

Is the Public Viewpoint of Wilderness Shifting?

BY H. KEN CORDELL, MICHAEL A. TARRANT, and GARY T. GREEN

Abstract: This study explores shifts since the mid-1990s in the values the public places on wilderness. Public views of the National Wilderness Preservation System (NWPS) were compared from national surveys conducted in 1994 and 2000. Results show that while more people in 2000 were aware of the NWPS, this increase in awareness has not created greater support for additional wilderness acreage. Levels of importance people place on ecosystem services, existence of wilderness, recreation, and future use options for existing protected wilderness, however, have increased sharply since 1994. Overall, these shifts seem to indicate a need for greater emphasis on nonuse values in setting policy and managing wilderness. Awareness and support for wilderness vary significantly among ethnic, age, and regional groups.

Introduction

This paper explores evidence of recent shifts in how Americans view the National Wilderness Preservation System (NWPS). Recent political and societal changes suggest that tracking such shifts, if in fact they exist, is highly important. One aspect of growing social change is the rise of interest in nonuse values for making decisions about allocating and managing public lands, such as those designated as part of the NWPS (Rolfe, Bennett, and Louviere 2000). Historically, use values have been the dominant focus of attention because uses of wilderness for personal benefits, such as for recreation, for profit-making involving on-site services (e.g., outfitters) or for extraction of raw materials, such as mining minerals for use in manufacturing (Mountford and Keppler 1999) are direct, observable, and sometimes tangible and marketed. In contrast, nonuse values are indirect, for the most part not observable, and are not marketable. Nonuse values, for example, may focus on preserving natural lands for future generations, including both human and nonhuman species. Although they are for the most part "intangible," it has been argued that nonuse values of wilderness are likely to be as, or more, important than use values (Loomis, Bonetti, and Echohawk 1995).

There is evidence in the literature that indeed wildland values as perceived by the public have been undergoing a

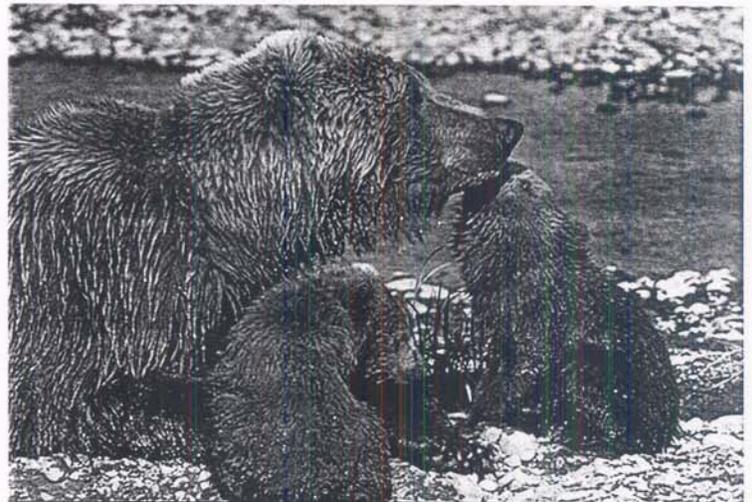


Figure 1 — Viewing wildlife in wilderness is an important experience. Photo courtesy of Aldo Leopold Wilderness Research Institute.

fundamental shift. A number of recent studies have pointed to an apparent increase in nonuse values, especially life support values (e.g., Bliss, Nepal, Brooks, and Larsen 1994; Steel and Lovrich 1997; Tarrant and Cordell 1997; Xu and Bengston 1997). In an early study of wilderness values, Walsh, Loomis, and Gillman (1984) reported that Coloradoans' willingness to pay for wilderness designation was proportioned as follows: recreation (43%), bequest (21%), existence (20%), and option (16%). In a more

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Figure 2—Habitat for wildlife is highly valued by the American public. Photo courtesy of Aldo Leopold Wilderness Research Institute.

recent study, Gilbert, Glass, and More (1992) found that Vermont residents assigned a smaller proportion of their willingness to pay for wilderness protection to recreation use value (16%) and a greater proportion to nonrecreation values. Most recently, Cordell, et al. (1998) found direct use values generally to be of lesser importance than ecological, environmental quality, and off-site values.

