2002 Mountain Visitor Survey
Mount Baker Wilderness

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Executive Summary

Overview
From May through August, 2002, a visitor study was conducted at four climbing access trailheads in Mt. Baker Wilderness, Mt. Baker-Snoqualmie National Forest. The primary focus was on issues related to climbing and wilderness, especially social impacts and human waste problems. Specific objectives were to understand visitor motives, determine the effects of various conditions on experience quality, determine whether visitors notice specific problems, and ascertain their support for different management practices.

Methods
Visitors (>15 years of age) were asked to complete a 10-page written questionnaire as they exited 4 trailheads on 47 sample days between late May and early September, 2002. Because this survey effort was coordinated with other Region Six surveys, not all visitors received the climber survey (climbers were over-represented and non-climbers were under-represented in this study). Climbers completed 144 surveys; 16 were done by non-climbing backpackers, and 28 were completed by day hikers. The response rate was 87% of people contacted.

Visitor and Trip Characteristics
The sample was 73% male, 95% white, and 26% had household incomes greater than $90,000 per year. Sixty-seven percent of respondents were in 81 private groups; 12% were visiting in 11 commercially guided groups, and 2% were members of clubs or organizations (2 groups). Private groups tended to be small (69% had 2 or 3 people), while commercial groups were larger (50% had 8 or more members). Although 71% of respondents had attempted to summit Mt. Baker during their trip, only 56% said this was their primary trip motivation.

Overnight Camp Information
Most people camped at Railroad Grade, Coleman, Hogsback, Easton Glacier, the High camp, or Black Buttes. Virtually everyone (96%) found an available campsite at their preferred location. The primary reasons for choosing a site were proximity to the climbing route, flat ground, and enough space for the group. Only 18% mentioned seclusion as important.

At their camps, 27% of respondents were out of sight of all other groups, though 27% said they could see more than five tents from other groups. The mean number of visible tents from other groups was 3.9. People’s expectations for camping encounters tended to be disconfirmed; 32% saw fewer others than expected while 23% saw more than expected. Despite the lack of isolation, 80% said that the presence of other groups had no effect on their camping experience. Repeat visitors did not have more accurate expectations for camp encounters than first time visitors.

Climber Information
Approximately half of the respondents rated themselves as “intermediate” climbers, while 29% were beginners and 23% were advanced. Club members tended to be beginners (55%), while commercially guided visitors tended to be more advanced (42%).

Nearly half of all climbers registered at the Ranger Station, though commercial groups (80%) and clubs (100%) were more likely to register. Among private groups 30% did not register at the Ranger Station and did not fill out a trailhead register.
Although 23% of respondents were not attempting to climb Mt. Baker, 41% tried but were unable to summit, while 36% were successful in their attempts. Private and commercially guided visitors were similar in their rate of success, though people in clubs were more likely to fail (70%). Weather was the primary cause of failed attempts for all groups.

On the summit, 70% of respondents encountered other people, typically between 1 and 10 other climbers. Eighteen percent saw more than 20 people on the summit, all on one busy June weekend. Most people said the number of encounters on the summit was not what they had expected – 30% said the number was much less than expected, while 14% said it was much more. Despite seeing others on top of Mt. Baker, 64% said that these encounters had no effect on their experience; 14% said the effect was very positive.

**Trip Motives and Route Choice**
Among all types of users, scenic views (77%) and challenge (73%) were primary motives for their trip, while primitive recreation (42%) and solitude (34%) were much less important. Solitude was less important for commercially guided climbers, while educational motives were more important for club members and guided climbers than private climbers. First time and repeat visitors were similar in their trip motives. People were most likely to choose their specific route for the ease of access.

**Factors Influencing Experience Quality**
On the survey day, the typical visitor encountered 25 other people. Although 47% said this was about what they had expected, the rest were more likely to say they had expected to see fewer people. Nevertheless, 64% said that encounters had no effect on their experience.

From a list of 16 diverse items, views, one’s own group, and streams were deemed to add the most to visitors’ experiences. Seeing other overnight visitors or climbers, on average, were rated as slightly positive, while seeing trampled vegetation, human waste, or trash were slight detractors for those who noticed them.

**Management Issues**
Sanitation is a significant management issue on Mt. Baker. Nearly all respondents said they had heard of the “pack it out” method of waste disposal, and 72% said they typically pack out their waste. This percentage seems suspiciously high, and it is possible that people misinterpreted the question or gave what they thought was the “proper” response. Nevertheless, people did perceive a human waste problem on the mountain, and most supported providing receptacles at the trailhead or Ranger Station for bagged waste. Just over half also supported installing toilets at base camps in wilderness.

Most visitors were unaware that Mt. Baker is a federally designated wilderness, and only 73% knew it is a National Forest. These findings suggest there may be need for improved communication with visitors.
Forty percent of respondents supported additional fees for maintenance or management, while 36% opposed new fees. Those who supported fees placed the highest priority on human waste management, wilderness rangers, and trail maintenance.

Sixty-three percent of respondents were “satisfied” with the current management of Mt. Baker. Most visitors did not think that use limits are needed on Mt. Baker. Those who supported limits did so primarily because they perceived a need based on the biophysical impacts of recreation. The primary issues visitors considered to be in need of attention were human waste management and snowmobiles (which interfered with some visitors’ experiences in the Mt. Baker National Recreation Area).
Introduction

As wilderness management becomes an increasingly contentious issue in the United States, the need for scientifically collected data has grown. In order for land managers to make defensible decisions, they must have information on visitor responses to social and biophysical conditions, as well as on the users’ desired experiences and preferences for management. Such information is one part of a complex process of making stewardship decisions. This study provides such information about climbers of Mt. Baker for recreation planners on the Mt. Baker Ranger District of the Mt. Baker-Snoqualmie National Forest.

This report presents the findings of a survey of visitors to the Mt. Baker Wilderness conducted during the summer of 2002. The primary focus was on climbers, as little is known about the experiences and views of this group. Sampling occurred at the four primary climbing access points, but nearly all climbers were surveyed at one of two sites (Coleman and Easton). Small samples of day and overnight visitors who were not climbing were also obtained, although they were not the target population. Management of climbing and its impacts is presently a concern for Forest Service managers, because mountaineering on some Pacific Northwest wilderness peaks has increased substantially in recent years and may be causing resource and social impacts. Additionally, monitoring is required to determine whether Forest Plan standards are being exceeded, particularly as they relate to inter-group encounters. The project was the result of a collaborative effort between Mt. Baker Ranger District staff and researchers from the University of Idaho.

Study Objectives

The specific objectives of the study were as follows:

- To understand the motivations and expectations of visitors to four areas of the Mt. Baker Wilderness (those that provide access to summit routes).
- To assess the quality of visitors’ experiences during their trips, especially among climbers.
- To determine which social, managerial, and biophysical conditions had positive, negative, or no impact on visitors.
- To determine visitor perceptions of potential wilderness management problems such as crowding, sanitation, and biophysical impacts.
- To assess visitor support for various management options regarding sanitation, fees, and use limits.

Methods

Study Area

The Mt. Baker Wilderness, adjacent to North Cascades National Park, covers nearly 120,000 acres at the northern extent of the Cascades Mountains in Washington. The wilderness is very rugged, with more than 10,000 acres of glaciers and many peaks between 6,000 and 8,000 feet (Mt. Baker-Snoqualmie National Forest, 2006). Mt. Baker itself is 10,778 feet in elevation. Like most of the western slope mountains, the wilderness has large tracts of old growth forest, as well as subalpine and alpine meadows.
There are four popular routes that serve as the primary access points for the climbers attempting to summit Mt. Baker. Most popular is the Coleman Route, which begins at the Heliotrope Ridge Trail. This route crosses the Coleman Glacier and is best attempted between June and August. Campsites are available at the Hogsback, below Coleman Glacier, and at the Black Buttes on the glacier. Some of these have toilet facilities. Ice climbers access climbing destinations below the Hogsback. The North Ridge Route also begins at the Heliotrope Ridge Trail and diverges from the Coleman Route at the Hogsback. This route is very technical, involves difficult ice climbing, and is most safely attempted early in the season.

The Park Glacier Route has the longest approach, beginning at the Heather Meadows Artist Point parking area. On this route, most people camp along the trail at Camp Kaiser. This route has no toilet facilities and is less popular due to the long approach.

The Boulder Glacier Route has a moderately difficult approach, as the trail is not maintained within the wilderness (2 miles from the trailhead) and can be steep and muddy. However, the climb itself is moderate and offers one of the less crowded routes to climbers. Along this route, a bergschrund forms near the summit. As a result, the climbing season is short. Climbers generally camp along Boulder Ridge. No toilet facilities are available at this site.

Finally, the popular Easton Glacier Route begins at the Park Butte Trail, which is also used by day hikers, backpackers, and equestrians. Although the route crosses glaciers, it is more moderate than some of the other routes. Several camps are available and have toilet facilities, including the Railroad Grade and High Camp, as well as sites between 6,000 and 7,000 feet. Because the wilderness boundary is located at 8500 feet, much of this route is in the Mt. Baker National Recreation Area (NRA). It is possible that during the early season climbers will encounter snowmobiles in the Mt Baker NRA.

**Sampling**

Visitors age 16 years and older were surveyed by a University of Idaho (UI) researcher upon exiting the Mt. Baker Wilderness at the four primary mountaineering access trailheads on the mountain: Heliotrope Ridge (Coleman Glacier), Schreiber’s Meadow (Easton Glacier), Boulder Ridge (Boulder Glacier), and Ptarmigan Ridge (Park Glacier). A clustered random sampling design was used whereby exiting visitors were contacted on random weekend and weekdays between approximately 10:00 a.m. and 5:00 p.m. Sampling was conducted at each trailhead beginning May 25th through August 18th, 2002 (Tables 1 and 2).

Although the survey schedule originally included equal numbers of sampling days per trailhead, a few circumstances prevented carrying out this strategy. First, the road leading from Heather Meadows to the Ptarmigan Ridge trailhead was closed by snow until mid-August. Second, a few weeks of field work provided concrete information about the distribution of use among the trailheads and confirmed that some sites had very low use. As a result, late season sampling at the Boulder Ridge trailhead was reduced to allow for increased sampling at the Easton and Coleman sites. This ensured an adequate number of respondents for the study. Third, the Boulder and Park Glacier routes become impracticable in late season due to bergschrunds at the heads of these glaciers. This made use of these routes unlikely in late August and September. As a result,
sampling was reduced at those sites after August. Mt. Baker Ranger District climbing rangers continued the survey at the Coleman site briefly into September in order to capture some of the late-season use after primary season data collection ended. This resulted in four more days of sampling at the Coleman site than at the Easton.

Table 1. Number of Days Sampled For Each Site in 2002, by Month and Day of the Week

<table>
<thead>
<tr>
<th>Location</th>
<th>Month</th>
<th># Weekdays</th>
<th># Weekend Days</th>
</tr>
</thead>
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<tr>
<td>Coleman</td>
<td>May</td>
<td>1&lt;sup&gt;1&lt;/sup&gt;</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>June</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>July</td>
<td>6&lt;sup&gt;2&lt;/sup&gt;</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>August</td>
<td>2&lt;sup&gt;3&lt;/sup&gt;</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>September</td>
<td>2&lt;sup&gt;3&lt;/sup&gt;</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td><strong>Subtotal</strong></td>
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<td><strong>7</strong></td>
</tr>
<tr>
<td>Easton</td>
<td>May</td>
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<td>0</td>
</tr>
<tr>
<td></td>
<td>June</td>
<td>4</td>
<td>3</td>
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<td></td>
<td>July</td>
<td>3</td>
<td>2</td>
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<td>August</td>
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<tr>
<td></td>
<td>September</td>
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<td>0</td>
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<td><strong>Subtotal</strong></td>
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<td>Boulder</td>
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<tr>
<td></td>
<td>June</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>July</td>
<td>0</td>
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<td>August</td>
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<tr>
<td></td>
<td>September</td>
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<td>0</td>
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<td></td>
<td><strong>Subtotal</strong></td>
<td><strong>3</strong></td>
<td><strong>4</strong></td>
</tr>
<tr>
<td>Ptarmigan</td>
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<td>2</td>
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<td><strong>Total</strong></td>
<td><strong>25</strong></td>
<td><strong>22</strong></td>
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<sup>1</sup>Memorial Day  
<sup>2</sup>Includes July 4th  
<sup>3</sup>Includes three days of sampling by climbing rangers (one day in August, two days in September)

Data Collection

Respondents exiting a climbing route were given a ten-page questionnaire and asked to complete and return it before leaving the parking area. Contact was attempted for all exiting parties who had entered the wilderness during their trip or who attempted to climb Mt. Baker. Since climbers on the Easton Glacier route reach 8000 feet before entering the wilderness, it is possible at times for climbers to have to turn back before ever entering the Mt. Baker Wilderness. Nevertheless, they were part of the study population.

