CHAPTER VIII

WILDERNESS USES, USERS, VALUES, AND MANAGEMENT

Invited Papers:

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This chapter is a compendium of six papers written to add further depth to our national assessment of Wilderness, begun with the previous chapter. The first three papers summarize research and experience about the identity of Wilderness users and how Wilderness is used, use of Wilderness for personal growth, and changes of Wilderness values. The second three papers summarize the management situations and policies of three of the federal Wilderness management agencies–the U.S. Forest Service, the Bureau of Land Management, and the National Park Service. With these papers much can be learned about the significance of and issues surrounding Wilderness in the United States.

WILDERNESS USERS AND USE: RECENT ADDITIONS TO UNDERSTANDING

(By Alan Watson and David N. Cole, USDA Forest Service, Missoula, MT)

Scientists at the Leopold Institute, a research unit maintained in Missoula, MT, by the departments of the Interior and Agriculture, have recently conducted or sponsored studies intended to measure aspects of Wilderness visits and visitors at areas where there are comparable data from earlier studies dating back to the 1960s and 1970s. Such areas with comparable historic data include the Boundary Waters Canoe Area Wilderness in Minnesota, the Desolation Wilderness in California, the Shining Rock Wilderness in North Carolina, the Bob Marshall Wilderness Complex in Montana, and the Eagle Cap Wilderness in Oregon. The text that follows summarizes the trends found through comparisons of past and more current studies.

Things That Have Changed

Many demographic and user pattern variables were studied, but only a few strong, consistent changes were found. These changes were in age, gender, and education and in the proportion of visitors with previous experience at other Wildernesses.

Age

The average age of Wilderness visitors increased across most areas. Average ages of Wilderness hikers in the early years of the National Wilderness Preservation System were most typically in the mid-20s. In the 1990s, the average age of wilderness hikers is in the mid-30s.

Gender

Women are found in increasing numbers in Wilderness today. In most Wilderness studies of the 1960s and 1970s, the proportion of women usually was not over 25 percent. In the 1990s, the proportion was close to one third, and sometimes exceeded that number.

Education

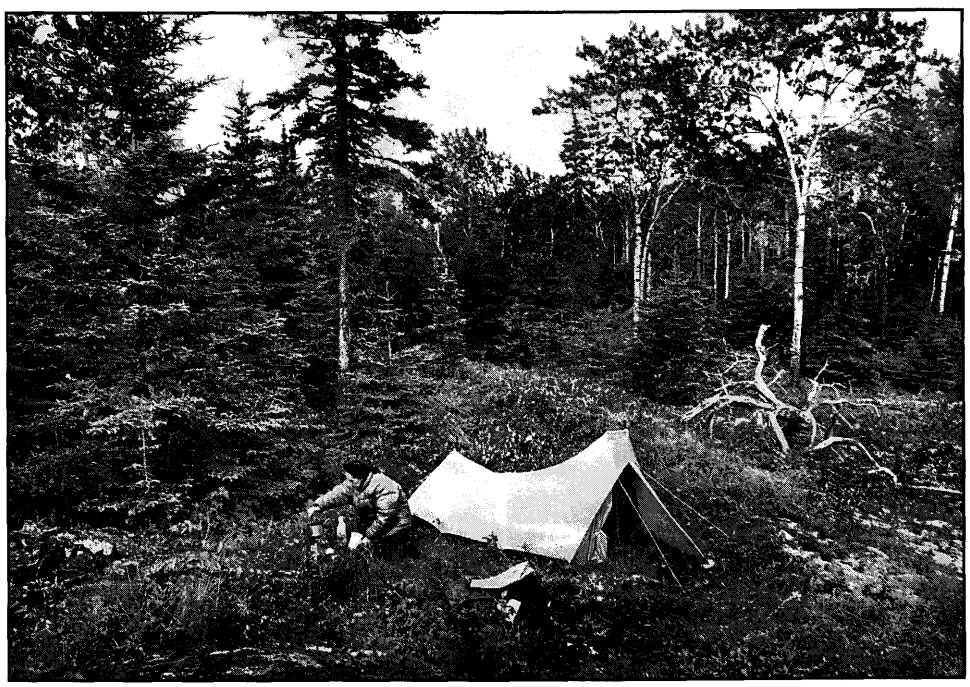
Education levels of the general U.S. population have risen since the NWPS was created, and Wilderness users have always been more highly educated than the general population. Over the 30 years of the NWPS's existence, however, education levels of visitors have changed at an even higher rate. For example, at the Boundary Waters Canoe Area Wilderness, the proportion of the sample indicating some graduate-level education (study beyond the BS/BA degree) rose from 15 percent in 1969 to 41 percent in 1991. Most Boundary Waters visitors come from Minnesota, where Census data show that the proportion of the state's population with some graduate education increased from four to six percent between 1970 and 1990. For Boundary Waters visitors, the median level of education increased from 13.1 years in 1969 to 16.4 years in 1991.

