

If Wilderness is to be managed to maintain or improve natural conditions and not allow degradation at particular sites or across the area, then an understanding of the carrying capacity of the area is essential. One of the major components in managing Wilderness recreation is to manage in favor of activities that depend on natural conditions. This requires acknowledgment that there are other places for recreational experiences that do not require natural conditions. An implication of this management philosophy is that Wilderness is not primarily a place for recreation nor any associated activities. All management activities, including search and rescue operations, should have as light an impact on the land and on Wilderness experiences as possible. Required are minimum tools and regulations to allow naturalness and solitude. Examples are using hand tools instead of gas-powered tools in maintenance activities, using educational materials in place of direct trip management, or using minimal directional trail signs and not mileage markers.

Concluding remarks—The National Wilderness Preservation System is the ultimate in an attempt to protect natural land and preserve its natural functioning in perpetuity. Recreation is accommodated, but it should be compatible with the primary purpose of Wilderness, which is preservation of naturalness. In today's world of increasing population and expanding development, preserving wild lands requires some level of management. While management and Wilderness may seem paradoxical, management and stewardship is essential. The Wilderness Act acknowledged that some areas of the United States should stay wild and provide solitude and wild land experiences. The long-term results are that the natural forces and processes that shaped and formed the lands in the NWPS will be evident in the Wilderness Areas that we leave for future generations.

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Values of the Urban Wilderness

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Introduction—Wilderness is widely supported by the American public (Campaign for America's Wilderness 2003) and provides myriad ecosystem services and other benefits (Schuster and others 2005, Williams and Watson 2007). Wilderness services and benefits deemed important to the public include use (such as recreation) and non-use

values (such as scenery appreciation) (Brown and Alessa 2005). Protecting wilderness and its values as population and environmental changes evolve is a significant challenge (Hill 1994). Wilderness Areas near urban places (urban-proximate wilderness) are under elevated threat from human impacts, including encroaching development and spillover of ambient air pollution (Cordell and others 2005). It is hoped that this discussion will help broaden recognition of environmental issues with wilderness beyond the traditional biospheric focus to incorporate other values (Schultz and Zelezny 2003). Recognizing the broader variety of values invites a holistic consideration of wilderness protection efforts.

This paper examines values through the experiences of visitors to urban-proximate wilderness areas. Experiences are grouped according to types of values, considering direct reports from visitors both during and after their wilderness visits. In each case, the discussion surrounds direct-use values (Schuster and others 2005). Some of these benefits extend beyond the immediate wilderness visit. Focusing on visitor experiences can inform management of wilderness (Cole 2004), help broaden the consideration of wilderness benefits, and facilitate wilderness preservation efforts (Hill 1994). Findings may help illuminate the broad array of values represented in an urban-proximate wilderness, including the value of the recreational experience to a diverse urban public.

Methods—Through a series of four studies conducted by the author, experiences of the urban wilderness visitor are examined. These studies were oriented to urban-proximate wildernesses on the San Bernardino and Angeles National Forests in southern California. Urban-proximate wildernesses in other geographic areas may demonstrate their own unique use and resource character and thus conclusions from this paper may not apply.

Results—Evidence is provided for wilderness values linked to the following:

- physical (including exercise, physical challenge, and preparation for more challenging trips)
- psychological and spiritual (such as solitude, self-definition, self-affirmation, and renewal of soul)
- social (by fostering and maintaining social connections including spending time with family and/or friends, and serving as the basis of some relationships)
- transactional by fostering connection to nature (including being close to nature, observing wildlife, visiting a natural and unspoiled area, fostering environmental identity, and enhancing personal environmental responsibility).

Not all questions were worded in the same way across the four studies, presented in the same order, nor asked in the same wilderness areas.

