

Naturalness, Privacy, and Restorative Experiences in Wilderness: An Integrative Model

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Abstract—It is suggested that the wilderness experience is a restorative experience that results from the interconnectivity between naturalness/remoteness and privacy/unconfinement and the four components essential for an environment to be restorative. A model-framework is offered to illustrate the linkages among the environmental, social, and restoration components of wilderness experiences, and the consequences/threats to the wilderness experience. It is concluded that the wilderness manager of the future will be a “human dimensions restoration manager,” with a role not much different from that of restoration ecologists, restoration architects, and restoration psychologists.

Introduction

Henry David Thoreau, during his two-year “being away to” Walden Pond experience, said he had three chairs at his cabin—one for solitude, two for company, and three for crowds. Solitude, in its truest sense, is a one-chair, one-person, alone, solitary, absent from the presence of others, phenomenon. Yet, the authors of the National Wilderness Preservation Act of 1964, and most recreation users of wilderness areas today mean something different when they speak of solitude.

Thoreau, for his two-year experiment in civil disobedience, chose the natural, remote, and unconfined character of Walden Pond as his laboratory. Though only a mere two mile distance from the developing village of Concord, it was far enough for Thoreau to be self-reliant, to self-regulate concerning thought and behavior, and to be in an environment free from the everyday restraint and command of others. While the Wilderness Act does speak of preserving the natural, remote, and unconfined, it does not speak of civil disobedience. Yet, each wilderness area designation and visit can be seen as an act of disobedience against the restraint and authority of an increasing population, expanding settlement, and the growing mechanization and technological burden that accompanies urbanization.

Thoreau found the two years he spent at Walden Pond to be rewarding and restorative and it spurred him to say, “In Wilderness is the Preservation of the World.” Nevertheless, he did return to the everyday hassles of a developing Concord. Wilderness users today also choose but to visit wilderness for a short while. While Thoreau considered the experience at Walden Pond a success in terms of civil disobedience, the real success of the experiment may have been his discovery and recognition of an “ecological intelligence” (McCallum 2008) and “psychological restoration” (Kaplan 1995) that accompanies natural, remote, and unconfined places, where recovery from everyday mental fatigue can occur.

This paper postulates that many people, like Thoreau, need natural, remote, and unconfined places where mental restoration can occur. Furthermore, it is suggested that wilderness recreation experiences are similar to Thoreau’s experience at Walden Pond, and that the National Wilderness Preservation System is our laboratory. The aim of this paper is to connect the naturalness/remoteness of wilderness places with the solitude/unconfinement of wilderness experiences and to suggest how these elements of wilderness are connected to ecological intelligence and restorative experiences. The ultimate goal is to integrate the connectivity among these wilderness elements into a human restoration model for understanding wilderness recreation experiences of the future. It will be argued that the wilderness recreation manager of tomorrow will be a “human dimensions restoration manager,” with a role not much different from that of restoration ecologists, restoration architects, and restoration psychologists (Hammitt 2005).

Natural/Remote and Ecological Intelligence

The Wilderness Act begins by stating, “In order to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for presentation and protection in their natural condition...” (Section 2.(a), Public Law 88-577). The Act goes on to say in Section 2.(c) that “An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land...”

What is meant by preserving (and perhaps managing) the natural and remote conditions of wilderness is not explicitly defined by the Wilderness Act. This has led to an interesting

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dilemma as to what natural conditions and management for naturalness should exist. For example, should naturalness be conceptualized and managed as: (1) the primeval conditions that existed before white-man dominance, (2) conditions where the wild forces of nature are more dominant than those of humans and the community of life is untrammelled by humans, or as (3) conditions of great biodiversity and dynamic ecosystem structures that demonstrate unaccelerated rates of alteration over time. Refer to Cole and Yung (2010) for a more complete discussion of these different concepts.

While the naturalness dilemma is complex, interesting, and of great significance to the understanding of how we preserve/manage naturalness in wilderness, it does not address the question of why humans have felt a connection with nature, value its influence on human well-being and have fought so hard to preserve it. Of particular importance to this paper is the question: why do humans consider nature and naturalness a significant aspect of wilderness recreation experiences?

