

Is There a Shared Idea of “Wilderness” Among Outdoor Recreationists? Evidence From Three Recreation Sites

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Abstract—Little empirical research has been conducted on what “wilderness” means to the general public. This paper compares the definitions of wilderness held by four groups of outdoor recreationists at three very different sites—Grand Canyon National Park, Shenandoah National Park, and Pandapas Pond, a day-use area in the Jefferson National Forest. These groups had different demographics, setting preferences and activity preferences. Although few respondents believed they knew about the legal definition of wilderness, they expressed very high agreement within and across groups about the appropriateness of features such as wildlife, virgin forest and rugged terrain. There was less consensus about shelters, developed trails and improved campsites.

The National Wilderness Preservation System (NWPS) encompasses over 100 million acres of public lands in the United States today. As the land base expands and use of these areas increases, managers are turning their energies from designation to management. How will we manage these resources in coming years? Historically, the heart of wilderness management has been the 1964 Wilderness Act, whose guiding principles were developed early in this century. This traditional wilderness idea gives special consideration to lands that are pristine or untouched (or “untrammelled”), remote or difficult to access (or “where man visits but does not remain”) and large (at least 5,000 acres). It calls for provision of solitude and primitive forms of recreation. Even after the 1964 Act was “weakened” by the “Eastern Wilderness Act” (1975) and other legislation, conformity with these original principles has led to restrictions on use, regulation of camping and policies of “letting nature take her course.”

Recent years have seen questions about the wisdom of letting the traditional “wilderness idea” drive management. Challenges to the wilderness idea have come from several directions (Callicott and Nelson 1998). Some argue that the premises for defining wilderness areas are factually incorrect. They argue that land seemingly “untouched” and unaffected by humans has, in fact, been heavily used and altered in the past. They question how large is “large” and point to

wilderness areas as small as three acres. Others contend that by focusing attention solely on already-designated wilderness areas, often disdainfully characterized as “rock and ice” areas, we fail to protect many ecologically and biologically important areas. Still other opponents of the wilderness idea charge that it is managerially misguided; it leads to “hands off” preservation management, when active restoration might be preferable for achieving certain goals.

These types of challenges leave managers facing the conundrum of how and for whom to manage wilderness. One common assertion used to justify “traditional” wilderness management is that wilderness managed in accord with the Wilderness Act provides unique recreation opportunities and fits the American public’s vision of wilderness. If so, managing for solitude, lack of development and natural processes may be justifiable.

Surprisingly few studies have explored whether the wilderness ideal actually reflects contemporary public beliefs and values. Therefore, our purpose in this study is to explore the extent to which various groups of outdoor recreationists adhere to the traditional wilderness idea. We build on preliminary research conducted at Shenandoah National Park (SNP) in 1997, which concluded that most wilderness hikers did, in fact, hold ideas very consistent with Wilderness Act prescriptions (Hall 1998). One limitation of that research was its focus on a single group of people, wilderness hikers who might be expected to know more about wilderness. Certainly, they accept wilderness management enough to visit such areas. Thus, we expanded our research to include two very different areas in 1998 and 1999. We reasoned that if most respondents felt similarly about wilderness, we would have more compelling evidence for the existence of a widely-held cultural model.

Methods

Questionnaire Development

In the fall of 1997, we conducted a series of 127 open-ended, tape-recorded interviews of SNP visitors. The focus of those interviews was to elicit information from visitors, in their own words, about what they think should belong in wilderness, and what wilderness should look like and provide. Overwhelmingly, the visitors interviewed defined the primary function of wilderness as a nature preserve; however, they also recognized that Wilderness is and should be accessible for recreation.

Content analysis of the interview data revealed high levels of agreement among these visitors for some features such as presence of wildlife (table 1). Although the individual

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Table 1—Percentage of SNP informants who mentioned five indicators of wilderness.

Volunteered response ^a	Percent
Presence of wildlife	47
“Undeveloped”	32
“Natural”	28
Few encounters	20
Away from civilization	10

^a(Hall 1998).

percentages for some items (such as the word “natural” and the association of wilderness with few encounters) may appear low, they result from an unprompted, open-ended question. Survey methodologists often conclude that if more than 25 percent of respondents volunteer a given response, the majority would typically agree (Schuman and Presser 1981). Thus, we felt confident that most SNP hikers would agree about the appropriateness of these five characteristics of wilderness. However, there were other items about which respondents varied.

