The Rise of the Day Visitor in Wilderness: Should Managers be Concerned?

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Abstract—Results of research in Shenandoah National Park Wilderness on the differences between day and overnight visitors to the park's wilderness showed that the two user groups are not as different as originally thought. While the two groups differed somewhat in their level of support for traditional wilderness values, these differences are largely a matter of degree. Promotion of traditional wilderness values through education and regulations may help to strengthen the support and understanding of legally defined Wilderness.

Day visits, as a proportion of all use of wilderness, are increasing (Cole, Watson, and Roggenbuck 1995). Indeed, in many wilderness areas, day visitors exceed half of all visits (Roggenbuck and Lucas 1987), and day use has reached 70% in some areas. Yet wilderness managers seem preoccupied with overnight use and users (Hall 1996). For example, Shenandoah National Park wilderness managers require overnight visitors to have a backcountry permit; day hikers don't need one. In one high-use zone of the wilderness, fear of impacts led managers to forbid overnight camping, but only the size of the parking lot shapes the current amount and kind of day use of the area. At Okefenokee Wilderness, a U.S. Fish and Wildlife area, overnight visitors often must obtain a permit months in advance; overnight stays in the entire wilderness are limited to seven parties per night; camp spots are assigned with a fee of $10.00 per person per night; stays at any given spot can be for only one night; length of stay is limited to four nights per visit and to only two nights per visit during high-use months. At the same time, there is no limitation on day use, permits are not required, and the only charge is a canoe rental fee or a small fee to launch one's private boat. Such regulations suggest that managers are unaware of the high and increasing day use; believe day users' social and ecological impacts are low; and/or believe day visitors' desired, expected, and received experience in wilderness is more appropriate than the overnight experience. In short, it appears that resource managers are favoring the day user in their regulation of wilderness visits.

But are day and overnight wilderness visitors different in the experiences they seek, the impacts they create and notice, and in their preferences for management policies and prescriptions? Many wilderness scholars think so. For example, Ewert (1989) suggests that, while the overnight wilderness visitor typically seeks opportunities for solitude, contemplation, escape, and self-reliance, day users may be simply out for a few hours of exercise in a pleasant setting. However, when researchers have examined data on day and overnight use and user characteristics, findings have been much more mixed.

Some research has suggested that overnight users were seeking a more truly "wilderness" experience, while day visitors emphasized scenery, being with family or friends, or getting exercise in a pleasant environment (Grossa 1979; Roggenbuck, Timm, and Watson 1979; Lucas 1980; Ewert and Hood 1995). But this difference in visit orientation didn't always result in different sensitivities to social and ecological conditions encountered on site. Neither did it consistently explain differences in management preferences. For example, Roggenbuck et al. (1979) found few differences between day and overnight visitors in their perceptions of problems in three wilderness areas in the Southeast. When differences did exist, the overnight visitors were somewhat more likely to notice social impact. Lucas (1980, 1985) and Watson (1993) reported similar results in studies of wilderness visitors in the West. Hall (1996) measured visitor responses to 32 different indicators of ecological and social impacts in three western wilderness areas. She found differences between day and overnight visitors on about one-third of the attributes, and typically the overnight visitors were more sensitive. But with the exception of overnight users' greater sensitivity to human waste and livestock manure, these findings were not consistent across all study areas.

Some research has shown that day users are more supportive than overnight visitors of such conveniences as bridges, toilets, tables, and signs (Grossa 1979). Hall and Shelby (1994) found similar higher support by day users for toilets, corrals, and use of chainsaws in the wilderness. Similarly, Watson (1993) reported that overnight users were slightly more in favor of group size limits, limits on day use, and penalties for entering a wilderness without a permit. In contrast, Yang (1986) found no difference between day and overnight visitors to the Bob Marshall Wilderness in support for group size limits and limits of overall use at overused areas. However, overnight users were less likely to support such restrictive actions as assigned campsites, prohibitions on fire, and restrictions on camping near water. Finally,

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Hall (1996) found that, among regulations that would apparently benefit the wilderness resource and would affect all wilderness users equally, there was little evidence that overnight users give greater support than do the day users.

These mixed findings indicate a need to look more closely at the day and overnight visitors in wilderness. Four issues seem most important: (1) the way the two groups conceive of wilderness, (2) their reasons for particular visits to wilderness, (3) their preferences for wilderness management policies and prescriptions, and (4) the implications of findings on these issues to wilderness management.