The present study of climbers was conducted concurrently with a second regional investigation of wilderness visitors designed to assess motivations, expectations, perceptions and opinions at several wilderness areas in Forest Service Region Six. The second study had four survey instruments associated with it, two that were administered to visitors exiting the wilderness and two administered to entering visitors at the beginning of their trip. With the addition of the
regional surveys to the climbing survey, there were a total of five survey instruments being distributed to visitors at Mt. Baker during the sampling period. Distributing multiple surveys meant that the number of respondents for any given survey was substantially reduced, as each visitor was not to be given more than one survey to complete. Therefore, in an effort to capture an adequate sample of climbers for the Mt. Baker survey, two-thirds of the members of each exiting *climbing party* were given the Mt. Baker survey (data presented in this report) and one-third were given a regional wilderness survey (data presented elsewhere). Conversely, one-third of people in *non-climbing* parties that were exiting (both day and overnight) were given the Mt. Baker survey, and two-thirds received the regional exit survey. People traveling alone or as couples were given surveys of one type or another depending on what was necessary to maintain the desired ratio of survey type to activity type for each day of surveying. Additionally, the regional wilderness entry surveys were administered to all members of every entering party, regardless of activity type, since the Mt. Baker survey was for exiting visitors only. Exiting groups that had already completed a survey upon entering the wilderness were not asked to complete an exit survey.

Because most exiting parties were given one of two different surveys and the type of survey that a person refused was not recorded, a response rate could only be calculated for the sample as a whole. Of 466 potentially eligible participants, 368 people (79%) were contacted and asked to complete a survey. The rest of the eligible participants were not contacted due to snow-filled parking areas that required people to park at several locations along logging roads rather than in one concentrated use area. Collecting questionnaires from groups spread out along the road meant missing some exiting groups. Later in the summer, large numbers of people exiting at the same time made contacting all groups difficult. Finally, a few parties were not asked to complete questionnaires due to emergencies such as injuries or vandalized vehicles.

In total, there were 47 refusals to participate in an exit survey and 188 completed questionnaires, resulting in an 87% response rate. The majority of questionnaires were completed by individuals using the Coleman access, who were climbing on weekend days (Table 2). The small samples of day and overnight non-climbers make it inadvisable to generalize from our findings to the population of day and overnight non-climbing visitors.

**Limitations of Methods**

As is often the case when performing research in mountain environments, snow was a limiting factor to sampling and required unanticipated changes to the sampling strategy as described above. Higher than average snowfall on Mt. Baker the previous winter kept trailhead parking areas closed and lengthened approaches until mid summer or later. In the most extreme case, the road to the Artist Point parking lot that provides access to the Ptarmigan Ridge trailhead did not open until August 10th. As a result, only three sampling days were possible at the Ptarmigan Ridge trailhead. Overall, lingering snow likely reduced the number of day hikers and backpackers at all locations in June and July. The samples for non-climbing visitors were consequently quite small.
Table 2. Number of Completed Surveys by Site, Month, Day of the Week, and Activity.

<table>
<thead>
<tr>
<th>Location</th>
<th>Coleman</th>
<th>117</th>
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<tr>
<td></td>
<td>Easton</td>
<td>64</td>
</tr>
<tr>
<td></td>
<td>Ptarmigan</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Boulder</td>
<td>0</td>
</tr>
<tr>
<td>Month</td>
<td>May</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>June</td>
<td>73</td>
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<tr>
<td></td>
<td>August</td>
<td>48</td>
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<td>September</td>
<td>7</td>
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<tr>
<td>Day of Week</td>
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<td>133</td>
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<tr>
<td></td>
<td>Weekday</td>
<td>54</td>
</tr>
<tr>
<td>Activity</td>
<td>Climbing</td>
<td>144</td>
</tr>
<tr>
<td></td>
<td>Overnight (non-climbing)</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Day (non-climbing)</td>
<td>28</td>
</tr>
</tbody>
</table>

In the case of the Boulder Glacier climbing route, sampling days may not have been long enough to contact exiting climbers. Vehicles containing signs of climbers and Northwest Forest Pass receipts indicating exit dates were observed at the Boulder Ridge trailhead on four occasions, and three climbing parties were contacted on entry. Overall, five of seven survey days at the Boulder Ridge trailhead had an indication of climbing use. However, no exiting parties were encountered. Thus, although this survey does not include any questionnaires from the Boulder Ridge trailhead, the Boulder route does appear to receive a consistent but quite low level of summer climbing use.

One purpose of the sampling design was to obtain a sufficient number of responses from climbers to be able to generalize to this population. As a result, climbers were sampled more intensely than other users. The limitation of this approach arises when trying to apply the results of the survey to all visitors to the Mt. Baker Wilderness, because the data over-represent climbers and under-represent non-climbing backpackers and day hikers. Instances of significant differences between climbers and other users are noted in the results, but these should be interpreted with caution.

Initially, non-climbing visitors contacted at the Schreiber’s Meadow/Easton Glacier trailhead were not included in the survey since they would likely never enter the Mt. Baker Wilderness during their trip. Most would travel only in the National Recreation Area (NRA). Additionally, the Mt. Baker NRA is managed under different regulations than the Wilderness. For example, the use of designated campsites is required in the NRA but not in the Wilderness. Moreover, the survey also included several wilderness-specific questions that people who didn’t visit wilderness might be unable to answer. However, as the need for more questionnaires became apparent, the decision was made to include NRA visitors in the survey, starting on August 4th. NRA questionnaires were labeled so that they could be separated from the sample if necessary. The difference in management practices between the two areas could have had a systematic
effect on visitor responses, if respondents were considering one area or the other when answering questions. The most notable example of this is the reference made to snowmobiles by several NRA visitors – the questionnaire did not ask people to differentiate where conditions were encountered and it is most likely that the snowmobile encounters occurred in the NRA. Additionally, we did not ask whether people’s management preferences varied for the NRA versus the wilderness, so we cannot know which area(s) they were considering when answering management opinion questions.

Finally, administration of the regional entry questionnaires ceased on August 9th when a sufficient number had been collected for pilot testing. After this date, more exiting visitors became eligible for the exit questionnaire since they had not been contacted on entry. This decision may have augmented the number of questionnaires received during the last eight days of sampling.

Results

The survey included several questions with “skip” patterns, such that people who answered a certain way on the first part of a question skipped the next sections. For instance, people who opposed fees were not asked to assign priorities for fees. In these cases, we have usually represented responses as a percentage of the people who answered each question, not as a percentage of the entire sample. Hence it is very important that readers pay attention to the sample size used in each figure or table. This is also important because some questions that should not have been skipped were not answered by many respondents. We have noted instances where this tendency was particularly evident.

Section 1. Trip Information

Wilderness managers were interested in better understanding the visitors to Mt. Baker. In particular, managers were interested in such characteristics as past use of Mt. Baker, how many people were typically in a group, the types of activities people engaged in, and how long trips to the area typically lasted. In addition, they wished to determine whether repeat versus first-time visitor differed in any systematic ways, as well as whether there were differences in the experiences or views of commercially guided visitors, members of clubs or organizations, or people visiting on their own.

Visitors were asked if they had ever been to Mt. Baker prior to the present trip. Nearly two-thirds of respondents indicated they had visited Mt. Baker previously, while the remaining 38% were first time visitors (Figure 1). No statistically significant differences were found between locations or activity types in the percentage of first-time visitors.
Visitors were also asked to indicate if they were traveling in a private party or as a member of an organized group. This type of information can be represented as percentages based on the number of individual respondents (188) or the number of groups (94). Over two-thirds of individual respondents were associated with private parties (Figure 2), while commercially guided and club/school groups each accounted for 16% of the visitors surveyed. However, private parties accounted for 86% of the total number of groups (n=81), while commercially guided groups accounted for 12% (n=11) and club/school groups accounted for 2% (n=2) (Figure 3). The difference between the two ways of portraying the data are due to private parties being smaller, but making up a larger percentage of all groups.
Respondents were asked to indicate how many people were in their group during this trip (Figure 4). The majority of the 94 groups consisted of two to three people, while 21% of groups had four to six people. Day use groups tended to be slightly smaller (mean=3.1 people, SD=1.8) than groups on overnight trips (mean=3.9 people, SD=3.3). Overall, group sizes were somewhat larger than often reported for wildernesses, probably due to climbing parties containing more members for reasons of safety.
The 81 private groups that were contacted had an average of two to three members and ranged in size from one to eight people (Figure 5). Commercially guided groups (n=11) clustered at the low (2-4 people) and high (8-13 people) ranges. The smaller groups were cases in which a single guide had been contracted to lead a climb for one group. The larger commercial groups were skills courses, usually with a climbing component. The two club/school groups were among the largest parties surveyed, with 13 and 20 people. Although party size is limited to 12 people, the 20-person party had a group size exemption.

![Group Size by Group Type](image)

Figure 5. Distribution of Group Sizes by Group Type.

Visitors were asked to indicate whether their trip was a day or overnight excursion. The majority of trips to the Mt. Baker Wilderness for both individuals and groups were overnight excursions (Figure 6). Lingering snow at trailheads may partially account for this circumstance, which is unusual for many wilderness trails in the region, as day users did not become frequent until the last month of the sampling period. Nearly all of the climbers sampled (94%) indicated they were on overnight trips, while the small sample of non-climbers was evenly distributed between day and overnight trips. Because climbers were over-represented, the proportions of overnight and day use should not be considered representative of Mt. Baker Wilderness use in general.
Most groups exiting from the Coleman and the Easton trailheads were on overnight excursions (Figure 7). At the Easton/Schreiber’s Meadow trailhead, there were significantly more groups staying overnight than day hiking (Chi-square, \( p=0.01 \)). Conversely, more than 70% of groups contacted at the Ptarmigan trailhead were day hikers. However, the number of day users surveyed was likely reduced due to the initial exclusion of day hikers in the NRA (at the Easton trailhead), as well as inhibited access to the Ptarmigan trailhead until late summer.
A survey question asked overnight visitors to report the number of nights spent during their trip. More than 95% of groups indicated spending one or two nights in the Mt. Baker Wilderness, with a single night stay being the most common (Figure 8). It was infrequent that groups indicated spending three or more nights on their excursion.

![Distribution of Overnight Trip Lengths](image)

Figure 8. Distribution of the Number of Nights Spent during Overnight Trips.

Day use groups also indicated the length of time spent during their excursion (Figure 9). The average day trip was six hours. Of 23 day use groups, over half (52%) spent anywhere from three to six hours in the Mt. Baker Wilderness, while 39% spent seven or more hours. Several of the longer day trips were by ski mountaineering parties or groups making one-day summit attempts. Due to the small number of day use groups captured in the study, caution should be exercised when generalizing these results to the larger population.

![Distribution of Day Use Trip Lengths](image)

Figure 9. Distribution of the Number of Hours Spent during Day Trips.
A survey question asked visitors to select which of four activities they participated in during their trip, and visitors could select more than one activity if appropriate (Figure 10). The majority of respondents indicated summit climbing among their activities and one-third indicated backpacking. The number of people indicating day hiking is likely not representative of the actual proportion of day use throughout a normal season due to snow-covered trails, the initial exclusion of NRA users in the study, and the differential approach to sampling different user types for the climber and regional studies. Seventy-five percent of day use respondents were surveyed during the last month of the sample period.

![Distribution of Visitor Activities During Trips (n=178)](chart.png)

Figure 10. Distribution of Visitor Activities.
(Percentages add to more than 100% due to respondents reporting more than one activity.)

Many people indicated having participated in multiple activities during their trip (Figure 11; Note: people who participated in only one activity are not shown). More than one-quarter of these respondents indicated both summit climbing and backpacking as their activities. The small percentage of respondents indicating both summit and ice climbing activities were likely attempting steeper routes such as the North Ridge or were involved in skills courses. Just over 7% of respondents indicated attempting to summit during a day trip, and some of these people also ice climbed. Of the 144 climbers surveyed, 12% were ice climbing and 34% said they were backpacking.

