

Privacy Functions and Wilderness Recreation: Use Density and Length of Stay Effects on Experience

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Abstract

Privacy and its functions are desirable attributes of the human experience in wilderness areas, where outstanding opportunities for solitude is legally mandated. Privacy, the ability to choose how and when to interact and exchange information with other people, enhances opportunities for both personal growth and interaction with the wilderness environment. This study assessed the effect of use level and length of stay on the degree to which privacy and its functions were experienced on wilderness trips. Factor analysis identified one privacy experience factor and two privacy function factors, release, and personal growth. Compared to more heavily used trails, hikers on less congested trails experienced more privacy—being significantly more likely to experience “solitude,” being “away from crowds of people,” and “feeling isolated.” But there was no difference related to use level in achieving the beneficial functions of privacy. Hikers on longer trips experienced both more privacy and more of the beneficial functions of privacy—release and personal growth.

Privacy, defined by Altman (1975, p. 18) as “the selective control of access to the self or one’s group,” is an important human need. Too much access and interaction with others can be experienced as an invasion of privacy, whereas too little can lead to loneliness and alienation (Pedersen, 1999). Given its importance, privacy has been the subject of considerable research. Progress

has been made in defining various types of privacy and the functions or needs that it serves (Marshall, 1974; Pedersen, 1997; Westin, 1967), as well as the influence of personal and situational factors on privacy and its regulation (Pedersen, 1988). There has been surprisingly little field-based empirical work on the topic of privacy, however, (Long & Averill, 2003; Newell, 1998).

One situation in which privacy is extremely important is in designated wilderness. Wilderness is a place where people can experience nature on its own terms and build their own stories from those experiences (Patterson, Watson, Williams, & Roggenbuck, 1998). It is a place where immersion in remote natural environments is often therapeutic (Davis-Berman & Berman, 1989; Russell & Farnum, 2004). But these desired outcomes are difficult to attain when people have little control over whom and to what extent they must interact with other people (Hammitt, 1982). They are enhanced when people have privacy, the freedom to choose how and when to interact and exchange information with others (Evans & Lepore, 1992; Long, Seburn, Averill, & More, 2003; Patterson & Hammitt, 1990).

The legislation that designated wilderness in the United States (The Wilderness Act of 1964) mandated that wilderness areas be managed to provide unique recreational experiences, specifically “outstanding opportunities for solitude.” In the psychological literature, solitude is considered to be one of several types of privacy, defined as escape or isolation from others (Pedersen, 1999; Westin, 1967). But most wilderness visitors do not seek complete isolation. They typically visit wilderness in small groups, “being alone together” with members of their own groups, rather than truly alone (Hammitt, 1982; Lee, 1977). They also can be somewhat social in their interactions with other groups, seeking out contact and initiating conversation (Lee, 1977). In research we conducted on wilderness trails in Oregon and Washington, only

10% of visitors agreed that they “cannot have a profound sense of solitude unless completely alone” (Cole & Hall, 2008). This suggests that “privacy, in its many forms, and freedom of choice are what the wilderness user may really be seeking when referring to solitude” (Hammit, 1982, p. 482) and may be the meaning behind the language of the Wilderness Act.

Particularly close to large urban areas, some wilderness trails and destinations have become so popular that they are often densely used and congested by wilderness standards. In response, the amount of recreation use has been limited in some wilderness areas, and many question whether use limits should be more widely implemented. The foundation of more informed decisions should be a better understanding of the effects of density of recreation use on the ability to experience privacy and its functions in wilderness. Numerous studies, in urban settings such as residence halls and mass transit systems, have reported positive relationships between density, crowding and invasion of privacy, leading to stress and other adverse effects (e.g., Evans & Wener, 2007; Kaya & Weber, 2003). However, little is known about how well those conclusions generalize to wilderness and other outdoor recreation settings. Although many studies have explored the relationship between recreation use density, perceived crowding, and satisfaction (Manning, 1999), there has been little work on effects on privacy. In one of the few studies, Hammitt and Rutlin (1995) found that level of desired privacy achieved on a wilderness trip tended to decline as the number of other groups encountered increased. However, the dependent variable in their study was simply response to a question about “the extent you achieved your desired level of privacy while in the Wilderness,” which does not provide much insight into actual levels of privacy.