Previous Wilderness Experience

The proportion of today's Wilderness visitors who have visited other Wildernesses has grown significantly. At the Desolation Wilderness, where only 61 percent of visitors in 1972 reported previous visits to other Wilderness locations, 94 percent of 1992 visitors reported such experiences.

Things That Have Not Changed

A few factors did not change in most areas. These included the size of population centers people live in, the number of days spent in wilderness during a year, the proportion of visitors who hike, photograph, or swim, the typical distance traveled off-trail, the number of groups encountered around campsites, the ability to find campsite solitude, evaluations of impacts, and support for outhouses, cement fireplaces, interpretive signs, natural fisheries, and restriction of number of visitors.



Although wilderness visitation is thought of primarily as a male activity, an increasing number of wilderness enthusiasts are women. Female camper in Isle Royale National Park Wilderness area in Michigan. Photo courtesy of USDI National Park Service. Photo by Richard Frear.

Current Residence

While there are regional differences in the sizes of communities people are coming from to visit Wildernesses, at specific Wilderness Areas the types of places people come from have been consistent across time. In North Carolina, where the Shining Rock Wilderness is located, the median type of origin in both 1978 and 1990 was a city with a population of about 30,000. For North Carolina this is a big place. In that state the median population level of communities was 7,500 in 1980. Nationally, it was 70,000. In California, Wilderness visitors came predominantly from the large population centers of that region, much larger places than origins for Shining Rock visitors.

Number of Days Spent in Wilderness in the Past Year

The total amount of time visitors spend in any Wilderness in a year has remained constant. Of course, differences exist across regions and even across users at a particular area. For instance, at the Desolation Wilderness, day users averaged a little fewer than five days in the past year and campers averaged around 11.

Proportion of Visitors Who Hike, Photograph, or Swim

From the many activities that Wilderness visitors participate in, the frequency of hiking, photographing, and swimming have not changed at most areas. These activities have remained extremely popular.

Distance Traveled Off-Trail

Studies across time suggest that visitors have not varied the distances they travel off-trail during a Wilderness visit. While overnight visitors sometimes travel farther within Wilderness now than they once did, the amount of off-trail travel has not increased. Reports of off-trail travel varied greatly between parties, but the average remains about two to 2.5 miles for overnight visitors to the Desolation Wilderness.

Number of Groups Encountered Around Campsites

Overall, reports of number of campsite encounters with other visitors have not changed across time for most areas. Use densities, and therefore encounters, vary considerably across areas and across different zones of individual Wildernesses.

Campsite Solitude

The proportion of those who were able to find the level of solitude they desired at campsites has remained constant over time at most areas. Despite reported increases in use levels, this aspect of solitude achievement was consistent. At the Boundary Waters Canoe Area Wilderness, about one-third of the visitors still see more people than they desire to see nearby.

Evaluations of Impacts

Visitor perceptions of the seriousness of resource impacts from recreation use did not change appreciably at most places. On a scale from "very poor" to "very good," Desolation Wilderness visitors in 1972 and 1990 evaluated wear-and-tear conditions to be "very good." More experienced users, however, typically have significantly poorer evaluations of resource conditions than less experienced users.