Study Objectives

Our study objective for this research was to determine whether there were differences between day and overnight wilderness users and, if so, what these differences were and how they might affect future wilderness management. We chose three research questions to aid us in this process: (1) Do day and overnight visitors define wilderness differently? (2) Do day and overnight visitors have different expectations for their wilderness trip? (3) Do day and overnight visitors prefer different wilderness management practices?

Methods

Study Area

Our research was conducted in Shenandoah National Park (SNP), located in the western part of Virginia. SNP is a 196,466-acre park, of which 79,579 acres, or 41%, is legally designated wilderness. Shenandoah National Park is located near many metropolitan areas, including Washington, DC, and Charlottesville, VA, which helps to keep its visitor population extremely high during the spring, summer, and fall months. Skyline Drive, a scenic parkway, traverses the entire park for 105.4 and provides easy access to the park's several parcels of wilderness. The wilderness areas are also accessed through a variety of fire roads and non-wilderness trails.

Study Population

Our study population was the overnight and day visitors to Shenandoah National Park Wilderness from May 1998 to October 1998. We contacted visitors at 23 wilderness entry trailheads that were stratified by low, medium, and high use, as well as their location on Skyline Drive or the park periphery. The trailheads were stratified and selected through a joint effort of our research team and the National Park Service officials who manage the wilderness areas in this park.

All user groups entering or leaving these trailheads, during our prearranged sampling periods, were given an entry or exit survey. Two people in each group, above the age of 16, were asked to fill out a survey. If there was only one person in a group, that person was asked to fill out only one. Other study participants included those who obtained a backcountry permit from a permit issuing station during our prearranged sampling periods. Two people from each of the groups obtaining a backcountry permit were asked by Park Service officials to fill out a survey. Again, if there was only one person in the group, he or she was asked to fill out a survey.

At the time of contact, it was also determined whether the visitor was a day or overnight user; he/she was then given the appropriate day or overnight survey. Thus, there were four survey types a research technician could hand to the visitor: a day entry form, a day exit form, an overnight entry form, and an overnight exit form. An overnight person was defined as anyone entering the wilderness to stay one or more nights. This was determined by viewing the equipment that visitors had with them and then asking them if they had spent or were planning to spend the night.

Sampling Procedures

Our research at SNP took place from May 1998 to October 1998. During the months of May 1998 to October 1998, two research technicians were in the park sampling visitors on eight randomly selected days each month. Each of the 23 trails was sampled on a weekday and a weekend day during each of the six sampling months. Three sites were sampled each day for 2.5-hour periods. The time of the day in which a particular trail was sampled varied so that each trail was sampled during morning, afternoon, and evening use.

Data Collection Instrument

Study participants were given a two-page on-site contact sheet. Those answering the questionnaire before their trip were asked about their expectations for their wilderness trip, and those answering the questionnaire after trip were asked about their perceptions of their wilderness trip. The categories of questions for the on-site contact sheet included general information about the hike (destination, group size, etc.); questions on crowding and group size; questions on the ideal outdoor recreation area, as well as some personal information, including age and the respondent's gender. We also asked them for their name and address so that we could send them a questionnaire. This mail-back questionnaire included categories of questions regarding crowding, ideal wilderness, ways in which the Shenandoah National Park wilderness should be managed, what types of recreation respondents take part in, other wildernesses they have visited, and some personal information. Our on-site refusal rate was less than 4%, while our mail-back response rate was 50%, giving us a working sample size of 839.

Data Analysis

The data that we collected from both the on-site and mail-back surveys were analyzed by bivariate tests for differences between day and overnight users. When the dependent variable was a continuous or interval-like variable, we used a student's t-test; when the dependent variable was categorical, we used a chi-square test. We checked for equality of variance in our dependent variables, and when the variances were significantly different, we used the pooled variance student's t-test. We are aware of the possibility of

concluding that there were differences between day visitors and overnight visitors when there was none, given the large number of tests run to address our several research questions. In situations where this was most likely to occur, we note and discuss its likelihood in the results sections.

Results

Research Question #1: Do Day and Overnight Visitors Define Wilderness Differently?

To determine whether day and overnight visitors define wilderness differently, we first asked visitors to tell us how familiar they were with the legal definition of wilderness. They were asked to choose between statements that best described how familiar they were with the legal definition and to give a self-evaluation of their knowledge. This question was located on the mail-back questionnaire, and the categories respondents could choose from were: "I have no idea"; " I have heard of wilderness areas, but I don't know anything about the specific definition"; " I know a little about what legally classified wilderness is"; and "I think I know a lot about the legal definition of wilderness."