A second trend in wilderness recreation has been a decrease in length of stay. Increasing day use and shorter stays raise concerns that exposure to wilderness is being shortened to the point that people are unable to have the unique experiences and obtain the benefits that wilderness is supposed to provide. For example, Borrie and Roggenbuck (2001) and McIntyre and Roggenbuck (1998) both found that certain benefits and emotions wilderness visitors experienced varied between early and late phases of their trips. However, Borrie and Roggenbuck did not find differences in solitude across the span of a trip, and McIntyre and Roggenbuck concluded that the differences within a trip were less than between pre- or posttrip and on-site experiences. The limited research and its conflicting findings raise questions about the effect of length of stay on the ability to realize the positive

psychological outcomes that can result from privacy in a wilderness environment.

In this article, we distinguish between experiencing privacy and having the experiences that can be achieved through regulating privacy (which we refer to as experiencing the functions of privacy). We view privacy as an immediate phenomenal state or condition of the person (Newell, 1995), while we view privacy functions as the purposes and needs served by experiencing privacy, which may be felt immediately or require some duration of privacy state to become realized. Research has demonstrated that there are multiple types of privacy or privacy dimensions, as well as multiple privacy functions (Marshall, 1974; Pedersen 1997; Westin, 1967). Petersen (1999), for example, identified six types of privacy: solitude (freedom from observation by others), isolation (being geographically removed from and free from observation by others), anonymity (being seen but not identifiable by others), reserve (not revealing personal aspects of one’s self to others), intimacy with family (being alone with family), and intimacy with friends (being alone with friends). He identified five functions of privacy: contemplation, autonomy, rejuvenation, confiding, and creativity, and found that different types of privacy vary in the degree to which they satisfy particular privacy needs or functions (Pedersen, 1999). The limited research in wilderness has supported these distinctions. Specifically, dimensions or types of wilderness privacy have been identified empirically (Hammitt, 1982; Hammitt & Madden, 1989), as have privacy functions and needs (Hammitt & Brown, 1984; Priest & Bugg, 1991).

Our study had two primary purposes. First, we wanted to extend research on privacy, and particularly its functions, to wilderness, a setting where privacy is so important to the human experience that it is legislatively mandated. Second, we wanted to explore the effect of two situational variables—use density and length of stay in the wilderness environment—on the experience of privacy and its functions. This extends earlier work on relationships between density, crowding and privacy (e.g., Hammitt, 1982; Patterson & Hammitt, 1990). Of more importance, it addresses important practical issues related to the regulation of recreation access and behavior in wilderness.

We assessed actual experience of privacy rather than the degree to which one’s desired level of privacy was experienced. We contrasted privacy experience and privacy functions between (1) visitors on heavily used and moderately used trails and (2) visitors on day and overnight wilderness trips. We hypothesized, based on both commonsense and previous work on positive relationships between density and invasion of privacy (e.g., Evans & Wener,

2007; Robson, 2008), that less privacy would be experienced on heavily used trails and that less privacy would be reflected in less opportunity to experience the beneficial functions of privacy. Although there is little existing research to serve as a guide, we hypothesized that length of stay would correlate positively with the ability to experience privacy. In part, this is because use is concentrated near trailheads, and therefore people on shorter trips should encounter more people. In addition, people on overnight trips might have more episodes with few encounters, which could increase their sense of solitude (Hall, 2001). We also hypothesized that one's ability to experience the functions of privacy should increase as length of exposure to an environment conducive to privacy increases. This is based on the reasoning that the psychological needs fulfilled by privacy might only be met after privacy has been experienced for at least a certain length of time.