Perhaps the answer is in what Ian McCallum (2008) terms “ecological intelligence.” Many authors have written about the human-nature relationship, stressing the deep visceral and emotional importance of this relationship in dealing with the everyday world we live in, and the healing/recovery aspects of natural/remote areas (for example, Abbey 1968; Wilson 1984; Winston 2002). McCallum uses the term ecological intelligence to refer to the fact that humans are a part of the web of life in which everything is genetically and molecularly linked and that human perception and cognition have deep evolutionary roots. We may be culturally resistant to accepting our evolutionary basis but we have to recognize its significance when interacting with the natural world (McCallum 2008, p.3). McCallum states that the evidence is there: the unraveling and mapping of the human genome and subsequent discovery that more than 90 percent of it is shared with every other mammal is proof that humans are perhaps more a product of evolution and ecological intelligence than cultural intelligence. However, there is no denying that both are at play in human relationships and meanings associated with natural and remote places.

As related to wilderness experiences, McCallum argues:

“I believe that our identity is intimately associated with a deep historical sense of continuity with wild places and the animals that live there—that we have an ancient, genetic memory of where we have come from. These are the places that permit us to say, sometimes unreservedly, it is as if this place is in my blood...it is as if I have come home.” (p. 3)

A medical doctor and psychiatrist, McCallum also believes that wild places help humans heal from what he terms a restlessness or “homesickness.” More will be said about the relevance of the healing/recovery effects of wild places later when restorative environments and experiences are considered.

In summary, natural and remote conditions matter to humans and an affinity exists for wild and natural/remote places. We are human-animals, as defined by our DNA and past evolutionary roots, and perhaps, possess an innate ability and intelligence to perceive, understand, function, and feel “at home” in natural environments. Perhaps the Wilderness Act of 1964 was but

one small result of our ecological intelligence...an instinctive act to preserve natural places to come home to, now and in the future.

Solitude and Privacy

The Wilderness Act did not stop with the preservation of “natural areas without permanent improvements or human inhabitation.” It went on to state that these natural areas should have “outstanding opportunities for solitude or a primitive and unconfined type of recreation” (Section 2.(c).)

Outstanding opportunities for solitude could infer the ultimate condition of being completely alone, absent of others when experiencing wilderness. Obviously, the authors of the Act meant something different than solitary recreation, for people are seldom alone in wilderness, particularly when on overnight trips. More importantly, being alone is not what most wilderness visitors want; nor is it necessary for most wilderness recreation users to experience outstanding opportunities for solitude. Less than two percent of wilderness users stay overnight alone (Dawson and Hendee 2009). So, if the wilderness recreation experience does not mean outstanding opportunities to be alone, what does it mean?

The concept of privacy and its various dimensions is a more meaningful psychological descriptor of the solitude most users want to experience in wilderness. Most wilderness users want to be alone with others (Lee 1977) —not truly alone. They want to have selective control of access to the self and one’s group (Altman 1975) and to determine for themselves or their group when, how, and to what extent information about them is communicated to others, and from others to them (Westin 1967). Privacy is a vital basic need of humans, and its presence can be found in most environments. It serves as a coping mechanism for controlling the socio-environmental situation in which one must function. It is a boundary control and regulating mechanism, similar to an osmotic membrane, which basically serves as an instrument for achieving a desired environmental state and individual freedom of choice (Proshansky and others 1976). Too little privacy means too much access and interaction with others, whereas too much privacy can lead to loneliness (Pedersen 1997).

Privacy is not a permanent state of being, but a voluntary withdrawal of a person from everyday society through physical and/or psychological means, either in a state of solitude or small-group intimacy or, when among larger groups, in a condition of anonymity or reserve (Westin 1976). Wilderness solitude is generally recognized to include other realms of privacy than being alone, particularly small group intimacy (Hammitt 1982). Acknowledging that privacy is a meaningful, basic underlying component of wilderness experiences, it may serve well to summarize Westin’s four dimensions of privacy and the four functions it serves (Table 1), and to summarize research supporting the dimensions and functions of privacy in wilderness.

Research investigating Westin’s states and functions of privacy in wilderness indicate that Intimacy and the function of Emotional Release are key elements of wilderness experiences.

Table 1—Definitions of Westin's (1967) dimensions and functions of privacy.