The purpose of this study was to test whether there have been recent shifts in how Americans value the NWPS. Three objectives were pursued comparing data collected in identical fashion in 1994-1995 and in 2000: (1) examine the percentages of respondents aware of the NWPS and who support expanding its size, by place of residence, region of residence, age, and race; (2) examine the percentage of respondents rating each of 13 wilderness values as very to extremely important; and (3) examine the structure of orthogonal factors in the 13-item wilderness values scale, where differences would suggest a trend on how value items are perceived.

Methods

Sampling, selection, measurement of variables, and analysis in the 2000 survey followed the same methods as used for the 1994-1995 National Survey on Recreation and the Envi-

ronment (NSRE) (Cordell et al. 1998). In both applications of the NSRE, noninstitutionalized individuals in households (in all 50 states) with telephones were randomly sampled (using a random digit dialing method with up to 10 repeated redials of unanswered numbers). The target individual for the interview was the household member with the most recent birthday among those 16 or older. Interviews for both the 1994-1995 and the 2000 surveys were conducted by the Human Dimensions Research Laboratory at the University of Tennessee. A total of 1,900 NSRE interviews contained wilderness value questions in 1994-1995, while, with a larger budget for the 2000 survey, a total of 5,002 interviews with wilderness value questions were completed. The greater number of interviews in 2000 facilitated more resolute geographic disaggregation of estimates at the nine Census Division level. With the smaller sample in 1994-1995, comparisons were limited to the four Census Region level. However, when compared with the demographic profile of Americans 16 or older obtained from Census estimates, both samples represented well the demographic diversity of the American public at the geographic levels reported in this paper (east vs. west). To correct for disproportionate sampling within population strata, both NSRE data sets were weighted using census estimates of proportions among rural/urban, east/west, age, and race strata.

In both applications of the NSRE, the introduction and wording of the wilderness values questions were the same. An introductory statement was read: "The Wilderness Act of 1964 allows Congress to preserve certain federal lands in their wild condition. Since that 1964 act, the Congress has added 629 wilderness areas to the

National Wilderness Preservation System to protect wildlife, scenery, water, and recreation opportunities, and to keep these areas wild and natural." Following this statement, a variety of questions were asked regarding the current size and status of the NWPS, including whether or not the respondent felt the system was large enough. Another statement was read: "Wilderness areas provide a variety of benefits for different people. For each benefit I will read, please tell me whether it is extremely important, very important, moderately important, slightly important, or not important at all to you." Following this statement, each of 13 value items (WVS) was read to each respondent using the same organization and wording in both survey applications. The WVS includes questions on (a) direct use values (i.e., valuing access to use wilderness for recreation, personal growth, commercial activities, or other on-site activities); (b) option use values (i.e., valuing having the option to use wilderness in the future); (c) non-use existence values (i.e., attaching value to knowing that wilderness exists or to knowing it protects wildlife or some other natural features, even though one may never visit nor expect to visit an area); and (d) bequest values (i.e., valuing having wilderness for future generations) (Loomis, Bonetti, and Echohawk 1995; Mountford and Keppler 1999; Oglethorpe and Miliadou 2000). The 13 items in the WVS were each measured on a 5-point single-polar scale with end points of 1 = "extremely important" to 5 = "not at all important."

Objective one was tested with chi-square analysis. Mean scores, percentages, and associated change scores were computed for objective two. A principal components analysis (with varimax rotation and pairwise

deletion of missing cases) was used to identify orthogonal factors (with eigenvalues greater than 1.0) in the WVS for objective 3. All tests were conducted with a significance level of $p = .05$.