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Physical Benefits—In studies two and four, respondents provided reasons for visiting wilderness areas. Among the top reasons were the physical benefits of wilderness visits. “I want to exercise” was indicated by 80.9 percent of respondents in study two, and 94.1 percent in study four. “I want to be physically challenged” was also a reason for wilderness visits (62.5 percent in study two and 82.4 percent in study four). Another physically oriented set of motivations involved preparation for more challenging back country trips (40.9 percent of respondents in study two and 58.8 percent of respondents in study four). In keeping with the continuing emphasis on improvement of public health and on getting people into the outdoors, urban-proximate wilderness represents a place for activities that provide physical exercise and challenge.

Psychological and Spiritual Benefits—Psychological and spiritual benefits can be derived by any wilderness visitor, whether visiting alone, with others, or through a facilitated experience. Solitude is one element of such benefits. In study one, the importance of solitude varied for respondents based on which aspect of the visit was in question. Solitude was least important while picnicking, somewhat important while in camp. Evidence suggests that high-use wilderness areas offer solitude as individuals adjust their expectations (see Cole and Hall 2008 for a discussion of “adapters”).

Study three explored a set of outcomes linked to wilderness hiking (derived from Shamir’s Leisure Identity Salience scale and an activity importance scale based on Schneider and Winter 1998). Results indicate that aspects of self-identity and self-affirmation may be expressed through the wilderness experience, with a larger effect for the more frequent wilderness hiker (see table).

Comparison of psychological benefits for study three respondents (all t-tests significant at $p < 0.01$)

Benefit	Low ^c	High	Value of t
Says a lot about who I am ^a	3.56(n=107)	4.22(n=101)	5.03
Important for myself definition ^b	4.12(n=106)	5.19(n=95)	4.94
Helps me realize my aspirations ^b	4.11(n=106)	5.18(n=99)	4.90
One of the most satisfying things I do ^a	3.89(n=107)	4.39(n=101)	4.07

^a Scale from 1 to 5; 1=strongly disagree, 5=strongly agree.
^b Likert scale from 1 to 7; 1=not important, 7=important and 1=does not help, 7=helps.
^c Low and high groups based on number of days hiked where low was equal to 10 or less days in the past year and high was more than 10 days.



The Vivian Creek Trail, San Geronio Wilderness, San Bernardino National Forest. (Photo by Deanne McCollum)

Spiritual value was represented in two studies. In study two almost half (46.5 percent) and in study four the majority (61.8 percent) indicated “I want to renew my soul” as a reason to visit wilderness (for further discussion see Clayton and Myers 2009).

Fostering and Maintaining Social Connections—Social identity and social connections also seem to be associated with wilderness visits. For example, although most visitors in study one sought solitude in their visit, for most it was sought in the company of others. In both studies two (51.2 percent) and four (72.5 percent), the majority chose “I want to be with friends or family who also visit the wilderness” as reasons for visiting wilderness. Wilderness hiking is an opportunity to share and foster a common bond with others (see table), an effect stronger among more frequent hikers in study three compared to those who hiked less often.

Comparison of social benefits for study three respondents (all t-tests significant at $p < 0.01$)

Benefit	Low ^b	High	Value of t
I talk frequently about this activity with my friends ^a	3.18 (n=106)	3.81 (n=101)	4.95
I try to find other people who share my interest in this activity ^a	3.41 (n=106)	3.91 (n=101)	3.66

^a Scale from 1 to 5; 1=strongly disagree, 5=strongly agree.
^b Low and high groups based on number of days hiked where low was equal to 10 or less days in the past year and high was more than 10 days.

Fostering a Connection to Nature—Wilderness visitors also appear to be drawn to connect with nature. In studies two and four, nature-based motives were high among reasons to visit wilderness. “To be close to nature” was chosen by 76.6 percent in study two and by 83.3 percent in study four. Along similar lines, most respondents in both studies chose “visit a natural, unspoiled area” (84.7 percent in study two and 93.1 percent in study four), and “observe wildlife” (67.6 percent in study two and 79.4 percent in study four) as reasons for visiting wilderness.

