

ACCEPTABLE NUMBER OF USER ENCOUNTERS: A STUDY OF ADIRONDACK AND GREAT GULF WILDERNESS HIKERS

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Abstract: Hikers in three wilderness areas of New York's Adirondack Park and one wilderness area of the White Mountain National Forest were interviewed and surveyed regarding their trip-related wilderness experiences. A total of 901 hikers were interviewed in the High Peaks, Siamese Ponds, and Ha-De-Ron-Dah wilderness areas in 1997 with an overall mail survey response rate of 69%. A total of 903 hikers in the High Peaks and Great Gulf wilderness areas were interviewed in 1999 with an overall mail survey response rate of 63%. The surveys of hikers' expectations for encounters with other users and acceptable user encounter levels were measured for two types of encounters on trails. Comparisons of the respondent results between areas were conducted to understand the congruence or disparity between expectations, acceptable encounter levels, and perceptions of crowding.

Introduction

The New York State Department of Environmental Conservation (NYSDEC) has been completing Unit Management Plans (UMP) for many of the 17 wilderness areas within the Adirondack Park. These 17 wilderness management units on state Forest Preserve lands now total more than one million acres with the latest addition of the 20,500-acre Whitney Wilderness area in 1999. During the public review of the draft plans for some of these UMPs, concerns and opinions have been expressed by a wide variety of groups and

individuals over the need to limit, or not to limit, visitor use in some higher use wilderness areas. Some people contend that there are substantial visitor impacts on the environment and social experiences in Adirondack wilderness areas. Since the Adirondack Park State Land Master Plan requires consideration of visitor use and recreation carrying capacities in the development of a UMP, an effort was made to gather together the existing studies of wilderness visitors. In particular, there was very limited information on the number of user and large group encounters that were acceptable to users during their wilderness experiences.

The concept of social carrying capacity has been studied for several decades in recreation (Shelby and Heberlein, 1986) with a variety of conclusions including that any measurement and understanding of carrying capacity must be based not just on actual use, but also visitor perceptions of encounters and crowding (Manning, 1999). Use encounters are often measured to better understand the relationship between user densities or perceptions of density with privacy, coping behaviors, satisfactions, and social carrying capacity (Hammit and Patterson, 1991; Hammit and Rutlin, 1995; Manning, 1999; Lah, 2000). Since managers and visitors can report different levels of acceptable encounters and standards for social carry capacity (Lah, 2000), it is necessary to measure visitor responses on their trip-related wilderness experiences. The issue of whether visitors can actually agree or converge on a normative standard for user encounters has been debated (Hall and Shelby 1996) because of the wide variability in visitor responses. Even with this information it is a difficult and controversial process to take this social information and combine it with ecological impact information and then develop a management plan that addresses wilderness party size issues through direct or indirect management techniques (Monz et al., 2000).

Methods

Three wilderness areas in the Adirondack Park (High Peaks, Siamese Ponds, and Ha-De-Ron-Dah) were used because these studies represented a variety of wilderness area sizes and visitor use levels so that use density varied between them (Table 1). Additionally, the Great Gulf Wilderness area in the White Mountain National Forest was included as a comparison that was available using the same methodology and at a higher user density per acre