Materials and Methods

Study areas and sampling procedures

Our cross-sectional study design involved questioning day and overnight visitors about what they had just experienced as they exited wilderness trails that varied in amount of use. We worked on 10 trails in two wilderness areas in the northwestern United States—the Alpine Lakes Wilderness in Washington and the Three Sisters Wilderness in Oregon. These wilderness areas are adjacent to the sprawling metropolis of Seattle, Washington, and the rapidly growing city of Bend, Oregon. They are mountainous, with vegetation of mixed forest and meadow, and with lakes that can be reached by walking a few miles along trails.

In each wilderness, we sampled visitors on two very heavily used trails and three moderately used trails. The very heavily used trails were selected because wilderness managers have considered limiting their use by issuing permits. The moderate use trails were selected because they are less popular trails in the immediate vicinity. Visitation levels on the very high use trails, which are among the most popular wilderness trails in Oregon and Washington, were typically at least 100 people per day. Use on sunny weekend days sometimes exceeded 300 people. This contrasts with typical use levels of 15 to 20 people per day on the moderate use trails. Even on peak days on summer weekends, use levels on these trails seldom exceeded 50 people.

Each group of trails was sampled twice during the July–August summer season, each time over a 9-day block of time. Researchers were present for at least 6 hr per day (usually 8 hr), with sampling times adjusted to match the times of day that people were likely to be present. Researchers attempted to contact all adult (16 years

and older) members of all groups as they exited the wilderness and asked them to participate. Approximately 72% agreed. We obtained 531 completed surveys, 381 at the very high use trails and 150 at the moderate use trails. We obtained 100 completed questionnaires from overnight visitors (52 from very high use trails and 48 from moderate use trails) and 431 from day users (329 from very high use trails and 102 from moderate use trails).

The survey instrument

The survey inquired about what respondents had experienced on their trip. For the purposes of this article, we included experiences relevant to privacy and privacy functions in a question that read:

The following are experiences that people sometimes seek in wilderness. For each item, please indicate the extent to which you experienced it on this trip.

Response options ranged from 1 (*not at all*) to 7 (*very much*). To assess privacy achieved, we asked respondents the extent to which they experienced being “away from crowds of people,” “solitude,” and “feeling isolated.”

In exploring privacy functions, the experiences visitors can achieve through the regulation of privacy, we built on Pedersen's (1999) five functions of privacy: Contemplation involves the use of privacy for self-discovery, to reflect, meditate, and think about who one is and what one wants to be. Autonomy involves personal freedom and independence and the ability to try out new behaviors without fear of social condemnation. Rejuvenation implies recovery from some hurt to the self or respite from the troubles and stress of everyday life. Confiding reflects the role that privacy plays in allowing people to express their emotions freely and share personal thoughts and ideas with trusted others. Finally, creativity involves the opportunity that privacy provides to explore new thoughts and ideas and to work on solutions to problems. We included two items for each of Pedersen's (1999) five privacy functions, most of which were taken directly from his Privacy Function Rating Scale or reworded to make sense in a wilderness environment. Refer to Table 1 for precise wording.

In addition, we asked people about the length of their trip, in hours for day users and nights for overnight users. To measure encounters with other users we asked how many other groups of people they had seen that day.

Data analysis

We conducted a factor analysis of the 13 privacy items (both privacy experience and privacy function), generally following

Table 1. Dimensions of Wilderness Privacy Experience and Privacy Functions

FACTORS AND INDIVIDUAL ITEMS	FACTOR LOADING
Privacy function: Release ($\alpha = .82$)	
Mental rejuvenation	.95
Release of stress and tension	.93
Meditation and reflection	.49
Personal freedom or independence	.43
Feeling free to behave as I wanted	.35
Privacy function: Personal growth ($\alpha = .79$)	
Opportunity to work through problems	.93
Opportunity to confide in others I trust	.85
Sense of self-discovery	.48
Developing and exploring new thoughts and ideas	.38
Privacy experience ($\alpha = .74$)	
Solitude	.91
To be away from crowds of people	.78
Feel isolated	.44