There were 40 people who indicated that they participated in “other” activities than the categories listed in the survey (Figure 12). Of these respondents, the majority indicated participating in skills courses and skiing or snowboarding. Other activities included bird-watching, sightseeing, camping and miscellaneous others.
Visitors were asked to indicate which activity was their primary activity during their trip. (Twenty-four people did not do so.) Just over half of the respondents cited summit climbing as their primary activity (Figure 13). However, as indicated in Figure 10, 71% of respondents included summit climbing as one of their activities. Thus, approximately 15% of people who summit climbed did not consider it to be their primary activity. Some of the difference can be accounted for by respondents in the “other” category who prioritized skiing or skill development over climbing.
Section 2: Overnight Camp Information
Wilderness managers desired information about overnight visitors, especially climbers. The questionnaire asked respondents to report up to three camps that they used during their trip, the elevation of each camp, the number of nights spent at each camp, and the number of tents used during the trip. Additionally, people were asked to indicate whether they were able to find an open campsite at their preferred location, reasons for relocating to another location (if relevant), and the number of other groups camped within sight on the last night of their trip.

Approximately 72% of groups reported using one or two tents during their trip (Figure 14). Twelve percent of groups used three to five tents during their trip and 4% used more than five tents. Almost 14% of parties used only sleeping bags or bivy sacks.
Among the 134 respondents who reported the locations where they camped, the locations most often cited were the Railroad Grade, Coleman Glacier, and the Hogsback (Figure 15). High Camp, the Easton Glacier, and the Black Buttes each received use by more than 10% of campers. The camp location names were reported by visitors and are not necessarily mutually exclusive. For example, one person camped at a certain area may have written “Black Buttes” on a survey while another person at the same location may have instead written “Coleman Glacier,” where the Black Buttes are located. Boulder and Ptarmigan area camps were not well represented due to limited sampling at the Ptarmigan trailhead and late exit times of parties at the Boulder trailhead.

<table>
<thead>
<tr>
<th>Camp Location</th>
<th>Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Railroad Grade</td>
<td>18</td>
</tr>
<tr>
<td>Coleman Glacier</td>
<td>15</td>
</tr>
<tr>
<td>Hogsback</td>
<td>11</td>
</tr>
<tr>
<td>Easton Glacier</td>
<td>11</td>
</tr>
<tr>
<td>High Camp</td>
<td>10</td>
</tr>
<tr>
<td>Black Buttes</td>
<td>8</td>
</tr>
<tr>
<td>Harrison Camp</td>
<td>7</td>
</tr>
<tr>
<td>Glacier Overlook</td>
<td>3</td>
</tr>
<tr>
<td>Marmot Ridge</td>
<td>2</td>
</tr>
<tr>
<td>Monitor Ridge</td>
<td>2</td>
</tr>
<tr>
<td>Abuthnut Lake</td>
<td>1</td>
</tr>
<tr>
<td>Camp Kaiser</td>
<td>1</td>
</tr>
<tr>
<td>Treeline</td>
<td>1</td>
</tr>
<tr>
<td>Heliotrope Ridge</td>
<td>4</td>
</tr>
<tr>
<td>Monitor Ridge</td>
<td>2</td>
</tr>
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<td>Marmot Ridge</td>
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<td>Glacier Overlook</td>
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<td>High Camp</td>
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<td>Easton Glacier</td>
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<td>Hogsback</td>
<td>14</td>
</tr>
<tr>
<td>Coleman Glacier</td>
<td>15</td>
</tr>
<tr>
<td>Railroad Grade</td>
<td>18</td>
</tr>
</tbody>
</table>

Figure 15. Percent of Overnight Respondents Camping at Different Locations on Mt. Baker.

Respondents spent a total of 114 nights at the Coleman area camps (Figure 16). Of these, approximately 71% were spent at the Coleman Glacier, Harrison Camp, or Hogsback sites, while 14% were spent at the Black Buttes. Harrison Camp was the only Coleman area site where parties spent more than two nights. This location is preferred by larger guided or club/school
groups because it offers an outhouse, relative seclusion, and shelter from inclement weather that is more likely on longer trips.

Figure 16. Percent of Nights Spent by Users at Coleman Camp Areas.

Respondents were asked in an open-ended question to indicate the elevations at which they camped (Figure 17). Overnight users in the Coleman area clustered around Harrison Camp (5000’), the Glacier Overlook/Hogsback area (5400’-6000’), and the Black Buttes (7000’-7200’). A small percentage of parties camped higher on the Coleman Glacier, most likely to have a shorter summit day. The spread of elevations around the camp areas is likely due to variation in respondents’ estimation or recollection of their camp elevation. Nevertheless, it is clear that people camp across a wide range of elevations.
Respondents spent a total of 84 nights in the Easton area. Of these, 45% were at Railroad Grade, 39% at Easton Glacier, and 16% at High Camp sites (Figure 18). None of these parties reported moving camp more than once during their trip. Thirty-five percent of users stayed a second night at one of the Easton camp areas, compared to 12% at Coleman area camps. Visitors were two times more likely to spend three nights at Easton area camps than Coleman area locations. However, no one reported spending more than three nights at any Easton area camp. Overall, fewer people spent the night in the Easton area, but they stayed longer than overnight visitors to the Coleman area, with the exception of a few guided or club/school groups. The differences may be due to the greater length of the Easton approach and climbing route, as well as better opportunities for ice climbing and crevasse rescue training on the lower Coleman Glacier.
When Easton area campers were asked at what elevation they camped, responses indicated a broad distribution among the upper Railroad Grade (5500’), High Camp at the top of Railroad Grade (5800’-6000’), and the lower Easton Glacier (6000’-7000’) (Figure 2.6). About 15% of parties camped below the terminus of the Easton Glacier or in the lower Railroad Grade/Park Butte area.

![Elevation of Visitors’ Campsites in the Easton Area (n=47)](image)

Figure 19. Elevation of Visitors’ Campsites in the Easton Area.

Not surprisingly, given the large majority of overnight visitors in the sample, most respondents reported camping on Mt. Baker the night prior to being surveyed (Figure 20). The discrepancy between the percent of day users according to this question (17%) and the percentage in Figure 10 (12%) may be caused by some of the visitors who ice climbed or summited Mt. Baker not indicating “day hiking” as one of their activities in the earlier question. Almost all overnight respondents said they found campsites at their preferred location. The three people who did not find suitable campsites stated high winds and human waste as reasons. People who relocated did not go far from their originally intended site.
Figure 20. Percent of Visitors Who (a) Camped and (b) Found a Preferred Location on Mt. Baker.

Overnight respondents were asked to indicate which of eight possible factors influenced their choice of site. Of 140 respondents to this question, most indicated having multiple reasons for choosing their site, including campsites that were close to the intended climbing route, had flat or level ground, and were large enough to accommodate the group (Figure 21). The least commonly stated reasons for site selection were bare ground and seclusion. Bare ground may not be a common factor in site selection because climbers likely are prepared to camp on snow. Some respondents selected the “other” category. These are documented in Table A1 of the Appendix. Other reasons mentioned more than once, but infrequently, were safety, the vista or view, and that the guide chose the site.

Figure 21. Reasons for Selecting a Campsite.
Another study that included mountaineers in Washington also found that views, level ground, and access to climbing routes were important factors in campsite selection for climbers, while seclusion was less important (Brunson & Shelby, 1991). Respondents to the Mt. Baker survey were not given “views” as an option when indicating reasons for campsite choice, but they did desire views as an overall trip attribute, as evidenced in a later question.

Overnight respondents were asked to report the number of tents from other groups visible from their own campsite on the last night of their trip. Just over one-quarter of respondents reported seeing no tents from other groups on the last night of their trip (Figure 22). Half of the respondents could see one to five tents from their campsite, and 10% saw more than ten tents. The Forest Plan for the Mt. Baker-Snoqualmie National Forest stipulates that a maximum of ten occupied campsites be visible from other campsites on the Coleman Glacier. As 70% of respondents reported using one or two tents on their trip, ten parties might reasonably be expected to use 10-20 tents. By this computation, social conditions at camps were within standards nearly all the time. On the Coleman Glacier, seven respondents reported seeing 15-25 tents from their camps on Saturday, June 1st, indicating that the social impact standard may have been exceeded on that day.

![Number of Tents Visible from Campsite (n=139)](image)

Figure 22. Number of Tents from Other Groups Visible on the Last Night of the Trip.

Respondents most often reported seeing approximately the number of tents from their campsite that they had expected to see (Figure 23). Thirty-two percent of campers reported seeing fewer tents from their campsite than expected. However, nearly one-quarter of respondents saw more tents than expected. Repeat visitors reported seeing more tents than expected about 10% more often than first time visitors. Yet, this relationship between past experience and confirmation of expectations was not statistically significant. In other words, experienced users did not have more (or less) accurate expectations than newcomers. Unlike other studies, in which a large majority of respondents say that social conditions matched expectations, this survey found that a majority of respondents’ expectations were not met for camping near others.
Respondents were asked to indicate to what extent visible tents from other groups affected their experience. The majority of overnight visitors reported that the number of other visible tents had no effect (Figure 24). Approximately 11% of visitors reported a positive effect, while only 9% reported a negative effect.

Both the actual number of tents visible from camp and the comparison with expectations had a weak negative correlation with effect on the experience (tents visible vs. effect, $r = -.17, p < .05$; tents expected vs. effect, $r = -.32, p < .001$) (Table 3). People who saw fewer tents than expected
from their camp reported a slightly more positive influence on their experience. The direction of these relationships is as predicted, although deviations from expectations had a stronger relationship with the evaluation of effect.

Table 3: Mean Number of Tents Visible from Camp and Their Effect on Experiences.

<table>
<thead>
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<th></th>
<th>n</th>
<th>Mean</th>
<th>Median</th>
<th>SD</th>
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<tbody>
<tr>
<td>Number of tents visible</td>
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<td>3.9</td>
<td>2.0</td>
<td>4.9</td>
</tr>
<tr>
<td>Number of tents expected¹</td>
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<td>-0.2</td>
<td>0.0</td>
<td>1.5</td>
</tr>
<tr>
<td>Effect on experience²</td>
<td>139</td>
<td>0.1</td>
<td>0.0</td>
<td>0.9</td>
</tr>
</tbody>
</table>

¹7-point scale: -3 (much less than expected), 0 (about what expected), 3 (much more than expected)
²7-point scale: -3 (very negative), 0 (no effect), 3 (very positive)

Overnight visitors were asked in an open-ended question to explain the effects other campers had on their experiences. Only 53 people responded to the question, less than half of those who had seen other groups’ tents. Responses indicated that positive effects of other campers included meeting nice people and having solitude or privacy (presumably because the lack of others was rated as positive) (Figure 25). Negative effects were most commonly due to lack of solitude or privacy. People giving neutral responses explained that they expected to see other parties while camping on Mt. Baker. Table A2 of the Appendix contains the full text of responses to this open-ended question.

Figure 25. Aspects of Camp Encounters Having an Impact on Campers’ Experiences.
Section 3: Climber Information
Managers were interested in several characteristics of climbers and their activities at Mt. Baker. Visitors were asked to indicate whether they had ever attempted to climb Mt. Baker, either on their present trip or previously. More than half of respondents reported that they had attempted to climb the mountain (Figure 26). These results are influenced by the sampling scheme, which, as described above, over-represent climbers.

![Attempts to Climb Mt. Baker (n=178)](image)

Figure 26. Percentage of Visitors Who Had or Had Not Attempted to Climb Mt. Baker.

Among those who had attempted to summit, the majority had made at least two climbing trips to Mt. Baker, while 22% had attempted three to five summit trips (Figure 27). Twenty-one percent of visitors reported making six or more trips. Commercial guides and mountaineering instructors likely account the majority of respondents who had made more than ten summit attempts.

![Visitor Climbing Attempts on Mt. Baker (n=101)](image)

Figure 27. Number of Past Efforts to Climb Mt. Baker
Another survey question asked visitors how many times they intended to climb Mt. Baker in 2002, including attempts earlier in the year. Approximately two-thirds of climbers expected to attempt to climb Mt. Baker only once, while nearly one-quarter indicated expecting to climb it at least twice (Figure 28), though 14% intended to climb Mt. Baker three or more times during 2002. Visitors intending more than five climbing trips were likely the guides of the four or five commercial climbing groups. However, no significant relationship was found between the number of climbing trips to Mt. Baker and group type (private, commercially guided, or club/school).