Figure 1 indicates that by far the largest number of both day and overnight users said they had heard of wilderness areas but knew nothing about their legal definition, or that they knew a little about legally classified wilderness. Very few had no idea about what legal wilderness was or felt they knew a lot. A chi-square did show that, while knowledge was quite low overall, overnight users rated themselves as significantly more knowledgeable than did the day users (Figure 1).

Next, we asked visitors how much 12 specific traditional and nontraditional wilderness characteristics or attributes contributed to their personal image of wilderness. The 12 items, located on the mail-back questionnaire included: "remote from cities"; "gravel fire roads"; " presence of wildlife"; " seeing many other people"; "well-developed, wide trails"; " virgin forest"; "campsites with plant tables and cement fireplaces"; "small farmsteads"; " primitive shelters for camping"; " rugged terrain"; "large, undisturbed tracts of land"; and " campgrounds with RV hookups." The visitors responded to these items with a five-point likert scale ranging from 1, "a big part," to 5, "not a part at all," of their personal perception of wilderness. Through t-test analyses, we found seven significant differences at the $p < 0.05$ level (Figure 2).

Of the seven significant differences, day users felt that five nontraditional characteristics were more a part of wilderness than did the overnight visitors. These attributes included RV hookups, campsite developments, well-developed trails, gravel fire roads, and farmsteads. Day users also felt primitive shelters were more frequently a characteristic of wilderness. But the day users' conception of wilderness also included one characteristic of wilderness, i.e., large, undisturbed tracts of land, at a greater level than did that of the overnight visitors. Perhaps the multi-day visitors are more aware that at Shenandoah National Park wilderness parcels are indeed quite small.

A close examination of Figure 2, however, indicates that, while there are significant differences between the two groups, these differences are small. In general, both groups reported that nontraditional wilderness attributes had little part of their conception of wilderness and that traditional wilderness attributes did define their image.

Overall then, we believe that, while neither group acknowledges much knowledge of the legal definition of wilderness, both groups generally carry an image of wilderness that largely fits common perceptions of wilderness in America. What differences that do exist suggest that overnight visitors have perceptions slightly more congruent with traditional wilderness values.

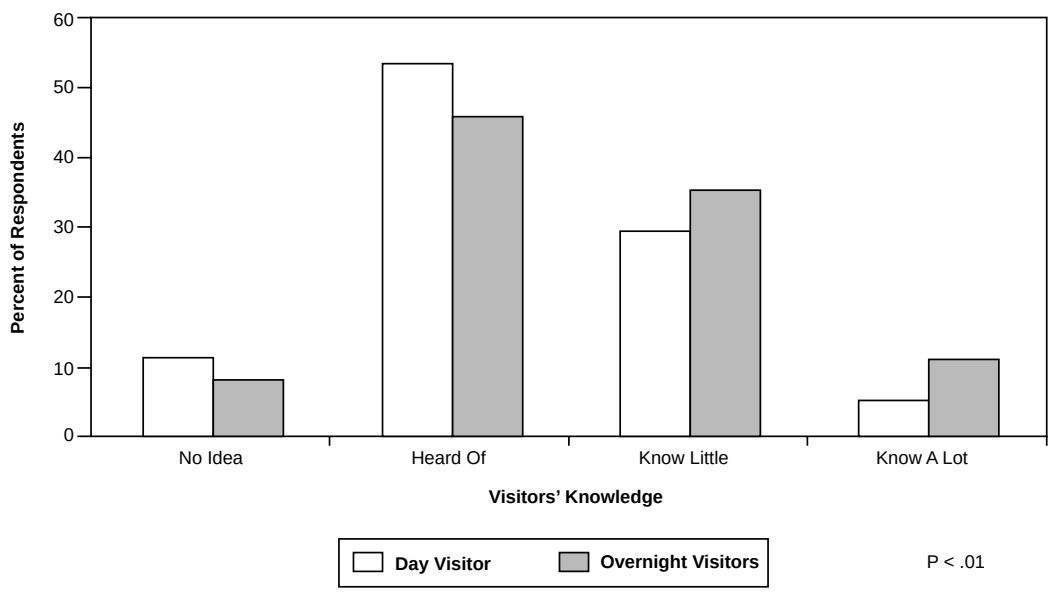

Figure 1—Day and overnight visitors' knowledge of the legal definition of wilderness.