Support for Outdoor Facilities, Interpretive Signs, Natural Fisheries and Visitor Restrictions

Some of these management actions can be quite controversial. While overall support has remained constant, types of users differ in their views of visitor support. Day users often demonstrate a fairly neutral attitude toward outhouses, while campers feel slightly negative about them; day users are slightly supportive of interpretive signs in wilderness, and campers are slightly negative.

Visitor Attitudes and Beliefs

Several studies have been conducted at specific places to understand how visitors feel about Wilderness, but only one study was conducted to investigate how attitudes and beliefs have changed over time.

Attitudes Toward Appropriate Behaviors

At the Eagle Cap Wilderness in Oregon, it was found that between 1965 and 1993 visitors demonstrated consistent increases in evidence of a deep commitment to "an enduring resource of Wilderness" and a more purist attitude toward appropriate behaviors. When appropriate behaviors were explored, visitors were asked if they should be able to camp wherever they please in Wilderness. Nearly two-thirds of the 1965 visitors agreed

with that statement, but less than one-fourth of the 1993 sample agreed. A similar level of change was exhibited in response to a question about appropriateness of cutting wood for a campfire or tree boughs for a bed. Attitudes toward the necessity of a campfire, burying noncombustible trash, bringing radios into the wilderness, and taking shortcuts all showed similar shifts in perceptions of appropriateness. Current visitors have become much more concerned about their impacts on wilderness.

Values of Wilderness Visitors

Support for allowing lightning-caused fires to run their course increased from about three percent in 1965 to 44 percent in 1993 at the Eagle Cap Wilderness. Similarly, over one-third (44 percent) of the 1993 sample supported allowing heavy infestations of native insects to run their course in wilderness, compared to only five percent support in 1965. The apparent value placed on risk and being self-sufficient is reflected in the decrease in support for placing highest priority on the rescue of injured or lost visitors. Some items with less dramatic changes, but still demonstrating significant shifts in a more purist direction, include reduced support for allowing pack animals, livestock grazing, hunting, and building corrals for livestock in Wilderness. Support for charging fees to visit Wilderness decreased.

Conclusions

While some demographics of both the U.S. population and Wilderness users have changed substantially, there are no corresponding shifts in kinds of trips or preferences for Wilderness conditions encountered. This finding suggests the possibility that most visitors keep returning to the same Wildernesses while getting older, more experienced, and more educated. Alternatively, different people may be visiting Wilderness, taking similar types of Wilderness trips and showing comparable attitudes about what they encountered there. In either case, managers may need to worry relatively little about the sociodemographic shifts predicted in the future. Further changes in age distribution, educational achievement, gender distribution, and past wilderness experience would not be expected to lead to changes in how visitors enjoy Wilderness. However, there could be a relationship between other changing sociodemographic variables and changes in Wilderness visitors, values, and views about appropriate Wilderness behaviors. For instance, there is very little historic information on ethnicity trends of Wilderness visitors. If this character of society changes in most parts of the country as it is predicted, unanticipated shifts in use characteristics and values could occur.

HISTORY AND STATUS OF USE OF WILDERNESS FOR PERSONAL GROWTH

(By Gregory T. Friese, Camp Manito-wish YMCA, and Michael L. Kinziger and John C. Hendee, University of Idaho Wilderness Research Center, Moscow, ID)

The use of Wilderness for personal growth, education, therapy, and leadership development has grown significantly since the 1962 arrival of Outward Bound® in the United States. A nationwide survey of the Wilderness Experience Program (WEP) industry identified 700 organizations offering Wilderness programs for personal growth (Friese, 1996). Another nationwide survey of Wilderness managers revealed in their estimate that WEP use was increasing an average of 15 percent per year (Gager, 1996). WEPs use Wilderness as both teacher and classroom with various impacts. The growth of WEPs will create Wilderness management challenges as well as opportunities for increasing Wilderness benefits for people.

Introduction

For several years, some researchers have suspected that use of Wilderness for personal growth, education, therapy, and leadership development was growing. This perception was fed by publicity about accidents, frequent encounters with advertisements, and literature about diverse Wilderness experience programs (WEPs), such as Outward Bound® and the National Outdoor Leadership School (NOLS). In an investigation by the authors, a number of questions were addressed: How fast is personal growth use increasing? How many WEPs operate in designated Wilderness? What kind of methods do they use? How many WEPs practice Leave No Trace methods? How many people participate? And collectively, what are the characteristics and dynamics of the WEP industry these programs represent?