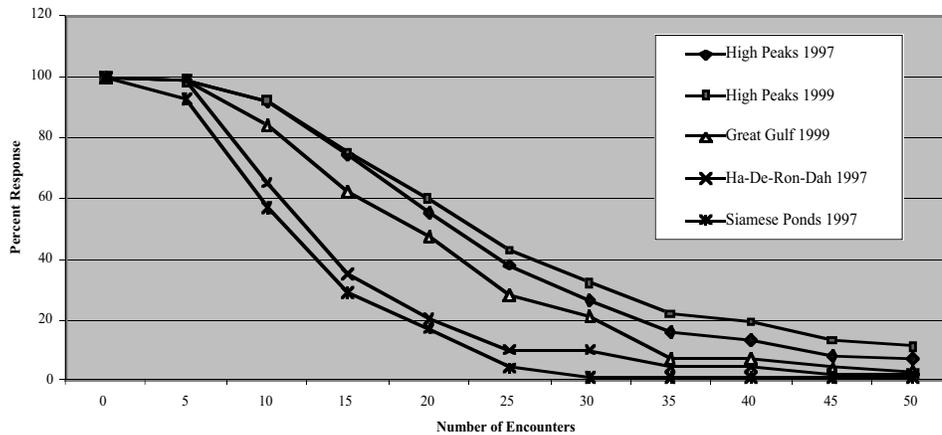


Figure 1. Percentage of Respondents Reporting an Acceptable Number of User Encounters While on Trips in Four Wilderness Areas

of land. Visitor studies from 1997 and 1999 were selected for these four areas to increase the number of studies to compare (Table 2).

The general design approach for these studies (Dawson et al., 2000; Dawson et al., 2001) was to conduct brief, on-site interviews of visitors during their recreational activities in the four wilderness areas during the summer months from Memorial Day through Labor Day in 1997 and 1999.

Table 1. — Four wilderness study areas, acreage within each area and estimated annual visitor use.

Wilderness Areas	Acreage in Area	Estimated Number of Users in Area
High Peaks	226,400	140,000
Great Gulf	5,500	8,000
Ha-De-Ron-Dah	27,000	2,000
Siamese Ponds	108,500	2,000

Table 2. — Five wilderness studies, year of study, number of surveys mailed, and survey response rate.

Wilderness Areas and Year of Study	Mail Surveys Sent	Response Rate (%)
High Peaks — 1997	710	67%
High Peaks — 1999	586	64%
Great Gulf — 1999	317	60%
Ha-De-Ron-Dah — 1997	93	75%
Siamese Ponds — 1997	98	74%

Only visitors involved in their recreational activities on the study areas were interviewed. This on-site contact approach was used to ensure that visitor responses to survey questions reflected their actual on-site recreation experience for a specific trip. An interview survey instrument was designed to gather some user characteristics information during a two-minute interview in the field by a trained interviewer. A name and address was collected from each person interviewed to enable a follow-up mail survey be sent to collect trip specific information. A separate but related survey was developed for each of the four wilderness study areas so that each visitor received a survey related to the area in which he/she was interviewed.

The mail surveys collected information about several wilderness experience topics (e.g., wilderness conditions, satisfactions, management preferences); however, this manuscript only reports on the data from the questions on user expectations for encounters, acceptable encounter levels, and perceptions of crowding. Up to three reminders were sent, as necessary, to ensure a high response rate from the mail surveys.

Results

Of the 1,804 wilderness visitors briefly interviewed in the field and sent a mail survey, 66 percent responded. Response rates varied between the study areas from 60% to 75% (Table 2). Sample sizes varied between the study areas from 93 to 710 visitors based on the number of users available for interviews during the sampling time and the time allowed for interviews at the various trailheads in