Based on these results, we developed several questionnaire items that could be included in quantitative research efforts. These items sought to elicit information about wilderness experience and beliefs, and familiarity with the legal definition of wilderness. In addition, we asked respondents to list the “best example” of wilderness in the U.S. Although a nationwide sampling strategy would be the best method for determining whether a shared model of wilderness exists, financial limitations rendered that impossible. Our alternative strategy entailed sampling different user groups at three disparate recreation sites. Our hope was to capture a range of visitor types. If similar results were collected from very different types of users at very different types of sites, we might conclude that there is evidence of a common model that transcends regional and social differences in recreation users. To verify that we did study different populations, our list of questions included several about sociodemographic characteristics and recreational experiences and preferences.

Study Sites

Shenandoah National Park (SNP)—Located in western Virginia, SNP is nestled in the Blue Ridge Mountains. The Park is primarily forested, although it was once extensively farmed. Due to the long, narrow shape of the Park, no area is more than 10 miles by trail from a paved road. Within the Park are 79,579 acres of formally designated wilderness. SNP is within a day’s drive of several large urban centers, including Washington, D.C.; each year, 1.9 million visitors come for primarily spontaneous, inexpensive day use (USDI National Park Service 1998).

We sampled SNP visitors on randomly selected blocks of days between May and October, 1998. Researchers collected 2,402 on-site surveys from visitors at 23 trailheads and several overnight backcountry permitting stations. These surveys obtained demographic information and names and addresses. Mail questionnaires were sent to the 1,660 U.S.

residents who provided their names and addresses. Of these, 825 usable responses were returned, resulting in a usable response rate of 49.7%.

Grand Canyon National Park (GCNP)—Although GCNP does not currently have any formally designated wilderness areas, the area is considered de facto wilderness; in fact, many believe it to offer the premier wilderness river trip because of the length of the Colorado River (277 miles of whitewater) and its lack of development (with the sole exception of Phantom Ranch and permitted motor use). The Park is currently the site of an ongoing, contentious debate about the desirability of formal wilderness designation. Although the entire Park receives 3.9 million annual visitors, only 27,000 of these users are boaters (mostly whitewater rafters) on the river. Only the river users—both commercially outfitted and private—were included in the data collection for this study. Whether commercial or private, a river trip down the Colorado River is expensive (commercial passengers pay approximately \$150 to \$300 per day) and requires a great deal of advance planning (private boaters wait as long as 10 years to receive a permit). A full-canyon trip lasts a minimum of seven days (although some people hike out after three to five days when they reach Phantom Ranch), and many are more than 10 days. Thus, the setting probably attracts different users than hike at SNP, and the experience is quite different.

Participant observers accompanied both commercial and private trips during the summer of 1998. Visitors at the end of 39 commercial (22 motor and 17 oar) and 9 private trips completed an on-site 11-page questionnaire. The final sample size for commercial boaters was 868; for private boaters, 109 (for an overall response rate of 87%).

Pandapas Pond (PAND)—Pandapas Pond is a day-use area administered by the Washington-Jefferson National Forest in southwest Virginia. Located adjacent to a four-lane highway about eight miles west of Blacksburg, the pond is extremely accessible and popular with both local residents and university students for inexpensive, spontaneous use. During the summer, approximately 30,000 people visit Pandapas Pond each month. Anglers are attracted to the pond because it is stocked with trout throughout the summer. The small pond and surrounding recreational trails attract hikers, joggers, mountain bikers and horseback riders. In addition, numerous community and university activities are hosted there throughout the year. Facilities include several picnic tables and grills, as well as a vault toilet. The area could best be classified as semi-primitive, nonmotorized according to the Recreation Opportunity Spectrum, although it is within a quarter-mile of a major highway.

On several days during spring 1999, visitors were asked to complete a brief questionnaire when they arrived at or left the site. Of the final sample of 201 visitors (68% response rate), 43% were Virginia Tech students.

Our study sites are quite different. SNP and PAND attract day users; all GCNP respondents were on overnight trips. The two Eastern sites are forested and close to roads; GCNP is a remote desert canyon. PAND primarily attracts local visitors, while SNP attracts locals as well as people from across the country. Most GCNP visitors do not live near the park. Because of these differences, and the different types of experiences offered, we expected the samples to be rather different.