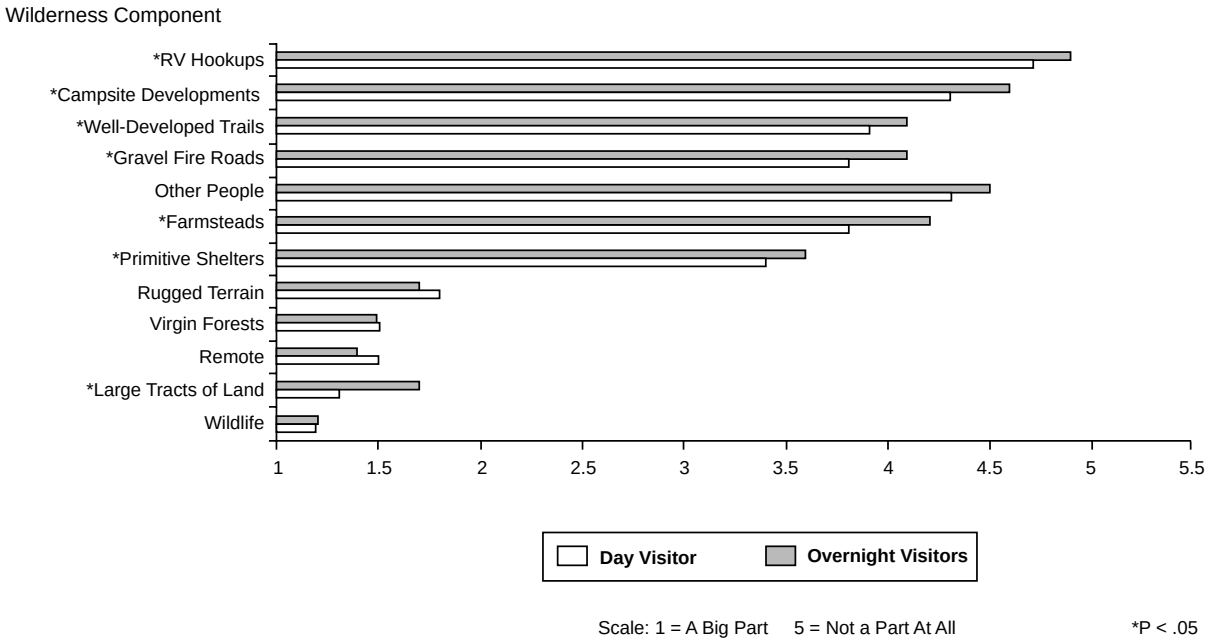

Figure 2—Day and overnight visitors' personal construction of wilderness.

Research Question #2: Do Day and Overnight Visitors Have Different Expectations for This Trip?

Another way to examine possible similarities and differences between day and overnight visitors is to look at their expectations for their wilderness trip. Experience expectations seem particularly important because they likely affect the way visitors evaluate the quality of their trip (Stewart 1989), and managers often seek to manipulate settings and activities to meet expectations (Driver, Brown, Stankey, and Gregoire 1987). We asked respondents about five different primary reasons for going on their trip: "a hike in the woods," "recreation with friends/family," "getting exercise," "viewing scenery," and "a trip into the wilderness." They indicated which type of experience was the most important one for their hike today. A chi-square test indicated a significant difference between day and overnight visitors at the $p < 0.01$ level. These differences seem fairly large to us. As shown in Figure 3, only 10% of day visitors said they were going into the wilderness for an actual wilderness trip, whereas over