Wilderness Experience Programs

A Wilderness Experience Program (WEP) takes customers into Wilderness or comparable areas to develop their human potential through personal growth, education, therapy, and leadership or organizational development activities (Hendee & Brown, 1987; Roberts, 1989). Potential aims of WEPs include therapy and rehabilitation, changing delinquent behavior, breaking chemical dependency, acceptance and adjustment to disabilities, spiritual renewal, physical challenge, and character building. All are based on the healing and inspirational elements and challenge opportunities of Wilderness experiences. Technical skills development may be an integral part of a WEP, but such benefits are secondary to the central goals of personal growth, education, therapy, leadership development, or organizational development. WEPs use either designated Wilderness or other public or private areas that have the characteristics of naturalness and solitude.

In a national survey of WEPs, snowball sampling was used to identify potential WEPs from a variety of data sources, including previous research, advertising and listings in popular literature, association directories, and WEP referrals (Friese, Hendee & Kinziger, 1997; Friese, 1996). By this method, 700 potential programs were found. The total was much higher than anticipated, especially since the sample did not include Boy Scout or Girl Scout troops, community or church recreation programs, outfitters and guides, adventure travel businesses, or Wilderness skills instruction or work programs. In the spring of 1995, potential WEPs were contacted and asked to respond to a short postcard survey and return examples of their promotional material. Nearly 70 percent (484) of the programs contacted responded. Of the respondents, 366 were classified as WEPs. Thus, if the classification were proportionally correct, there are more than 500 WEPs for personal growth operating in the United States.

Historical Background of WEPs

Changing views of wilderness, from being an obstacle to conquer to a healing and rejuvenating environment, have contributed to the growth of the WEP industry. Youth camping organizations and the Boy Scouts extensively use the outdoors to stimulate personal growth. The development of trail and campsite networks, the leisure boom after World War II, and creation of the NWPS contributed to the rapid expansion of WEPs following the arrival of Outward Bound® in 1962. In the last three decades, such schools have continued to expand, and hundreds of other organizations have adapted their methods and philosophies.

The rapid expansion of the WEP industry has been fed by acceptance of the idea of Wilderness as a restorative environment. For example, the Wilderness Education Association (1995) "promotes national Wilderness education and preservation programs by providing expedition-based Wilderness leadership courses through affiliated colleges, universities, and private organizations nationwide" (p. 3). At Catherine Freer's Wilderness Therapy Expedition (1995), students "learn to recognize and deal with their behavioral and emotional problems throughout the trek." Wilderness Transitions, Inc. (1994) describes the Vision Quest as a "time and natural, quiet place to look within to see again who you are, what you think and feel, where you are going." In Earlham College's Southwest Field Studies program, students "study natural history, resource management, and outdoor education while backpacking through American deserts" (Earlham College, 1995). Longacre Expeditions (1995) employs challenge adventure activities, such as "ropes and initiatives, backpacking, mountaineering, rock climbing, and white water rafting," to meet personal growth goals.

WEP Industry Dynamics

The industry is characterized by a few large, well-established organizations and many new smaller ones. In this study, nearly one-fourth (25 percent) of the WEP respondents run five or fewer trips per year, and nearly 40 percent (39 percent) offer fewer than 10 trips per year. This number is balanced by the one-third (33 percent) of respondents, the larger, more prominent WEPs, who offered more than 31 trips or programs annually.

Additionally, 17.1 percent of all WEPs had fewer than 25 clients participate in their trips or programs in 1994, and 41 percent served fewer than 100. One-third (30 percent), however, served more than 500 clients that year. The large mean number of clients (1,435) and modest median number (169) reflect the influence of the largest of the WEP organizations on the industry totals. For example, some large operators, such as the Glacier Institute and Teton Science School, serve thousands. They couple Wilderness trips with education programs, visitor and interpretive centers, conference facilities, or other non-WEP attractions.