Results

Sample Comparisons

To test our assumptions about the differences between our samples, we compared them on several variables, including demographics, wilderness experience, setting preferences and activity choices. There were several significant differences on sociodemographic variables (table 2). Chi-square tests indicated no difference in gender—at each site, about 60% of the visitors were male and 40% female. However, post-hoc means comparisons revealed that boaters at GCNP are a few years older than SNP visitors, who are almost eight years older than PAND visitors. Chi-square tests also identified differences in education level. Respondents selected one of six categories (less than high school; high school diploma; some college; bachelor's degree; master's degree or equivalent; and doctorate or equivalent) as their highest level of school completed. Although approximately 75% of visitors to GCNP and SNP possess at least a bachelor's degree, almost half of the respondents at PAND were currently students at Virginia Tech still working toward a bachelor's degree.

As expected, there were also large differences in the distance traveled to arrive at the recreation site. Post-hoc means comparisons revealed that each group's mean travel distance was significantly different from the others. Commercial boaters at GCNP traveled an average of 1,592 miles; many traveled internationally to participate in a trip down the Colorado River. Private boaters also traveled a long way. In contrast, PAND users traveled only 32 miles on average; most were local residents enjoying an afternoon fishing, picnicking or walking around the pond. SNP hikers' travel distances were intermediate.

The four groups of visitors also differed in their preferred type of outdoor recreation sites (table 3). Almost two-thirds of GCNP private boaters stated a preference for "roadless backcountry or wilderness." The preferences of commercial boaters, however, were split—about one-third indicated a preference for roadless backcountry, but another third preferred sites with "roads and some facilities, but no major developments." Hikers at SNP showed a similar split between preferring roadless backcountry and sites with some

Table 2—Demographics of samples at three study sites.

	GC _{pvt}	GC _{com}	SNP	PAND	p-value
N	109	868	825	201	
Sex					0.120 ¹
M (%)	67.3	57.0	60.1	62.8	
F (%)	32.7	43.0	39.9	37.2	
Average age (years)	42.6 ^a	43.0 ^a	37.9 ^b	30.7 ^c	0.000 ²
Education (mode)	BS	BS	BS	< BS	0.000 ¹
At least a BS (%)	79.7	76.0	74.6	45.9	
VT students (%)				42.7	
Average distance traveled (miles)	807 ^a	1592 ^b	239 ^c	32 ^d	0.000 ²

¹Chi-square test.

²ANOVA.

^{a,b,c,d}Means with the same superscript were not significantly different at $\alpha = 0.05$ (Duncan's post-hoc means comparisons).

Table 3—Responses to "What type of setting do you most prefer for outdoor recreation?" (% at each site).

	GC _{pvt}	GC _{com}	SNP	PAND
Highly developed	0	7.4	2.9	8.5
Roads and facilities, no developments	11.1	35.8	35.3	41.2
Roads, no facilities	25.9	22.5	20.5	24.6
Roadless backcountry	63.0	34.2	41.4	25.6

Chi-square = 79.2, $p < 0.0005$.

facilities. Areas with roads and some facilities were preferred by 41% of PAND visitors.

Included on questionnaires at all three sites were 13 activity, feature, or experience items for which respondents were asked to indicate their level of enjoyment (on a nine-point Likert-type scale). ANOVAs followed by Duncan's post-hoc means comparisons enabled the determination of which groups were significantly different from the others (table 4). Private boaters at GCNP and SNP hikers responded similarly to six of the 13 items—on average, they didn't like developed campsites, resorts or hiking on paved trails; they did like naturalist talks, backpacking and enjoying nature. Commercial boaters and PAND visitors responded similarly (and positively) to six items—they liked "enjoying nature," being remote from cities, sleeping outdoors, vistas, the absence of people and sightseeing by car. Private and commercial boaters at GCNP were similar on only one item (automobile touring), demonstrating that a single site can attract quite different users.

Apart from their enjoyment of car camping, the private boaters' preferences generally aligned with the "traditional" idea of wilderness. Their preferences for remoteness from cities, absence of manmade features, absence of people and vast areas were higher than other groups. They also enjoy backpacking, sleeping outdoors and car camping more than the other groups. The anomaly of car camping may be explained in part by the private boaters' activity specialization—boating trips require cars and often car camping. An alternative explanation may be that this group simply enjoys all forms of camping more than the other groups.

