0.07	1.77	0.17
Still go for day trips; go other places for overnight	1.34	0.06	1.21	0.13
Visit less often to avoid rude/disruptive people	1.01	0.06	0.90	0.12
Avoid rules about where people can camp	0.89	0.05	1.63	0.15
Avoid places with limits on amount of use	0.80	0.05	1.44	0.15
Avoid places with regulation on pack stock	0.45	0.04	2.02	0.19
Avoid limits on group size	0.43	0.04	0.98	0.13

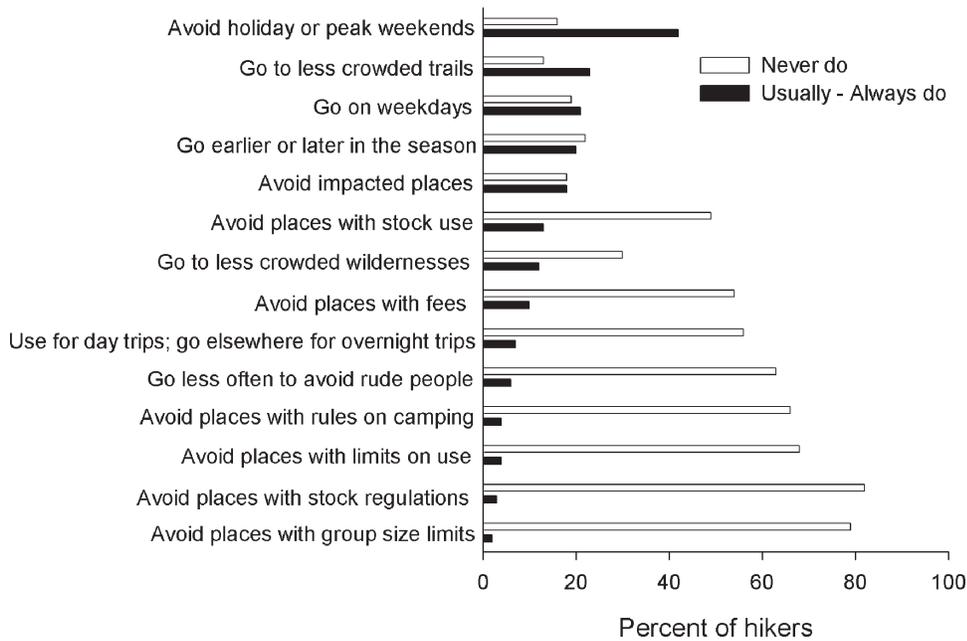
<sup>a</sup> Scale: 0 = Never, 2 = Occasionally, 4 = Often, 6 = Always

Figures 10 and 11 illustrate the large percentage of people who said they “never” had taken one of these actions, as well as the percentage who indicated that they “usually” or “always” did. The figures suggest that these behaviors fall into four different frequency classes;

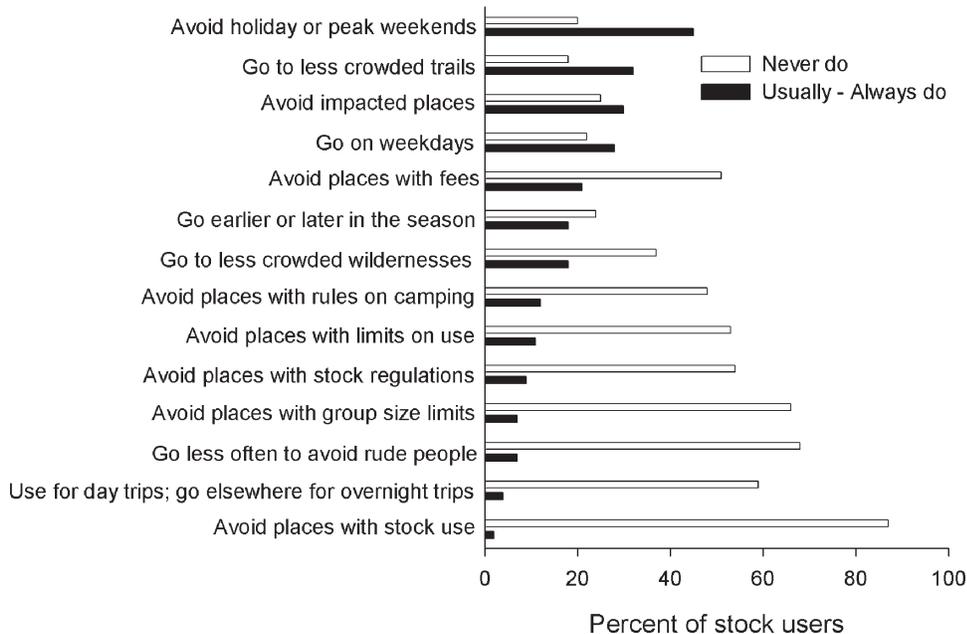
- Avoiding holidays or peak weekends, very common. Almost one-half of hikers and stock users reported that they usually or always engage in this behavior.
- Other temporal and micro-scale spatial displacement behaviors, less common: (1) going to less crowded trails, (2) going earlier or later in the season, (3) going on weekdays, and (4) avoiding impacted places.

Less than one-third of respondents reported usually or always engaging in these behaviors, but less than one-quarter reported that they have never engaged in these behaviors.

- Macro-scale spatial displacement, uncommon. Twelve percent of hikers and 18 percent of stock users usually or always go to a less crowded wilderness, while about one-third of hikers and stock users never do.
- Avoidance of some specific conditions, very rare. Half or more of respondents reported never doing the following: (1) avoiding places with stock regulations, (2) avoiding places with group size limits, (3) avoiding



**Figure 10.** Percent of long-term hikers who usually or always use various coping behaviors and the percent who never use them.



**Figure 11.** Percent of long-term stock users who usually or always use various coping behaviors and the percent who never use them.

places with limits on use, (4) avoiding places with rules on camping, (5) going less often to avoid rude people, (6) continuing to go for day trips but going elsewhere for overnight trips, (7) avoiding places with fees, and (8) avoiding places with stock use.

### Variation in displacement among wildernesses

When we asked long-time visitors about whether they had been displaced due to social, environmental, or regulatory conditions (table 4), we asked them to note which wildernesses they visit less often. For 32 of 59 wildernesses in Oregon and Washington, at least one person from our sample reported having been displaced. This

suggests that displacement is a widespread phenomenon, although it is most prevalent in the more popular wildernesses. More than 10 percent of long-term visitors to the Alpine Lakes, Mark O. Hatfield, Mt. Hood, Mt. Jefferson, and Three Sisters Wildernesses reported that they are careful about when they visit or that they visit less often due to use-related issues. These estimates of amount of displacement include all types of responses, regardless of frequency and severity. This displacement might have occurred frequently or it might only have occurred once. It might have involved a decision to never visit again or a less extreme response, such as attempting to avoid visiting on holidays if possible.

**Table 6.** Percent of long-term wilderness visitors who have been absolutely displaced from some place in each wilderness.

	Displaced (percent) <sup>a</sup>	n
Mt. Jefferson	3.4	642
Three Sisters	3.1	799
Bull of the Woods	2.9	315
Alpine Lakes	2.7	329
Mt. Hood	2.5	747
Rogue	2.5	162
Goat Rocks	2.3	394
Indian Heaven	2.1	327
Pasayten	1.9	209
Badger Creek	1.8	218
Cummins Creek	1.7	118
Mill Creek	1.6	129
Diamond Peak	1.2	328
Strawberry	1.2	252
Eagle Cap	1.1	527
Mt. Washington	1.1	380
William O. Douglas	1.1	285
N. Fk. John Day	0.9	232
The Brothers	0.9	109
Glacier Peak	0.8	258
Middle Santiam	0.7	290
Opal Creek	0.7	289
Kalmiopsis	0.7	136
Mt. Adams	0.6	525
Trapper Creek	0.6	159
Mt. Thielsen	0.4	247
Lake Chelan	0.4	265
Mt. Baker	0.3	293
Salmon-Huckleberry	0.3	298
Mark O. Hatfield	0.3	322
Wonder Mountain	3.6	28
Rock Creek	2.2	90
Colonel Bob	1.5	65
Buckhorn	1.0	97

<sup>a</sup> Percent of all study respondents who had been to this wilderness (n)

For stock users, use-related displacement was most common at Three Sisters Wilderness, followed by Mt. Jefferson, Mt. Adams, and Eagle Cap. One-third of long-term stock users at Three Sisters and one-quarter of long-term stock users at Mt. Jefferson reported altering the timing of their visits or reducing their use due to the amount of use. Three wildernesses accounted for the greatest displacement due to regulations for both hikers and stock users: Mt. Jefferson, Alpine Lakes, and Three Sisters. These three wildernesses are the only areas in the region with use limits. Mt. Hood Wilderness, where substantial displacement was reported due to high levels of use, was infrequently cited for displacement caused by regulations. Recreational impact was cause for displacement in very few wildernesses. Again, Three Sisters was mentioned most often, followed by Mt. Jefferson, Eagle Cap, Alpine Lakes, and Mt. Hood.

When we assessed absolute displacement by asking the question, “have you ever had an experience so unpleasant that it made you decide not to return to that area?”, 147 people responded affirmatively by listing at least one such place. Thirty-four different wildernesses were listed, though most were cited by only a few people. Table 6 shows the magnitude of absolute displacement for each wilderness, expressed as a percentage of all respondents who had ever been to that wilderness. Of the wildernesses with a substantial sample size, Three Sisters, Mt. Jefferson, Mt. Hood, Alpine Lakes, Goat Rocks, and Bull of the Woods appear to experience the most absolute displacement. However, no more than 3 or 4 percent of the sample reported being absolutely displaced. Moreover, while visitors report that there is some place in these wildernesses they no longer visit, there may be other places in these same wildernesses that they continue to visit.

### *Displacement and Coping in Six High Use Wildernesses*

The results to this point have been based on questions that asked respondents to consider all Forest Service wildernesses they had visited in the Pacific Northwest. While this provides a good overall sense of the magnitude and types of displacement and coping, it has the drawback of asking people to respond for all wildernesses together. For instance, people who had visited many high and low use wildernesses would have to decide how to integrate all these trips when responding to a question about how often they avoid weekends or holidays. They might always avoid a popular wilderness on holidays and specifically seek out a low use wilderness at those times. If this leads them to say they “occasionally” avoid holidays, this would not be a highly meaningful response for managers of either wilderness. In order to learn more about displacement and coping at high use wildernesses, we asked questions specific to the Mt. Hood, Alpine Lakes, Eagle Cap, Mt. Jefferson, Mt. Adams, and Three Sisters Wildernesses. Half of the respondents were asked about Mt. Hood, Alpine Lakes, and Three Sisters; the other half were asked about Eagle Cap, Mt. Jefferson, and Mt. Adams.