WEPs serve a broad spectrum of people in society, including youth, executives, women, people in therapy, people with disabilities, and many more. The leading clientele categories for all types of WEPs are either youth, youth-at-risk, or college students. Thus, although they serve a full spectrum of people, WEPs focus primarily on youth.

Hikers along a trail in Isle Royale National Park Wilderness area in Michigan trek through virgin forests. Photo courtesy of USDI National Park Service. Photo by Richard Frear.

Several large, well-known organizations, such as Outward Bound® and the National Outdoor Leadership School, lead the industry in several ways: number of clients they serve, prevalence in research and popular literature, and setting operating standards. For example, since 1962, more than 300,000 people have participated in U.S. Outward Bound® programs (New York City Outward Bound® Center, 1995). There has been widespread adoption of the Outward Bound® model, philosophies, and methods by WEPs focused on self-improvement and behavior modification, which may contribute to the inaccurate notion among the public and land managers that WEPs are few in number and have similar aims and methods. The exact number of direct adaptations and modified adoptions by public and private schools, colleges, universities, correctional institutions, and private organizations of Outward Bound® has been estimated to range from 200 to thousands (Conger, 1992; Krakauer, 1995; Messier, 1984; Powch, 1994; Wilson, 1981; Zook, 1987).

The WEP industry is characterized by frequent turnover of smaller programs entering and exiting the industry. These changes make it difficult to maintain a current directory of programs. Miner (1995, p. 175) found that "only 20 percent of provider organizations appearing in a 1989 listing of outdoor-based training providers remained in the 1993 edition." O'Keefe (1989) found that in three years, 20 of the 58 possible academic orientation programs using Wilderness were no longer operating, mostly due to financial and staffing problems. The recent *Directory of Wilderness Experience Programs* assembled in this study will also soon be obsolete as WEPs continually enter and exit the industry (Friese, 1996).

It is difficult to achieve financial success with revenue from only a few trips and participants. There are numerous barriers to increasing the number of trips and participants due to limited operating seasons on the areas they use and the time constraints of their participants. A good example are WEPs that primarily serve youth and are limited to the summer or nonschool season. The time required for WEPs may limit trips and revenue. For example, Wilderness Transitions' Vision Quests require a two-month trip cycle, including four pretrip meetings, an eight-day wilderness trip including a four-day solo fast, and a post-trip reunion two weeks after returning (Riley, 1997). Limited permit allocations and the seasonality of activities, such as whitewater rafting and some Wilderness areas, can also limit trips.

WEP Land Use and Management Issues

Over half (57 percent) of all WEP survey respondents indicated they used designated Wilderness. More than half (61 percent) of all WEPs said they use private land, which may indicate only that respondents have offices, ropes course facilities, or staging areas on private land, not just that they run trips on private land. Despite the large number of WEPs using designated Wilderness, only 65 percent of WEP respondents said they provide minimum impact training. Also, a recent study of Wilderness managers of areas reporting WEP use found that virtually all managers who believe that WEP Wilderness use is increasing also believe that WEPs frequently dodge the permit system (Gager, 1996). Better understanding of the WEP industry will help manag-

ers improve communication with WEPs, help reduce WEP impacts on the land and other users, and help address other WEP issues.

How WEPs Use Wilderness: Teacher Vs. Classroom

WEPs use of and impact on Wilderness vary. From our survey, a conceptual model (continuum) was created based on how WEPs use Wilderness, a continuum of methods with "Wilderness as Teacher" at one extreme and "Wilderness as Classroom" at the other. A method is in essence the way a WEP pursues its goals. WEPs employ a variety of methods that help determine activities, required setting, leadership, outcomes, learning transfer, and goals. It is difficult to pinpoint any single WEP on the continuum because many programs utilize a range of methods, i.e., Wilderness as both teacher and classroom.

The continuum of WEP methods for using Wilderness, as teacher vs. classroom, and associated attributes are proposed in Figure VIII.1. For example, trip leadership refers to the role of the trip leader in facilitating or guiding participant outcomes. Activity emphasis, whether soft skills or hard skills, is closely related to the role of the trip leader.