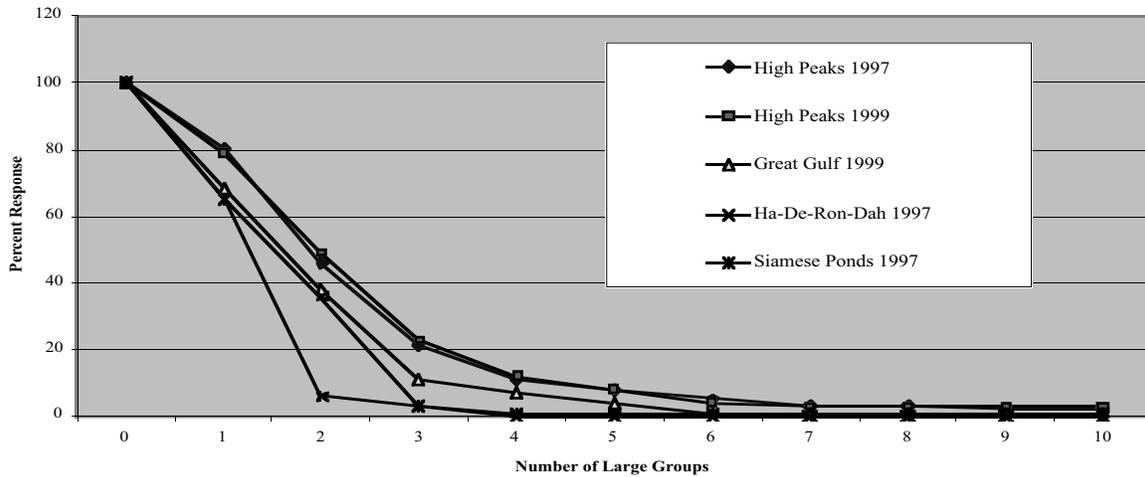


Figure 2. Percentage of Respondents Reporting an Acceptable Number of Large Group Encounters While on Trips in Four Wilderness Areas

the study areas (Dawson et al., 2000; Dawson et al., 2001). Respondents were asked to indicate the number of hikers that was acceptable to them to meet on the trail each day while on their wilderness trip in a given area. The response categories were in 5-person increments and ranged from 0 to 50 people. The percentage of respondents who reported an acceptable number of user encounters while on their trips to one of the four study areas in 1997 or 1999 is shown in Figure 1. Fifty percent or more of the respondents in the High Peaks and Great Gulf study areas (i.e., higher density use areas) reported that 20 encounters or less was acceptable, while fifty percent or more of the respondents in the Ha-De-Ron-Dah and Siamese Ponds study areas (i.e., lower density use areas) reported that 10 encounters or less was acceptable. Only five percent or less of the respondents left the question blank, presumably because they were not able to decide on an encounter number that was acceptable to them (Table 3).

Table 3. — The percentage of respondents who could not specify the acceptable number of groups on the trails during their trips in the four wilderness areas.

Wilderness Areas and Year of Study	Percent
High Peaks — 1997	5
High Peaks — 1999	1
Great Gulf — 1999	2
Ha-De-Ron-Dah — 1997	3
Siamese Ponds — 1997	4

Respondents were asked to indicate the number of large groups of hikers (i.e., 10 or more people) that was acceptable to them to meet on the trail each day while on their wilderness trip in a given area. The response categories ranged from 0 to 10 large groups. The percentage of respondents who reported an acceptable number of large group encounters while on their trips to one of the four study areas in 1997 or 1999 is shown in Figure 2. Fifty percent or more of the respondents in the High Peaks study areas in both 1997 and 1999 (i.e., higher density use area) reported that two large group encounters or less was acceptable, while fifty percent or more of the respondents in the Great Gulf, Ha-De-Ron-Dah and Siamese Ponds study areas (i.e., one higher use and two lower density use areas) reported that one large group encounters or less was acceptable. Only eight percent or less of the respondents left the question blank, presumably because they were not able to decide on a large group encounter number that was acceptable to them (Table 4).

Table 4. — The percentage of respondents who could not specify the acceptable number of large groups on the trails during their trips in the four wilderness areas.

Wilderness Areas and Year of Study	Percent
High Peaks — 1997	5
High Peaks — 1999	1
Great Gulf — 1999	4
Ha-De-Ron-Dah — 1997	8
Siamese Ponds — 1997	8

Table 5. — The percentage of respondents reporting whether the number of user encounters experienced was less or more than expected during their trip in four wilderness study areas.

Wilderness Areas and Year of Study	Far fewer	Fewer	Same	More	Far more
High Peaks 1997	6	17	58	15	4
High Peaks 1999	6	19	61	10	4
Great Gulf 1999	10	30	51	8	1
Ha-De-Ron-Dah 1997	18	30	39	12	1
Siamese Ponds 1997	10	26	53	11	0

Table 6. — The percentage of respondents reporting whether the wilderness was crowded or not on their trip in four wilderness study areas.