The percentage of hikers in our sample who had been to each of these wildernesses varied from more than 70 percent for the Mt. Hood and Three Sisters Wildernesses to 28 percent for Alpine Lakes (table 7). The percentage of stock users who had been to each wilderness was less variable. It is important to note that Alpine Lakes Wilderness is unique; we did not draw our sample from this wilderness. Those commenting on Alpine Lakes

**Table 7.** Percent and number of hikers and stock users in sample who had been to each wilderness.

Wilderness	Hikers		Stock users	
	Percent	Number	Percent	Number
Alpine Lakes	28	127	32	35
Eagle Cap	45	212	44	38
Mt. Adams	46	220	48	46
Mt. Hood	71	339	34	38
Mt. Jefferson	59	277	43	37
Three Sisters	74	351	52	57

**Table 8.** Period of first visit to each wilderness.

	Hikers			Stock users		
	Before 1970	1970 to 1990	Since 1990	Before 1970	1970 to 1990	Since 1990
Alpine Lakes	6	46	54	10	50	40
Eagle Cap	7	32	61	19	34	47
Mt. Adams	7	32	61	12	31	57
Mt. Hood	15	36	49	4	57	43
Mt. Jefferson	11	35	54	9	52	39
Three Sisters	12	35	53	7	55	38

Wilderness were contacted after visiting a different wilderness. It is quite likely that the population responding to questions about Alpine Lakes Wilderness differs from the population responding to questions about the other five wildernesses. In particular, our Alpine Lakes sample should underrepresent people who take most of their wilderness trips in the Alpine Lakes Wilderness. Consequently, it may underrepresent day users and those seeking easy access to wilderness and a quick respite from the Seattle metropolitan area.

In all of these wilderness areas, about one-half of the population had less than 15 years of experience visiting the wilderness, while 10 to 20 percent had more than 30 years of experience (table 8). Stock users typically have been visiting the wilderness longer than hikers. The proportion of recent visitors was slightly higher in the two wildernesses east of the Cascade crest—Mt. Adams and Eagle Cap.

### Perceptions of all respondents

We were interested in understanding if respondents considered these wildernesses to be crowded and how they rationalized high levels of use. For this purpose, we asked them the extent to which they agreed or disagreed—on a 7-point scale from strongly agree (+3) to strongly disagree (-3)—with eight statements. We asked if they thought the wilderness was crowded and if it was hard to find a campsite. We asked if high use could be rationalized because (1) everyone should have the right to visit,

(2) impacts could be worse, (3) the area is so beautiful, and (4) there are so few places like this. The theme of uniqueness and substitutability was explored further by asking if other places are just as good or offer the same opportunities.

In each of these wildernesses, about one-half or more of the hikers agreed that the area seemed crowded (table 9). In contrast, there was little concern about the difficulty of finding a campsite. There also was substantial agreement with the following rationalizations: (1) “the area is so beautiful that I want to come in spite of high numbers of people,” (2) “impacts could be worse considering the amount of use,” and (3) “everyone should have a right to visit this area, even if it means use is high” (table 9). Although most hikers agreed that these places were crowded and that there were good reasons to continue visiting despite crowds, the strength of these sentiments was not high. Mean levels of agreement were less than 1.0 (table 10).

Fewer hikers agreed with the rationalization, “there are so few places like this that I go in spite of amount of use,” although more people agreed with the statement than disagreed (table 9). This sentiment that uniqueness is not such a compelling rationalization for use is reinforced by general agreement that “other places are just as good for what I like to do” and disagreement that “I don’t know of another area that offers the same opportunities as this place” (table 10).

**Table 9.** Percent of hikers agreeing with statements about use levels.

	Alpine Lakes	Eagle Cap	Mt. Adams	Mt. Hood	Mt. Jeff	Three Sisters
The area is so beautiful, I come in spite of high numbers of people	62	57	51	64	63	75
The area seems crowded	60	51	48	65	52	60
Impacts could be worse considering the amount of use	52	50	54	60	52	63
Everyone should have right to visit, even if it means high use	48	43	48	56	52	55
There are so few places like this; I go in spite of the amount of use	44	47	41	41	43	57
Other places are just as good for what I like to do	46	36	44	52	46	34
I don't know of any other area that offers the same opportunities	25	32	16	20	21	40
It's hard to find a good campsite	29	22	29	29	28	29

**Table 10.** Agreement<sup>a</sup> (mean and standard error) with statements about use levels—hikers.

	Alpine Lakes n = 118		Eagle Cap n = 190		Mt. Adams n = 198		Mt. Hood n = 324		Mt. Jefferson n = 261		Three Sisters n = 336	
	M	SE	M	SE	M	SE	M	SE	M	SE	M	SE
The area is so beautiful, I come in spite of high numbers of people	0.7	0.1	0.5	0.1	0.5	0.1	0.8	0.1	0.8	0.1	1.1	0.1
Impacts could be worse considering the amount of use	0.6	0.1	0.5	0.1	0.7	0.1	0.8	0.1	0.7	0.1	0.8	0.1
The area seems crowded	0.8	0.2	0.4	0.1	0.4	0.1	0.9	0.1	0.5	0.1	0.6	0.1
Everyone should have right to visit, even if it means high use	0.5	0.2	0.2	0.1	0.5	0.1	0.7	0.1	0.4	0.1	0.6	0.1
Other places are just as good for what I like to do	0.6	0.2	0.0	0.1	0.5	0.1	0.6	0.1	0.3	0.1	0.1	0.1
There are so few places like this; I go in spite of the amount of use	0.2	0.2	0.3	0.1	0.2	0.1	0.1	0.1	0.4	0.1	0.4	0.1
It's hard to find a good campsite	-0.0	0.1	-0.3	0.1	-0.1	0.1	0.1	0.1	0.0	0.1	-0.1	0.1
I don't know of any other area that offers the same opportunities	-0.7	0.2	-0.1	0.1	-0.7	0.1	-0.8	0.1	-0.5	0.1	-0.1	0.1

<sup>a</sup> Scale: +3 (strongly agree) to -3 (strongly disagree)

Stock users also felt these wildernesses were crowded, although only 43 percent of Eagle Cap stock users thought so (table 11). They also generally agreed with the entire suite of rationalizations for why high use in these wildernesses is appropriate, particularly the rationalization, “everyone should have the right to visit, even if it means high use” (table 12). Stock users were less likely than hikers to consider these wildernesses crowded (ANOVA,  $F = 1.4$ ,  $p = 0.03$ ). Moreover, they were more supportive of two of the rationalizations of high use. Stock users agreed more than hikers that “everyone should have the right to visit, even if it means high use” ( $F = 43.9$ ,  $p < 0.01$ ) and that “impacts could be worse considering the amount of use” ( $F = 6.6$ ,  $p = 0.01$ ). Stock users were also more likely than hikers to consider there to be

reasonable substitutes for these high use wildernesses, agreeing more than hikers that “other places are just as good for what I like to do” ( $F = 19.1$ ,  $p < 0.01$ ).

Differences among wildernesses in perceptions of crowding and the prevalence of rationalizations (tables 10 and 12) were not statistically significant. For stock users, the ability to find a campsite varied significantly among wildernesses (ANOVA,  $F = 3.7$ ,  $p < 0.01$ ). Campsites were significantly more difficult to find at Mt. Adams and Mt. Hood than at Eagle Cap. For all users, there were significant differences among wildernesses in agreement with the statements “other places are just as good for what I like to do” ( $F = 2.6$ ,  $p = 0.03$ ) and “I don't know of another area that offers the same opportunities as this place” ( $F = 3.1$ ,  $p < 0.01$ ). Responses

**Table 11.** Percent of stock users agreeing with statements about use levels.

	Alpine Lakes	Eagle Cap	Mt. Adams	Mt. Hood	Mt. Jeff	Three Sisters
The area is so beautiful, I come in spite of high numbers of people	50	69	62	52	64	81
The area seems crowded	47	43	55	66	53	70
Impacts could be worse considering the amount of use	50	54	69	46	69	75
Everyone should have right to visit, even if it means high use	72	69	82	68	62	67
There are so few places like this; I go in spite of the amount of use	41	53	53	37	43	63
Other places are just as good for what I like to do	50	46	43	67	61	37
I don't know of any other area that offers the same opportunities	19	37	26	15	22	29
It's hard to find a good campsite	50	18	39	46	29	29

**Table 12.** Agreement<sup>a</sup> (mean and standard error) with statements about use levels—stock users.

	Alpine Lakes n = 33		Eagle Cap n = 41		Mt. Adams n = 41		Mt. Hood n = 35		Mt. Jefferson n = 38		Three Sisters n = 56	
	M	SE	M	SE	M	SE	M	SE	M	SE	M	SE
The area is so beautiful, I come in spite of high numbers of people	0.4	0.3	1.2	0.3	0.8	0.2	0.6	0.3	0.9	0.2	1.1	0.2
Impacts could be worse considering the amount of use	0.8	0.3	0.9	0.3	1.2	0.2	0.9	0.2	1.1	0.2	1.3	0.2
The area seems crowded	0.5	0.3	-0.2	0.3	0.5	0.2	1.1	0.3	0.3	0.3	0.7	0.2
Everyone should have right to visit, even if it means high use	1.6	0.3	1.4	0.3	1.8	0.3	1.3	0.3	0.9	0.3	1.0	0.2
Other places are just as good for what I like to do	0.9	0.3	0.7	0.3	0.6	0.3	1.4	0.2	0.8	0.2	0.4	0.2
There are so few places like this; I go in spite of the amount of use	0.1	0.3	0.6	0.3	0.7	0.3	0.3	0.3	0.3	0.2	0.6	0.2
It's hard to find a good campsite	0.5	0.3	-0.8	0.2	0.4	0.2	0.8	0.2	-0.1	0.2	-0.2	0.2
I don't know of any other area that offers the same opportunities	-0.7	0.3	-0.3	0.3	-0.5	0.3	-1.0	0.3	-0.4	0.3	-0.5	0.2

<sup>a</sup> Scale: +3 (strongly agree) to -3 (strongly disagree)

to these statements suggest that visitors to Mt. Hood do not consider that wilderness as unique as do visitors to Eagle Cap, Mt. Jefferson, and Three Sisters. Mt Hood visitors agreed more that “other places are just as good” and disagreed more that they don’t know of other places with similar opportunities.