Results

Larger percentages of Americans over 15 years of age reported they were aware of the NWPS in 2000 (57.6% vs. 44.4%). Percentages reporting awareness increased for all demographic strata (see Table 1), but smaller percentages in 2000 (51.6% vs. 55.7%) reported they felt there is currently not enough wilderness under protection. Significantly more western than eastern residents ($\chi^2 = 10.96$), older than younger ($\chi^2 = 270.78$), and whites than nonwhites ($\chi^2 = 113.52$) were aware of the NWPS. In addition, significantly more metro than rural residents ($\chi^2 = 41.26$), eastern than western residents ($\chi^2 = 34.18$), younger than older ($\chi^2 = 131.67$), and whites than nonwhites ($\chi^2 = 32.72$) felt that there was not enough land in the NWPS. The number of significant differences in awareness and preference for size of the wilderness system in the 2000 sample is considerably more than in 1994. In that earlier sample, the only significant differences were older (vs. younger) respondents being significantly (a) more aware of the NWPS and (b) less likely to feel that the amount of wilderness in the NWPS was not enough.

With the exception of tourism income and providing spiritual inspiration, very few respondents in 2000 (less than 5%) rated any of the 13 wilderness values as "not important" (see Table 2). The percent of people rating the 13 wilderness values as "very" or "extremely important" increased sharply. The greatest in-

Table 1. Response of Americans 16 or Older, by Demographic Characteristic, Regarding the National Wilderness Preservation System, 1994 and 2000.

Demographic Strata	Aware of NWPS (%)		Size of NWPS Is not enough (%)	
	1994	2000	1994	2000
Metro/urban				
Metro resident	44.2	57.5	56.9	54.2
Rural resident	45.2	57.7	52.0	44.2
East/west resident				
Eastern resident	42.7	56.0	56.3	53.4
Western resident	49.9	60.6	53.7	48.0
Age				
Age 16-30	31.8	39.4	63.6	56.7
Age 31-55	48.3	61.4	57.2	54.8
Age over 55	57.1	69.9	38.3	38.5
Race				
Race is white	45.5	61.3	56.4	52.4
Race is nonwhite	37.6	37.9	51.3	48.3
All Americans 16 or over	44.4	57.6	55.7	51.6

Table 2. Changes in Americans 16 or Older Indicating "Very or Extremely Important" and "Not Important" and Change in Mean Score for Each of 13 Wilderness Values, 1994 (n = 1,900) and 2,000 (n = 5,002).

Wilderness value	Very or extremely Important (%)			Not important (%)			Mean score ¹		
	1994	2000	Δ	1994	2000	Δ	1994	2000	Δ
Protecting water quality	78.9	93.1	14.2	1.7	0.6	-1.1	1.77	1.53	-.24
Protection of wildlife habitat	78.6	87.8	9.2	2.6	0.6	-2.0	1.81	1.62	-.19
Protecting air quality	78.0	92.3	14.3	2.6	0.6	-2.0	1.79	1.52	-.27
For future generations	76.9	87.0	10.1	2.0	1.1	-0.9	1.84	1.68	-.16
Protection for endangered species	73.7	82.7	9.0	4.9	1.8	-3.1	1.92	1.74	-.18
Preserving ecosystems	66.5	80.0	13.5	7.0	1.6	-5.4	2.14	1.82	-.32
Scenic beauty	59.7	74.0	14.3	5.4	1.8	-3.6	2.18	1.98	-.20
Future option to visit	59.4	75.1	15.7	7.7	3.1	-4.6	2.24	1.98	-.26
Just knowing it exists	56.1	74.6	18.5	6.4	2.2	-4.2	2.23	1.98	-.25
For scientific study	46.3	57.5	11.2	14.1	4.4	-9.7	2.55	2.33	-.22
Recreation opportunities	48.9	64.9	16.0	10.1	2.5	-7.6	2.46	2.17	-.29
Providing spiritual inspiration	43.2	56.5	13.3	18.3	8.9	-9.4	2.62	2.43	-.19
Income for tourism industry	22.8	29.7	6.9	41.1	17.6	-23.5	3.33	3.12	-.21

¹Value scores ranged from "extremely important" = 1 to "not important" = 5.