In the "Wilderness as Teacher" approach, the trip leader is relatively passive, allowing the wilderness to teach. Presumably, therefore, the program's success depends heavily on Wilderness characteristics. For example, Kent Mountain Adventure Center (1995) states, "We provide the gear and the supervision, but the Wilderness is the big teacher." Wilderness Discovery, a program designed for youth-at-risk in the Federal Job Corps, is touted as a low-risk, soft skills Wilderness experience (Russell & Hendee, 1997). Thus, the "Wilderness as Teacher" approach lends itself to passive leadership, soft skills, and reflective activities.

In a "Wilderness as Classroom" approach, trip leadership is more proactive, setting up activities and situations. Wilderness becomes a classroom for learning, combining some of the characteristics of Wilderness, the components of the activity, and the aptitude of the instructor. The S.O.A.R. program (1996) brochure states, "the out-of-doors provides an ideal classroom where relevant learning can occur and life skills can be taught." Active trip leadership and using "Wilderness as Classroom" lends itself to challenge adventure and hard skills activities.

Figure VIII.1: Proposed Continuum of WEP methods from "Wilderness Is Teacher" to "Wilderness Is Classroom," Based on 246 Programs Classified (n=246)

Wilderness is Teacher				Kind of Program					Wilderness is Classroom
Method n=246	Mountains speak for Themselves (1)	Reflection (17)	Rite of Passage and Initiation (24)	Expedition Learning (11)	Environmental Education (37)	Field Classroom (33)	Counseling (14)	Challenge Adventure Activities (106)	Conscious Use of Metaphor (3)
Self	determine and reflect own issues and outcomes	realize and affirm goals, talents, and values	reflecting, preparing, and celebrating	individual has group responsibilities	understand connection to nature	set individual learning objectives	focused on correcting behavior	success and accomplishment lead to growth	experience is metaphoric
Group	logistical and safety purpose	may help individuals	supports the individual	depends on group cooperation	part of connection	team learning and research	feedback to group members	encourage success	metaphoric to other groups
Nature	gives logical consequences	reflects goals and talents	mirrors back to them	gives performance feedback	used to demonstrate connection	classroom	environment for diagnosis and correction	setting for activity	setting for metaphoric activities
Leader	passive	creating success and reflection situations	passively guides transition	transfers leadership to participants	actively teaches connections	guides educational experience	gives feedback and actively engages	actively creates success experiences	actively facilitates and debriefs

Role of Trip Leadership

Passive trip leadership ⟷ Active trip leadership

Relative Dependence on Wilderness Characteristics

Greater dependence ⟷ Lower dependence

Do WEPs Need Wilderness?

Wilderness dependence refers to the relative degree to which a WEP requires the defining characteristics of Wilderness, such as naturalness and solitude, to meet goals. The typology implies that "Wilderness as Classroom" methods may have relatively low Wilderness dependence, since they have more proactive leadership. But it is clear from promotional materials gathered in the study that such programs also see Wilderness as vital for designing metaphors, creating a positive environment for growth, and providing opportunities for challenge adventure activities. Furthermore, the physical features on which challenge adventure activities rely, such as whitewater rivers or mountain peaks, are often only available in Wilderness.

Summary and Conclusion

The WEP industry has grown significantly since the 1962 arrival of Outward Bound®. Today more than 500 organizations offer Wilderness experiences aimed at personal growth, education, therapy, and leadership development. Continued growth seems likely in a fast-paced, complex, and stressful society, for which WEPs can provide an antidote. The fact that WEPs are numerous and diverse reveals adaptation in the industry to meet different needs and goals.

While WEPs serve a diverse spectrum of society, youth have been the dominant clientele. Despite the diversity of the industry, a few large operators account for most use, have been the focus of most of the research, and are the most familiar to land managers. Dominance by large operators may contribute to a lack of full understanding of the WEP industry by Wilderness managers, despite their responsibility for allocating and regulating use through permits and fees.

Growth in the WEP industry suggests that training trip leaders and clientele in minimum impact methods and a positive and cooperative relationship with agency Wilderness managers will be increasingly important. Fewer than two-thirds of WEP respondents in our study provide such training, and over half of Wilderness managers in another survey think WEPs dodge the permit system (Friese, et al., 1997; Gager, 1996).