Dimensions of Privacy	
<i>Solitude—complete isolation</i>	The individual is separated from the group and freed from the observations of others.
<i>Intimacy</i>	The individual is acting as part of a small unit, seeking to achieve a close, personal relationship between two or more select members.
<i>Anonymity</i>	The individual is in a public setting, but still seeks and achieves freedom from identification, surveillance, and social roles.
<i>Reserve</i>	The individual keeps a “mental distance,” creates a psychological barrier against unwanted intrusion, and reserves the right not to reveal certain aspects about oneself.
Functions of Privacy	
<i>Emotional release</i>	It provides for respite from the psychological tensions and stresses of social roles in everyday society.
<i>Self-evaluation</i>	It integrates one's experiences into a meaningful pattern and allows one to be in control of events.
<i>Limited communication</i>	It provides opportunities needed for sharing confidence and intimacies with those trusted.
<i>Protected communication</i>	It serves to set necessary boundaries of mental distance in interpersonal situations

For example, only 10 percent or less of visitors agree that they “cannot have a profound sense of solitude unless completely alone” (Cole and Hall 2010a). Other research on achieved level of desired privacy in wilderness found that *intimacy*, going into wilderness in small groups of intimate friends, is the major form of wilderness privacy (Hammitt 1982; Hammitt and Madden 1989; Priest and Bugg 1991; Hammitt and Rutlin 1997). Furthermore, these studies suggest that privacy, primarily in the form of intimacy of small groups is what the wilderness user may really be seeking regarding solitude, and may be the meaning behind the language of the Wilderness Act (Hammitt 1982; Cole and Hall 2010a).

Limited research on the functions of privacy in wilderness (Hammitt and Brown 1984; Priest and Bugg 1991; Cole and Hall 2010a) reveals that *emotional release*, recovery from everyday stress and tension, is the major function of wilderness privacy. Studies have consistently indicated that “resting the mind from anxiety and mental fatigue” and “mental rejuvenation” are major components of wilderness privacy. Privacy frees the mind of routine events and allows for an attentional state where reflective thought, self-evaluation, and the integration of events take on importance. Also of importance is the privacy benefit of devoting less attention to the behavior of other individuals when operating in wilderness environments. “Other individuals” are an important and salient component of environmental perception, attracting and occupying our attention when they are present. Privacy offers relief from the need to devote direct attention to others, eliminating the need to monitor and cope with the behavior of others. Even during the privacy state of intimacy, one is associated with “familiar others,” individuals whose behavior is quite predictable and, therefore, requires less monitoring. It is argued in the next

section that simply freeing the mind from monitoring the presence of others allows for devoting more voluntary attention and mental capacity to personal autonomy, reflective thought, and associated restorative aspects of wilderness privacy in natural environments.

Wilderness Restoration and Restorative Experiences

A major premise of this paper is that the natural and remote elements of wilderness places allow for the solitude/privacy and unconfined type of recreation that promotes the recovery, healing and restorative aspects of wilderness experiences. Although not stated specifically in the Wilderness Act, early writings on the need for wilderness note the human need for natural and remote places conducive to mental recovery and human restoration. Marshall (1930) asserted that “convalescing in the wilderness was a psychic necessity,” given the “terrible neural tension of modern existence” and Zahniser in 1949 wrote that wilderness visits can assist in “healing the mental disorders resulting from too much continuous crowding with other people and from the tensions in abstracting mental activity from physical exertion, which is so characteristic of modern living” (as cited in Harvey 2005; Cole and Hall 2010b).

These early statements about wilderness have been buttressed by the considerable research that has been conducted on restorative environments and restoration (Kaplan 1995; Korpela and Hartig 1996; Kaplan and others 1998; Hartig 2001; Hartig and Staats 2003; Herzog and others 2003; Hammitt 2005; Berto 2005; Chang and others 2008; Cole and Hall 2010b). Guiding most of this work has been the theoretical framework of

Attention Restorative Theory (Kaplan 1995), which provides an explanation for both the mental fatigue that occurs in everyday life and recovery aspects of restorative environments and restoration experiences. Because I believe psychological restoration is a critical function of wilderness recreation, the wilderness experience, and human well-being in general, the restoration process will be summarized in some detail.

Wilderness Recreation and Restoration

For most people, the wilderness experience is about recreation. Kelly (1996) states that:

“recreation stems from the Latin *recreatio*, which refers to restoration or recovery. The term implies the restoration of ability to function. Recreation contains the concept of restoration of wholeness of mind, spirit, and body. It presupposes some other activity that depletes, tires, or deteriorates that wholeness” (p.25).

It is the wholeness of mind in terms of recovery from mental fatigue that is the outcome of restorative recreation and wilderness experiences. Kelly’s restoration definition of recreation serves well as an introduction to the components and role of Attention Restoration Theory (ART) in wilderness experiences.