There were also differences in how often visitors at each site visit wilderness (table 5). Over half of the private boaters said they visit wilderness two to five times per year, as did 41 percent of SNP hikers and 31 percent of PAND visitors. About one-quarter of commercial boaters at GCNP, however, said they take wilderness trips less than once every two years. No definition of "wilderness" was provided to assist respondents in answering this question. Thus, the stated frequencies may be questionable, especially when interpreted in light of their evaluations of the site they were visiting (see below).

Beliefs about Wilderness

Given the numerous differences in sociodemographics, setting and activity preference, and wilderness experience among our study groups, our next step was to determine how they differed in views about wilderness. Our questions dealt both with knowledge of the legal definition of wilderness and

Table 4—Responses to “How do you personally feel about ... during your outdoor recreation?” (mean¹ at each site).

	GC _{pvt}	GC _{com}	SNP	PAND	p-value ²
Campsites with water & electric hookups	-1.1 ^a	-0.2 ^b	-0.7 ^a	1.1 ^c	0.000
Hiking on easy, paved scenic trails	-0.4 ^a	0.1 ^b	-0.1 ^a	1.3 ^c	0.000
Staying at developed resorts	-0.6 ^a	0.2 ^b	-0.5 ^a	1.3 ^c	0.000
Hearing naturalist talks	1.4 ^a	1.9 ^b	1.4 ^a	0.8 ^c	0.000
Backpacking	2.9 ^a	1.6 ^b	2.9 ^a	2.1 ^c	0.000
Enjoying nature	3.8 ^a	3.4 ^b	3.8 ^a	3.5 ^b	0.000
Sleeping outdoors	3.5 ^a	2.3 ^b	2.9 ^c	2.1 ^b	0.000
Vast areas & enormous vistas	3.6 ^a	2.9 ^b	3.2 ^c	2.6 ^b	0.000
Absence of people	3.3 ^a	2.4 ^b	2.7 ^c	2.3 ^b	0.000
Automobile touring	0.6 ^a	0.5 ^a	0.0 ^b	0.7 ^a	0.000
Remoteness from cities	3.8 ^a	2.9 ^b	2.9 ^b	2.8 ^b	0.000
Absence of manmade features	3.5 ^a	2.8 ^b	3.0 ^b	2.1 ^c	0.000
Car camping	1.1 ^a	-0.7 ^b	-0.3 ^{bc}	0.0 ^c	0.000

¹Means on a Likert-type scale, -4 = Strongly dislike, +4 = Strongly like.

²ANOVA.

^{abc}Means with the same superscript are not significantly different at $\alpha = 0.05$ (Duncan post-hoc tests).

(more importantly) with visitors’ personal beliefs and images of wilderness. Included in all questionnaires was the item, “How familiar are you with the legal definition of Wilderness?” It is important to note that these self-reports were uncorroborated by factual items. (A type of validity check, though, is presented below.) Nearly two-thirds (60.5%) of commercial boaters at GCNP admitted that they had no idea, they “didn’t even know there was a land classification of ‘Wilderness’” (table 6). Over half (51.3%) of SNP day hikers indicated that they had “heard of wilderness areas,” but didn’t know anything about the specific definition. Private boaters reported more knowledge about the definition of wilderness—43% of them knew “a little bit” and 35% knew “a lot” about it. Equal numbers (34%) of PAND users said they had “heard of” or “know a little” about the legal definition of wilderness.

Obviously, many respondents do not think they know what federal wilderness is. To begin to understand what they envision when they think of wilderness, we asked them to evaluate the site they were visiting (table 7). Almost half of the commercial boaters considered the Grand Canyon to be “wilderness—a place generally unaffected by the presence of people, providing outstanding opportunities for solitude and self-reliance.” In contrast, 62% of the private boaters considered the area to be “semi-wilderness—the

Table 5—Responses to “How often do you usually take wilderness trips?” (% at each site).