Wilderness Areas and Year of Study	No	Slight	Moderate	Very	Extremely
High Peaks 1997	51	23	17	8	1
High Peaks 1999	50	26	18	3	3
Great Gulf 1999	77	16	5	2	0
Ha-De-Ron-Dah 1997	73	15	5	5	2
Siamese Ponds 1997	74	22	4	0	0

In an effort to understand what the users expected and what they experienced in visitor encounter numbers while on their trips, they were asked to indicate whether the number of user encounters experienced was less or more than expected during their trip in a given area. The five response categories were “far fewer”, “fewer”, “same”, “more”, and “far more” than expected. The largest percentage of respondents reported that what they experienced was what they expected (Table 5). Those reporting a disparity in expectation versus experience most often reported they experienced fewer people or far fewer than expected, this was more often the case for respondents in the Great Gulf, Ha-De-Ron-Dah and Siamese Ponds study areas (i.e., one higher use and two lower density use areas) than in the High Peaks in both 1997 and 1999.

Following the questions on encounters and expectations, respondents were asked to indicate whether they felt crowded by other visitors during their trip in a given area. The five response categories were “no”, “slight”, “moderate”, “very”, and “extremely” crowded. Over 50 percent of respondents in all areas reported that they did not feel crowded (Table 6). The second highest category of responses were in the slight category with 15 to 26 percent of respondents reported being slightly crowded. Those reporting a moderate feeling of crowding were most often using the High Peaks in either 1997 or 1999 (i.e., higher density use area).

To better understand the relationship between feelings of crowding and visitor expectations for encounters, those two variables were tested for association using a Pearson R correlation statistic. The association between respondents’ feelings of crowding and their expectations on user encounters during their trips in the four wilderness areas ranged from 0.35 to 0.52 (Table 7). All associations were statistically significant ($p < 0.05$) suggesting that when encounters were less than expected there was a higher likelihood that there was no perception of crowding and, conversely, when visitor expectations were exceeded there was a greater likelihood that there was perceived crowding from a moderate to extreme problem.

Table 7. — The association between of respondents’ feelings of crowding and their expectations on user encounters during their trips in the four wilderness areas.

Wilderness Areas and Year of Study Area and Year	Pearson R
High Peaks — 1997	0.48
High Peaks — 1999	0.52
Great Gulf — 1999	0.35
Ha-De-Ron-Dah — 1997	0.42
Siamese Ponds — 1997	0.43

Even though 23 to 50 percent of respondents reported feeling crowded on their trip, only 7 to 23 percent reported that they changed either their trip duration or route of travel while in one of the four

Table 8. — The percentage of respondents reporting whether they changed their trip duration or route of travel in four wilderness study areas.

Wilderness Areas and Year of Study	No	Yes
High Peaks — 1997	77	23
High Peaks — 1999	82	18
Great Gulf — 1999	93	7
Ha-De-Ron-Dah — 1997	88	12
Siamese Ponds — 1997	90	10

wilderness areas (Table 8). Those most often reporting changes in trip duration or route were most often using the High Peaks in either 1997 or 1999 (i.e., higher density use area).

Discussion

One of the implications for wilderness management relates to the concern about higher acceptable levels of user-user and large group encounters in higher use areas. These areas may require information and education programs to remind users of wilderness experience conditions that include opportunities for solitude and remote and isolated recreational experiences. The concern revolves around the observation that visitors in higher use areas report higher acceptable levels of encounters, report expectations that are relatively congruent with the numbers experienced, and often report feeling not crowded to slightly crowded.

The study result that visitors in higher use areas also report using more coping techniques (e.g., changing trip duration or routes) suggests the need for further research on how sequential waves of coping and displacement among users may cause those who do move away from a high use area to displace those in a less-used area (i.e., as use levels escalate in the previously less-used area). Furthermore, the use of visitor perceptions of crowding as a monitoring indicator should be studied to test if expectations and perceptions of crowding are based on first experiences and first information gained about a high-use area. For example, visitor expectations were moderately correlated with perceptions of crowding. The management concern is that users may set expectations or a “benchmark” based on current use and not against ideal wilderness conditions.

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Published by:
USDA FOREST SERVICE
11 CAMPUS BLVD SUITE 200
NEWTOWN SQUARE PA 19073-3294

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July 2004

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