### Responses of experienced visitors

For the remaining questions, we only recorded the responses of experienced visitors, those who had visited the focal wilderness at least five times. Table 13 shows

experienced hikers and stock users as a percentage of all hikers and stock users who had visited each wilderness at least once. Three Sisters is notable in the large proportion of experienced hikers and stock users, while Mt. Hood has a high proportion of hikers with extensive experience. The wildernesses with the smallest proportion of hikers with extensive local experience were Eagle Cap and Mt. Adams. Given the smaller sample sizes for experienced users, the responses of hikers and stock users are pooled.

**Table 13.** Number of hikers and stock users who had been to each wilderness at least five times, also expressed as a percent of users who had visited that wilderness at least once.

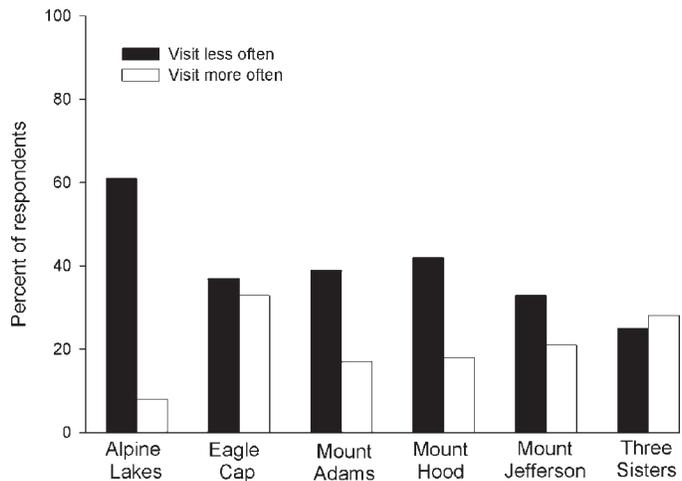
Wilderness	Hikers		Stock users	
	n	%	n	%
Alpine Lakes	51	40	14	40
Eagle Cap	42	20	15	40
Mt. Adams	70	31	24	50
Mt. Hood	215	64	17	45
Mt. Jefferson	116	43	17	46
Three Sisters	219	63	41	71

**Table 14.** Typical length of wilderness trips by experienced visitors—percent of trips that are day trips.

	0 to 49	50 to 89	90 to 99	100
Alpine Lakes	27	44	18	11
Eagle Cap	58	20	15	7
Mt. Adams	54	23	6	17
Mt. Hood	11	33	31	25
Mt. Jefferson	44	30	11	15
Three Sisters	29	27	26	18

These wildernesses vary substantially in the proportion of visitors who typically take day and overnight trips. At Mt. Hood, and to a lesser degree Three Sisters, the dominant users are those who almost always take day trips in wilderness (table 14). At the other extreme, the predominant users at Eagle Cap and Mt. Adams are people who usually take overnight trips in wilderness. As noted earlier, the extent of day use in Alpine Lakes may be underestimated as a result of our sampling procedures.

As one avenue to explore displacement, we asked people if they visit more or less than in the past and why. For five of the six wildernesses, the number of people reporting that they visit the wilderness less often than in the past was greater—sometimes much greater—than the number who reported that they visit more often (fig. 12).



**Figure 12.** Percent of experienced visitors to six different wildernesses reporting they visit less often and more often than in the past. Those who visit the same as in the past not shown.

This contrasts dramatically with our earlier finding (fig. 3) that the majority of these same people visit wilderness more often than in the past. If people visit wilderness more often, but choose less often to visit these particular wildernesses, displacement may be significant. The proportion of people reporting that they visit less often was highest for Alpine Lakes, perhaps reflecting its unique sample (which underrepresents frequent visitors).

When asked why they visit less often, the most common open-ended response in five of the six wildernesses was crowding (table 15). Other common reasons included having moved further away and wanting to explore new areas. Regulations and fees were not commonly mentioned as reasons for reduced use. Although crowding was the most common reason for decreased use, the percent visiting less often due to crowding never exceeded about one-third of the approximately 40 percent of people reporting reduced use. The percent of all experienced users who said that crowding has caused them to visit less often varied from 21 percent at Alpine Lakes (35 percent of the 61 percent reporting

**Table 15.** Reasons why experienced visitors visit less often than in the past—percent of those reporting they visit less.

	Alpine Lakes	Eagle Cap	Mt. Adams	Mt. Hood	Mt. Jefferson	Three Sisters
Crowding	35	0	32	31	30	35
Distance; moved away	32	43	13	28	23	24
Explore new areas	14	10	22	20	11	14
No time	5	24	8	11	7	14
Change in activity preference	5	0	11	5	9	5
Family situation	3	14	3	4	2	11
Regulations/fees	5	0	5	3	9	12
Aging	0	14	3	1	5	5

**Table 16.** Percent of experienced visitors who perceive the following changes in each wilderness.

	Alpine Lakes	Eagle Cap	Mt. Adams	Mt. Hood	Mt. Jefferson	Three Sisters
More day users	67	77	67	83	70	76
More impacts at campsites	69	79	65	63	71	72
More rules/regulations	64	62	64	67	67	74
More overnight users	67	60	59	60	60	66
Less opportunity for solitude	60	41	40	59	44	47
More litter/trash	44	37	46	57	43	53
More unofficial side trails	53	43	44	51	41	41
Less available firewood	54	38	24	38	35	35
Less sense of freedom	44	41	39	36	18	37

**Table 17.** Mean and standard error for perceived change in conditions (increase or decrease)<sup>a</sup>—experienced users.

	Alpine Lakes n = 43		Eagle Cap n = 56		Mt. Adams n = 92		Mt. Hood n = 220		Mt. Jefferson n = 128		Three Sisters n = 248	
	M	SE	M	SE	M	SE	M	SE	M	SE	M	SE
Number of day users	1.2	0.2	1.1	0.1	1.1	0.1	1.4	0.1	1.1	0.1	1.3	0.1
Number of rules/regulations	1.1	0.1	0.9	0.1	1.1	0.1	1.0	0.1	1.0	0.1	1.2	0.1
Human impacts at campsites	1.2	0.2	1.1	0.1	0.9	0.1	0.9	0.1	1.1	0.1	1.0	0.1
Number of overnight users	1.0	0.1	0.8	0.1	1.0	0.1	0.9	0.1	0.9	0.1	1.0	0.1
Number of unofficial side trails	0.8	0.1	0.5	0.1	0.5	0.1	0.7	0.1	0.5	0.1	0.5	0.2
Amount of litter/trash	0.4	0.2	0.5	0.2	0.5	0.1	0.8	0.1	0.5	0.1	0.5	0.1
Sense of freedom	-0.6	0.2	-0.5	0.1	-0.5	0.1	-0.5	0.1	-0.2	0.1	-0.4	0.1
Amount of available firewood	-0.9	0.2	-0.5	0.2	-0.3	0.1	-0.5	0.1	-0.4	0.1	-0.4	0.1
Opportunities to experience solitude	-0.8	0.2	-0.3	0.2	-0.5	0.1	-0.7	0.1	-0.4	0.1	-0.5	0.1

<sup>a</sup> Scale: +3 (increased a lot) to -3 (decreased a lot)

that they visit less often than in the past) to 0 percent at Eagle Cap.

### Perception of changes in conditions and experiences

To better understand how changes in management and conditions relate to the prevalence of displacement, we asked experienced users about their perceptions of change in management and conditions. For each of nine parameters, respondents were asked to assess the direction and magnitude of change, using a scale of +3 (increased a lot) to -3 (decreased a lot). In all of these wildernesses, a majority of experienced users perceived that the number of day and overnight users, campsite impacts, and rules and regulations had increased (table 16). Increases in the number of day users were perceived to be greater than increases in the number of overnight users (table 17).

At Alpine Lakes and Mt. Hood, majorities also perceived that opportunities for solitude had decreased (table 16). However, at Eagle Cap and Mt. Adams, the number of people who perceived no change in solitude opportunities exceeded the number that perceived a

decrease. Depending on the area, between eight and 17 percent felt that opportunities for solitude have increased. Perceived loss of freedom was less prevalent. In all of these wildernesses, the number of people that perceived no change in sense of freedom exceeded the number that perceived a decrease. Depending on the area, between four and 15 percent felt that freedom had increased.

For unofficial side trails and litter/trash, the perception that these impacts had increased was generally more prevalent than the perception of no change. Few people perceived that side trails and trash had decreased. Majorities felt that side trailing had increased at Alpine Lakes and Mt. Hood, while majorities felt that trash had increased at Mt. Hood and Three Sisters. Majorities reported no change in amount of firewood, except at Alpine Lakes where a majority perceived that firewood had decreased (table 16).

Although the number of stock users in our sample of experienced users at each wilderness was small, analyses of variance suggest that stock users were more likely than hikers to perceive increases in day use ( $F = 7.9$ ,  $p < 0.01$ ), overnight use ( $F = 4.9$ ,  $p = 0.03$ ), and rules