Note: Exploratory factor analysis of 13 individual items: maximum likelihood extraction and oblique Promax rotation.

the recommendations of Costello and Osborne (2005). Using the maximum likelihood methods of extraction and Promax rotation, we identified three dimensions, based on examination of scree plots, all with eigenvalues >1.0. To be retained, factor items had to have loadings ≥ 0.32 (Tabachnick & Fidell, 1989) and minimal cross-loading. Consequently, one item, experiencing “intimacy with my companions,” was dropped from the analysis. Internal consistency reliability (Cronbach’s alpha) of factors was ≥ 0.70 .

To test our hypotheses, that experience of privacy and its functions would be higher on less congested trails and for visitors who stayed out overnight, we conducted analysis of variance tests. We had two levels of each of the main factors of interest: use level (very high and moderate) and length of stay (day and overnight). Wilderness was treated as a blocking factor. Dependent variables were scale scores for each extracted factor (means for the items retained in each factor) and for each of the individual items that corresponded with each factor. We report results for individual items, as well as the factors, given the exploratory nature of our study.

To further examine use level and length of exposure effects, we used linear regressions to assess the extent to which the expe-

rience of privacy and its functions varied (1) with the self-reported number of groups seen and (2) with the length of day trips (in hours). Overnight trips of more than one night were too infrequent to permit an analysis based on length of overnight trip. For the analysis with groups seen, dummy variables were included to account for the effects of length of stay (day or overnight) and wilderness (Alpine Lakes and Three Sisters). For the analysis with length of day trip, number of groups seen and wilderness were included as a covariate and dummy variable, respectively.

Results

The factor analysis suggested three underlying dimensions (Table 1), two related to the functions of privacy and one related to the experience of privacy itself. The two items consistent with Pedersen’s (1999) rejuvenation function, “mental rejuvenation” and “release of stress and tension,” load heavily on the first factor, release. This factor also contains the two items consistent with his autonomy function, experiencing “personal freedom and independence” and “feeling free to behave as I wanted.” The second factor, personal growth, contained the items related

Table 2. Visitor Experience of Privacy and Its Functions (Percent Giving Each Possible Response)

FACTORS AND INDIVIDUAL ITEMS	“HOW MUCH DID YOU EXPERIENCE IT?”						
	NOT AT ALL				VERY MUCH		
	1	2	3	4	5	6	7
PERCENT							
Privacy function: Release							
Mental rejuvenation	5	4	8	22	19	26	15
Release of stress and tension	4	3	6	16	22	29	21
Meditation and reflection	8	10	16	22	19	16	10
Personal freedom or independence	8	7	12	22	20	20	12
Feeling free to behave as I wanted	8	7	12	22	21	17	13
Privacy function: Personal growth							
Opportunity to work through problems	25	16	15	16	14	10	4
Opportunity to confide in others I trust	29	12	13	15	13	12	6
Sense of self-discovery	17	16	22	19	16	7	4
Exploring new thoughts and ideas	7	8	15	24	24	14	9
Privacy experience							
Solitude	6	9	13	20	19	18	16
Away from crowds of people	5	9	10	16	20	19	21
Feel isolated	15	11	18	18	16	11	11