Attention component—The *Attention* component of ART concerns two types of mental focus or attention states utilized by humans while processing information and functioning in various environmental settings (Kaplan 1995). The first type of attention, *Involuntary Attention*, requires little effort on the part of humans in terms of keeping focused on the environmental information to be processed. It is employed when stimuli, both content and process, are interesting, involving, and automatically hold our mental alertness and focus. Involuntary attention is a pleasure mode of environmental information processing and functioning, and comes at no cost to humans. Unfortunately, not all environmental stimuli are interesting and involving in terms of information processing and functioning. In fact, the majority of our everyday existence may find us in environmental settings where the stimuli we must deal with are not the most interesting and involving, yet must be processed and acted upon. Driving to work each morning in busy traffic or dealing with complex tasks at work are examples. In these situations, humans must call upon *Directed Attention*, which involves a forced and burdensome form of focused attention that requires great effort. The stimuli that must be dealt with may be mentally demanding, and of little interest in terms of desired mental involvement.

While humans seem to be quite efficient at using directed attention, it comes at a mental fatiguing cost and can be employed efficiently for only so long. As the mind (and perhaps body) fatigues from the forced attention required, the mind often wanders to more appealing stimuli, thereby decreasing the efficiency of directed attention. When this occurs, a recovery period is necessary, where humans can recover from mental fatigue and restore the ability to once again use directed attention when called upon.

Restoration process—The restoration process involves recovery from the cost and pain of directed attention and mental fatigue. Kaplan (1995) has theorized that the restoration process involves the recovery of a worn-out inhibitor control mechanism that is employed by humans during directed attention to ward-off or inhibit more appealing stimuli from dominating our attention. The means by which the inhibitor control mechanism is restored is to not use it; to use no-cost involuntary attention (such as natural areas, the TV room, and so on) instead of directed attention. This is done by seeking environmental settings where the dominant form of information processing and functioning is involuntary attention. Kaplan identifies such environments and experiences as *restorative*. Restorative environments and experiences provide for states of involuntary attention, where the inhibitor control can recover. This restores the ability to again use directed attention when needed. Thus, restorative environments are key to the restoration process that occurs in natural areas such as wilderness.

The restorative environment—Recovery and the restoration process during wilderness recreation depend entirely upon the availability of restorative environments. Most outdoor recreation environments qualify as restorative environments because natural areas contain stimuli and informational content that rank high in the psychological components and attention states necessary for an environment to have restorative qualities. Kaplan, Kaplan, and Ryan (1998) postulate that four psychological components must all be present for an environment to be restorative: Being Away, Extent, Fascination, and Compatibility.

Being away—Restorative environments must offer the opportunity and qualities to be in a different geographical and/or physical location that is removed from the everyday routines of one’s life. However, it is not restorative to just be away to a different environment if everyday routines and tasks accompany you. As Kaplan (1995) stresses, where one is being *away to* is every bit as important as to where one is being *away from*. The Being Away component is not the same as escape, because the environment one is going to and its qualities are of utmost importance to the restoration process. In the words of McCallum (2008), “coming home” to nature is important.

Extent—Being away to another environment is not sufficient for restoration, for the scope of the other environment must be considered. Restorative environments must offer new *worlds of mental exploration* which provide new environmental information to process and function within. The everyday environment we commonly function within can become familiar and limited in the scope of new information to process. It can become demanding in terms of uninteresting information that must be processed. Outdoor environments provide “other” settings and worlds of information that are extensive in scope yet fascinating to explore.

Fascination—Environmental stimuli and information that is fascinating calls forth involuntary attention and holds it, making this attribute important to the restorativeness of the environment. Fascination refers to not just novel, exciting,

and active content and processes within the environments (such as animal sightings), but also to more passive elements, such as water flow, sunsets, snow fall, and the whistling wind. Movement is also not necessary, for the structure and form of mountain ranges, for example, can occupy our attention for long periods of time.

Compatibility—Compatibility concerns the element of agreement or fit between how one wants to function, socially, mentally, and physically, within an environment and how that environment affords the opportunity to function as desired. It refers to the environmental fit between human intentions and environmental affordances. Environments that demonstrate a great deal of congruity between individual inclinations, environmental patterns, and the actions required by the environment have restorative properties.

Restorative Process and Experiences

Environments then, of which wilderness environments are one example, are restorative if they contain all four of the psychological components: being away, extent, fascination, and compatibility. They are restorative in the sense that the four components facilitate the use of involuntary attention, which in turn promotes the recovery from directed attention and mental fatigue, resulting in restorative experiences for humans.