**Table 18.** Agreement (mean and standard error) about perceived change in experience<sup>a</sup>—experienced users.

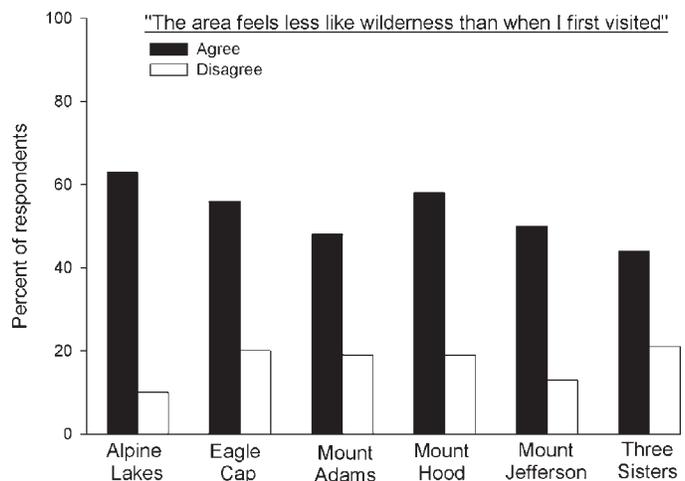
	Alpine Lakes n = 59		Eagle Cap n = 60		Mt. Adams n = 98		Mt. Hood n = 220		Mt. Jefferson n = 127		Three Sisters n = 250	
	M	SE	M	SE	M	SE	M	SE	M	SE	M	SE
I have special memories of this place I enjoy my visits here as much as I used to	1.7	0.2	2.3	0.1	1.7	0.2	1.8	0.1	2.0	0.1	2.1	0.1
Visiting this place is a tradition for me	0.5	0.2	1.4	0.2	1.0	0.2	0.9	0.1	1.2	0.1	1.2	0.1
The area feels less like wilderness than when I first started visiting	0.3	0.2	1.0	0.2	0.7	0.2	0.9	0.1	1.0	0.1	0.9	0.1
The area has changed, but I've gotten used to it	0.8	0.2	0.5	0.2	0.5	0.2	0.7	0.1	0.6	0.1	0.4	0.1
I seek different experiences here than I used to	0.1	0.2	0.0	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1
It's nice for spontaneous day trips; I go elsewhere for longer wilderness trips	-0.0	0.2	0.1	0.2	-0.1	0.2	0.3	0.1	0.2	0.1	0.0	0.1
I still visit this area, but for different reasons than in the past	0.6	0.3	-1.4	0.2	-0.1	0.2	1.0	0.1	-0.1	0.2	-0.1	0.1
The type of experience provided by this area has changed	-0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	-0.1	0.1
I'm not as satisfied with my experiences in this area as I used to be	0.0	0.2	0.0	0.2	0.1	0.2	0.1	0.1	0.1	0.1	-0.0	0.1
I'm not as satisfied with my experiences in this area as I used to be	-0.1	0.2	-0.6	0.2	-0.4	0.2	-0.4	0.1	-0.5	0.1	-0.6	0.1

<sup>a</sup> Scale: +3 (strongly agree with statement) to -3 (strongly disagree with statement)

and regulations ( $F = 9.9, p < 0.01$ ). For many of these change parameters, differences among wildernesses were also statistically significant. Wildernesses differed significantly in the magnitude of perceived increase in rules and regulations ( $F = 2.9, p = 0.01$ ), side trailing ( $F = 4.6, p < 0.01$ ) and litter/trash ( $F = 2.4, 0.04$ ), as well as in perceived decrease in solitude ( $F = 2.4, p = 0.04$ ) and firewood ( $F = 2.9, p = 0.01$ ). The wildernesses with the most perceived change were typically Mt. Hood and Alpine Lakes, while the wilderness with the least perceived change was usually Eagle Cap (table 17).

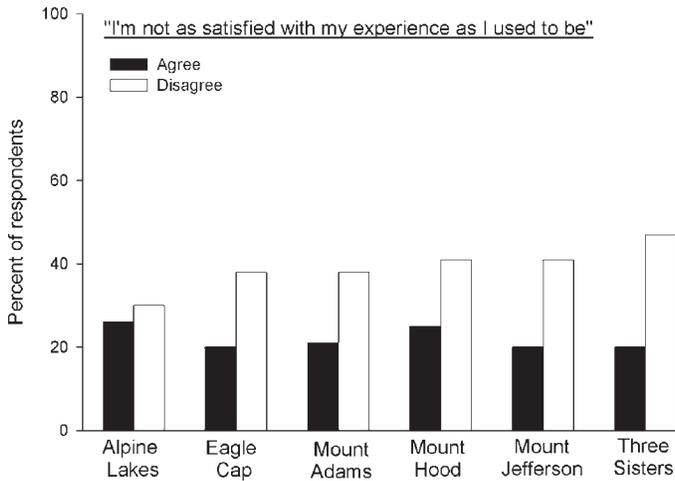
A final set of questions asked experienced visitors to reflect on how their personal use and evaluation of experiences available in these wildernesses had changed (table 18). These items were developed from research on how people cope with, and change, their expectations as a result of crowding. For each of these six wildernesses, many more people agreed than disagreed with the statement, “the area feels less like wilderness than when I first started visiting” (fig. 13). However, more people disagreed than agreed with the statement “I am not as satisfied with my experiences in this area as I used to be” (fig. 14). Moreover, majorities agreed with the statement “I enjoy my visits here as much as I used to” (fig. 15). One reason people keep returning is that so many of them have “special memories” of places in these wildernesses and, for many, “visiting is a tradition” (table 18).

We explored the cognitive response mechanism, referred to in the recreation literature as “product shift,”

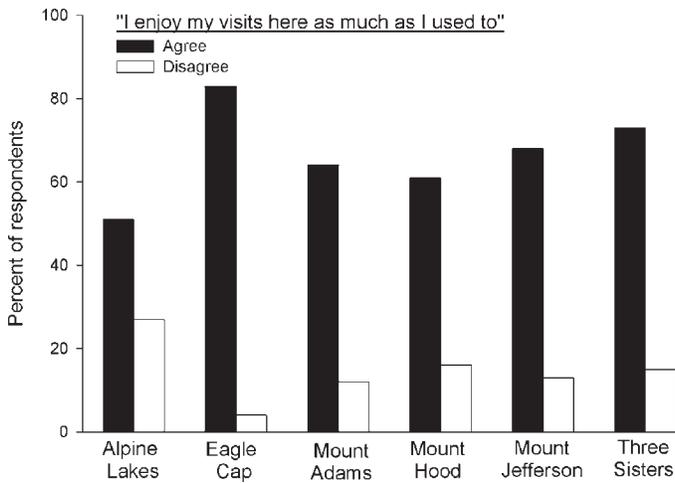


**Figure 13.** Percent of experienced visitors to six different wildernesses reporting they agree or disagree that “the area feels less like wilderness than when I first visited.” Neutral not shown.

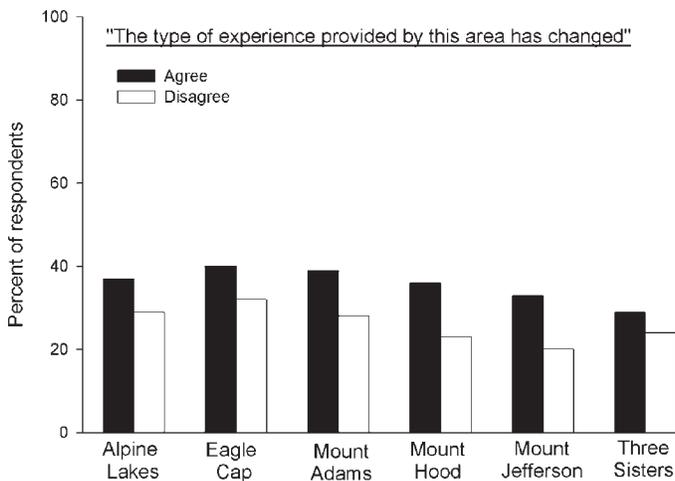
whereby people recognize that the type of experience a place offers has changed and then either accept or reject the appropriateness of that change. We did not find this type of response to be prevalent. Respondents were ambivalent about whether or not the experience has changed. Slightly more people agreed than disagreed with the statement, “the type of experience provided by this area has changed” (fig. 16), but mean scaled scores for agreement were near neutral (0.0 to 0.1) in all these wildernesses (table 18).



**Figure 14.** Percent of experienced visitors to six different wildernesses reporting they agree or disagree that they are "not as satisfied with my experience as I used to be." Neutral not shown.



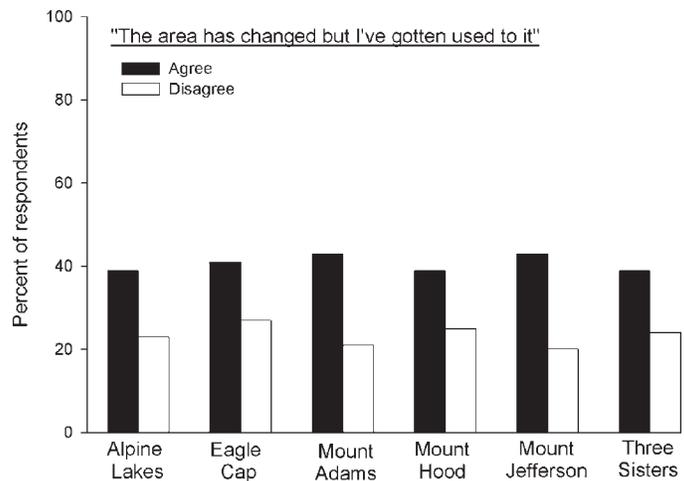
**Figure 15.** Percent of experienced visitors to six different wildernesses reporting they agree or disagree that "I enjoy my visits here as much as I used to." Neutral not shown.



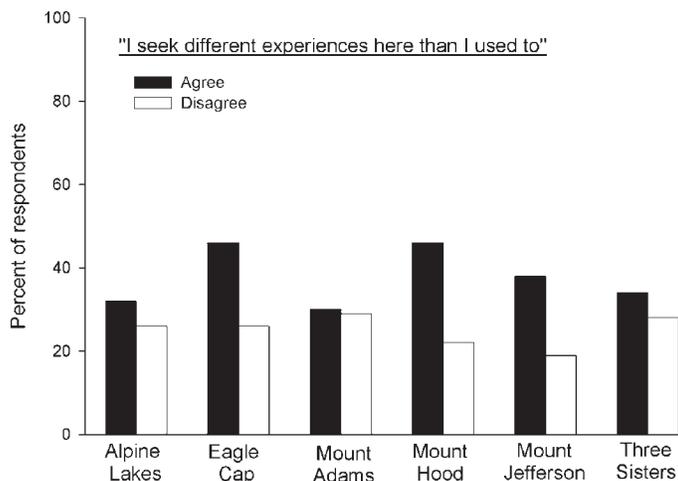
**Figure 16.** Percent of experienced visitors to six different wildernesses reporting they agree or disagree that "the type of experience provided by this area has changed." Neutral not shown.

It is instructive to compare responses to the statements "the area feels less like wilderness than when I first started visiting" and "the type of experience provided by this area has changed." Depending on the wilderness, 32 to 43 percent of respondents did not perceive that the area felt less like wilderness than in the past and they did not think the experience had changed. This is the group least likely to be displaced. A substantial minority (23 to 36 percent) did perceive that the area felt less like wilderness and, consistent with this, they felt that the experience had changed. This is the group most likely to be displaced. A few people (3 to 17 percent) thought that the experience had changed, even though they did not perceive that the area felt less like wilderness than in the past. This is a reminder that experiences change for many reasons, personal as well as situational. Most surprising, 14 to 29 percent of respondents felt that the experience had not changed despite their perception that the place feels less like wilderness. These people must consider a sense of wilderness to be only a small part of their experience in wilderness.