As Wilderness areas grow more crowded, WEPs that require the Wilderness characteristics of naturalness, solitude, and primitive challenges to meet their goals will have the most difficulty finding substitutes for designated Wilderness as suitable locations to operate. Efforts to protect naturalness and solitude are of greatest value to these WEPs, which feature the healing qualities of "Wilderness as Teacher." Likewise, WEPs that feature "Wilderness as Teacher," emphasizing reflective activities, would seem to impact Wilderness the least. Finally, WEP use of Wilderness to teach social values and healing has large benefits for society as a whole. Wilderness managers will be able to consider these benefits when evaluating Wilderness regulations, restrictions, and use allocations.

CHANGING WILDERNESS VALUES

(By Alan Watson and Peter Landres, USDA Forest Service, Missoula, MT)

In addition to work on Wilderness use and users as reported earlier in this chapter, scientists at the Leopold Institute have conducted or sponsored other studies aimed at understanding the values of Wilderness protection in the United States. Biologists, ecologists, and social scientists have merged their knowledge in terminology and perspective to seek ways to improve Wilderness management in the future. Current knowledge suggests that values are constantly changing. The source of this change is a combination of general societal trends and specific influences on Wilderness values.

Creation of a National Wilderness Preservation System, with instant classification of over nine million acres of Forest Service lands as Wilderness, reflected the values of U.S. society at that time. Emphasis was on preserving and protecting for the American people of present and future generations an enduring resource of Wilderness. Wilderness was to be administered for future use and enjoyment by the American people. The act stressed both preservation and use of these places, particularly for recreation.

Wilderness areas are receiving increasing numbers of visits by backpackers, day hikers, anglers, horseback riders, canoeists, berry pickers, photographers, and hunters. Recreation use increased steadily through the 1960s and 1970s, into the early 1980s, when it appeared to level off. By the late 1980s, a resurgence of growth in Wilderness visits occurred and it continues today. Along the way, nearly 100 million additional acres were legally classified as Wilderness, adding land managed by the NPS, BLM, and USFWS, as well as more FS land, and that system of protected lands continues to be considered for additional growth today. With many changes in society and how people view protected areas, what are the values we associate with Wilderness today? How has society changed, what forces have worked to influence our beliefs about Wilderness?

Wilderness in 1964: Preserved and Managed for Human Values

When supporters of the NWPS in the early 1960s spoke of future generations, they were talking partially about today's society. Hubert H. Humphrey introduced the original legislation in the House of Representatives. Senator Humphrey passed away in 1978. Howard Zahniser, the person who authored much of the original legislation and who campaigned for passage of the Wilderness Act all through the 1950s and early 1960s died just shortly before passage. The influential philosophers and scientists who were commonly quoted during Wilderness debates (Muir, Leopold, Marshall, Marsh, Thoreau) were mostly of an even earlier era. The baby boom generation was hardly a part of the movement. We are, however, the beneficiaries and stewards of their work, just as future generations will be beneficiaries and stewards of our work.

When the first textbook on Wilderness management appeared in 1978, it relied strongly upon the foundation of these Wilderness philosophers and champions. In the textbook by John Hendee, George Stankey, and Robert Lucas, three major values of Wilderness in our society were acknowledged.

Experiential Value

Muir referred to forests as temples with the trees singing psalms and with these words gave the Wilderness a spiritual quality, with abilities to inspire and provide insight into the connection of all things. Leopold advocated preservation of the American packtrain experience, and Olson found feelings of timelessness important to understanding the ways of the past.

Mental and Moral Restoration Values

Carhart believed that these values contributed to building individual and national character. Leopold, Muir, and Thoreau advocated understanding the challenges of self-sufficiency in order to increase one's self-confidence. The therapeutic values of Wilderness to members of a society challenged by the stresses of modern life were frequently acknowledged.

Scientific Value

At the turn of the century, Marsh thought that there was a scientific value to protecting intact forests. The scientific uses most often mentioned were as baselines for comparison with altered areas. There, complex biological processes could be studied in environments that have escaped the impacts of human progress. Wilderness offered opportunities to study the complex relationships between all organisms and the impacts human activities were causing in areas that were not protected.