Table 3. Loadings on Two Orthogonal Factors from the 13 Wilderness Values Items Using Principal Components Analysis with Varimax Rotation, 1994 and 2000 (Underlining Indicates the Associated Factor for That Variable).

Wilderness value	Factor 1		Factor 2	
	Wildland protection		Wildland utilization	
	1994	2000	1994	2000
	Beta	Beta	Beta	Beta
Protection of wildlife habitat	<u>.81</u>	<u>.75</u>	.17	.18
Protection for endangered species	<u>.79</u>	<u>.76</u>	.20	.17
Preserving ecosystems	<u>.79</u>	<u>.74</u>	.10	.23
For future generations	<u>.77</u>	<u>.68</u>	.21	.22
Protecting air quality	<u>.73</u>	<u>.73</u>	.25	.15
Protecting water quality	<u>.71</u>	<u>.68</u>	.19	.01
Future option to visit	<u>.58</u>	<u>.54</u>	.46	.43
Just knowing it exists	<u>.57</u>	<u>.54</u>	.46	.42
For scientific study	.47	.31	.37	<u>.50</u>
Scenic beauty	.52	.42	<u>.53</u>	<u>.54</u>
Providing spiritual inspiration	.33	.22	<u>.56</u>	<u>.65</u>
Recreation opportunities	.27	.20	<u>.71</u>	<u>.66</u>
Income for tourism industry	.01	.01	<u>.82</u>	<u>.75</u>

creases occurred for items related to ecosystem services (e.g., protecting air and water quality); existence (e.g., preserving wildlife habitat and protecting endangered species); recreation; and future option values. Similarly, the mean scores for each item have all shifted toward greater importance from 1994 to 2000. The rank order of the value items in 2000 was approximately the same as in 1994, except that protecting air quality moved to the second highest position, replacing protection of wildlife habitat. The reliability coefficient (Cronbach's alpha) for the WVS was .86, which is similar to the alpha of .90 obtained from the 1994 data.

An exploratory factor analysis with varimax rotation produced the same two wilderness value factors as in 1994 (see Table 3). Consistency in structure of these factors over time indicates persistence of the dichotomy between nonuse and use values. The nonuse

wildland protection factor accounted for over 31% of the variance, and the wildland use value factor accounted for 19% of the variance (over 50% of total variance was taken into account between these two factors). Significant loading scores value by value in the WVS for each of the two surveys are underscored in Table 3. The only inconsistent trend in the factor loadings across the 13 items was that the value "scientific study" did not load on either factor for the 1994 data, while in 2000 this value loaded onto the "wildland utilization" factor. It should be acknowledged that the wildland utilization factor comprised fewer items than the factor labeled "wildland protection." While this does not invalidate the factors our analysis exposed, it may indicate the existence of other wildland use issues (such as community and individual uses) that should be included in future applications of the WVS.

Conclusions

A shift in public perceptions of wilderness may indicate a growing concern for the stewardship of lands already in the NWPS (Hendee and Dawson 2002; Watson et al. 1995) relative to desire for designating more federal lands. A shift toward greater concern for stewardship is consistent with the public's growing interest in the nonuse values of wilderness and in the improvement of the natural condition of extant wilderness areas. Our results showed higher proportions of respondents in 2000 (80% to 90%) relative to 1994 (around 75%) indicating nonuse values to be "very" to "extremely important." These nonuse values include protecting water quality, providing habitat for wildlife, protecting air quality, and supporting endangered species.

Whites, older people, and western residents were significantly more aware of the NWPS, but significantly less likely to agree that we need more acreage than their nonwhite, younger, and eastern counterparts. The recent rapid growth of numbers of older midwestern and western residents may in large part explain the recent seeming decline of support for more wilderness. Projected rapid growth of the younger, eastern, and nonwhite population, however, is likely to be a moderating influence on this trend.