![Mt. Baker Climbing Attempts in 2002 (n=104)](image)

Figure 28. Projected Number of Mt. Baker Climbing Attempts in 2002.

The survey also asked if visitors or climbers had planned to summit Mt. Baker on this trip and whether or not they were successful. A total of 77% of respondents indicated they were at least attempting to summit on the current trip (Figure 29). Twenty-three percent of respondents who had attempted Mt. Baker in the past were not attempting to climb Mt. Baker on this trip but, instead, were engaged in a different activity during this visit. The questionnaire was distributed at the end of the trip, and similar percentages had succeeded and failed to summit. Since we were conducting an exit survey, the low response (1%) to the “yes, plan to summit” option is understandable.

Some differences emerged among group types in success at summiting (Figure 30). Respondents in commercially guided groups were more likely to be attempting to summit and to be successful when climbing than visitors in private parties or club/school groups. Respondents in club/school groups were the least likely to succeed in their summit attempts. However, the small sample sizes for club/school groups (2 groups) and commercially guided groups (11 groups) prevent the generalization of these results to the entire population of climbers.
Respondents who were not able to summit were asked to explain the reasons they were not successful in their summit attempt. In general, weather was indicated as a main reason for failure to summit (Figure 31). Wind and snow conditions were the most frequently cited specific reasons. Other factors inhibiting summit attempts included poor visibility, illness or injury, fatigue and apathy. People in private parties accounted for all instances of illness/injury and fatigue.
Reasons for Unsuccessful Summit Attempts (n=65)

![Chart showing reasons for unsuccessful summit attempts]

Figure 31. Reasons for Unsuccessful Summit Attempts.

Successful climbers were asked about the number of people they encountered on the summit of Mt. Baker. Of 48 respondents, 29% percent reported encountering no one on the summit, while 42% encountered only 1 to 10 people (Figure 32). A total of 18% of respondents reported seeing more than 20 people on the summit, all occurring on Sunday, June 16, 2002.

![Chart showing number of people encountered on Mt. Baker summit]

Figure 32. Number of Encounters with Other People on the Mt. Baker Summit.

The mean number of visitor encounters with other people on the Mt. Baker summit was 1.6 people (Table 4). A survey question asked people to report the number of other people they encountered on the summit of Mt. Baker compared to what they expected. Thirty-five percent of
climbers reported encountering fewer people than expected, while 29% encountered more than expected (Figure 33).

Table 4. Mean Number of People Encountered on Summit and Effect on Experiences

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<th>n</th>
<th>Mean</th>
<th>Median</th>
<th>SD</th>
</tr>
</thead>
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<tr>
<td>Number of Encounters with People</td>
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<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Number of People Expected to Encounter$^1$</td>
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<td>-0.3</td>
<td>0.0</td>
<td>1.8</td>
</tr>
<tr>
<td>Effect of Encounters on Experience$^2$</td>
<td>50</td>
<td>0.4</td>
<td>0.0</td>
<td>1.3</td>
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</tbody>
</table>

$^1$7-point scale: -3 (much less), 0 (about what expected), 3 (much more)
$^2$7-point scale: -3 (very negative), 0 (no effect), 3 (very positive)

Figure 33. Actual vs. Expected Encounters with Other People on the Summit of Mt. Baker.

Of the 14 respondents who were first-time visitors to Mt. Baker, 14% had more summit encounters with other people than expected. Of the 36 repeat visitors, 36% reported seeing more people than expected on the summit. The statistical significance of the relationship between prior visits and comparison of encounters with expectations could not be determined due to the small number of respondents to this question (only successful climbers were included).

Another survey question asked visitors if encounters with other people on the summit affected their experiences, either positively or negatively. The majority of climbers reported that summit encounters had no effect on their experience (Figure 34). However, 20% indicated that encounters with others positively affected their experience to some degree, with the majority of these indicating very positive effects. Although a small percentage of climbers reported a slight negative effect from encounters, none indicated that encounters with others had a substantial
negative effect. Nine percent of the visitors who reported no effect from encounters did not encounter anyone on the summit.

![Effect of Summit Encounters on Visitors' Experience (n=50)](image)

Figure 34. Effect of Summit Encounters on Climbers’ Experience.

Visitors had the opportunity to explain the effect that summit encounters had on their experience in an open-ended follow-up question. Of the 25 people who elaborated, most reported having found solitude or meeting nice people as the primary reasons for positive effects. Two visitors mentioned safety concerns due to the number of people on the Roman Wall, and two respondents reported that they avoided other parties. Visitors’ written responses are documented in Table A3 of the Appendix.

Respondents were asked to rate their level of climbing experience. Just under one-third rated themselves as beginners. Nearly half of all climbers surveyed rated themselves at an intermediate level of experience, and nearly one-quarter rated their experience level as advanced (Figure 35). Five commercial guides were included in the advanced designation.

More experienced climbers were more likely to be repeat visitors to Mt. Baker (Chi-square, \( p < .001 \)) (Figure 36). All climbers claiming advanced experience levels were repeat visitors, while two-thirds of intermediate climbers were repeat visitors. Forty-one percent of beginners were repeat visitors.

Most people in private parties were intermediate or advanced climbers (Figure 37). Club/school groups were more likely to have members that were beginners (Chi-square, \( p < .01 \)). Although four or five of the advanced respondents were guides, the results indicate that some advanced climbers return to Mt. Baker as guided clients.
Figure 35. Climbers’ Self-reported Experience Level.

Figure 36. Percent of Repeat Visitation within Each Experience Level.

Figure 37. Climber Experience Level within Each Group Type.
Climbers were asked how they would characterize their role within their party on the present trip. Of the 113 people who answered, two-thirds identified themselves as “team members,” 23% were “group leaders,” and 10% indicated that they were “lead climbers” (Figure 38). These terms were not directly defined in the questionnaire for the respondents, so there may have been some confusion regarding the distinction between the “group leader” and “lead climber” categories.

![Climbers' Reported Role in Group (n=113)](image)

Figure 38. Climbers’ Self-Ascribed Role in the Group.

Of the 51 climbing parties surveyed, nearly half reported registering at a Ranger Station before embarking on their trip (Figure 39). This means that 52% of groups only signed the trailhead register or did not register at all. No one responded that they did not know whether their group had registered.

![Climber Rate of Registration (n=51)](image)

Figure 39. Climbing Groups’ Rate of Registration.
Both of the club/school groups registered at the Ranger Station and all five commercially guided groups surveyed indicated having completed a climbing registration form at a Ranger Station or signing a trailhead register before embarking on their trip (Figure 40). However, less than half of the private climbing parties registered at a Ranger Station. Although the numbers of commercial and club/school groups were too low for statistical comparison, the results may suggest that organized groups are more likely to register than private climbing parties.

Figure 40. Climber Registration by Group Type.

Climbers who did not register were asked to provide reasons for not completing a climbing registration form. Of the 28 people who responded, almost half stated that they were not aware of the opportunity, while 18% reported that the Ranger Station at Sedro Woolley was closed upon arrival (Figure 41). A small number of respondents intentionally did not register because of negative attitudes toward permits. Respondents’ written comments to this question are documented in Table A4 of the Appendix.

Figure 41. Climbers’ Reasons for Not Registering.
Section 4: Trail/Climbing Route Selection

In an open-ended question, visitors were asked which climbing route or primary trail they originally intended to take on their trip. Of 164 respondents, 55% had planned to take the Coleman route or the Heliotrope Ridge Trail (Figure 42). The Easton route was the third most intended route, followed by the Railroad Grade Trail. It should be noted that 43% of sample days were spent at the Coleman trailhead and 34% were spent at the Easton trailhead. Thus, the results may reflect this proportion in the visitors sampled. About 4% of respondents indicated that they originally intended to attempt the more challenging North Ridge, Coleman Headwall, or Mustache climbing routes. No climbing parties were contacted coming off of the Boulder Glacier or Ptarmigan/Park Glacier routes due to late exit times of groups, lower sampling intensity at these locations, and lower overall visitor use.

![Figure 42. Visitors’ Planned Route or Trail during Their Trip.](image)

When asked if they followed their intended route or trail during this trip, the vast majority of respondents reported they had. There were only eight people who deviated from their plan, for whom alternates included the Coleman-Deming, Easton Glacier, and Mustache routes. Reasons for changing plans included accessibility and route-finding difficulties.

All respondents were asked to indicate all applicable reasons to their choice of route or trail for this trip. The most common reason was ease of access to the intended destination, followed by scenery, route conditions and challenge, and familiarity with the route (Figure 43). Over one-third of respondents noted other reasons for route/trail choice in a space provided on the questionnaire.
Visitors’ Reasons for Route or Trail Choice (n=175)

Figure 43. Reasons for Choosing Route or Trail.

Visitors were asked to explain, if applicable, other reasons for route or trail choice. Out of 59 people who responded, 32% indicated that it was predetermined due to being a guided trip or it was the leader’s choice (Figure 44). Good skiing/snowboarding opportunities and group skill level were each cited as reasons for route/trail choice about 10% of the time. The “other” category in Figure 44 encompasses such comments as “bird-watching” or “don’t know the reason.” Written responses to this question are documented in Table A5 of the Appendix.

Figure 44. Other Reasons for Route or Trail Choice.
All visitors were asked about the types of experiences they were seeking during their trip and to mark all choices that applied to their trip. The choices were based on types of experiences that should be offered in wilderness (e.g., solitude, challenge), as well as commonly identified goals, such as enjoying views and being with other people. Visitors most often indicated seeking scenic views and challenge on their trip to Mt. Baker (Figure 45). Climbers were significantly more likely to seek challenge than people engaging in other activities (Chi-square, $p<.05$), but the small number of surveys from non-climbers prevents strong confirmation of this relationship. Solitude was a priority for a little more than one-third of respondents. However, few people actually sought contact with others during their excursion. It is important to note that scenery usually tops the list of motivations for most wilderness trips, but challenge is less common. The predominance of challenge in this study undoubtedly reflects the large sample of climbers.

Some trends emerge when visitors’ desired experiences are examined separately by group type (Figure 46). Members of private groups appeared more likely than commercial or club/school groups to seek scenic views. People in private and club/school groups seemed to seek solitude more often than commercial group members did. Commercial and club/school groups appeared much more likely to seek educational opportunities, and people in club/school groups sought being with a group more than members of other group types. Although these relationships were statistically significant (Chi-square, $p<.05$), the small number of respondents from commercial groups ($n=28$) and club/school groups ($n=29$) indicates that these results could change with a larger sample size and can only be interpreted as reflecting possible trends. No significant relationship was found between experiences sought and contact location.
Overall, new and repeat visitors were quite similar regarding the experiences sought during their trip. First time visitors to Mt. Baker were slightly but significantly more likely to seek scenic views and challenge than repeat visitors (Chi-square, \( p < .05 \)) (Figure 47). New visitors also sought solitude more often than repeat visitors, though this difference was not statistically significant.
The survey asked visitors about the number of people they had encountered on the day they were surveyed. Of 179 respondents, 55% reported encountering 20 or fewer people on the day they were surveyed, while 29% saw anywhere from 21 to 40 people, and 16% reported seeing more than 40 people on the day they were surveyed (Figure 48).

![Number of People Encountered on the Day Surveyed (n=179)](image)

Figure 48. Number of People Encountered on Day Surveyed.

Respondents reported encountering an average of 25 people on the day that they completed the questionnaire (Table 5). Visitors contacted at the Easton/Schreiber’s Meadow trailhead reported slightly fewer encounters than Coleman respondents. Only one person out of 172 at either the Coleman and Easton areas reported having no encounters on the day she/he was surveyed.

In Forest Service Region Six, standards for wilderness encounters typically are in the range of ten groups per day. Most groups contain about two to four people. Assuming an average of three people per group, Mt. Baker respondents saw more than ten groups (i.e., >30 people) about 25% of the time (Figure 49). However, the average number of groups encountered was below the daily average of 16 parties stipulated for the Colman Glacier planning area. The 109 Coleman area respondents reported a total of 2,835 encounters, or an average of 26 people encountered per respondent. Again assuming an average group size of three people, the average number of groups encountered per day in the Coleman area would be 8.7.