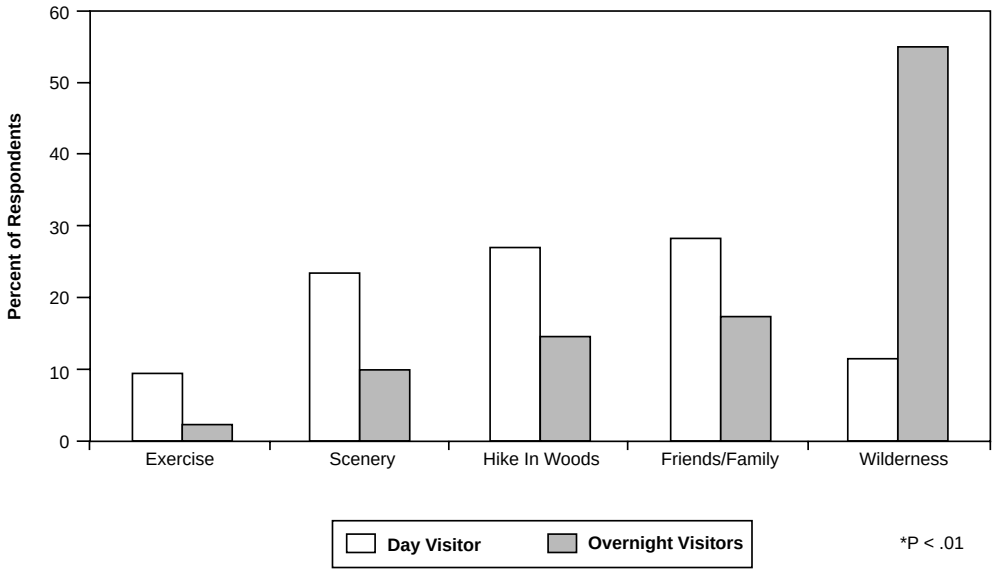

Figure 3—Day and overnight visitors' most important experience sought.

55% of overnight visitors said they were going into wilderness for this reason. Day visitors far more frequently chose "recreation with friends and family," "viewing scenery," and "a hike in the woods" as their primary reason for entering the wilderness. Few study participants went on the wilderness trip primarily for exercise.

We thus begin to see that, while our two study groups don't conceptualize the notion of wilderness very differently, they do have very different reasons for going on the specific visit into Shenandoah Wilderness. Few day visitors see the trip as primarily a wilderness one.

Table 1—Mean rank of visitors' management goals.

Healthy ecosystems	1.7	1.6
Naturally appearing landscape	2.5	2.4
Primitive recreation*	3.6	3.9
Few encounters*	4.2	4.6
Challenging hikes*	4.7	4.3
Visitor freedom*	5.3	5.6
Comfort and convenience*	6.2	5.6

Scale = 1—most important, 7—least important.

*$p < 0.01$.

Research Question #3: Do Day and Overnight Visitors Prefer Different Wilderness Management Policies?

By looking at what wilderness management policies both day and overnight visitors prefer, we can get a sense of how visitors want their image of wilderness articulated on the ground. For example, if a particular user group favors more nontraditional wilderness goals or experiences, we might conclude that their actual wilderness values are not as traditional as another user group. Managers could use this information to determine whether and how to meet the goals of various user group, and if and what changes might need to be made in management to satisfy all user preferences.

We first asked respondents to rank seven management goals, with 1 being "most important" and 7 being "least important." The goals that the respondents ranked included: "ensure visitor comfort and convenience," "manage for few (<10) encounters with other groups," "maintain naturally appearing landscapes," "manage for healthy ecosystems," "provide opportunities for primitive types of recreation," "ensure visitors' freedom to go wherever they want with minimal rules and regulations," and "provide physically challenging hikes." After conducting t-tests on these data, we found five significant differences between the two user groups at the $p < 0.01$ level. As shown in Table 1, the two nonsignificant differences included "manage for healthy ecosystems" and "maintain naturally appearing landscapes." Both groups felt that these two management goals were very important to the wilderness. The interesting thing about these results is that even though there were significant differences between the day and overnight visitors, the relative order in which they ranked the goals is almost the same. The exceptions were that the items, "manage the wilderness so that visitors have few encounters with other groups" and "provide physically challenging hikes," were reversed. Thus, even though the two groups differed on several management goals, they ranked their importance in a similar order.

Along with management goals, we looked for differences in our two study groups' support for different management policies. We asked respondents to indicate the extent to which they agreed or disagreed with a list of 14 management policies. Respondents were given a scale from +2, indicating "strongly agree," to –2, indicating "strongly disagree." Data analyses found seven significant differences at the $p < 0.05$ level (Figure 4).

Day users supported more than did overnight visitors the provision of a variety of types of trails to satisfy varied interests and permitting people to carry phones into the wilderness to use in case of an emergency, but both groups supported these policies. Overnight visitors opposed improving and maintaining all wilderness trails at high levels and making moderate improvement in wilderness campsites more than did the day users, but both groups disapproved. In contrast, while both groups disagreed with the policy that "people should not be allowed to carry cellular phones into the wilderness because technology detracts from the wilderness experience" and that "wilderness should have few rules and regulations to ensure visitor freedom," the day users disagreed more. These findings seem interesting not so much because of these differences, but rather because both groups have some unexpected preferences. For example, both groups are in favor of cellular phones in wilderness, an apparent contradiction with traditional wilderness values. Also, both groups seem willing to accept rules and regulations even in the context of the possible loss of visitor freedom.