Table 3. Variation in Experience of Privacy and Its Functions with Use Density

FACTORS AND INDIVIDUAL ITEMS	VERY HIGH USE TRAILS (N'S = 325-351)	MODERATE USE TRAILS (N'S = 137-146)	ANOVA	
			F	P
Release				
Release factor	4.57 (.07)	4.83 (.12)	0.0	.97
Mental rejuvenation	4.81 (.09)	4.83 (.12)	0.5	.48
Release of stress and tension	5.16 (.08)	5.26 (.13)	0.0	.84
Meditation and reflection	4.19 (.09)	4.26 (.16)	1.3	.25
Personal freedom or independence	4.39 (.09)	4.67 (.15)	0.0	.90
Feeling free to behave as I wanted	4.31 (.09)	4.74 (.15)	0.0	.85
Personal growth				
Personal growth factor	3.50 (.08)	3.63 (.13)	0.3	.58
Opportunity to work through problems	3.15 (.10)	3.45 (.17)	0.8	.38
Opportunity to confide in others I trust	3.27 (.11)	3.44 (.17)	0.0	.97
Sense of self-discovery	3.39 (.09)	3.35 (.15)	1.7	.20
Exploring new thoughts and ideas	4.23 (.09)	4.30 (.13)	2.1	.15
Privacy				
Privacy factor	4.11 (.08)	5.15 (.11)	18.9	<.01
Solitude	4.20 (.09)	5.31 (.14)	7.3	<.01
To be away from crowds of people	4.40 (.10)	5.77 (.12)	32.8	<.01
Feel isolated	3.65 (.09)	4.27 (.17)	4.3	.04

Note: Values in use level columns are means (standard errors) for how much respondents experienced each item—on a scale of 1 (not at all) to 7 (very much).

to Pedersen’s creativity function, “opportunity to work through problems” and “exploring new thoughts and ideas,” as well as the one retained item from his confiding function, “opportunity to confide in others I trust.” The two items from the contemplation function, “meditation and reflection” and “sense of discovery” loaded on different factors. The third factor contained the three items related to the experience of privacy itself, rather than the functions that privacy serves.

Although there was substantial variation among respondents, most visitors to these wilderness trails experienced both privacy and its functions to a moderate or high degree (Table 2). Mean scores for items in the privacy factor were 3.8 to 4.8 (on a scale from 1 to 7); more visitors reported experiencing high degrees of “solitude” and being “away from crowds of people” than was the case for feeling “isolated.” Mean scores for items in the privacy function factor, release, were even higher (4.2–5.2). In contrast, mean scores for the privacy function factor, personal growth, were more modest

(3.2– 4.3). Substantial proportions of visitors reported not experiencing much “opportunity to work through problems,” “opportunity to confide in others I trust,” or “sense of self-discovery.”

Effect of use density

Respondents exiting very high use trails reported experiencing significantly less privacy than those who visited the moderately used trails. In the analyses of variance, the privacy factor and all three individual items within it differed significantly with trail use level (Table 3). However, the experience of privacy functions was not diminished on very high use trails. Neither of the privacy function factors and none of the nine individual items within each factor varied significantly with trail use.

The regression analyses of the effect of self-reported number of groups seen on privacy and its functions provided generally similar but more complex results. The experience of privacy declined significantly as

number of groups seen increased (Table 4). Although the privacy function factor, release, also declined significantly as groups seen increased, only one of its individual items was significant. Two of the individual items for the privacy function, personal growth, declined significantly as groups seen increased, but the factor did not. For the privacy functions, where number of groups seen made a difference, the magnitude of effect was always small. The amount of variation explained was very small ($R^2 = 0.02-0.04$), as was the magnitude of change in experience with change in use (Table 4). For example, the regression equation for the privacy function item that varied most with groups seen, “feeling free to behave as I wanted,” had a slope of just -0.022 (Fig. 1).