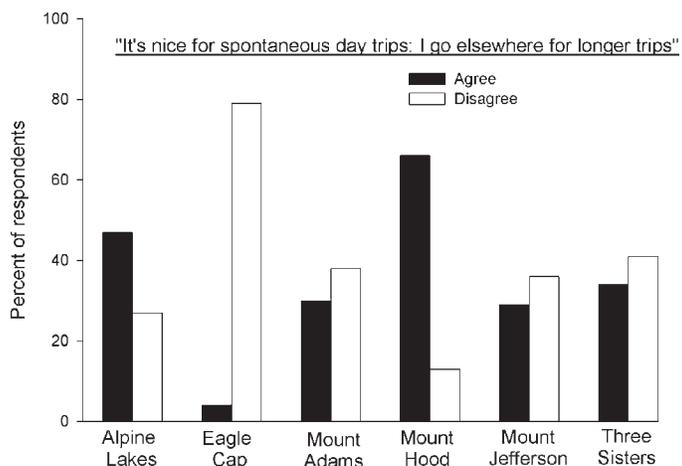
Two questions explored how people responded to changed conditions and experiences. In each of the wildernesses, more people agreed than disagreed with the statement "the area has changed but I've gotten used to it" (fig. 17). However, large portions were neutral and sentiments were typically weak. Consequently, mean scores for agreement were low (0.1 to 0.2) (table 18). Finally, in our most direct assessment of the most common interpretation of "product shift" (requiring both recognition and acceptance of change), we asked people if they seek different experiences or come for different reasons than in the past. Regarding the statement, "I seek different experiences here than I used to," more people agreed



**Figure 17.** Percent of experienced visitors to six different wildernesses reporting they agree or disagree that "the area has changed but I've gotten used to it." Neutral not shown.



**Figure 18.** Percent of experienced visitors to six different wildernesses reporting they agree or disagree that “I seek different experiences here than I used to.” Neutral not shown.



**Figure 19.** Percent of experienced visitors to six different wildernesses reporting they agree or disagree that “it’s nice for spontaneous day trips; I go elsewhere for longer trips.” Neutral not shown.

than disagreed (fig. 18); the number of neutral responses was high; strength of sentiment was low; and mean level of agreement was near neutral (-0.1 to 0.2) (table 18). People were generally even less in agreement with the statement, “I still visit this area, but for different reasons than in the past” (table 18).

Finally, we asked people whether “this place is nice for spontaneous day trips, but I go elsewhere for longer wilderness trips.” We asked this question because we thought people might be content to visit a crowded wilderness for a day trip because it is convenient and close to home, while selecting a less crowded more distant wilderness for an overnight trip. Only at Mt. Hood did a majority of respondents agree with this statement

(fig. 19). At Alpine Lakes there was more agreement than disagreement, but elsewhere there was more disagreement than agreement, particularly at Eagle Cap.

Responses did not vary much between hikers and stock users. Analyses of variance suggest that stock users were significantly more likely than hikers to disagree that they visit for different reasons than in the past ( $F = 11.7, p < 0.01$ ). For a few of these parameters, differences among wildernesses were also statistically significant. Wildernesses differed significantly in the magnitude of agreement with statements that “I have special memories of this place” ( $F = 3.5, p < 0.01$ ), and “I enjoy my visits here as much as I used to” ( $F = 3.0, p = 0.01$ ). Agreement with these statements was particularly high at Eagle Cap and substantially lower at Alpine Lakes and Mt. Hood. Alpine Lakes Wilderness differed significantly from all other wildernesses in response to the statement that “visiting this place is a tradition for me” ( $F = 3.2, p < 0.01$ ), but the low level of agreement for Alpine Lakes respondents may reflect its unique sample (under representing frequent visitors). Finally, wildernesses differed significantly in response to the statement that “it’s nice for spontaneous day trips; I go elsewhere for longer wilderness trips” ( $F = 6.9, p < 0.01$ ). Agreement with this statement was particularly high at Alpine Lakes and Mt. Hood, while disagreement was particularly high at Eagle Cap.

In sum, although most of the people who have visited these wildernesses many times reported that they feel less like wilderness than in the past, not many of these people thought that the overall experience was fundamentally different. They did not rely heavily on cognitive coping behaviors (or did not perceive that they do) despite the prevalence of perceptions that crowding and environmental impacts had increased and solitude and freedom had decreased. In particular, few people engaged in pronounced “product shift,” whereby satisfaction is maintained (despite a change in experience) by altering their definition of the type of experience these wildernesses ought to offer. The lack of substantial differences between the six different wildernesses we studied suggests that these findings can be generalized to other high use wildernesses in the region.

### Perceptions of those less satisfied with their experience

Some people had more adverse reactions to changes that have taken place. Generalizing across the six wildernesses, 22 percent of respondents were less satisfied with their experience than in the past. When less satisfied visitors are contrasted with those that were not less satisfied, less satisfied respondents were significantly more likely to perceive the area to be crowded ( $t = 10.2,$

**Table 19.** Differences in perceptions of change<sup>a</sup> between experienced visitors who are and are not less satisfied with trips now than in the past.

	Less satisfied	Not less satisfied	t	p
Number of day users	1.82	1.10	7.8	<0.001
Human impacts at campsites	1.65	0.72	10.0	<0.001
Number of overnight users	1.49	0.76	7.6	<0.001
Number of rules/regulations	1.44	1.05	4.1	<0.001
Amount of litter/trash	1.05	0.40	6.1	<0.001
Number of unofficial side trails	0.90	0.45	4.6	<0.001
Amount of available firewood	-0.76	-0.36	-3.5	<0.001
Sense of freedom	-1.16	-0.11	-9.2	<0.001
Opportunities to experience solitude	-1.19	-0.32	-7.3	<0.001

<sup>a</sup> Scale: +3 (increased a lot) to -3 (decreased a lot)

**Table 20.** Differences in rationalizations about change<sup>a</sup> between experienced visitors who are and are not less satisfied with trips now than in the past.

	Less satisfied	Not less satisfied	t	p
Other places are just as good for what I like to do	0.73	-0.16	5.6	<0.001
Impacts could be worse considering the amount of use	0.61	1.11	-3.6	<0.001
The area is so beautiful, I come in spite of high numbers of people	0.26	1.47	-8.6	<0.001
Everyone should have right to visit, even if it means high use	0.04	0.97	-5.1	<0.001
There are so few places like this; I go in spite of the amount of use	0.01	0.65	-4.3	<0.001
I don't know of any other area that offers the same opportunities	-0.74	-0.05	-4.0	<0.001

<sup>a</sup> Scale: +3 (strongly agree with statement) to -3 (strongly disagree with statement)

**Table 21.** Differences in perceived change in experience<sup>a</sup> between experienced visitors who are and are not less satisfied with trips now than in the past.

	Less satisfied	Not less satisfied	t	p
I have special memories of this place	1.97	2.19	-1.9	0.053
The area feels less like wilderness than when I first started visiting	1.60	-0.11	12.8	<0.001
The type of experience provided by this area has changed	1.13	-0.73	16.6	<0.001
Visiting this place is a tradition for me	1.04	1.02	0.1	0.896
It's nice for spontaneous day trips; I go elsewhere for longer wilderness trips	0.98	-0.40	8.3	<0.001
I seek different experiences here than I used to	0.52	-0.24	5.5	<0.001
I still visit this area, but for different reasons than in the past	0.42	-0.42	6.3	<0.001
The area has changed, but I've gotten used to it	-0.13	0.12	-2.1	0.039
I enjoy my visits here as much as I used to	-0.29	1.88	-15.7	<0.001

<sup>a</sup> Scale: +3 (strongly agree with statement) to -3 (strongly disagree with statement)

$p < 0.01$ ). Visitors who were less satisfied than in the past agreed moderately that the area was crowded (mean of 1.63 on a scale from -3 to +3), while visitors who were not less satisfied than in the past were neutral about whether the area was crowded (mean of 0.28).

Visitors who were less satisfied than in the past were significantly more likely to report that impacts and the numbers of users had increased and opportunities for solitude and sense of freedom had decreased (table 19). They were also significantly less likely to agree with rationalizations for high use (that “the area is so beautiful,” “everyone should have a right to visit,” “impacts could

be worse,” and “there are so few places like this”) (table 20). They were more likely to agree that “other places are just as good for what I like to do” and to disagree with “I don't know of another area that offers the same opportunities” (table 20). They were significantly more likely to report that “the area feels less like wilderness” and “the type of experience provided by the area has changed” (table 21). They were more likely to report that they “seek different experiences” now and they visit “for different reasons.” They were less likely to have “gotten used to” the change in the area and less likely to say that they “enjoy their visits as much as in the

past.” They were much more likely to view these high use areas as places to take day trips but not for longer trips. This suggests that the experience of these users has declined as a result of increasing use and that they have not successfully coped with those changes. They meet one of the criteria for product shift, having recognized that the experience has changed. However, they have not endorsed that change and, therefore, are unsatisfied.

## Discussion

Our study was unique in its examination of displacement and coping within a regional population of wilderness visitors rather than at specific areas. Within this population, most people reported that they are taking more trips closer to their home than in the past. Hikers reported that their trips are shorter, while stock users reported that their trips are longer. Despite more visits to wildernesses that are close to home, most people said they increasingly seek out places that are remote, less popular, and without well-developed trails and established campsites. Since most people live in urban areas that are increasing in population, these trends are likely to result in ever increasing crowding in wildernesses close to metropolitan areas. At the same time, visitors are seeking more remoteness and an ability to get away from popular trails and more developed places. Motives for visiting wilderness have shifted toward more contemplative motives. This suggests substantial potential for displacement in response to increasing wilderness use.

### *Adverse Changes in Condition*

Our results suggest that use-related conditions in wilderness have changed markedly and that substantial displacement has already occurred. Substantial majorities reported that they consider levels of crowding when they make decisions about where and when to take a wilderness trip. Of the factors we asked about, crowding was by far the most important consideration. When we asked people if there are any wildernesses that they visit less often or at different times because of too many people, about one-half said there were. For five of the 59 wildernesses in Oregon and Washington, more than 10 percent of visitors reported that they had altered either when they used these wildernesses or how frequently they visit.

Most of the wilderness visitors we questioned perceived that there have been changes in use and impacts, at least at the six high use wildernesses we

studied in detail. Use has increased (particularly day use), resulting in moderate crowding and a sense that these places seem less like wilderness than they did in the past. Most of these visitors have learned to cope with these changes by either adjusting the way they think about these places or by adjusting their behavior.