	GC _{pvt}	GC _{com}	SNP	PAND
Never	0	14.7	4.0	7.1
Less than once every 2 years	7.5	28.3	8.5	13.1
Less than once a year	6.5	13.4	5.7	11.1
Once a year	10.3	18.0	18.5	9.6
2-5 times a year	52.3	19.8	41.1	31.3
6-10 times a year	11.2	3.2	12.1	9.6
More than 10 times a year	12.1	2.6	9.9	18.2

Chi-square = 370.4, $p < 0.0005$.

kind of place where complete solitude is not expected, but the environment appears mostly unaffected by people.” Almost two-thirds (64%) of the SNP hikers considered the area to be semi-wilderness. At Pandapas Pond, 46% thought the area was semi-wilderness; another 44% considered it an “undeveloped recreation area—the kind of place where a natural setting is provided but seeing other people is part of the experience.” What is perhaps most telling is that 9% of these respondents actually considered Pandapas Pond—a small, heavily used day-use area right on the highway—to be “wilderness.” This percentage is nearly identical to that of SNP wilderness hikers.

What is “Wilderness”?

Best example—Perhaps the most straightforward method for determining what people think of as “wilderness” is to ask them to provide an example. Comparing the examples

Table 6—Self-reported familiarity with the legal definition of wilderness (% at each site).

	GC _{pvt}	GC _{com}	SNP	PAND
No idea	4.6	30.5	10.1	17.5
Heard of it	17.6	41.3	51.3	33.9
Know a little	42.6	21.9	31.3	33.9
Know a lot	35.2	6.3	7.2	14.8

Chi-square = 253.2, $p < 0.0005$.

Table 7—Responses to “What type of setting and experience do you think this area currently provides?” (% at each site).

	GC _{pvt}	GC _{com}	SNP	PAND
Wilderness	13.9	45.3	10.7	9.1
Semi-wilderness	62.0	46.8	64.4	46.5
Undeveloped recreation site	24.1	7.9	24.9	44.4

Chi-square = 373.8, $p < 0.0005$.

cited by users at different sites can shed light on possible differences in what is considered wilderness. Each group of users was asked, "What place or area in the United States do you feel is the best example of a wilderness?" (This was asked in the context of their personal conception, so they were not constrained to listing units of the NWPS.) For this analysis, each answer was identified by state. (Thus, both "Rocky Mountain National Park" and "mountains in Colorado" were coded as "Colorado.") Responses varied greatly (table 8, fig. 1). The most common response by all groups was "Alaska," except for commercial boaters at GCNP, 30% of whom said the Grand Canyon was the best example of wilderness they could imagine. Of the two Eastern groups, nearly equal numbers of Pandapas Pond visitors listed a place in Virginia as listed Alaska. Interestingly, "Alaska" was most frequently listed without qualification—no specific place was described. Responses coded under "Virginia," however, were specific locations that the respondents probably knew from first-hand experience. These data show that, although there are some similarities, there are also differences between recreationists at different sites regarding the places that visitors imagine to be quintessential wilderness.

These responses show that people's ideas of wilderness appear to be formed both by prevailing cultural notions as well as by personal experience. Personal experience probably accounts for high percentages of southern states among respondents contacted in the south. However, the high

Table 8—"Best examples" of wilderness by region for 4 groups of recreationists (% of coded responses at each site).

	GC _{pvt}	GC _{com}	SNP	PAND
Number of coded responses	108	840	788	144
International area ¹			9.4	
Alaska	27.8	18.9	19.2	15.3
Western state	59.3	60.6	50.0	27.8
Southern state	0.1	2.3	18.7	23.6
Northeastern state	3.7	5.6	10.8	7.6

¹Only SNP respondents were not limited to listing a place in the U.S.

percentages of Alaska and big western mountain ranges reflect a cultural commonality.

For those "best examples" that were specific land management units, we also analyzed the type of land classification (table 9). In this, actual NWPS units were identified as such. Very few respondents (5% to 28%) listed a named unit, and the number of actual federal wilderness areas listed by all respondents ranged from only seven (PAND) to 33 (GCNP commercial boaters). Altogether, the 2,003 respondents listed only 55 different Wilderness areas.

One persistent tendency became clear when looking at who manages the areas listed—many respondents consider wilderness and national parks to be synonymous (table 10).