The two study groups were also notable in some of their opinions on which they did not differ. For example, both groups disagreed that "there should be no trails and no other human influence at all in wilderness" and "mountain bikes should be allowed in wilderness areas." On the other hand, both day and overnight visitors agreed with the statements: "lightning-caused fires in wilderness should be allowed to burn"; "places in wilderness denuded by fire, insects, or disease should be protected by replanting vegetation"; "heavy infestations of native insects in wilderness should be allowed to run their course"; "hunting should be forbidden in wilderness areas"; and "wilderness managers should be allowed to use chainsaws to clear debris from wilderness trails."

Past research has suggested that recreationists might support general policies that protect the environment, but express different opinions about management actions that seem congruent with those policies but which restrict how they use and enjoy the environment (Noe and Hammitt 1992). Given this, we asked day and overnight wilderness visitors to rate a list of 25 management actions on a scale from 1, "strongly support," to 5, "strongly oppose." We conducted t-tests on these data and found 19 significant differences between the two user groups at $p < 0.02$. Both groups were similar in their general support for the following six items: "limit use in areas where people feel very crowded"; "limit use in areas where biologists feel it is necessary to protect wildlife"; "rather than limiting use, manipulate campsites and trails in subtle ways to make them more durable"; "prohibit campfires (except in fireplaces at huts

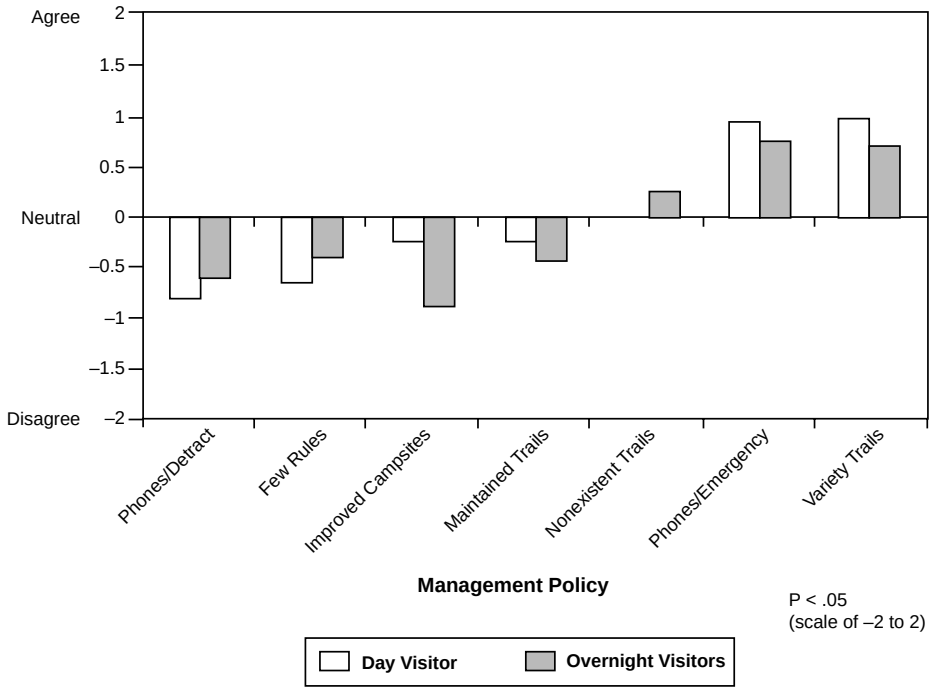

Figure 4—Support of day and overnight visitors for management policies.

and shelters)"; "prohibit mountain bikes on backcountry trails"; and "prohibit camping within 1/4 mile of Skyline Drive."

Of the 19 significant differences between day and overnight visitors, most were so small as to seem to us to have little managerial relevance. However, seven differed by at least 0.4 on a 5-point scale. Day users were slightly in favor of providing primitive toilets at popular wilderness locations, prohibiting dogs in the wilderness, providing interpretive signs in the wilderness, developing more trails, and restricting camping to designated campsites marked with a post. Overnight users were slightly to moderately opposed to these management actions. Both groups supported limiting group sizes to 10 and closing certain areas to camping because of their value as outstanding natural areas. However, day users favored the camping restriction more than did the overnight users, but the overnight visitors were more supportive of the group size restriction (Figure 5).