Effect of length of stay

Respondents on day visits to wilderness reported experiencing significantly less privacy than those who stayed overnight. In the

Table 4. Effect of Use Density on Experience of Privacy and Its Functions, Controlling for Length of Stay and Wilderness

FACTORS AND INDIVIDUAL ITEMS	REGRESSION RESULTS				
	T	P	R ²	CONSTANT	SLOPE
Release	-2.25	.03	0.03	4.16	-0.015
Mental rejuvenation	-1.14	.26	—	—	—
Release of stress and tension	-1.90	.06	—	—	—
Meditation and reflection	-1.23	.22	—	—	—
Personal freedom or independence	-1.86	.06	—	—	—
Feeling free to behave as I wanted	-2.63	<.01	0.04	4.12	-0.022
Personal Growth	-1.88	.06	—	—	—
Opportunity to work through problems	-1.44	.15	—	—	—
Opportunity to confide in others I trust	-2.40	.02	0.04	3.40	-0.023
Sense of self-discovery	-0.23	.82	—	—	—
Exploring new thoughts and ideas	-2.10	.04	0.02	3.83	-0.017
Privacy	-6.31	<.01	0.20	4.34	-0.042
Solitude	-4.49	<.01	0.13	4.32	-0.037
To be away from crowds of people	-8.31	<.01	0.22	4.70	-0.065
Feel isolated	-2.63	<.01	0.08	3.94	-0.023

Note: Use density measured as self-reported number of other groups seen.

analyses of variance, the privacy experience factor and two of the three individual items within it differed significantly between day and overnight visitors (Table 5). Day visitors also experienced the privacy functions significantly less than overnight users did. Both factors and seven of the nine individual items differed significantly with length of stay. Only the two items from Pedersen’s rejuvenation function (“mental rejuvenation” and “release of stress and tension”) were experienced as much by day visitors as by overnight visitors.

A second regression analysis suggests that length of day visit also influences the degree to which some privacy functions are experienced by day users. Contrary to our hypothesis, the experience of privacy did not increase significantly with length of day visit (Table 6). The privacy functions related to release also did

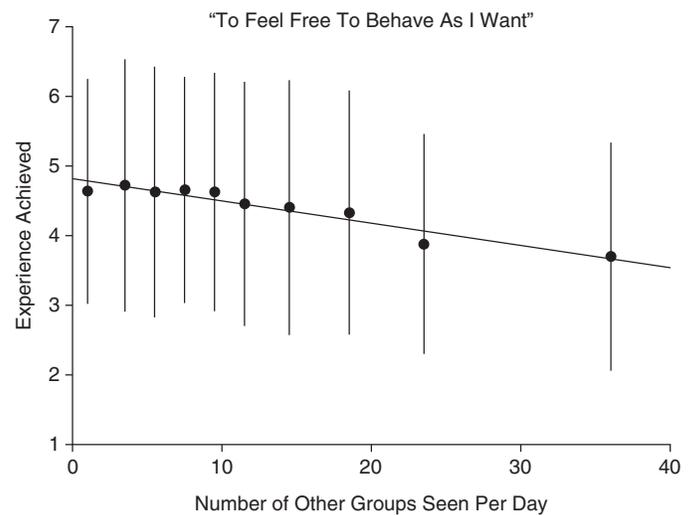


Fig. 1. Relationship between use level (number of other groups seen) and extent to which visitors experienced feeling “free to behave as I want” on a scale from 1 (*not at all*) to 7 (*very much*). Data are the mean and standard deviation for 10-use level categories with roughly equivalent numbers of observations.

not increase significantly with length of day visit. However, the privacy function factor, personal growth, and three of the four individual items for that factor did increase significantly with length of day visit (Table 6). Although self-discovery, opportunities to confide in others and exploration of new thoughts and ideas increased as length of day visit increased, the magnitude of effect was small.

Discussion

On the wilderness trails we studied, visitors experienced privacy and the experiences that can be achieved through the regulation of privacy (privacy’s functions) to varying degrees. However, most visitors reported experiencing privacy and its functions to a moderate or high degree, even at very high use destinations. Hammitt and Rutlin (1995) also found that most visitors to a South Carolina wilderness area experienced the level of privacy they desired to a substantial degree and that the ability to experience the level of privacy desired decreased as the number of other groups encountered increased.