A Wilderness Experience Restoration Model

The ultimate purpose of this paper is to connect the natural/remoteness of wilderness places, the solitude/privacy of wilderness settings, and the restorative qualities of wilderness environments into an integrative model to better understand and manage opportunities for wilderness experiences (Figure 1). The model is based on the premise that there are interconnected environmental, social, and mental conditions associated with wilderness that are conducive to human restoration during wilderness recreation experiences. There are also threats to these preferred conditions. Knowledge about these preferred conditions and threats can be used by wilderness managers to enhance or correct, respectively, conditions that further restoration experience opportunities. For example, preferred environmental conditions include the natural, undeveloped, and remote aspects of wilderness that facilitate the being away, extent, fascination, and compatibility qualities of restorative environments. Remoteness allows for being away to a different geographic place with different routine and task functions. The size of wilderness is related to the scope of information available. Naturalness allows for the diversity of organisms, structure, and ecological processes that provide fascination. And natural and undeveloped conditions rank high in compatibility

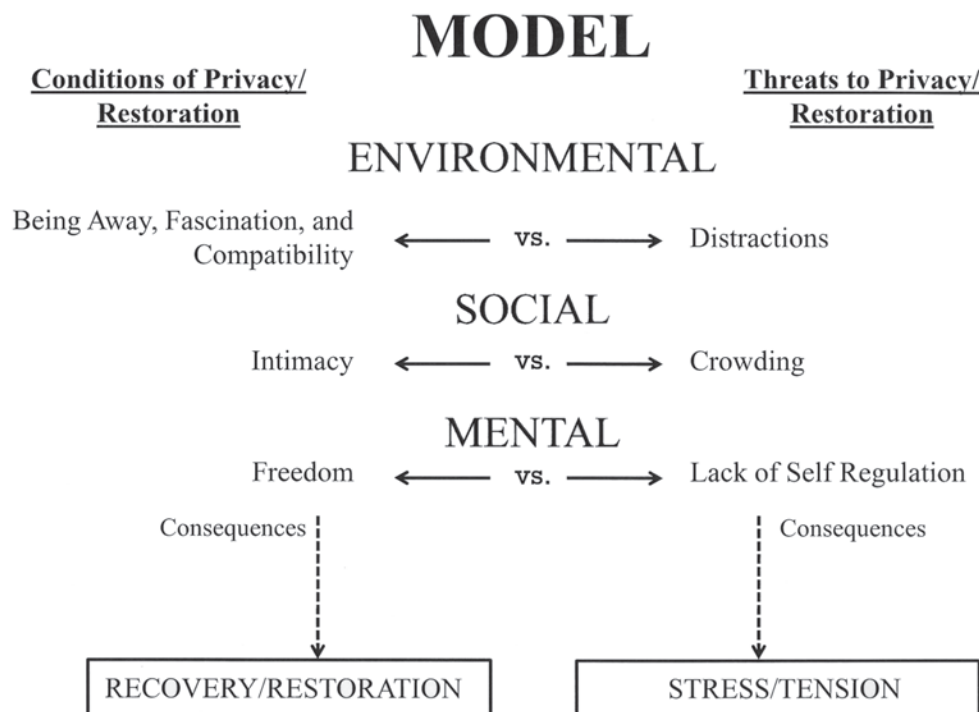


Figure 1—An integrative model of environmental, social, and restorative components during wilderness recreation experiences.

qualities, particularly from the perspective of ecological intelligence and functioning in wilderness. The social conditions of privacy and intimacy are also closely connected with the natural and restorative components of wilderness. Wilderness privacy implies being away to natural and remote conditions where the potential for intimacy and restoration are substantial. Privacy is a process involving a continuous interplay of opposing forces—shutting oneself off from others at one moment (to self-regulate) and opening oneself up to interpersonal (intimacy) contacts at another time. Wilderness allows for this optimizing process (Hammit and Rutlin 1995). Adapting Altman's (1975, 1977) ecological analysis of privacy, wilderness privacy can be defined as “a geographic, social, and mental boundary control process that regulates, paces, and control's accessibility at various information processing levels to give coherence and restoration to people's being.”