### *Cognitive Coping*

As has been found elsewhere (Manning and Valliere 2001, Miller and McCool 2003), rationalization was a particularly widespread cognitive coping mechanism. For the six high use wildernesses we studied, majorities agreed with a number of reasons for continuing to visit and for considering high use to be appropriate or at least acceptable. They agreed with statements that “the area is so beautiful that I want to come in spite of high numbers of people,” “everyone should have a right to visit this area, even if it means use is high,” and “impacts could be worse considering the amount of use.” Interestingly, stock users were particularly likely to agree with the statement about everyone having a right to visit. These rationalizations appear to be effective coping mechanisms because a majority of visitors reported that they enjoy their visits as much as ever and relatively few people reported being less satisfied with their experience than in the past.

Having to conjure up a rationalization for adverse conditions can be considered a “cost” of high use for most visitors. The need to rationalize being around many other people is antithetical to the ideal of wilderness as a place free from the stress and crowding that characterizes modern life for many. While it is clear that most visitors pay these “costs,” the severity of these costs is unclear. The general tenor of responses to some of our questions suggests that most visitors did not consider these costs to be severe. Despite the widespread perception that use and crowding have increased, opportunities for solitude have decreased, and these places feel less like wilderness than in the past, few people reported that their experiences have changed. Most people reported that they enjoy their wilderness visits as much as ever and few reported being less satisfied with their experiences than in the past. Apparently crowding, solitude, and “feeling like wilderness” are not critical enough to the overall experience of most of these people for them to perceive that changes in these characteristics have resulted in a changed experience. This might also explain why their enjoyment and satisfaction is so unresponsive to seemingly important changes.

Our results are consistent with the numerous studies that have found that most visitors are highly satisfied with

their recreation experiences, despite suboptimal conditions (Manning 1999). Our study showed that enjoyment and satisfaction remain high, even as adverse change occurs. As Manning and Valliere (2001) concluded from their study of coping at Acadia National Park, managers need to be attentive to undesirable change regardless of how satisfied visitors are. However, if most visitors do not perceive that adverse changes in conditions are affecting their experiences in any meaningful way, management responses to change that restrict recreational opportunities (such as use limits) are not likely to be viewed favorably. Indeed, in our related study of wilderness visitors (Cole and Hall 2005), even on the most heavily used wilderness trails in Oregon and Washington, only 5 percent of users support reductions in use levels.

We found relatively little evidence of the cognitive coping mechanism that is referred to as “product shift” in the recreation literature (Heberlein and Shelby 1977). Traditionally, product shift has been conceived as changing one’s notion of appropriate conditions to match current conditions. For example, a long-time visitor to a wilderness is employing product shift when experiencing increasing use and decreasing opportunities for solitude, and coping with these changes by concluding that, given existing circumstances, it is appropriate for the experience to have changed (become more crowded). This involves both a change in beliefs (that the experience has changed) and an endorsement of those changes. Our items focused more on whether or not the experience had changed than on whether this change was deemed acceptable. Mean responses to questions such as “the type of experience provided by this area has changed,” “I seek different experiences here than I used to,” “the area has changed but I’ve gotten used to it,” and “I still visit this area but for different reasons” were generally close to the neutral point (between -0.3 and 0.3 on a scale from -3.0 to 3.0). What is unclear is whether product shift is uncommon, or whether it is prevalent but most people are not consciously aware that it has occurred.

### *Behavioral Coping*

Although not as prevalent as cognitive coping, behavioral coping was also widespread. Adjusting trip timing (temporal displacement) was particularly common. Hall and Shelby (2000) and Manning and Valliere (2001) also found temporal displacement to be more common than spatial displacement. Most visitors try to avoid holidays and peak weekends at high use places. Less than 20 percent of visitors reported never doing this and more than 40 percent reported usually or always doing this. Many visitors (but not the majority) also try to go earlier

or later in the season, or on weekdays, to avoid crowds. About 20 percent of visitors reported usually or always doing this. Again, the need to adjust trip timing can be considered a “cost” of crowded conditions. However, these costs occur off-site and before the wilderness visit. Consequently, temporal displacement probably has less effect on wilderness experience quality than the use of coping mechanisms that are employed during the wilderness visit, such as rationalization.

Adjusting where one chooses to go in wilderness (spatial displacement) was less common but not rare. We asked visitors how much they consider a number of factors when making decisions about where to go in wilderness. For most people, the number of day users and overnight users and the presence of stock were minor considerations, as were impacts on trails and campsites. Rules and regulations were even less of a consideration. Crowding, however, was given a mean value of 4.2 on a scale from 0 to 6, suggesting that, on average, it is between a minor and a major consideration. Majorities reported that they have at least occasionally gone to trails that are less crowded, gone to other wilderness areas that are less crowded, and avoided impacted places. However, only about 20 percent of visitors reported that they usually or always employ these coping mechanisms. A similar proportion avoids impacted places, while very few people (<10 percent) are frequently displaced by rules and regulations.

Absolute displacement was rare. Thirteen percent of visitors to the wilderness areas of Oregon and Washington reported that there is a place in wilderness that they will not visit again because of an unpleasant experience they had there. This value is higher than the 7.4 percent of respondents who no longer use the carriage roads at Acadia National Park due to changes there (Manning and Valliere 2001). In our study, however, only 3 percent of visitors have been absolutely displaced from someplace in wilderness because it was too crowded. Another 4 percent of visitors have been absolutely displaced due to some other use-related condition or experience (usually stock use, vandalism, or rude, inconsiderate behavior). The wildernesses with the most absolute displacement resulting from use-related factors were Mt. Hood, Mt. Jefferson, Three Sisters, and Bull of the Woods in Oregon, and Alpine Lakes and Goat Rocks in Washington.

### *Substitutability*

A subject of secondary interest was the substitutability of different wildernesses. Substitutability refers to the extent to which a different place (wilderness or non-wilderness) might be a satisfactory substitute for a high use

wilderness. If substitutability is high, spatial displacement is more likely to occur than if it is low, in response to either adverse changes in conditions (such as increased crowding) or restricted access (such as use limits). Our results present a mixed message. On the one hand, most of the people in our regional sample who had been to the most heavily used wildernesses in the region reported that they “have special memories” of the place and that “visiting is a tradition for me.” These responses suggest that other places would not be very substitutable and that most visitors would continue to keep visiting even as use increased because of the tradition and memories attached to the place. In contrast, when we asked people if they agreed that “other places are just as good for what I like to do,” 37 to 67 percent agreed. In a similar vein, only 16 to 40 percent agreed with the statement, “I don’t know of another place that offers the same opportunities as this place.”

## Management Implications

### *Effect of Crowded Conditions on Experience Quality*

A primary objective of this research was to assess the magnitude of displacement and coping as an indicator of the “cost” of crowded conditions in wilderness. This reflects our belief that wilderness conditions are suboptimal if it is necessary to adjust one’s behaviors or to use mental resources to cognitively cope with crowding. While the acceptability of such situations is subject to debate, we believe such situations are clearly undesirable. Therefore, we quantified the proportion of wilderness visitors who were either displaced by undesirable conditions or forced to cope with those conditions in some other way. We found that most visitors to high use places “pay” these costs—at least with respect to crowding—deciding to cope with what they perceive to be increasing use and crowded conditions. However, most of these people do not appear to consider these costs severe. Few people reported that their experiences have changed or that they are less satisfied with their experiences than in the past.

Our results provide a mixed message for wilderness recreation managers. They suggest that experiences could be improved—and certainly be made more consistent with idealized notions of wilderness experiences—by developing management strategies to limit crowding and resource impacts. However, to be effective, this will require the imposition of use limits, at least in some places. The perspective of most visitors, that the “costs”

associated with increasing use and crowded conditions are not severe, suggests they are not likely to consider the benefits of reduced use and crowding to be worth the loss of free access that would result from use limitation. Indeed, less than 20 percent of visitors to the most popular trails in Oregon and Washington wilderness support limiting use (Cole and Hall 2005).

Managers will need to decide who they are managing for and what types of experience are appropriate in popular wildernesses. Certainly they need to understand and be attentive to the perspectives of the majority of visitors. However, managing to meet the needs and desires of the majority may not lead to protection of experiences that are unique to wilderness. We found that many people who report that these places feel less like wilderness than in the past do not think that their experience has changed. This suggests that they do not view a sense of wilderness as being central to their experience. Moreover, we found that a substantial minority (22 percent of experienced visitors at six high use wildernesses) were less satisfied with their experience than in the past. They report increased crowding and impact and loss of solitude. They were less able than other visitors to cope with these changes through rationalization and acceptance of different types of experiences.

Very few visitors report strong adverse reactions to increased use, however. Depending on the wilderness, 0 to 5 percent of people strongly agreed that they were not as satisfied with their experience as in the past, while 0 to 4 percent strongly disagreed that they enjoyed their visits as much as they used to. Similarly, 0 to 5 percent strongly agreed that the experience provided by this wilderness has changed and that they seek different experiences than in the past.

### *Magnitude of Spatial Displacement*

We were also interested in estimating the magnitude of displacement due to concern that spatial displacement can result in increased crowding and biophysical impact in places in wilderness that are currently lightly used. Results related to this study objective are more ambivalent. Majorities reported that, compared to the past, they are more likely to visit more remote places in wilderness and places without well-developed trails and established campsites and that they are less likely to use a popular trail. Moreover, only about 15 to 25 percent of respondents reported that they never go to less crowded trails or avoid impacted places. This suggests that many visitors respond to increasing crowding by selecting trails and destinations that are less crowded and impacted. However, relatively few (about 20 percent) wilderness

visitors reported that they usually or always behave this way.

The magnitude of shift in use to places that are currently lightly used may not be as dramatic as might be suggested by the large proportion of people who report occasionally adjusting where they visit. In fact, it is possible that the imposition of use limits—to avoid crowding—would cause more displacement than crowding itself. Hall and Cole (2000) found this to be the case in heavily used portions of the Mt. Jefferson and Three Sisters Wildernesses. The imposition of use limits at Obsidian Falls caused much more displacement than not limiting use (allowing increased use and impact) at Green Lakes and Marion Lake.

## Methodological Implications

Our third reason for investigating displacement was to assess how much concern is appropriate about the validity of conclusions drawn about visitor opinions on the basis of survey research conducted in high use places, given that the opinions of displaced users will not be reflected in results. For this purpose, we quantified the magnitude of “absolute displacement”—cases where people have completely stopped using particular places in wilderness. We found that 13 percent of respondents reported absolute displacement from some place in wilderness due to a bad experience. However, the reasons for not returning to this place were diverse. Sometimes the problems were too many bugs, unappealing scenery, or being injured. Only 3 percent of people reported being absolutely displaced due to crowding, with another 4 percent of visitors being displaced due to some other use-related condition or experience (usually stock use, vandalism, or rude, inconsiderate behavior). This result is in line with the 7 percent of carriage road users in Acadia National Park that stopped using those roads due to changes in use (Manning and Valliere 2001).