Factor analysis of the 13 items we asked about differentiated between the experience of privacy itself and two distinctive functions of privacy. The privacy function, release—mental rejuvena-

Table 5. Variation in Experience of Privacy and Its Functions with Length of Stay

FACTORS AND INDIVIDUAL ITEMS	DAY USE	OVERNIGHT USE	ANOVA	
	(N'S = 372-400)	(N'S = 9-97)	F	P
Release				
Release factor	4.56 (.07)	5.00 (.13)	7.7	<.01
Mental rejuvenation	4.80 (.08)	4.98 (.17)	1.4	.23
Release of stress and tension	5.19 (.08)	5.21 (.17)	0.0	.84
Meditation and reflection	4.07 (.09)	4.77 (.17)	18.2	<.01
Personal freedom or independence	4.35 (.09)	4.96 (.17)	8.4	<.01
Feeling free to behave as I wanted	4.31(.09)	4.95 (.17)	6.8	<.01
Personal growth				
Personal growth factor	3.41 (.07)	4.02 (.14)	11.2	<.01
Opportunity to work through problems	3.09 (.09)	3.84 (.19)	7.1	<.01
Opportunity to confide in others I trust	3.14 (.10)	4.05 (.21)	11.8	<.01
Sense of self-discovery	3.28 (.09)	3.76 (.17)	5.2	.02
Exploring new thoughts and ideas	4.17 (.08)	4.60 (.17)	6.4	.01
Privacy				
Privacy factor	4.23 (.08)	5.18 (.12)	9.0	<.01
Solitude	4.33 (.09)	5.27 (.15)	7.0	<.01
To be away from crowds of people	4.64 (.09)	5.38 (.16)	3.6	.06
Feel isolated	3.60 (.09)	4.80 (.17)	14.1	<.01

Note: Values in length of stay columns are means (standard errors) for how much respondents experienced each item—on a scale of 1 (not at all) to 7 (very much).

tion and release of stress and tension, providing opportunities for reflection, a sense of independence, and freedom to behave as one wants—contained elements of the rejuvenation and autonomy functions identified by Pedersen (1999) and the emotional release and personal autonomy functions found by Hammitt and Brown (1984) among university students with backpacking experience. The personal growth function—self-discovery, working through problems, developing new ideas, and confiding in others—contained elements of Pedersen’s creativity and confiding functions and Hammitt and Brown’s reflective thought and intimacy functions. It is not clear whether our different results regarding the dimensionality of privacy functions reflect something unique about privacy experiences in wilderness or the fact

that we included just two items for each hypothesized privacy function dimension.

As hypothesized, the experience of privacy decreased as user density increased. However, there was little evidence that the ability to experience the beneficial functions of privacy decreased substantially as use density increased. This suggests that the threshold for experiencing the benefits of privacy to a substantial degree is lower than the threshold for experiencing privacy itself. Evidently, high degrees of release and personal growth can be experienced even on densely used wilderness trails where only modest levels of privacy are experienced. Although we can only speculate, it is possible that the functions of privacy are influenced more by other aspects of wilderness trips, such as physical exercise and being in a natural environment.

Privacy was also experienced more by people on overnight trips than on day trips. This may suggest that opportunities to experience privacy are enhanced as length of exposure to and interaction with a wilderness environment increases. However, because interaction with other groups is much lower at and around campsites than during the day and on trails, this may be more a reflection of use density or activity differences between a camping trip and a day hike than a result of lengthier exposure to the wilderness environment. Indeed, this conclusion is supported by our finding that privacy did not increase as length of day visit increased.