As this modification of Altman's definition infers, the geographic and social boundaries of privacy in wilderness are closely integrated with the mental conditions, boundaries and restorative elements of wilderness. For example, just as one can have incompatibility between what one wants to do and what the physical environment demands, so can one have incompatibility in the degree of social information one desires to process and what one is required to process. Central to the functions served by wilderness privacy, particularly emotional release, tranquility and peacefulness, is the avoidance of distractions. Distractions are incompatible elements of the wilderness experience that require directed attention. Distractions cause extra effort on the part of individuals to stay with the task at hand, and lead to a state of mental incompatibility between what needs to be attended to and what one wants to attend to. User conflicts, management rules and regulations, and environmental hassles are but a few examples.

It is this connectivity between the natural/restorative properties and the desired privacy dimensions of wilderness that should allow involuntary attention to operate. This is the mental component of the model in Figure 1. When the mind is free of distractions in a restorative environment, involuntary attention can take over, mental capacity recovers, and restoration can occur. The model suggests that wilderness should provide opportunities for restoration. Research in natural environments (Ulrich and others 1991; Percell and others 2001; Herzog and others 2003) and wilderness areas (Cole and Hall 2010b) indicate that most visitors do report “substantial stress reduction and mental rejuvenation, and most experience the environment in ways considered conducive to restoration” (p.806).

The threats in the model pertain to distractions and conflicts—both environment and privacy related—that often result from undesirable interactions, behavioral interference that requires directed attention. The need to employ directed attention threatens recovery, leading to an inability to self-regulate information processing and eventually, to mental fatigue and stress.

Implications

Several implications can be drawn from this discussion of naturalness, privacy and restorative experiences in wilderness that might serve managers and researchers in the future.

1. The wilderness experience is as much about enjoying “outstanding opportunities for natural conditions” as it is about “outstanding opportunities for solitude or a primitive and unconfined type of recreation.” Humans have had a long, genetics-based history with nature and have developed an ecological intelligence for understanding and functioning with nature. They value nature as an important component of the wilderness recreation experience. It is naïve to consider the natural component of wilderness to be the domain of the ecologist, and the solitude, primitive and unconfined recreation component the domain of the social scientist. As the model in Figure 1 illustrates, the natural/remote elements of wilderness are interconnected with the elements of wilderness privacy. Together they facilitate the restorative benefits of the wilderness experience. Wilderness managers must be cognizant of restorative opportunities in wilderness environments. This perspective will require a new understanding and training for wilderness managers regarding psychological perspectives on the restoration process in restorative environments.
2. While ecologists may currently define naturalness in terms of diversity, it is this same diversity (in term of type and number of species) that provides for the fascination, compatibility, and involuntary attention that humans find so restorative. Thus, it is the same diversity of natural environments that also accounts for much of the well-being and restorativeness of wilderness experiences.
3. Wilderness experiences are more about privacy than about solitude. Wilderness privacy and the many realms of being away with others and freedom of choice that humans seek in remote natural environments provide a more complete understanding of wilderness solitude than “being alone.” Wilderness privacy is not so much individual isolation as it is a form of privacy in a specific environmental setting in which intimate individuals experience an acceptable and preferred degree of control and choice over the type and amount of information they must process. The seeking of wilderness privacy may be a coping strategy by which humans optimize freedom to experience tranquility, peace of mind, and mental recovery from everyday environments and the fatigue associated with focused attention. Wilderness managers and researchers must consider the essential question: Is wilderness (and the associated experience) a natural, primitive place of unconfined conditions where mental freedom is promoted and mental states of tranquility and peacefulness are restored (Hammit and Madden 1989)?

4. Many managers are concerned with use density and number of user encounters in their wilderness. However, density and number of encounters are only surrogate measures of wilderness congestion, solitude/privacy and the wilderness experience. Moreover, they may be poor surrogate measures. Just as use density and number of encounters have not been adequate predictors of wilderness experience satisfaction (Manning 2011), of wilderness crowding (Shelby 1980), and wilderness solitude/privacy (Cole and Hall 2010a; Hammitt and Rutlin 1997), they are not expected to be good predictors of the wilderness experience. This is because perceived crowding and solitude/privacy are not a direct function of number of people per unit area. Rather, they are an environmental assessment that results from perceptual and evaluative processes (Hammitt 1983). They involve a negative appraisal of an environmental situation (Schmidt and Keating 1979). In interacting and functioning within any environmental setting, humans must perceive the information present in that environment, appraise that information, and decide to what degree the immediate environmental situation is appropriate for the human action desired.