A measure of connection to nature was included in study four through Clayton’s environmental identity (EID) scale (Clayton 2003). In this study the number of days spent in wilderness was associated with EID as well as attitudes about wilderness management. Those with low EID showed less support for environmental protection (for example protection of plants), while those with high EID believed more natural resource areas were needed for environmental protection. (For further discussion see Winter and Chavez 2008).

Factors that Mitigate Value—The degree of wilderness experience (frequency and history of visitation) is an important consideration in weighing the values of a visit. As discussed earlier, frequent wilderness visitors report a greater level of values derived (examined through effects on identity and self) than less frequent visitors. In fact, it may be that more frequent visitors are gaining and recognizing benefits for reasons other than multiple visits.

A number of other influences beyond degree of experience weigh into the benefits of a wilderness visit, for example overall receptivity to the experience (Schuster and others 2005).

Discussion—This paper has presented four studies demonstrating mutual value of wilderness visits to nature and visitor. This mutual value goes beyond the immediate experience to include an array of benefits such as physical, psychological, spiritual, social, and transactive between the environment and individual. Physical, psychological, spiritual, and social benefits may represent important information in efforts to encourage outdoor activity and increase public health.

Managers serve as stewards of a diverse range of opportunities. Considering a larger array of values will likely be helpful in the ongoing mission to protect wilderness, while providing for recreational experiences. Discovering that urban-proximate wilderness visitors report many of the same values expected in more remote wilderness areas is enlightening. It appears that expectations, such as for solitude, are also met by urban-proximate wilderness (Cole and Hall 2008).

Management of wilderness can continue to benefit from knowing more about urban-proximate wilderness visitor perspectives. It might be valuable to continue to study

whether and how the type of visitor and visitor values varies by trailhead and trails used. This may result in management strategies involving use limits and communication approaches that become place-specific. It might also be important to study visitors with longer visitation histories to capture their unique views on changing wilderness character over time. Values drawn from the wilderness experience may shift, or visitors may move to other “favorite” locations to preserve their wilderness recreation experience.

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Ecosystems Represented in National Parks, Refuges, and Wilderness Areas

An analysis of ecosystem coverage was conducted across areas of the National Park, National Wildlife Refuge, and National Wilderness Preservation Systems. The analysis used digital spatial data to estimate land area coverage of different ecosystems at division levels (Bailey 1995). Results are shown using GIS-derived maps (figures 3.15, 3.16, and 3.17) to show the spatial distribution of units of these three protected Federal land systems relative to 25 ecosystem divisions across the continental United States. Alaska and Hawaii are not shown in these maps, but their ecosystem and protected land areas were included and are tabulated in tables 3.11, 3.12, and 3.13.

Tables 3.11 through 3.13 show ecosystem area in acres, percentage of each Federal land system in each ecoregion division, and percentage of each division in the protected land system. Because Wilderness Areas are designated from other Federal land, the Wilderness System area table and map somewhat overlap with the maps and tables covering the National Park and National Wildlife Refuge Systems. In other words, some of the land in these two systems has been designated as Wilderness, but it retains also its status with the original land management agency. Thus, some Wilderness System land statistics are also included in the National Park and National Refuge tables. Other agencies managing land in the National Wilderness Preservation System include the Forest Service and the Bureau of Land Management. The Wilderness lands of these two agencies are represented in the National Wilderness Preservation System table.

As defined in the National Atlas (www.nationalatlas.gov), ecoregions are large-scale areas that share common climatic and vegetation characteristics. This four-level hierarchy originated from and was defined by Bailey (1995) to differentiate between types of ecoregions. The broadest classification is the domain, which is a grouping of areas with similar climates that are differentiated by precipitation and temperature. There are four domains in the United States: (1) polar, (2) humid temperate, (3) dry, and (4) humid tropical.