Implications and Conclusions

Originally, we had expected many differences between day and overnight visitors in wilderness areas. We thought that the increase of day visitors to wilderness areas could lead to pressures to change the way wilderness is currently managed. However, our research in Shenandoah National Park Wilderness showed fewer differences between the two user groups than expected. Both groups seemed to support the general notion of wilderness. Both day and overnight visitors said that, for the most part, they had heard of the legal definition of wilderness but didn't know anything about the specific definition. Day visitors have somewhat less support for traditional wilderness values, but this difference was surprisingly small. The two groups differ on their overall experience expectations for the specific trip. Typically, the day users were seeking something other than a wilderness trip. The two groups also had somewhat different levels of support for some management policies and actions, but these differences are largely a matter of degree. In the final analysis, both groups valued protecting natural ecosystems and will accept constraints on their freedom to ensure the quality of the wilderness resource.

Our conclusions allow us to suggest certain actions that managers can take to help meet the general expectations of both day and overnight visitors, when they differ as well as when they are similar. Managers of Shenandoah National Park Wilderness need to inform and educate all backcountry visitors about the meaning of legal wilderness. This could, in turn, create a greater appreciation and understanding of what legally defined wilderness is and get more people active in its exploration, protection, and enjoyment.

We also suggest that SNP wilderness managers need to inform both day and overnight visitors that they are entering legally defined wilderness. This suggestion stems from the fact that we believe that many people don't even know they are entering a wilderness on their hike. One way of letting people know that they are in wilderness is by erecting wilderness entry signs along trails at the wilderness boundary. We feel that SNP managers should develop educational brochures about the meaning and values of legally defined wilderness. With the rise of the day use in wilderness, such educational brochures about wilderness would give more people a chance to become more informed about the wilderness idea, wilderness values, and appropriate wilderness behavior.

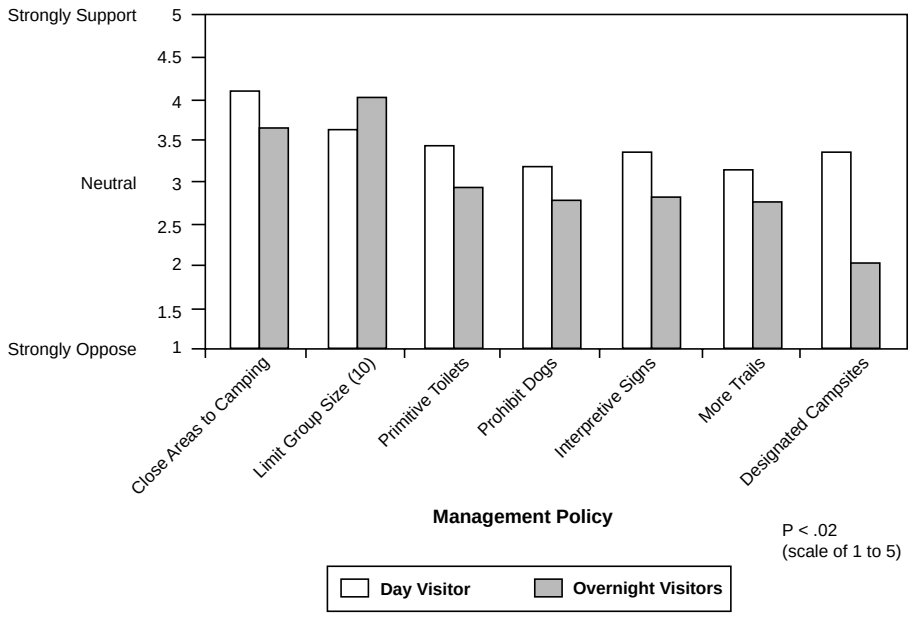

Figure 5—Support of day and overnight visitors for management actions.

Finally, we believe that mangers should expect of day users, and indeed ask of day users, the same knowledge and respect for legal wilderness as they now expect of overnight visitors. Day users almost certainly cause per capita social impacts and "non-camping" ecological impacts at similar levels to overnight users. While somewhat different management prescriptions may be required of day users, we believe that informed day users will be as supportive of actions to protect the wilderness environment and experience as the overnight visitors have been.

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