Further supporting the notion that there may be a trend toward greater stewardship of the NWPS is that off-site, nonuse values of wilderness moved even more firmly to the top of the list of 13 values. Combined, those nonuse values at the top of the list in Table 2 form the factor we have labeled "wildland protection." Findings from other studies of environmental values are consistent with these results. There has been speculation that a fundamental shift has occurred in what people

value in forests and other natural environments. This suspected shift is away from the dominant social paradigm (that emphasizes economic growth and human dominance and use of nature) toward a new environmental paradigm (emphasizing sustainable development, harmony with nature, and a balance of human and nonhuman uses and nonuses) (e.g., Bliss, 2000; Steel and Lovrich 1997; Xu and Bengston 1997).

Discussion

Congressional testimony and other records suggest that much of the original justification for establishing the NWPS focused on use values. In the 1950s and early 1960s, as debates grew more intense about legally creating a wilderness system, there seemed to be an almost endless wildland base. Thus, wilderness, as an aesthetic resource, was not viewed by most people then as being a scarce resource. There were, however, some at that time, such as Howard Zahniser (Scott 2001), who did see clearly the growing scarcity of protected wildlands. But to most Americans, it seems, federal lands represented economic opportunities and raw materials needed to boost the nation's industries. Naturally, selling the concept of a national system of protected lands at that time in our history needed to emphasize use values.

Over the years, as our economy has grown and as we who are fortunate enough to live in this country have prospered, we have looked more and more at natural lands for their beauty, naturalness, and wildness. Much less, it seems, is wilderness valued for its personal or business utility, or even for its use in science. It seems more and more that ecological and existence values are central to Americans' viewpoint on wilderness. It is increasingly

clear that protection of the lands within the NWPS from development and exploitation is what most Americans want (Cordell and Overdevest 2001). Failure to include nonuse values in cost/benefit analyses can clearly underestimate what society sees as most important about the NWPS and lead to biased allocation decisions favoring use of wilderness areas for personal benefits and profits (Loomis, et al. 1995; Oglethorpe and Miliadou 2000; Rolfe et al. 2000).

As our American society works its way into and ultimately through the 21st century, there is a need to pay closer attention to what our society values most about wilderness. It is incumbent upon us as social scientists to continue to ask the public where their values lie. Public Law 88-577 (The Wilderness Act) established the NWPS as a system of wild areas to be protected in perpetuity. A philosophy of wilderness protection, permissible uses, and a range of values are presented in that act. But it is clear in reading the language that a great deal of leeway is given the secretaries of agriculture and interior, and, thus, is given the four agencies charged with managing the NWPS. Therefore, the range of interpretations of what was intended then and what is most appropriate now is quite broad.

Local communities see wilderness as a source of clean water for domestic and agricultural uses. Outfitters, guides, and other commercial service



Figure 3-The public has expressed value in protecting endangered species and other wildlife in wilderness. Photo courtesy of Aldo Leopold Wilderness Research Institute.

providers see the scenery and challenge of wilderness areas as the attractions that make their enterprises possible. Mineral extraction and ranching industries see wilderness as lands offering mining and grazing returns, usually at very reasonable costs to the businesses involved. Outdoor equipment manufacturers see wilderness as prime recreation opportunities attracting greater purchases of outdoor sport equipment. Usually, these use interests and the management and policy perspectives so much a part of the culture of federal agencies, are "at the table" when management and allocation issues are being considered. Usually, nonuse interests—that is, the interests of the majority of Americans—are not "at the table." Research portraying this majority interest allows us to bring that broader American

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voice to the table, a voice that is a broader representation of American culture and a greater magnitude of value. 

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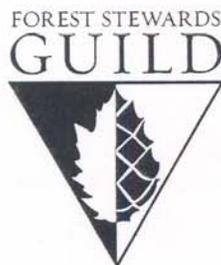
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