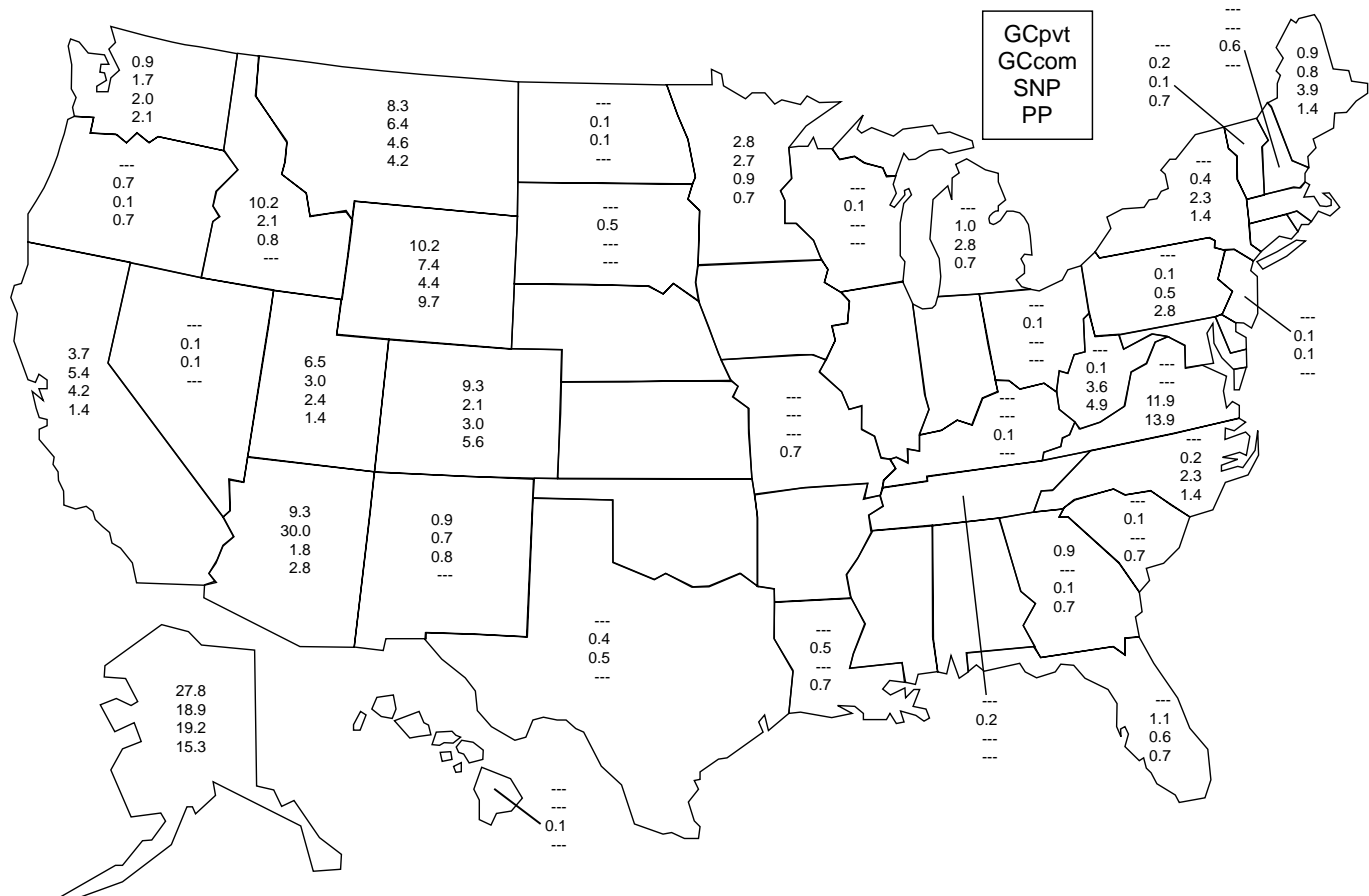


Figure 1—Responses to "What is the best example of wilderness" by state, for four groups of recreationists (% of coded responses at each site).

Many of the “best examples” (especially from commercial boaters and SNP hikers) were National Park Service units, usually the larger parks such as Glacier, Yellowstone, Rocky Mountain, and Denali. Some of these have wilderness, but many do not, and it appears most likely that respondents simply envision National Parks when asked about wilderness. Those respondents who listed actual NWPS units

Table 9—Status of management units listed as “best example” of wilderness (% of coded responses at each site).

	GC _{pvt}	GC _{com}	SNP	PAND
Total number of coded responses ¹	108	840	788	144
NWPS units	27.8	11.9	6.7	4.9
National Park units with Wilderness ²	6.4	8.3	17.0	2.1
Other management units	12.0	39.6	22.3	20.1
Responses not including specific units	53.8	40.2	54.0	72.9

¹Each response was coded independently, even where a single respondent listed more than one “best example.”

²We could not determine whether respondents were referring to the Wilderness portions of these Parks.