Despite what seem to be relatively high numbers of encounters in the wilderness, almost half of the respondents reported seeing about the number of people that they expected (Figure 49). However, 37% of respondents encountered more people than expected, while only 17% reported seeing fewer people than expected. This type of pattern (large percentages saying expectations were met) is typical among surveys of wilderness users (Cole, Watson, Hall, & Spildie, 1997). Confirmation of expectations among respondents who were first-time visitors and those who were repeat visitors did not differ significantly, indicating that repeat visitors were not more likely to have accurate expectations.
Table 5. Comparison of Mean Number Encounters with What Was Expected on The Day Surveyed, and Effects of Encounters.

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>Mean</th>
<th>Median</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Encounters</td>
<td>179</td>
<td>24.6</td>
<td>20.0</td>
<td>18.8</td>
</tr>
<tr>
<td>Comparison of Encounters with Expectations</td>
<td>181</td>
<td>0.4</td>
<td>0.0</td>
<td>1.4</td>
</tr>
<tr>
<td>Effect of Encounters</td>
<td>179</td>
<td>-0.1</td>
<td>0.0</td>
<td>1.0</td>
</tr>
</tbody>
</table>

17-point scale: -3 (much less), 0 (about what expected), 3 (much more)

27-point scale: -3 (very negative), 0 (no effect), 3 (very positive)

Respondents were asked to indicate if encounters with others had an effect, either positive or negative, on their trip experiences. Of 179 people who responded, the majority were not bothered by encounters with others (Figure 50). Twenty-one percent of visitors surveyed indicated some degree of negative effect, while 16% reported that encounter levels had a positive effect on their experiences. A weak negative correlation existed between the number of people encountered and effect on the experience ($r = -0.19$). This relationship is consistent with several other studies of wilderness visitors that suggest visitors consider encounters to be a negative but minimal influence on experience quality.

When asked to explain the reasons why encounters affected trip experiences, 68 people responded with written comments. The most common positive explanation was meeting nice people, while the most common negative reason noted was seeing snowmobiles (Figure 51). When combined, social issues such as crowding and inability to find solitude accounted for 12% of visitors’ responses. Only 6% volunteered that an ability to find solitude had a positive effect on their experience. Visitors’ written comments are documented in Table A6 of the Appendix.
The survey asked respondents about 16 factors or conditions that may or may not have affected their trip experience. For each factor, visitors indicated whether it added to the experience,
detracted from it, had no effect, or was not noticed. Respondents reported being most positively affected by scenic views, the people in their group, and streams (Figure 52). Trampled vegetation, human waste, trash, and soil erosion were all reported by visitors as having a slightly negative impact on their experience. However, it is important to note that up to one third of respondents did not notice each of these negative factors (Table 6). Overall, respondents were more likely to notice factors having a positive influence on their experience than they were to notice negative factors. Interestingly, seeing other visitors had the least effect on respondents’ experiences, despite the relatively high number of encounters.

The effect of scenic views was the only factor that was significantly related to whether a visitor was a first time versus repeat visitor (t-test, $p<0.05$). New visitors were more likely to include scenic views among the factors that positively affected their experience.

![Figure 52. Mean Effect of Factors on Trip Experience, for Visitors Who Noticed Conditions.](image)

15-point scale: +2 (added a lot), +1 (added a little), 0 (no effect), -1 (detracted a little), -2 (detracted a lot).
Table 6. Percent of Visitors Who Did Not Notice Different Factors and Mean (SD) Effect for Those Who Did Notice.

<table>
<thead>
<tr>
<th>Factors</th>
<th>N</th>
<th>% Did Not Notice</th>
<th>Mean (Noticed)</th>
<th>SD (Noticed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Views</td>
<td>172</td>
<td>0.0</td>
<td>1.9</td>
<td>0.5</td>
</tr>
<tr>
<td>People in own group</td>
<td>167</td>
<td>3.0</td>
<td>1.6</td>
<td>0.8</td>
</tr>
<tr>
<td>Streams</td>
<td>165</td>
<td>1.2</td>
<td>1.3</td>
<td>0.8</td>
</tr>
<tr>
<td>Wildlife</td>
<td>162</td>
<td>13.6</td>
<td>1.0</td>
<td>0.9</td>
</tr>
<tr>
<td>Solitude</td>
<td>161</td>
<td>8.1</td>
<td>0.8</td>
<td>1.0</td>
</tr>
<tr>
<td>User built trails</td>
<td>165</td>
<td>11.5</td>
<td>0.7</td>
<td>1.1</td>
</tr>
<tr>
<td>Weather</td>
<td>160</td>
<td>0.6</td>
<td>0.6</td>
<td>1.4</td>
</tr>
<tr>
<td>Bare ground at campsites</td>
<td>167</td>
<td>18.0</td>
<td>0.5</td>
<td>1.0</td>
</tr>
<tr>
<td>Directional trail signs</td>
<td>160</td>
<td>25.0</td>
<td>0.4</td>
<td>0.9</td>
</tr>
<tr>
<td>Seeing climbers</td>
<td>166</td>
<td>4.8</td>
<td>0.4</td>
<td>0.8</td>
</tr>
<tr>
<td>Seeing backpackers</td>
<td>169</td>
<td>6.5</td>
<td>0.2</td>
<td>0.7</td>
</tr>
<tr>
<td>Seeing day hikers</td>
<td>166</td>
<td>6.6</td>
<td>0.0</td>
<td>0.7</td>
</tr>
<tr>
<td>Soil erosion</td>
<td>160</td>
<td>17.5</td>
<td>-0.3</td>
<td>0.8</td>
</tr>
<tr>
<td>Trash</td>
<td>160</td>
<td>34.4</td>
<td>-0.4</td>
<td>0.8</td>
</tr>
<tr>
<td>Human waste</td>
<td>160</td>
<td>26.9</td>
<td>-0.5</td>
<td>0.9</td>
</tr>
<tr>
<td>Trampled vegetation</td>
<td>163</td>
<td>27.6</td>
<td>-0.5</td>
<td>0.9</td>
</tr>
</tbody>
</table>

When asked to select a primary influence on their experience, the majority of visitors identified scenic views as the factor having the greatest positive effect on the quality of their trip (Figure 53). The people in the respondent’s group rated a distant second.

Figure 53. Factors Identified as Having the Most Positive Effect on Visitors’ Experiences.
A variety of conditions were selected as the primary factors having a negative impact on the quality of experiences (Figure 54). The most common were the weather, human waste, and trash, although none of these was selected by more than 20% of respondents. Also, 14% of respondents indicated there were no negative factors. Nearly 10% of respondents reported snowmobiles as having the greatest negative effect on their experience. These people were surveyed at the Easton/Schreiber’s Meadow trailhead at a time when the area was still open to use by snowmobiles.

Figure 54. Factors Identified as Having the Most Negative Effect on Visitors’ Experiences.

Wilderness managers were interested in how the conditions people experience at Mt. Baker affect their decisions about where to go. This was of particular interest because the heavy use of selected trails and climbing routes could potentially displace visitors seeking wilderness experiences. Accordingly, visitors were asked whether they “choose other trails/routes on Mt. Baker to seek a different type of experience or opportunity” than they were seeking on the trip when they were contacted. Respondents provided the locations they visited and the “attributes or opportunities” they sought at those locations. A total of 125 respondents who had visited Mt. Baker before were almost evenly divided between those who said they different experiences or opportunities in other places on Mt. Baker (48%) and those who did not (52%). Fifty-one of the respondents who indicated they visit other areas of Mt. Baker for different experiences listed the other locations that they frequent. Such places as the Coleman Glacier, North Ridge, “all trails,” and various climbing routes were cited more than 10% of the time (Figure 55).
In an open ended-question, 79 respondents described the types of attributes or opportunities they sought at these other areas. There was considerable variability, although solitude, scenery, and challenge were listed most frequently (Figure 56). Access and climbing were each mentioned 10% of the time. Most respondents who sought solitude, scenery, and challenge at other locations on Mt. Baker said they sought the same experiences on the current trip. Although this question specifically asked about different experiences or opportunities sought by visitors at other locations, it is possible that respondents may not have made that distinction in their answers.
Opportunities Sought at Other Locations (n=79)

- Other: 6
- Exercise: 3
- Family time: 3
- Teaching: 3
- Naturalness: 4
- Fun: 4
- Ski & snowboard: 8
- Climbing: 10
- Access: 10
- Challenge: 15
- Scenery: 18
- Solitude: 18

Figure 56. Opportunities Sought at Other Mt. Baker Locations.

**Section 5: Sanitation**

Waste management is a serious issue on Mt. Baker, and managers need information about visitors’ waste management practices and opinions about different policies or actions that could be taken. One survey question asked people to indicate which of six techniques they currently employ to “deal with solid bodily waste” when recreating on Mt. Baker. Slightly more than half of all respondents, climbers and non-climbers, stated that they pack out their human waste (Figure 57). This number seems much too high to be plausible, and it is possible that some respondents misunderstood the question as referring to trash or simply provided the response they thought managers desired. Use of toilet facilities (which are provided at several camp areas) and “holding it during the trip” were also practiced by 32% of people surveyed. Burying waste in soil or snow was surprisingly a distant fourth at 17%. Climbers were significantly more likely to say they pack out their human waste than non-climbers (Chi-square, \( p < .05 \)). Non-climbers were more likely to report holding it during their trip (Chi-square, \( p < .05 \)). Three visitors mentioned using poop tubes or wag bags for packing out waste.
The question about waste management practices was followed by two questions specifically asking if respondents had heard of the “pack it out” method and, if so, whether they used it. People who said they did not use this method were asked to explain why not. Nearly all had heard of the “pack it out” method (Figure 58), and 72% of those visitors said they normally use the method (Figure 59). Respondents in club/school (100%) and commercially guided groups (89%) were significantly more likely (Chi-square, \( p < .001 \)) to say they pack out their human waste than were respondents in private groups (59%). Of the 95% of respondents indicating awareness of the “pack it out” method (173 people), 13% did not indicate whether they use the method or not. Some people may have been unwilling to admit to not using this method, resulting in a surprisingly high percentage of “yes” responses.
In a subsequent open-ended question, visitors were asked to indicate reasons for not using the “pack it out” method. Only 38 visitors responded, offering a variety of reasons. The most commonly indicated reason was “no need to” due to short trip length (Figure 60). In general, however, reasons seem to pertain more to attitudes than to lack of access to technology.

Figure 60. Reasons for Not Packing Out Human Waste among Visitors Aware of the Method.
Another survey questions asked visitors to indicate how strongly they support or oppose a variety of actions that could be taken to provide for human waste disposal on Mt. Baker (see Figures 61-66). Of 165 respondents, 80% expressed opposition to “doing nothing” to reduce the presence of human waste on Mt. Baker (Figure 61). This suggests that visitors to Mt. Baker recognize a need for action to address the problem of human waste. Overall, 62% supported a requirement to pack out waste (Figure 62). Most preferred packing out bagged waste to receptacles at trailheads or Ranger Stations (Figure 63). Substantially less support was expressed for receptacles for depositing bagged waste on the mountain or for providing portable base camp toilets (Figure 64 & 65). A note that these two options “may require a helicopter to fly out filled waste containers” was included with these alternatives. This may have been appealing due to the perceived impact of new structures and helicopter flights on wilderness values, or because of the cost involved. Most people were either neutral or opposed to disposing of bagged waste at home (Figure 66). A large percentage of neutral responses to this option may be a result of the question not clearly stating what to do with the waste at home, whereas the other three options were specific about where the waste would be deposited.

![Figure 61. Support for Doing Nothing about Human Waste.](image1)

![Figure 62. Support for Requiring People to Pack Out Human Waste.](image2)
Figure 63. Support for Providing Containers to Deposit Bagged Waste at Trailheads/Ranger Stations.

Figure 64. Support for Providing Containers to Deposit Bagged Waste on Mt. Baker.

Figure 65. Support for Toilets at Base Campsites.
Section 6: Recreation Management

In a multiple choice question designed to assess visitors’ knowledge of public land designation, the majority of respondents indicated that Mt. Baker was in a National Forest (Figure 67). Only 42% correctly identified the area as wilderness. A substantial percentage of respondents thought that Mt. Baker was a National Recreation Area, which would be understandable for those people who entered through the NRA or had been to it before. Others believed it to be a National Park or State Park. The percentages in Figure 67 sum to more than 100% because respondents could indicate all responses that they thought were correct. As a result, many respondents indicated more than one designation.