Stokols and others (1973) suggest that certain physical, personal, and social factors sensitize people to actual or potential spatial constraints in an environmental setting. People may be predisposed to attend to the various environmental cues that serve to forewarn them of possible restrictions created by social density. In appraising a crowded and/or non-private wilderness setting, users often perceive an inability to deal with conditions created by spatial/functional density and hence anticipate or experience goal blockage, spatial restrictions, or mental overload (Stokols 1976). Thus, use density for an entire wilderness or for an entire trail is likely to be a poor indicator of “outstanding opportunities for solitude” and the wilderness experience.

5. The consequences of “going home” (McCallum 2008) to natural/remote places where privacy can be experienced, and the elements of restorative environments prevail, is a restorative experience. Threats to the restorative experience in wilderness are impacts, distractions, and conflicts that interfere with the connectivity and stability of wilderness ecosystems and wilderness experiences. Negative impacts to the naturalness/remoteness of wilderness environments, and to the privacy/unconfinement of wilderness environments and privacy experiences, are threats to the recovery potential of restorative experiences. As stated earlier in this paper, a threat to the diversity of wilderness ecosystems is also a threat to one or more of the four restoration components of a restorative environment. Just as greater diversity in number and richness of species adds stability to wilderness ecosystems, privacy opportunities and greater freedom of choice add stability to wilderness experiences.

Wilderness managers must work toward the protection and/or management of the consequences and/or threats associated with restoration processes in wilderness.

Conclusion

Based on the literature reviewed in this paper, the interconnectivity of the topics discussed, the model linkages presented, and the fact that a standard definition of the wilderness experience does not exist, it is argued and concluded that:

- Outstanding opportunities for naturalness and remoteness are as important as outstanding opportunities for solitude and a type of unconfined recreation to providing restorative wilderness experiences.
- Wilderness privacy, particularly the intimacy dimension and emotional release function, provide a more meaningful understanding of the wilderness experience than does wilderness solitude.
- The wilderness environment is a restorative environment and the wilderness experience is a restoration/recovery experience. While the wilderness experience can be argued to be many things, it is ultimately about an experience where the human mind, body, and spirit are restored (Kelly 1996).

Current wilderness managers may not be aware of and have an inadequate understanding of the integration model presented, and the appreciation of wilderness experiences as restorative experiences. If so, education and training may be necessary. As argued elsewhere (Hammitt 2005), wilderness managers are ultimately in the business of restoration. They are “human dimension restoration managers.” As such, their role is similar to that of (1) restoration ecologists, whose mission is to restore worn-out environments to some accepted natural condition; (2) restoration architects, who refurbish run-down buildings to some original state; and (3) restoration psychologists, who help mentally fatigued and dysfunctional individuals to again function as they once did. This will be the role of the wilderness manager for the next 50 years, and beyond.

References

- Abbey, E. 1968. *Desert solitaire*. New York: Random House. 269 p.
- Altman, I. 1975. *The environment and social behavior: Privacy, personal space, and crowding*. Monterey, CA: Brooks-Cole Publishing. 256 p.
- Altman, I. 1977. Privacy regulation: Culturally universal or culturally specific. *Journal of Social Issues*. 33: 66-84.
- Berto, R. 2005. Exposure to restorative environments helps restore attentional capacity. *Journal of Environmental Psychology*. 25: 249-259.
- Chang, C.; Hammitt, W. E.; Chen, P.; Machnik, L.; Su, W. 2008. Psychophysiological responses and restorative values of natural environments in Taiwan. *Landscape and Urban Planning*. 85: 79-84.
- Cole, D. N.; Hall, T. E. 2010a. Privacy functions and wilderness recreation: Use density and length of stay effects on experience. *Ecopsychology*. 2: 67-75.
- Cole, D. N.; Hall, T. E. 2010b. Experiencing the restorative components of wilderness environments: Does congestion interfere and does length of exposure matter? *Environment and Behavior*. 42: 806-823.