Table 10—Respondents’ “best examples” of wilderness, organized by land management agency with managerial authority (% at each site).

	GC _{pvt}	GC _{com}	SNP	PAND
Total number of coded responses	50	503	363	39
General “National Park” ¹	0	2.0	4.4	5.2
Specific National Park	38.0	74.5	59.5	35.8
National Monument	0	0.2	1.1	0
Forest Service	53.9	20.0	17.4	41.0
Fish & Wildlife Service	4.1	0.7	1.1	2.6
Bureau of Land Management	0	0.2	0	0
Other federal land	4.0	1.6	7.4	12.9
State land	0	0.7	5.9	2.6
International land	0	0.2	3.3	0

¹Respondent listed “National Parks” without specifying a particular unit.

tended to mention areas on National Forest lands. None of the groups tended to think of Fish and Wildlife Service or Bureau of Land Management areas when asked about wilderness.

Components of Wilderness—In addition to eliciting respondents’ “best examples” of wilderness, each questionnaire included nine items for which respondents were asked to “indicate how much each is a part of the way you personally think about wilderness.” In phrasing the question this way, we hoped respondents would answer according to the primary image that comes to mind when they think of wilderness. Several of these items (remote from cities, for example) are associated with the “traditional” idea of wilderness that this study seeks to examine. Other items (such as campgrounds with RV hookups) are definitely not traditional components of the wilderness idea. Still others (including primitive shelters for camping) fall somewhere in between and are centers of national debate over what belongs in wilderness. ANOVAs followed by Duncan post-hoc comparisons were used to explore differences among groups.

Private boaters at GCNP held the strongest opinions, and adhered most strongly to traditional ideas about what constitutes wilderness (table 11). They differed from commercial boaters on five items. Hikers at SNP were most likely to consider virgin forest an important part of wilderness. Pandapas Pond visitors considered primitive camping shelters (like those located along the Appalachian Trail) more acceptable in wilderness than did the other groups. No group felt that RV hookups were acceptable in wilderness (although each group’s mean was significantly different than the others).

Generally then, the different samples varied significantly in the way they define wilderness, although they were generally consistent with the Wilderness Act and most similar on the archetypal features. The location of some of the mean scores near the end points of the scale testifies to the fairly strong and consistent images within each group. There was less agreement about other items that may or may not be consistent with the Wilderness Act (such as shelters, rugged terrain, seeing many people, and well-developed trails). Thus, respondents appear to be quite close to managers in their personal images of Wilderness, despite not knowing where federally designated wildernesses are or how they are defined.

Table 11—Components of wilderness (mean¹ at each site).

	GC _{pvt}	GC _{com}	SNP	PAND	p-value
Remote from cities	1.3 ^a	1.4 ^{ab}	1.5 ^b	1.6 ^c	0.000
Presence of wildlife	1.3 ^{ab}	1.3 ^{ab}	1.2 ^a	1.3 ^b	0.012
Virgin forest	1.7 ^a	1.8 ^{ab}	1.5 ^c	1.9 ^b	0.000
Rugged terrain	2.0 ^a	1.9 ^{ab}	1.7 ^b	2.0 ^a	0.001
Primitive shelters for camping	4.3 ^a	3.4 ^b	3.4 ^b	2.9 ^c	0.000
Seeing many other people	4.4 ^a	4.2 ^b	4.4 ^a	3.9 ^c	0.000
Well-developed, wide trails	4.5 ^a	3.9 ^b	4.0 ^b	3.4 ^c	0.000
Campsites with plank tables & cement fireplaces	4.8 ^a	4.3 ^b	4.3 ^b	3.6 ^c	0.000
Campgrounds with RV hookups	4.9 ^a	4.6 ^b	4.7 ^c	4.2 ^d	0.000

¹ Means on a Likert-type scale, 1 = A big part, 5 = Not a part at all.

^{abcd} Means with the same superscript are not significantly different at $\alpha = 0.05$ (Duncan tests).

Table 12—Components of wilderness (Mean¹ for each self-reported knowledge level).