Figure 67. Respondents’ Beliefs about the Management Designation of Mt. Baker.
Visitors at the Easton Glacier/Schreiber’s Meadow trailhead (NRA) were significantly more likely to respond that Mt. Baker was in a National Recreation Area than visitors surveyed at the Coleman Glacier/Heliotrope Ridge trailhead (Chi-square; $p<0.05$) (Figure 68). Conversely, respondents at the Coleman trailhead were significantly more likely to indicate that Mt. Baker was in a wilderness. Nevertheless, only half of these wilderness visitors answered correctly.

![Visitors' Beliefs About Management Designation By Location](chart.png)

Figure 68. Beliefs about the Management Designation of Mt. Baker, by Survey Location

Some of the issues and impacts at Mt. Baker are due to limited funding for maintenance and management programs. A survey question asked visitors to indicate whether they supported or opposed the idea of additional fees to help such programs, or to indicate if they didn’t know. Of 174 visitors who responded to the question, 40% expressed support, while just as many respondents opposed new fees (Figure 69). Support for increased fees was significantly different among group types, with private groups more polarized (Chi-square, $p<0.05$). Respondents in private groups were at least 20% more likely to support new fees than respondents in commercially guided groups. Forty-six percent of visitors surveyed in commercially guided parties did not know whether or not they supported additional fees.
Figure 69. Support for Additional Fees for Management and Maintenance.

Of the 40% of respondents who supported additional fees at Mt. Baker (n=70 visitors), the majority considered human waste management, climbing rangers, and trail building/maintenance to be funding priorities (Figure 70). Just over 40% also indicated a priority for funding toward programs for trash disposal. Interestingly, less than one-third of these respondents considered campsite resource protection, education, or interpretation and informational signs to be an important uses of new fee revenue.

Figure 70. Support for Uses of Additional Fees Among Fee Supporters.
Of the 188 respondents, 66% did not indicate a willingness to pay a per-trip fee. Conversely, 34% of respondents indicated a willingness to pay a per-trip fee to visit Mt. Baker (n=64). Of these respondents, $5 was most commonly stated as the per-trip fee visitors were willing to pay, while the mean per-trip fee amount was approximately $11 (SD=$7). Figure 71 illustrates the percent of respondents indicating a willingness to pay a per-trip fee by dollar range.

![Figure 71. Willingness to Pay a Certain Amount Per Trip among Fee Supporters.](image)

Respondents were asked in the survey about their views on the management of recreation use on Mt. Baker. They were presented with several options regarding the management of use levels and were asked to indicate which option most closely represented their opinion. Visitors were also asked to explain the reasons behind their choice. A total of 143 visitors responded to this question and more than one-third indicated a need for controls on use in the future if use level increase (Figure 72). Forty-four percent supported an action to hold or lower the present level of use in the area, while 17% disapproved of use limits at any time. This question has been asked on several wilderness surveys. Consistently, the most commonly stated preference is for future controls if overuse occurs (Cole et al., 1997). Cole et al. also found similar levels of support for controlling current use levels at high-use destinations in the Alpine Lakes, Three Sisters, and Mt. Jefferson Wildernesses. It is should be noted that 24% of respondents did not answer this question, possibly indicating that many visitors had no opinion or were unsure.

When examined by group type, there were some differences in opinion regarding limits on recreation use among the respondents that were members of private parties, commercially guided groups and club/school groups regarding. Of 137 respondents, almost half of visitors in private parties support the idea of limits in the future if use increases, followed closely by commercially guided groups (Figure 73). Interestingly, nearly half of respondents in commercially guided and club/school groups were in favor of holding use at its current level, and over one-fourth of club/school group members supported lowering the current use level. A small but notable percentage of visitors from each group type believed there should be no consideration of use limits whatsoever. The differences in opinion among the three groups were significant (Chi-
square, \( p=0.009 \). However, small sample sizes for club/school and commercial groups do not allow results to be generalized to the population and should only be interpreted as a possible trend.

Figure 72. Opinions on Management of Recreation Use on Mt. Baker.

Figure 73. Support for Use Limits, by Group Type.
In an open-ended question, visitors had the opportunity to explain their choices about use limits. Of the 54 people who provided an explanation, the most commonly mentioned reason for supporting use limits was for the management of biophysical impacts (Figure 74). Limiting snowmobile use in the area was another reason indicated, as well as to prevent crowding and to manage for a “wilderness experience.” A small percentage of people felt that use limits would help to reduce the human waste problem. Reasons given for opposing limits included a feeling that limits would impinge on one’s freedom of choice and general objections to fees. Visitors’ written responses are documented in Table A7 of the Appendix.

![Figure 74. Explanations Offered for Supporting or Opposing Limits on Recreation Use.](image)

In a closed-ended question, visitors were asked, if they thought immediate controls to manage recreation use were needed, which types of use should be limited and why. Of 188 respondents in the sample, approximately 60% did not answer this question. This indicates that most either did not support use limits or did not have a preference regarding the types of activities that should be limited. Of those who indicated some opinion, nearly twice as many people favored limits to climbing versus day hiking (Figure 75). However, these percentages are small. Due to the small number of people responding to this question, no meaningful comparisons could be made between a respondent’s primary activity and support for limiting a particular type of use. A total of 28 respondents listed other activities that should be limited, 20 of whom cited a preference for limiting snowmobiling. Only 32 respondents chose to explain their choice, of
whom half mentioned the noise and smell of snowmobiles. Seven people favored limits based on highest impact, and five respondents wanted limits applied to all users.

![Visitors' Opinions on Managing Recreation Use (n=188)](image)

Figure 75. Opinions about Activity Types that Should be Limited on Mt. Baker.

Visitors were asked about their satisfaction with the current management of Mt. Baker. Of 165 respondents who answered this question, 63% expressed having at least some degree of satisfaction, compared to only 11% indicating some degree of dissatisfaction (Figure 76). No statistically significant difference was found in satisfaction with management between repeat and first-time visitors to Mt. Baker.

![Visitors' Satisfaction with Current Management (n=165)](image)

Figure 76. Satisfaction with Current Management of Mt. Baker.
In an open-ended question, visitors were asked to indicate what they felt were the most important management issues at Mt. Baker (Figure 77). Of 124 responses, the most commonly cited issue was human waste, followed by the use of snowmobiles. The substantial response to snowmobiles was probably due to a three week overlap of the snowmobile season on the Easton Glacier during the sampling period. A small percentage of visitors seemed to think the area is generally overused, trash is a problem and that general preservation of the area is an issue. Some visitors indicated that access to educational/informational material is a problem and that there is a need for an increased ranger presence. The “other” category encompassed such issues as over management of the area, access, use of fee money, evidence of soil erosion, and trail signs. Visitors’ written comments are documented in Table A8 of the Appendix.

![Top 10 Management Issues as Indicated by Visitors (n=124)](image)

Figure 77. Most Common Management Issues Indicated by Visitors.

**Section 7: Visitor Characteristics**

The survey collected some demographic information about visitors to Mt. Baker, including gender, ethnic background, zip code of residence and annual household income. Of 168 respondents who reported their gender, 73% were male and 27% were female (Figure 78). No statistically significant relationship was found between gender and group type or activity.
Visitors were asked to indicate their ethnic background. Of the 166 respondents who answered this question, the vast majority indicated being white (Figure 79). This tendency toward under-representation of ethnic groups in wilderness has been widely noted.

Most respondents, approximately 72%, came from western Washington (Figure 80). Other western states included Arizona, California, Colorado, Idaho, Oregon, and Texas. Each of these states was represented by only one or two parties of visitors. Eastern states included Illinois, Michigan, Missouri, New York, North Carolina, Pennsylvania, South Carolina, and Virginia. Again, only one or two parties came from each of these state.
Visitors were asked to indicate the category that best described their annual gross household income. This was then compared to the gross annual household income statistics for the state of Washington to see if the visiting population to Mt. Baker differed from the average Washington resident (Figure 81). A total of 153 respondents answered this survey question. The percentage of respondents with household incomes of $30,000 or less was similar to families in the state of Washington. Compared to Washington residents, respondents were under-represented in the middle of the income range ($30,001-$90,000), and over-represented at the high end of the range (>=$90,000). Income did not vary significantly with group type.

Figure 81. Visitors’ Gross Annual Household Income Compared to Residents of Washington.
In summary, climbers on Mt. Baker are predominately white men from Western Washington with a median pre-tax household income of around $40,000 per year.

The survey concluded with an open-ended question giving visitors the opportunity to contribute any further comments or suggestions. These written responses are documented in Table A9 of the Appendix.

**Discussion and Management Implications**

**Considerations of the Sample and Interpreting Study Findings**
Surveys were collected from 188 visitors, mostly from two access routes, due to low use at the others. Disproportionate sampling—due to a concurrent study focused on non-climbers (n=144)—means that users other than climbers are poorly represented, and findings should probably not be interpreted as describing the views of all types of Mt. Baker visitors. However, with a response rate of 87% and a relatively large sample of climbers the findings should adequately represent climbers, at least those who use Easton and Coleman Glacier access routes, who make up the majority on Mt. Baker.

Most respondents (62%) had been to Mt. Baker previously. Approximately 12% of the groups surveyed were commercially guided, while 67% of people were traveling in private parties. More than 80% of respondents were on overnight trips, reflecting the tendency of Mt. Baker climbers to spend a night in the Wilderness prior to their summit bid.

**Route Choice and Experiences Sought**
Routes and trails were most often chosen because of easy access to the destination. Challenge ranked fourth after access, scenery, and route conditions. However, even if challenge was not a specific issue for route selection, it was an opportunity being sought at some point on the trip by 73% of respondents. Thus, people may be distinguishing between the reasons to choose a route and goals of the overall experience. Climbers in this survey sought challenge more often than other wilderness users, as might be expected.

**Climbers’ Experience Level and Activities**
Climbers generally rated themselves as intermediate in experience level, but there were large percentages of beginner and advanced climbers as well. Forty-one percent of climbers were on their first trip to Mt. Baker, but more than 20% had made six or more attempts. About half of climbers surveyed succeeded in summiting, with failure most commonly due to bad weather. Overall, climbers had a broad range of expectations regarding encounters, but the average respondent saw slightly fewer people than expected. Most climbers reported no effect from summit encounters on the quality of their experience. Scenic views had the most positive effect on the experience, while weather and human waste had the most negative effect (albeit small).
Respondents included several ski parties. Some respondents considered skiing as their primary activity even when climbing. In the future, skiing could be included as a separate activity type choice on visitor surveys.

**Need for Visitor Education**

Fifty-five percent of respondents were unaware that Mt. Baker is a designated wilderness, and only 76% knew that it was a National Forest. These numbers suggest there may be opportunities to improve communication, through signing or other means.

Awareness of the voluntary climbing registration system was also low. Nevertheless, 77% of climbing groups registered for their trip, either at a Ranger station or by signing a trailhead register. This suggests that trailhead permits or registration is an important way to capture information about climbing use. Compliance for registration was highest among organized groups. Visitors reported that lack of awareness was the most common reason for failing to register before their trip. These findings suggest that awareness of management concerns and policies may be low, at least for some segments of the visitor population.

**Sanitation**

Making up 25% of all responses, human waste was the most commonly stated management concern for visitors. Similarly, human waste was also most commonly selected as the factor having the most negative effect on the overall trip experience, with 73% saying they had noticed instances of improperly disposed waste. The survey did not address specifically why human waste was considered a problem by visitors, but the overall negative effect was slight.

Awareness of and reported compliance with waste management techniques was quite high for visitors surveyed. Nearly all had heard of the “pack it out” method and 72% reported using this method to manage waste. However, self-reports of behavior such as packing out human waste should perhaps be viewed with skepticism. It seems highly unlikely that three of every four climbers packed out their waste. Perhaps people misinterpreted our reference as referring to trash, despite our asking explicitly about “human bodily waste.” Even if people were packing out their waste, they still perceived a problem on Mt. Baker, as noted above.