Although absolute displacement was minimal, partial displacement was more common. Unfortunately, the degree to which partially displaced visitors are underrepresented in surveys is hard to quantify precisely. We found that 12 percent of hikers (18 percent of stock users) reported that they usually “go to other wildernesses that are less crowded” and 23 percent of hikers (32 percent of stock users) usually “go to trails that are less crowded.” If we assume that visitors who are usually displaced are 50 percent as likely to be included in a survey as visitors who are never displaced, it is possible that the views of displaced visitors might be underrepresented

by as much as 15 percent in studies of specific wilderness trailheads. The rationale behind this estimate is that surveys would miss the 3 percent of the population who never visit crowded trailheads anymore. They would also miss another 12 percent of the population—half of the 23 percent of hikers who have been partially displaced. For wilderness-wide studies, under representation would be much less because there is less absolute and partial displacement from entire wildernesses.

Clearly, many wilderness visitors have been displaced by wilderness conditions (particularly crowding) and, by definition, visitors who are frequently displaced are substantially underrepresented in survey research conducted in high use places. It is quite likely that frequently displaced visitors have particularly “purist” views about wilderness management. “Purist” views are views that are highly consistent with the language of the Wilderness Act, including strong attitudes about the importance of solitude opportunities in wilderness and the importance of managing wilderness to preserve solitude. If “purist” views are more prevalent among frequently displaced visitors, then “purist” views will be underrepresented in visitor surveys conducted in heavily used places. However, the question we are trying to address is whether or not this under representation substantially biases survey results. Our results suggest that frequently displaced visitors and visitors with highly “purist” views are such a small proportion of the entire population of wilderness visitors that their under representation is not likely to invalidate the overall findings from most survey research regarding visitor opinions about crowding-related issues. For example, in a question about the need for use limits asked in a trailhead survey, about 5 percent of visitors thought “a limit is needed now to lower use” (Cole and Hall 2005). Even if we double this number to account for the opinions of displaced purists, we still must conclude that there is minimal public support for reducing use to deal with crowded conditions.

For purposes of understanding majority opinions about wilderness management, it seems unlikely that displacement would invalidate the findings of survey research conducted at high use places. It is unlikely that absolute displacement of such a small number of users could explain the reason for lack of a relationship between amount of use and satisfaction, as some have suggested (Manning and Valliere 2001). However, survey research conducted in a particular place inevitably under represents users that have been displaced. If these users have opinions that differ from the majority, the prevalence of those opinions will also be underestimated. Managers should not lose sight of the fact that the prevalence of displacement is indicative of the existence of

suboptimal conditions. The population of severely displaced visitors—although small—will be poorly served if wilderness managers do not attempt to keep wildernesses from becoming increasingly crowded. Moreover, the views of these visitors are, by definition, more in line with the mandate in the Wilderness Act to protect the unique experiences that are possible in wilderness. The challenge to managers is to find strategies that balance, in an appropriate manner, the views of the majority of wilderness visitors, minority views, and the mandate of the Wilderness Act.

## Conclusion

In the popular wildernesses we studied, we found that most visitors perceive adverse changes, such as increased crowding and impact. Majorities reported that these places feel less like wilderness than they did in the past. Most visitors have learned to cope with these adverse changes either by making simple adjustments in their behavior or the way that they think about these places. Consequently, most visitors report that their experiences are largely unchanged and that they are as satisfied with their experiences as ever. Some people are less satisfied with the changes in experience that result from increased use. However, few people are absolutely displaced. The tendency for most visitors to view changing conditions as not very problematic may explain their lack of support for management actions that restrict access.

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# Appendix

## Survey Instrument

Each of the two versions of the survey instrument that were distributed had three sections equivalent to Section Four, one for each of three specific wildernesses.

### SECTION ONE:

These questions ask about your use of designated Forest Service Wildernesses in Oregon and Washington. Please refer to the map on the cover for the location of each of the areas.

- 1.1** For each Wilderness listed below, please indicate whether you have visited any trail or destination within that area. If you have visited, please indicate how many times.

#### Forest Service Wildernesses in Washington

	Visited?		Number of Times				
1 Alpine Lakes	No	Yes→	1	2-3	4-5	6-8	9+
2 Boulder River	No	Yes→	1	2-3	4-5	6-8	9+
3 Buckhorn	No	Yes→	1	2-3	4-5	6-8	9+
4 Clearwater	No	Yes→	1	2-3	4-5	6-8	9+
5 Colonel Bob	No	Yes→	1	2-3	4-5	6-8	9+
6 Glacier Peak	No	Yes→	1	2-3	4-5	6-8	9+
7 Glacier View	No	Yes→	1	2-3	4-5	6-8	9+
8 Goat Rocks	No	Yes→	1	2-3	4-5	6-8	9+
9 Henry M. Jackson	No	Yes→	1	2-3	4-5	6-8	9+
10 Indian Heaven	No	Yes→	1	2-3	4-5	6-8	9+
11 Lake Chelan-Sawtooth	No	Yes→	1	2-3	4-5	6-8	9+
12 Mount Adams	No	Yes→	1	2-3	4-5	6-8	9+
13 Mount Baker	No	Yes→	1	2-3	4-5	6-8	9+
14 Mount Skokomish	No	Yes→	1	2-3	4-5	6-8	9+
15 Noisy-Diobsud	No	Yes→	1	2-3	4-5	6-8	9+
16 Norse Peak	No	Yes→	1	2-3	4-5	6-8	9+
17 Pasayten	No	Yes→	1	2-3	4-5	6-8	9+
18 Salmo-Priest	No	Yes→	1	2-3	4-5	6-8	9+
19 Tatoosh	No	Yes→	1	2-3	4-5	6-8	9+
20 The Brothers	No	Yes→	1	2-3	4-5	6-8	9+
21 Trapper Creek	No	Yes→	1	2-3	4-5	6-8	9+
22 Wenaha-Tucannon	No	Yes→	1	2-3	4-5	6-8	9+
23 William O. Douglas	No	Yes→	1	2-3	4-5	6-8	9+
24 Wonder Mountain	No	Yes→	1	2-3	4-5	6-8	9+

## Forest Service Wildernesses in Oregon

	Visited?		Number of Times				
	No	Yes→	1	2-3	4-5	6-8	9+
1 Badger Creek	No	Yes→	1	2-3	4-5	6-8	9+
2 Black Canyon	No	Yes→	1	2-3	4-5	6-8	9+
3 Boulder Creek	No	Yes→	1	2-3	4-5	6-8	9+
4 Bridge Creek	No	Yes→	1	2-3	4-5	6-8	9+
5 Bull of the Woods	No	Yes→	1	2-3	4-5	6-8	9+
6 Cummins Creek	No	Yes→	1	2-3	4-5	6-8	9+
7 Diamond Peak	No	Yes→	1	2-3	4-5	6-8	9+
8 Drift Creek	No	Yes→	1	2-3	4-5	6-8	9+
9 Eagle Cap	No	Yes→	1	2-3	4-5	6-8	9+
10 Gearhart Mountain	No	Yes→	1	2-3	4-5	6-8	9+
11 Grassy Knob	No	Yes→	1	2-3	4-5	6-8	9+
12 Hells Canyon	No	Yes→	1	2-3	4-5	6-8	9+
13 Kalmiopsis	No	Yes→	1	2-3	4-5	6-8	9+
14 Mark O. Hatfield (Columbia)	No	Yes→	1	2-3	4-5	6-8	9+
15 Menagerie	No	Yes→	1	2-3	4-5	6-8	9+
16 Middle Santiam	No	Yes→	1	2-3	4-5	6-8	9+
17 Mill Creek	No	Yes→	1	2-3	4-5	6-8	9+
18 Monument Rock	No	Yes→	1	2-3	4-5	6-8	9+
20 Mount Hood	No	Yes→	1	2-3	4-5	6-8	9+
21 Mount Jefferson	No	Yes→	1	2-3	4-5	6-8	9+
22 Mount Thielsen	No	Yes→	1	2-3	4-5	6-8	9+
23 Mount Washington	No	Yes→	1	2-3	4-5	6-8	9+
24 Mountain Lakes	No	Yes→	1	2-3	4-5	6-8	9+
25 North Fork John Day	No	Yes→	1	2-3	4-5	6-8	9+
26 North Fork Umatilla	No	Yes→	1	2-3	4-5	6-8	9+
27 Opal Creek	No	Yes→	1	2-3	4-5	6-8	9+
28 Red Buttes	No	Yes→	1	2-3	4-5	6-8	9+
29 Rock Creek	No	Yes→	1	2-3	4-5	6-8	9+
30 Rogue-Umpqua Divide	No	Yes→	1	2-3	4-5	6-8	9+
31 Salmon-Huckleberry	No	Yes→	1	2-3	4-5	6-8	9+
32 Sky Lakes	No	Yes→	1	2-3	4-5	6-8	9+
33 Strawberry Mountain	No	Yes→	1	2-3	4-5	6-8	9+
34 Three Sisters	No	Yes→	1	2-3	4-5	6-8	9+
35 Waldo Lake	No	Yes→	1	2-3	4-5	6-8	9+
36 Wenaha-Tucannon	No	Yes→	1	2-3	4-5	6-8	9+
37 Wild Rogue	No	Yes→	1	2-3	4-5	6-8	9+

**1.2** Which one of the areas listed in Question 1.1 was the first Wilderness you ever visited in Oregon or Washington?

\_\_\_\_\_ In what year was your first visit? \_\_\_\_\_

**1.3** Thinking about the **areas listed in Question 1.1**, have you ever had an experience so unpleasant that it made you decide not to return to that area? If yes, please write in the name of the wilderness and what caused you to stop going there.

Place you no longer visit	Year of most recent visit to the area	Reasons for no longer visiting

**1.4** How many wildernesses have you visited **outside** of Oregon and/or Washington?

- None    
  1-5    
  6-10    
  11-20    
  More than 20

**1.5** Was your first Oregon or Washington wilderness visit in 1998 or before?

- No. Please SKIP TO SECTION THREE  
 Yes.

Have you made **at least 5 Wilderness trips** in Oregon and/or Washington?