As hypothesized, overnight users experienced the beneficial functions of privacy to a greater degree than day visitors. We predicted this would be the logical result of lengthier exposure to an environmental setting that was conducive to privacy. But, again, it is possible that this is more a reflection of the additional activities involved in an overnight camping stay—setting up camp, cooking, experiencing the night, and so on. Our finding that the release function did not increase with length of day trip but the personal growth function did, suggests that both length of exposure and difference in activity are involved. Perhaps release is a more immediate feeling, largely shaped by escape from everyday life, while personal growth requires more time to develop. Newell (1998) showed that certain therapeutic benefits accrue from privacy experiences that rarely exceeded 3 hr in duration. Since about 90% of our sample spent at least 3 hr on their wilderness visit, perhaps it is not surprising that most respondents reported experiencing the beneficial functions of privacy in wilderness. Given the mixed

Table 6. Effect of Length of Day Visit (Hours) on Experience of Privacy and Its Functions, Controlling for Number of Other Groups Seen and Wilderness

FACTORS AND INDIVIDUAL ITEMS	REGRESSION RESULTS				
	T	P	R ²	CONSTANT	SLOPE
Release	1.26	.21	–	–	–
Mental rejuvenation	0.35	.73	–	–	–
Release of stress and tension	0.8	.42	–	–	–
Meditation and reflection	1.55	.12	–	–	–
Personal freedom or independence	1.83	.07	–	–	–
Feeling free to behave as I wanted	1.22	.23	–	–	–
Personal Growth	2.65	<.01	0.02	2.18	0.118
Opportunity to work through problems	1.72	.09	–	–	–
Opportunity to confide in others I trust	2.42	.02	0.02	1.91	0.148
Sense of self-discovery	2.28	.02	0.01	1.86	0.119
Exploring new thoughts and ideas	2.52	.01	0.02	2.85	0.131
Privacy	1.39	.16	–	–	–
Solitude	1.44	.15	–	–	–
To be away from crowds of people	0.1	.90	–	–	–
Feel isolated	1.98	.05	0.02	2.25	0.113

findings about temporal changes during the course of wilderness trips (Borrie & Roggenbuck, 2001; McIntyre & Roggenbuck, 1998), additional research is needed to isolate the effects of time, use density, activity, and other factors.

Our results have practical implications for the management of recreation in wilderness areas, where there is concern that increasing use levels on wilderness trails will diminish the quality of human experiences and the psychological benefits that accrue from wilderness trips. As commonsense suggests, as use levels increased, density-related indicators of privacy declined. On popular trails, visitors experienced less solitude, isolation, and being away from crowds. However, these were small effects, and even on highly popular wilderness trails (our sample included some of the most crowded trails anywhere in wilderness), the level of privacy achieved was sufficient for most visitors to realize the important functions of privacy, release, and personal growth.

Limiting use on popular wilderness trails is often suggested as necessary to protect the quality of wilderness experiences. Our results suggest that the relationship between use limits and experience quality, in this case privacy and its beneficial functions, is more complex than might be surmised. The importance of use density, and therefore the need for use limits, varies with type

of experiential outcome. When considering the desired experiential outcomes of their management programs, wilderness managers have the options of focusing on a setting attribute (use density), the rather transitory psychological experience of privacy, or the more long-lasting benefits that accrue from experiencing periods of privacy. If the primary concern is with the setting experienced, that is, encountering few other people, limiting use would have a substantial effect. However, if the primary concern is privacy itself, experiencing solitude or feeling isolated and away from others, the effect of use limits on experience would be less pronounced. If the concern is for the benefits of privacy, release and rejuvenation, personal autonomy and growth, use limits would have little if any effect.

In contrast, the tendency for wilderness visits to be increasingly short in duration should be a concern to managers worried about the quality of human experiences in wilderness. The benefits of experiencing privacy were more strongly affected by length of wilderness visit—both whether visitors stay overnight or not and length of day trip—

than by use level. For wilderness managers concerned about the ability of recreation visitors to experience the beneficial functions of privacy, persuading more of them to take longer trips would do more to maintain high experience quality than limiting access to wilderness trails. Unfortunately, persuading visitors to stay longer may be more difficult to do than limiting use.

This research was supported by the United States Forest Service and the Aldo Leopold Wilderness Research Institute.

Author Disclosure Statement

No competing financial interests exist.

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Received: January 10, 2010

Accepted: February 28, 2010