Respondents expressed substantial support for certain waste management actions. Two-thirds supported a requirement to pack out human waste. The strongest support was expressed for packing waste out to containers at trailheads or Ranger Stations. A note included in this survey question indicated that some options for waste management might require helicopter flights in wilderness, which may have influenced visitor responses to some extent, as these options were less favored. However, the degree to which respondents were influenced by concerns about the cost of flights or the potential impact of helicopter use on wilderness values is unclear. Also unclear is respondents’ awareness of the costs associated with each waste management alternative. For instance, the low support expressed by respondents for additional fees is not congruent with the desire for a more intensive waste management program.
Support may exist for a well-reasoned waste management program that includes a climbing fee to fund it. However, people will likely first need more information about costs and other constraints, such as state biohazard disposal regulations, before they will endorse such a plan.

Social Conditions
Most parties surveyed consisted of 2-4 people, spent 1-2 nights on the mountain, and used 1-2 tents during their trip. They chose campsites primarily for route access, flatness, and adequate size, rather than solitude. The average party visiting the Coleman Glacier area had 26 encounters on the day that they were contacted. Overall, 45% of respondents reported more than 20 encounters per day. Only one person reported seeing no one on the day that they were contacted. However, visitors were only surveyed on their exit day, when they would be more likely to see other people. These numbers reflect people encountered, not groups. Nevertheless they are rather high for wilderness. Despite this, 64% said that encounters had no effect on their experience, and only 21% said that encounters detracted from the experience.

Most climbers (71%) encountered ten or fewer people on the summit (the median was one encounter, and 28% saw no one at the top). This was somewhat less than expected by respondents, and generally had no effect on the experience. Concentrations of people can occur, however, as on June 16, when 18% of climbers saw more than 20 other people on the summit. Visitors usually had neutral or positive responses to encountering other visitors, in spite of the fact that they often met many other visitors.

Overall, social conditions were largely as expected by respondents, as is often the case in surveys of wilderness users. The primary motives for visiting Mt. Baker were views and challenge, not solitude. Respondents did not generally seek solitude elsewhere on the mountain either. Private and organized groups had few differences in motivation, except for solitude (lower for commercially guided visitors), education, (higher for clubs and commercially guided visitors) and to be with a group (higher for clubs). First time and repeat users were nearly identical in the experiences they sought and the accuracy of their expectations regarding encounters with other visitors.

Attitudes toward Use Limits
Survey results indicate that some agency standards for the number of encounters may occasionally be exceeded on busy weekends, even in the Coleman Glacier planning area where standards are generous. However, as is commonly found in wilderness surveys, respondents generally did not consider crowding to be a problem that affected the quality of their trip experience.

Most respondents did not express support for use limits at the present time. Only 11% of respondents supported reducing recreational use from the current level, while 17% opposed limits at any time. One third of visitors surveyed preferred to hold use at the current level. These results are similar to those found by Cole et al. (1997) in other busy wilderness areas in the region.
Respondents supporting use limits most often gave reasons related to controlling biophysical impacts, rather than social considerations. In fact, crowding was cited as a justification for use limits only 9% of the time. Most people supporting use limits did not indicated a differential preference for the type of users or activities that should be limited. Climbing limits were supported by 17% of respondents who approved of use limits.

**Snowmobiles**
A minority of respondents who visited during the snowmobile season in the NRA were negatively affected enough to create a strong signal on the survey, even though snowmobiles were never mentioned in the questionnaire. Research has shown that when an issue is volunteered by even a moderate percent of respondents, it is likely that a much larger percent would respond similarly to a closed-ended question. Hence, snowmobiles likely affect a substantial number of people in the NRA. Although this survey is not a valid instrument for addressing snowmobile conflicts, the results indicate a possible need to reexamine the issue.

**Fees and Funding Priorities**
Forty percent of respondents expressed support for an additional fee that would fund management programs. Of those who supported fees, 64% were willing to pay an amount between $1 and $10, with $5 being the most commonly cited amount. Seventy-three percent of the respondents who supported an additional fee stated that the revenue should be used for human waste management. A majority also supported more funding for climbing rangers and trail construction and maintenance.

About half of visitors responding to an open-ended question indicated issues related to ecological impact and conservation as the most important and in need of managers’ attention. Overall, most respondents expressed satisfaction with the current management of Mt. Baker. While this is encouraging, wilderness surveys commonly find the strongest support for the current management regime (Cole, 2001).

**Conclusion**
Visitors we surveyed tended to be on one-night climbing trips, traveling with small groups of friends or family. Their experiences were positively affected by views, interactions with their own groups and natural features like water or wildlife. Most (91%) said they experienced solitude, and this was a relatively important positive influence. Few factors detracted to any large extent—many people did not observe any recreational impacts, and when impacts were observed they were only slight detractors. Despite having relatively large numbers of encounters, most people were not affected by them, and most did not see a need for management action to protect opportunities for solitude.
References Cited


## Appendix

Table A1: Other Reasons for Choosing Campsite

<table>
<thead>
<tr>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>toilet</td>
</tr>
<tr>
<td>AA campsite</td>
</tr>
<tr>
<td>approach for N. Ridge</td>
</tr>
<tr>
<td>at preferred elevation</td>
</tr>
<tr>
<td>close to trail</td>
</tr>
<tr>
<td>easy traverse to glacier</td>
</tr>
<tr>
<td>established</td>
</tr>
<tr>
<td>guides picked the spot</td>
</tr>
<tr>
<td>highest camp</td>
</tr>
<tr>
<td>it's as high as we can go below the glacier</td>
</tr>
<tr>
<td>it's cool</td>
</tr>
<tr>
<td>near rocks</td>
</tr>
<tr>
<td>near snow school areas</td>
</tr>
<tr>
<td>near to practice sight</td>
</tr>
<tr>
<td>no feces contamination</td>
</tr>
<tr>
<td>required to use designated sites</td>
</tr>
<tr>
<td>safe, close enough to our practice spot</td>
</tr>
<tr>
<td>safe, no crevasses</td>
</tr>
<tr>
<td>View (3)</td>
</tr>
</tbody>
</table>

Table A2: Effect of Visible Camps on Experience

<table>
<thead>
<tr>
<th>Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>we were far enough away to be very affected</td>
</tr>
<tr>
<td>did not affect us at all</td>
</tr>
<tr>
<td>everyone had good wilderness etiquette</td>
</tr>
<tr>
<td>everyone was nice and respectful</td>
</tr>
<tr>
<td>expect lots of tents on coleman summit route</td>
</tr>
<tr>
<td>expected people</td>
</tr>
<tr>
<td>far enough away from others</td>
</tr>
<tr>
<td>forgot lighter, then stove crapped out from crappy fuel</td>
</tr>
<tr>
<td>friendly people with whom to chat</td>
</tr>
<tr>
<td>friends</td>
</tr>
<tr>
<td>good to get info on routes and to know that there are other climbers nearby in case of emergency</td>
</tr>
<tr>
<td>good to have some neighbors, but not too many</td>
</tr>
<tr>
<td>great to have privacy</td>
</tr>
<tr>
<td>I'd prefer to have the whole mountain to myself, but….</td>
</tr>
<tr>
<td>I expect a lot of climbers on Baker</td>
</tr>
<tr>
<td>I know it's a popular place</td>
</tr>
<tr>
<td>I like seclusion</td>
</tr>
<tr>
<td>I like solitude</td>
</tr>
<tr>
<td>I love being in the mountains either way</td>
</tr>
<tr>
<td>If we'd camped at the top of RR grade, we would have seen 10 other tents with a lot of snow cave/wall/kitchen building + that would have been a disappointment -we were lower than all the other groups</td>
</tr>
<tr>
<td>it's a popular route several parties are expected.</td>
</tr>
<tr>
<td>It's nice not seeing anyone</td>
</tr>
</tbody>
</table>
It wasn't a wilderness experience
knew some people
lack of solitude
less of an adventurous feeling
like to see people learn & use outdoors in friendly & safe manner
nice to have neighbors to chat with
nice to meet other people, safer. But is also nice to be all alone
no expectations
no privacy for bathroom
noise more than visibility: cell phone users are annoying
none
none seen
not more than expected
not my view alone
other campers to be expected
people were all there to enjoy
shared food/stories/info about route
slept
sometimes it's fun to meet other climbers
surprised at seclusion - we got lucky
The hundreds of snowmobiles affected us - they wore down the trail which became icy in the morning. They were VERY loud. However, they were polite and drove around us. The 2 uses don't mix well.
the snowmobiles are a very negative impact on the experience
eyes choose to camp next us w/a whole frozen ocean of other spots. Bizarre
they were nice folks
was up too early & down too fast to have effect
we wanted the area to ourselves
we were far enough away to not hear them
we were too far away & above
whiteout minimized lack of seclusion

Table A3: Effect of Summit Encounters on Experience

<table>
<thead>
<tr>
<th>alone on top is awesome</th>
<th>but when I see crowds it does lessen the back country experience.</th>
</tr>
</thead>
<tbody>
<tr>
<td>did not see anyone</td>
<td>expected people/too cold to care</td>
</tr>
<tr>
<td>down too fast</td>
<td>good attitudes</td>
</tr>
<tr>
<td>everyone seemed to space out</td>
<td>I like meeting new people with similar interests. Everyone is very friendly.</td>
</tr>
<tr>
<td>everyone was nice, social, happy</td>
<td>I was more concerned with the number of parties on the Roman Wall. One slip = disaster</td>
</tr>
<tr>
<td>everyone was very nice</td>
<td>I was more interested in the route</td>
</tr>
<tr>
<td>expected</td>
<td>It's a small summit so it was nice to stand there w/only our group</td>
</tr>
<tr>
<td></td>
<td>It was great to meet new people and where they're from</td>
</tr>
</tbody>
</table>
It was nice to see people other than my party & they came up another route. It's a destination, I expect to see people on the summit mid-week.
N.W. mountaineers rock!
safety concerns on Roman Wall
snowmobiles
they were nice, we took pictures for each other
we had the mountain to ourselves perfect weather + very nice experience
we stayed on side false summit
white out

Table A4: Reasons for Not Registering
A pain in the butt & no incentive.
already had parking passes
arrived at night did not see register
arrived at trailhead at 7am
came in late from out of town
closed
could not find station
did not know it was necessary for a day trip
did not know of it
didn't know
didn't know about any necessity for doing so
didn't know about it
didn't know it existed
forgot
From out of state. Didn't realize we had to fill one out until we were 1/2 way up the road. It was too late to turn around. Should be able to do it here at trailhead!!
guide service
I did not see it
I dunno
in a hurry
It looked like the ranger station was closed and for sale in Sedro
no good reason, don't like permits
not technical climbing snow travel only
ranger station Sedro Woolley was closed
turned in guide service register
was not aware of it
we bought a forest pass but didn't realize we needed to register. We left trailhead in dark!
we had trouble locating both the forest service's road to Baker & the ranger station on the main road

Table A5: Other Reasons for Choosing Route or Trail
Alpine Ascents route
beginner party primarily -wanted few crevasse difficulties
beginning climbers in group
birds
check out the ski access to high country and summit
chosen by guide
chosen for group by Parks + Rec
class chose it
don't know
easiest route/less technical
easy
easy N. side route
Father's Day climb
first time
friend's recommendation, isolation
friend chose route
friend made the plans
good beginner route
good for inexperienced party member
good for skiing
good ski
good skiing
good snow
guide chose
guide picked
guidebook
guided
guided a group
guided trip, they chose
guides recommended
had more info about this one
high elevation
I got lost
it was recommended to us for the view
it was there
leader chose it
leader has climbed route before
leader picked it
leaders pick
less technical
love this route!
main trail
most direct access for skiing
new route for group
not that many people
only choice
only group we could get a group size permit
picked by guide
pre-planned
recommended in hiking book
skiability
snow conditions
snowboarding
son picked trail
standard route will accommodate group
suits the skill of the group
visit friends in Glacier