- No. Please SKIP TO SECTION THREE  
 Yes. Please CONTINUE WITH SECTION TWO

## SECTION TWO:

These questions ask about how your use of Oregon and/or Washington Wildernesses has changed over time. Please consider only those areas listed in **Question 1.1**

**2.1** Compared to your earlier Wilderness trips in Oregon and/or Washington, how have the following aspects changed? Please indicate how strongly you agree or disagree with each statement.

Compared to my early Wilderness trips...	Strongly Agree				Strongly Disagree		
I take more overnight trips these days	+3	+2	+1	0	-1	-2	-3
I am more likely to avoid places with permits	+3	+2	+1	0	-1	-2	-3
I take shorter trips these days	+3	+2	+1	0	-1	-2	-3
I go more with my family these days	+3	+2	+1	0	-1	-2	-3
I visit wilderness closer to home	+3	+2	+1	0	-1	-2	-3
I go more with my friends these days	+3	+2	+1	0	-1	-2	-3
I visit wilderness more often these days	+3	+2	+1	0	-1	-2	-3
I visit places with fewer rules and regulations	+3	+2	+1	0	-1	-2	-3
I visit wildernesses further from home	+3	+2	+1	0	-1	-2	-3
I visit more remote places in wilderness	+3	+2	+1	0	-1	-2	-3
I take longer trips these days	+3	+2	+1	0	-1	-2	-3
I visit wilderness less often these days	+3	+2	+1	0	-1	-2	-3
I am less likely to use a popular trail	+3	+2	+1	0	-1	-2	-3
I take more day trips these days	+3	+2	+1	0	-1	-2	-3
I visit places with well-developed trails and established campsites	+3	+2	+1	0	-1	-2	-3
I am more likely to use a popular trail	+3	+2	+1	0	-1	-2	-3
I take more trips by myself these days	+3	+2	+1	0	-1	-2	-3
I am more accepting of rules and regulations	+3	+2	+1	0	-1	-2	-3
I visit less remote places in wilderness	+3	+2	+1	0	-1	-2	-3
I visit places without well-developed trails and established campsites	+3	+2	+1	0	-1	-2	-3

**2.2** Compared to your earlier Wilderness trips, how have your motivations for Wilderness trips in Oregon and/or Washington changed, if at all?

	More of a motive now			No Change	Less of a motive now		
Challenge	+3	+2	+1	0	-1	-2	-3
Solitude	+3	+2	+1	0	-1	-2	-3
Develop skills	+3	+2	+1	0	-1	-2	-3
Escape routine/relax	+3	+2	+1	0	-1	-2	-3
Feel a sense of accomplishment	+3	+2	+1	0	-1	-2	-3
Spend time with friends or family	+3	+2	+1	0	-1	-2	-3
Excitement or exhilaration	+3	+2	+1	0	-1	-2	-3
Get away from people	+3	+2	+1	0	-1	-2	-3
Clear my mind	+3	+2	+1	0	-1	-2	-3
Find peace and quiet	+3	+2	+1	0	-1	-2	-3
See wildlife	+3	+2	+1	0	-1	-2	-3
Enjoy the scenery	+3	+2	+1	0	-1	-2	-3
Feel close to nature	+3	+2	+1	0	-1	-2	-3
Exercise	+3	+2	+1	0	-1	-2	-3
Easy access	+3	+2	+1	0	-1	-2	-3

**2.3** Thinking about the Wildernesses listed in Question 1.1, are there any areas that you visit less often or at different times **because there are too many people there?**

- No. Go to Question 2.4
- Yes. Which wilderness areas? \_\_\_\_\_

(List specific destinations within Wilderness areas as well, if appropriate)

**2.4** Thinking about the Wildernesses listed in Question 1.1, are there any areas that you visit less often **because regulations on recreation use are too restrictive?**

- No. Go to Question 2.5
- Yes. Which wilderness areas? \_\_\_\_\_

(List specific destinations within Wilderness areas as well, if appropriate)

**2.5** Thinking about the Wildernesses listed in Question 1.1, are there any areas that you visit less often because the natural environment has been too highly impacted by recreational use?

- No.
- Yes. Which wilderness areas? \_\_\_\_\_

(List specific destinations within Wilderness areas as well, if appropriate)

**2.6** Please indicate whether (and, if so, how often) you have done each of the following in any of the Oregon or Washington Wildernesses listed in Question 1.1:

	Ever Done?		If yes, how often?					
	No	Yes→	Rarely	Occasionally	Often	Usually	Always	
Visit earlier or later in the season to avoid crowds	No	Yes→	1	2	3	4	5	6
Avoid places that have limits on group size	No	Yes→	1	2	3	4	5	6
Visit on weekdays to avoid weekend crowds	No	Yes→	1	2	3	4	5	6
Avoid places with rules about where you can camp	No	Yes→	1	2	3	4	5	6
Go to trails that are less crowded	No	Yes→	1	2	3	4	5	6
Avoid highly impacted places	No	Yes→	1	2	3	4	5	6
Avoid holiday or peak weekends	No	Yes→	1	2	3	4	5	6
Visit less often to avoid rude or disruptive people	No	Yes→	1	2	3	4	5	6
Avoid places with pack stock use	No	Yes→	1	2	3	4	5	6
Still go for day trips, but go other places for overnight trips	No	Yes→	1	2	3	4	5	6
Avoid places that charge fees	No	Yes→	1	2	3	4	5	6
Avoid places that have limits on the amount of use	No	Yes→	1	2	3	4	5	6
Go to other Wilderness areas that are less crowded	No	Yes→	1	2	3	4	5	6
Avoid places that regulate the use of recreational packstock	No	Yes→	1	2	3	4	5	6

**2.7** How much, if at all, do you consider the following factors when you make decisions about which places to go for Wilderness trips in Oregon and/or Washington? (Circle a number for each item.)

	Not at all a consideration		A minor consideration			A major consideration	
Rules and regulations	0	1	2	3	4	5	6
The number of overnight users	0	1	2	3	4	5	6
Trail conditions	0	1	2	3	4	5	6
The number of day users	0	1	2	3	4	5	6
Campsite conditions	0	1	2	3	4	5	6
The presence of hikers	0	1	2	3	4	5	6
The presence of recreational pack stock	0	1	2	3	4	5	6
Crowding	0	1	2	3	4	5	6

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**SECTION THREE:**

Some information about you

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**3.1** What is your age? \_\_\_\_\_ years

**3.2** Are you male \_\_\_\_\_ or female \_\_\_\_\_?

**3.3** What is your zip code? \_\_\_\_\_

**3.4** Which mode(s) of travel do you most often use when you take wilderness trips in Oregon and/or Washington? (Mark one.)

- I always, or almost always, use pack stock (horses, mules, llamas)
- I always, or almost always, hike
- I hike and use stock about equally

**SECTION FOUR:**

Your perceptions of **MOUNT HOOD WILDERNESS**

**4.1** Have you ever been to MOUNT HOOD WILDERNESS?

- No. Go to Section 5.    ⇨
- Yes. In what year was your first visit? \_\_\_\_\_

What trails or area(s) have you visited in Mount Hood? \_\_\_\_\_

**4.2** How much do you agree or disagree with the following statements about the place(s) in Mount Hood that you listed in Question 4.1?

	Strongly Agree		Neither agree nor disagree			Strongly Disagree	
	+3	+2	+1	0	-1	-2	-3
The area seems crowded	+3	+2	+1	0	-1	-2	-3
It is hard to find a good campsite	+3	+2	+1	0	-1	-2	-3
Other places are just as good for what I like to do	+3	+2	+1	0	-1	-2	-3
Everyone should have a right to visit this area, even if it means use is high	+3	+2	+1	0	-1	-2	-3
The area is so beautiful that I want to come in spite of high numbers of people	+3	+2	+1	0	-1	-2	-3
There are so few places like this that I go in spite of the amount of use	+3	+2	+1	0	-1	-2	-3
Impacts could be worse considering the amount of use	+3	+2	+1	0	-1	-2	-3
I don't know of another area that offers the same opportunities as this place	+3	+2	+1	0	-1	-2	-3

**4.3** Have you been to Mount Hood Wilderness **5 or more times**?

- No. Go to Section 5    ⇨
- Yes

**4.4** Overall, would you say you visit Mt. Hood Wilderness the same, more, or less than in the past?

- Same.
- More. Why? \_\_\_\_\_
- Less. Why? \_\_\_\_\_

**4.5** What percentage of your Mount Hood Wilderness trips are overnight trips, where you camp in the wilderness? (Make a mark on the line below)

0-----10-----20-----30-----40-----50-----60-----70-----80-----90-----100%

**4.6** Please indicate whether you feel that Mt. Hood Wilderness has changed in any of the following ways:

	No						
	Increased a lot	change			Decreased a lot		
Evidence of human impact at campsites	+3	+2	+1	0	-1	-2	-3
Number of rules and regulations	+3	+2	+1	0	-1	-2	-3
The number of unofficial side trails	+3	+2	+1	0	-1	-2	-3
Opportunities to experience solitude	+3	+2	+1	0	-1	-2	-3
The amount of available firewood	+3	+2	+1	0	-1	-2	-3
Number of day users	+3	+2	+1	0	-1	-2	-3
Number of overnight users	+3	+2	+1	0	-1	-2	-3
The amount of litter or trash	+3	+2	+1	0	-1	-2	-3
The sense of freedom	+3	+2	+1	0	-1	-2	-3

**4.7** How much do you agree or disagree with the following statements about the place(s) in Mount Hood Wilderness you listed in Question 4.1?

	Strongly Agree				Strongly Disagree		
The area has changed, but I've gotten used to it	+3	+2	+1	0	-1	-2	-3
The area feels less like Wilderness than when I first started visiting	+3	+2	+1	0	-1	-2	-3
I still visit this area, but for different reasons than in the past	+3	+2	+1	0	-1	-2	-3
I am not as satisfied with my experiences in this area as I used to be	+3	+2	+1	0	-1	-2	-3
Visiting this place is a tradition for me	+3	+2	+1	0	-1	-2	-3
I seek different experiences here than I used to	+3	+2	+1	0	-1	-2	-3
The type of experience provided by this area has changed	+3	+2	+1	0	-1	-2	-3
This place is nice for spontaneous day trips, but I like to go elsewhere for longer Wilderness trips	+3	+2	+1	0	-1	-2	-3
I enjoy my visits here just as much as I used to	+3	+2	+1	0	-1	-2	-3
I have special memories of this place	+3	+2	+1	0	-1	-2	-3



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