- Cole, D. N.; Yung, L., eds. 2010. Beyond naturalness: Rethinking park and wilderness stewardship in an era of rapid change. Washington, DC: Island Press. 287 p.
- Dawson, C. P.; Hendee, J. C. 2009. Wilderness management: Stewardship and protection of resources and values, 4th ed. Golden, CO: Fulcrum Publishing. 525 p.
- Hammitt, W. E. 1982. Cognitive dimensions of wilderness solitude. *Environment and Behavior*. 14: 478-493.
- Hammitt, W. E. 1983. Toward an ecological approach to perceived crowding in outdoor recreation. *Leisure Sciences*. 5: 309-320.
- Hammitt, W. E. 2005. A restorative definition for outdoor recreation. In: Bricker, K., comp., Proceedings of the 2004 Northeastern Recreation Research Symposium. General Technical Report NE-326. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northeastern Experiment Station: 1-5.
- Hammitt, W. E.; Brown, G. F. 1984. Functions of privacy in wilderness environments. *Leisure Sciences*. 6: 151-166.
- Hammitt, W. E.; Madden, M. A. 1989. Cognitive dimensions of wilderness privacy: A field test and further explanation. *Leisure Sciences*. 11: 293-301.
- Hammitt, W. E.; Rutlin, W. M. 1997. Achieved privacy in wilderness. *International Journal of Wilderness* 3(1): 19-24.
- Hartig, T. 2001. Restorative environments. *Environment and Behavior*. 33: 4.
- Hartig, T.; Staats, H. 2003. Restorative environments. *Journal of Environmental Psychology*. 23: 2.
- Harvey, M. 2005. Wilderness forever: Howard Zahniser and the path to the Wilderness Act. Seattle: University of Washington Press. 325 p.
- Herzog, T. R.; Maguire, C.; Nebel, M. B. 2003. Assessing the restorative components of environments. *Journal of Environmental Psychology*. 23: 159-170.
- Kaplan, R.; Kaplan, S.; Ryan, R. L. 1998. With people in mind: Design and management of everyday nature. Washington, DC: Island Press. 225 p.
- Kaplan, S. 1995. The restorative benefits of nature: Toward an integrative framework. *Journal of Environmental Psychology*. 15: 169-182.
- Kelly, J. R. 1996. *Leisure*, 3rd ed. Needham Heights, MA: Allyn & Bacon. 436 p.
- Korpela, K.; Hartig, T. 1996. Restorative qualities of favorite places. *Journal of Environmental Psychology*. 16: 221-233.
- Lee, R. G. 1977. Alone with others: The paradox of privacy in the wilderness. *Leisure Sciences*. 1: 3-19.
- Manning, R. E. 2011. *Studies in outdoor recreation: Search and research for satisfaction*, 3rd ed. Corvallis, OR: Oregon State University Press. 468 p.
- Marshall, R. 1930. The problem of the wilderness. *Scientific Monthly*. 28: 141-148.
- McCallum, I. 2008. *Ecological intelligence*. Golden, CO: Fulcrum Publishing. 239 p.
- Pedersen, D. M. 1997. Psychological functions of privacy. *Journal of Environmental Psychology*. 17: 147-156.
- Perrell, A. T.; Peron, E.; Berto, R. 2001. Why do preferences differ between scene types? *Environment and Behavior*. 33: 93-106.
- Priest, S.; Bugg, R. 1991. Functions of privacy in Australian wilderness environments. *Leisure Sciences*. 13: 247-255.
- Proshansky, H. M.; Ittleson, W. H.; Rivlin, L. G. 1976. Freedom of choice and behavior in a physical setting. In: Proshansky, H. M.; Ittleson, W. H.; Rivlin, L. G., eds. *Environmental psychology: People and their physical setting*, 2nd ed. New York: Holt, Rinehart, & Winston: 170-181.
- Schmidt, D. E.; Keating, J. P. 1979. Human crowding and personal control: An integration of the research. *Psychological Bulletin*. 86: 680-700.
- Shelby, B. 1980. Crowding models for backcountry recreation. *Land Economics*. 56: 43-55.
- Stokols, D. 1976. The experience of crowding and privacy and secondary environments. *Environment and Behavior*. 8: 49-86.
- Stokols, D.; Rall, M.; Pinner, B.; Schoper, J. 1973. Physical, social, and personal determinants of the perception of crowding. *Environment and Behavior*. 5: 87-115.
- Westin, A. F. 1967. *Privacy and freedom*. New York: Atheneum. 487 p.
- Wilson, E. D. 1984. *Biophilia: The human bond with other species*. Cambridge, MA: Harvard University Press. 157 p.
- Winston, R. 2002. *Human instinct: How our primeval impulses shape our modern lives*. London: Random House. 416 p.
- Ulrich, R. S.; Simons, R.; Losito, B. D.; Fiorito, E.; Miles, M. A.; Zelson, M. 1991. Stress recovery during exposure to natural and urban environments. *Journal of Environmental Psychology*. 11: 201-230.