Table A6: Reasons for Effect of Encounters on Experience

<table>
<thead>
<tr>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>...snowmobiler, very loud, ...(rest illegible)</td>
</tr>
<tr>
<td>all were nice</td>
</tr>
<tr>
<td>amazed people came out in bad weather</td>
</tr>
<tr>
<td>Because I hike by myself it's nice to see other people on the trail, but it's nice to not be</td>
</tr>
<tr>
<td>w/a large crowd all the time.</td>
</tr>
<tr>
<td>Can sometimes be reassuring, but also takes away from remoteness of mt. But since places to</td>
</tr>
<tr>
<td>camp so spread out (unlike Muir!) it is totally fine.</td>
</tr>
<tr>
<td>coming out mid-week</td>
</tr>
<tr>
<td>entertainment</td>
</tr>
<tr>
<td>everyone was nice</td>
</tr>
<tr>
<td>expected people (2)</td>
</tr>
<tr>
<td>for Fri in July</td>
</tr>
<tr>
<td>good to see positive use</td>
</tr>
<tr>
<td>had no direct contact w/any group</td>
</tr>
<tr>
<td>happy people</td>
</tr>
<tr>
<td>helps break up the hiking; seeing dogs (w/their people) makes me smile.</td>
</tr>
<tr>
<td>hot girls</td>
</tr>
<tr>
<td>I don't like to see many people on trails</td>
</tr>
<tr>
<td>I expect to see people on the Baker access trail</td>
</tr>
<tr>
<td>I expected to see some people</td>
</tr>
<tr>
<td>I like people</td>
</tr>
<tr>
<td>I liked everyone</td>
</tr>
<tr>
<td>I prefer not to meet others but members of our group were acquaintances of others met along the way</td>
</tr>
<tr>
<td>I prefer solitary hikes</td>
</tr>
<tr>
<td>I was surprised to see so many overnight campers</td>
</tr>
<tr>
<td>interesting folk</td>
</tr>
<tr>
<td>It's a holiday -what can you expect?</td>
</tr>
<tr>
<td>it's a popular route and day use area.</td>
</tr>
<tr>
<td>It is good to see people enjoying nature.</td>
</tr>
<tr>
<td>it verified our location</td>
</tr>
<tr>
<td>It was nice to talk with others with similar interests</td>
</tr>
<tr>
<td>its nice to encounter other people</td>
</tr>
<tr>
<td>lack of trail etiquette of others</td>
</tr>
<tr>
<td>Large groups suck!</td>
</tr>
<tr>
<td>loud snowmobilers, fumes, somewhat dangerous on blind hills</td>
</tr>
<tr>
<td>many, many snowmobilers chopped up the snow, polluted the air. Etc.</td>
</tr>
<tr>
<td>meet new people</td>
</tr>
<tr>
<td>meet volunteer of steward program</td>
</tr>
<tr>
<td>nice people</td>
</tr>
<tr>
<td>nice people but didn't really interact or take notice of them</td>
</tr>
<tr>
<td>nice to listen to their concerns and ideas of trail issues</td>
</tr>
<tr>
<td>nice to see others enjoying Mt. Baker</td>
</tr>
<tr>
<td>nice to see people who are friendly. Plus we were descending while the masses were ascending.</td>
</tr>
<tr>
<td>nice, friendly folks</td>
</tr>
</tbody>
</table>
no expectations
no loud/obnoxious people
noisy snowmobiles, but the individuals seemed nice enough
not the people, the snowmobiles negatively impacted the experience
on the way down snowmobiles going too fast!
only saw a few people so they didn't affect our climb.
people concentrated early, very few after first 2 miles
provided information re: route conditions & times
slightly more people and dogs than you want to see today
slowed us down on the Roman Wall
slowed us down some
snowmobilers noise and air pollutions
snowmobilers should be banned from this area!
snowmobilers were going very fast and out of control, one of them crashed right near us.
solitude is good
some not prepared
some people weren't too friendly
The fresh air is hard to get to.
the more people enjoying nature the better off we all are
The snowmobiles are noisy, polluting and wreck the alpine experience at Mt. Baker.
they provided information I could use
they were acquaintances
too many smelly snowmobiles on trails today
too many snowmobiles
we knew them

Table A7: Views on Use Limits

<table>
<thead>
<tr>
<th>View</th>
</tr>
</thead>
<tbody>
<tr>
<td>allow people to use as they please - do not limit</td>
</tr>
<tr>
<td>Baker is known to have a lot of climbers, so it is expected that things will be crowded, but human waste is a concern.</td>
</tr>
<tr>
<td>balance is essential in all things</td>
</tr>
<tr>
<td>campsites have begun to apparently spread out -possibly overcrowding</td>
</tr>
<tr>
<td>can't have too many people/ok for now</td>
</tr>
<tr>
<td>Control should be managed by keeping wilderness burly not user friendly.</td>
</tr>
<tr>
<td>Control? A climbing ranger could help manage and advocate.</td>
</tr>
<tr>
<td>controls on large group who take over the Mt.</td>
</tr>
<tr>
<td>controls should not limit access they should limit impact.</td>
</tr>
<tr>
<td>damage to trail and experience most important</td>
</tr>
<tr>
<td>do not want large fees for nothing like Mt. Adams, Mt. St. Helens etc</td>
</tr>
<tr>
<td>educate users on LNT and limit backcountry/intermediate use to fee use (artist point &amp; visitor center users exempt)</td>
</tr>
<tr>
<td>everyone should be allowed to play outdoors unless they are destroying the area</td>
</tr>
<tr>
<td>get rid of noisy snowmobiles</td>
</tr>
<tr>
<td>I already pay taxes to cover these services. Get congress to fund you.</td>
</tr>
<tr>
<td>I don't know because I don't really know enough about Mt. Baker + its recreation usage</td>
</tr>
<tr>
<td>I don't visit frequently enough to know</td>
</tr>
<tr>
<td>I first climbed here over 20 yrs ago &amp; think the high level of current use has &quot;saturated&quot; the capacity of the uncontrolled or unmanaged system</td>
</tr>
<tr>
<td>I have not been here often enough to know if usage is too high</td>
</tr>
<tr>
<td>I haven't solidified my views on this matter. How could we restrict use and still allow all to use it?</td>
</tr>
</tbody>
</table>
I think it's great that there is little bureaucracy in the access of the mtn. But if large groups are to come up or use increases, there may need to be limits. If the traffic/use we saw on a weekday is indication of use on weekend then eventually some restrictions probably needed. If use gets higher, the place will be wasted. Impact on environment. It's not the volume of use, it's the impact of inconsiderate users. It hasn't presented enough of a problem...yet. It seems ok now, but busy. Many more people could have a negative effect on environment. Leave it wild + free. Let people enjoy it w/minimum impact. More people, more $ to support programs. Need limit the impact of snowmobiles. No fees! Possibly limit # of users if it continues to increase. No fun with too many people. No snowmobiles S side. Not familiar enough of this area to give a valid answer. Only to prohibit snowmobiles. Outlaw snowmobiles. Over crowding detracts from the experience + is harder to maintain "wildness" in mountain enviro. Over management is the current plague of USFS and wilderness management. Providing means for education, waste management, trail maintenance. Rebuild Kulshan cabin & staff. Removing human waste is important. Right now, things are above par, but if the scenery, wildlife is affected later then controls are needed. Since it's my first time here, I don't have a good basis for comparison. The ... snowmobiles is way too much. The important is to make sure it stays clean, the # of people doesn't really matter. The increase in use is growing fast. The problem w/fees is that they are a waste of more $ to the gov. Make a budget, use the general fund & don't build a kingdom! This is probably enough people. This place makes people happy and there isn't enough of that in our overpopulated world. Too many climbers can be dangerous. Too much traffic will impact any wilderness area. Waste management and trash. Way too many snowmobiles in...

Table A8: Management Issues

<table>
<thead>
<tr>
<th># of people on trail</th>
<th>access</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>allowing road access to trails</td>
</tr>
<tr>
<td></td>
<td>amount of use preservation</td>
</tr>
<tr>
<td></td>
<td>better use of funds received from forest passes and better mgt of logging activities</td>
</tr>
<tr>
<td></td>
<td>clean up and safety</td>
</tr>
<tr>
<td></td>
<td>climbing expertise required on mountain</td>
</tr>
<tr>
<td></td>
<td>climbing ranger or contact person on mtn. To make visitor contact &amp; provide educational service</td>
</tr>
<tr>
<td></td>
<td>on how to deal with waste</td>
</tr>
<tr>
<td></td>
<td>climbing rangers need a presence at the camps + summit</td>
</tr>
</tbody>
</table>
conserve the land/trails
don't over manage
education
education on nature and LNT
education, waste management, horse travel
encourage more "city" people to come enjoy outdoor by increasing demand we will save more
forests & wilderness. Also, building clearly defined trails? Easier access for diff. Routes. Variety
as opposed to only a few trails.
ending the fee demo program
fees
get rid of snowmobilers
human waste (7)
human waste disposal & speed of snowmobiles
human waste on glacier
human waste problem at high camp
human waste/erosion
human waste/trash
human waste/trash
informational signs, easier access across waterfalls
keep it natural
keeping access open to everyone
keeping it simple, no fees, forms permits etc
latrines @RR grade & high camp
leave no trace
Limiting snowmobile use, or try to enforce use of cleaner machines since this is Washington!
maintain leave no trace standards
maintaining and hiring rangers, toilet and waste issues
Multi use has always been at the expense of the least mechanized, greatest impact on resources
has always accompanied the most mechanized.
no snowmobiles
overuse
overuse of some areas/protecting wilderness areas
overuse of trails, erosion, social trails, visitor education
overuse, trash
overuse/human waste
overused wilderness campground
policing
poop,trash,trampled veg.,education
population and pollution
portable toilets should not be considered option - they are needed - not everyone will carry out
waste even if they know they should
preserving it
preserving wilderness -keep snowmobiles away
proper trail signs
protection of the unimproved backcountry
provide good info on conditions, manage/limit groups
rebuild Kulshan cabin/climbing rangers
Removal of fee system. People's relationship w/nature is not a commodity.
removal of snowmobiles
snowmobile use
Snowmobile use in designated areas deemed for snowmobiles only!
Snowmobilers (2)
snowmobiles - limit access so not to conflict w/climbers
snowmobiles (5)
snowmobiles in winter
snowmobiling stopped in NRA
soil erosion, protection "as is"
stop snowmobiles!!
toilet facilities not operational need fixing
toilets at lower camp
trail etiquette
trail management
trails and marking!
Trash (4)
trash, # of users
trash, preserving wildlife and scenery
unprepared hikers
use of snowmobilers, time of operation + noise
waste (2)
waste disposal
waste disposal, trail construction
waste management
waste management, a little bridge over the creek where everyone gets wet boots!
waste mgmt. + large group impact control. Small parties are fine.
waste problems
waste/campsites
where the money from passes go

Table A9: General Visitor Comments
beautiful mountain
better maps of area available through park service
blazed trees to mark proper route might be beneficial and cut down on social trails
bridges at streams would be nice
cut the staff by 1/2, get trail/campgrounds open
Education is key and budgets have been cut year after year but the government wants the same
work done! Not feasible!
good job so far, but internal communication sucks.
great experience
had a great day hike in the Mt. Baker area
hikers need to be prepared
I support the most minimum impact techniques possible - pack it in pack it out.
If you are going to limit climbers on Baker, allow people to pre-register for a camp (non-refundable
deposit) in order to plan in advance
It's a magical place. No impacts should be key - preserving our natural/biological heritage is more
important than recreation
It would be great to see positive reinforcement of cleaner snowmobile engines. They have a huge
impact of the wilderness experience that detracts from others, so they should pay more
Keep the wilderness wild. Cease the maintenance of current access roads + trails.
keep up the good work!
keep up the interest
limit # of snowmobilers
make bigger bridges/dog afraid to cross
make it part of the national park
make Mt. Baker part of Northern Cascade NP!
make sure people know about trail permits/parking passes
nice place
no snowmobiles
On our way off the glacier we encountered many small parties + one large group. The impact that
group had on the surroundings was too great + detracted from the experience. Otherwise all other
parties were manageable + land use was fine.
please clean toilets more often (parking lot)
Please no additional fees! No dogs!
Promote education, support public and private education based (not profit based) organizations and
programs.
Sign the new Sedro ranger station better. Thank you for doing this survey!
snowmobiles greatly detract from the aesthetic effect of the mountain.
snowmobiles suck
stay friendly
survey is way too long and redundant
The Mt. Baker area feeds my soul!
This survey is way too long and all that info is unnecessary!
Too long!
Yes -update the web site on climbing reports + routes. Thank you
I hate mountain climbing -I did it for my husband
take money from the national defense budget
More money should be spent on maintenance/management, but congress should readjust where
our taxes are being spent.
If overcrowding is a continued problem, you need to regulate all users of trails, routes, and camps.