	No idea	Heard of	A little	A lot	p-value
Primitive shelters for camping	3.3 ^a	3.4 ^a	3.5 ^a	3.8 ^b	0.000
Campgrounds with RV hookups	4.5 ^a	4.6 ^b	4.7 ^b	4.7 ^b	0.000
Campsites with plank tables & cement fireplaces	4.2 ^a	4.2 ^{ab}	4.4 ^{bc}	4.4 ^c	0.001
Well-developed, wide trails	3.8 ^a	3.9 ^{ab}	4.0 ^{bc}	4.1 ^c	0.009
Seeing many other people	4.1 ^a	4.3 ^b	4.3 ^b	4.2 ^{ab}	0.024
Rugged terrain	1.9 ^a	1.8 ^a	1.9 ^a	1.9 ^a	0.081
Remote from cities	1.4 ^a	1.4 ^a	1.4 ^a	1.4 ^a	0.552
Presence of wildlife	1.3 ^a	1.2 ^a	1.2 ^a	1.3 ^a	0.650
Virgin forest	1.7 ^a	1.7 ^a	1.7 ^a	1.7 ^a	0.750

¹ Means on a Likert-type scale, 1 = A big part, 5 = Not a part at all.

^{abc} Means with the same superscript are not significantly different at $\alpha = 0.05$ (Duncan post-hoc means comparisons).

Comparisons between different levels of familiarity with the legal definition of wilderness across all four groups provided interesting results about components of wilderness. Four of nine ANOVAs showed no differences by familiarity with legal definitions (table 12). Ruggedness, remoteness, wildlife and virgin forest were all considered relatively important parts of wilderness, regardless of how much the respondents claimed to know about the legal definition of wilderness. These items appear to be core components of outdoor recreation users' image of wilderness. Among the five items on which significant differences were identified are those that constitute the focus of managerial struggles.

Conclusions

We began this paper by describing some of the recent challenges to the "wilderness idea." Our data lead us to believe that many outdoor recreationists hold views more similar to that challenged notion than to the newer ideas propounded by scholars. Despite outdoor recreationists' professed ignorance of the legal definition of wilderness, our data suggest that recreationists tend to have ideas about wilderness that are consistent with the Wilderness Act and managers' interpretations of it. We feel that, even though there were statistically significant differences regarding components of wilderness (table 12), the practical significance of the differences is slight for several items that appear to form the center of a prototypic image of wilderness. Adhering to the Wilderness Act's conception, our respondents see wilderness as remote, rugged lands populated by wild animals where humans visit but do not remain. That some of these features are equally central to those who profess to know nothing about federal wilderness as those who profess to know a lot does suggests a widespread core ideal of wilderness.

This study used only three sites to triangulate upon an American model of wilderness. Obviously it would be very desirable to conduct a national study with a representative sample to investigate these questions. Although our respondents appear to represent a range of visitor types, as we had hoped, they are not representative of the U.S. public. In 1998, the average age of the U.S. population was 36.3 years, and 51% of citizens were women, while our respondents were

slightly older on average and more likely to be male. Our respondents, 73% of whom possess at least a bachelor's degree, are obviously more educated than the U.S. public, of whom only 21% possess at least a bachelor's degree (U.S. Census Bureau 1998). Because education is correlated with environmental knowledge, attitudes, and wilderness use, it is possible that a representative national study would arrive at different results.

The data suggest that if we could study a broader range of sites (i.e., more developed recreation locations) we might identify more differences. The uniqueness of Pandapas Pond is particularly suggestive; among our study sites it is the most developed and could hardly be construed as wilderness with its graveled trails, developed structures, mountain bikes and highway and rifle range sounds. Visitors contacted there differed significantly from the other three samples on six of nine "features" of wilderness. Pandapas Pond is obviously only one site, but of our study sites, it is most like those familiar to most Americans. Most people do not visit wildernesses; large numbers visit developed areas. Thus, the data suggest that we should be cautious about generalizing beyond our samples to the larger public.

Future Research

This study represents a first effort at understanding how outdoor recreationists envision wilderness. In future studies, it would be informative to include broader range of potential components of wilderness (for example, swamps or deserts, "a place for recreation" or "a place for natural processes"). It might also be productive to ask respondents to select from a list those characteristics that they consider to best exemplify wilderness.

We would encourage the undertaking of a wider scale, representative study of these issues. Managers are making important decisions that require public support. Some of these decisions (for example, prescribed fire or removal of exotic plants) can drastically alter the appearance of wilderness. Others (for example, restricting use to protect endangered species) can drastically alter recreational access. Knowing how Americans visualize and value wilderness can help managers predict public opinion and design informational messages explaining relevant policies.

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