General Societal Changes Since Wilderness Protection Began

Many things have changed in our society since 1964. We cannot expect our children to value experiences or places in the same ways we do. And our grandchildren will have different values than our children. With changes in the culture we live in, advances in technology, dramatic changes in the environment, and diversification of the economy, our attitudes toward Wilderness protection are bound to change.

Changing Culture

A spreading U.S. population converts about one million acres of farmland to urban housing, businesses, and roads each year. In our lifetimes we have all experienced basic changes in orientation to the landscape as a result of increasing conversions. Articles commonly appear in National Geographic and local newspapers about the rapid increases in home construction in formerly rural areas. Las Vegas, NV, is adding 6,000 new residents each month. Home construction is proceeding rapidly. From all this development a new culture is evolving. Expectations for recreation, public services, and taxes place new challenges before local administrators. In the United States, education levels are rising. People are improving their understanding of natural processes and how we all fit into the global situation. The racial and ethnic mix of our society is changing rapidly. These cultural changes, among many others, are having profound effects on how our society values protection of wildlands.

Technological Advances

We have advanced technology beyond our expectations of 20 years ago. The World Wide Web provides overwhelming amounts of information for trip planning. The dominant value of our society has been described as efficiency, which is evident in communications (cellular phones, Internet, satellite television, FAX, etc.), transportation (gas mileage, mountain bikes, llamas in trekking groups, etc.) and in medicine (from prevention

to treatment). We are a culture that seeks every technological advantage. Some of this efficiency may reduce our impact on natural places and increase our enjoyment of time we have there. Others, possibly in unexpected ways, threaten our ability to protect unique places and experiences there.

Environmental Changes

Although the environmental awareness movement arose when the Wilderness Act was moving toward passage, we are much more aware of environmental issues today than people were in the 1960s. Commodity extraction impacts are commonly discussed in public arenas. We have changed everything from our deodorants to our vehicle air conditioners to protect the ozone layer. Our attitudes toward beef and the fast-food restaurants that prepare it in quantity have changed due to relationships between tropical deforestation and agriculture.

Diversification of the Economy

Our economy has become much less dependent upon commodity extraction. Just a few years ago, we had many more communities than we do now that were entirely dependent upon the resource base as a source of income. Today, our economy is highly diversified, and we have improved our understanding of how natural amenities influence the local tax base and the local economy.

Specific Influences on Wilderness Values

Some specific things have happened since 1964 that influence how we value Wilderness, and these things seem to continue to affect the beliefs we hold about wildland protection. These changes include our awareness of impacts caused by recreation, media coverage on the beneficial role of natural ecological processes, scientific understanding about the functions of ecological systems, and the loss of natural areas to development.

Awareness of Impacts Caused By Recreation

The images we have of early Wilderness visits often include campsites adjacent to streams or lakes, bedrolls spread on freshly cut boughs of fir trees, heavy cooking utensils, several head of pack or riding stock, and a huge campfire. Times have changed. There is now a higher percentage of solo visitors to Wilderness. The trend is for shorter stays with predominance of day use, and a lower proportion of use depends on pack animals.

While many preferences for naturalness of conditions and lack of crowding persist, Wilderness values have changed. In one in-depth study of values and codes of behavior, Wilderness users in Oregon had changed tremendously in 28 years. In 1965, just one year after passage of the Wilderness Act, 64 percent of visitors believed that they should be able to camp wherever they please in Wilderness. By 1993, that proportion had dropped to only 22 percent. Likewise, 53 percent thought it was appropriate to cut brush or limbs for a bed and wood for a campfire in 1965. In 1993, however, that acceptance rate was down to 17 percent. The symbolic presence of an evening campfire was accepted by 76 percent in 1965, but only 37 percent in 1993. The largest change was in beliefs about appropriateness of burying noncombustible trash. Almost everyone believed it was appropriate in 1965 (87 percent) and almost no one thought it was appropriate in 1993 (9 percent).

In part, these changes in attitudes have resulted from agency-sponsored education programs. Educational signs have been mounted at trailheads and campgrounds to promote Woodsy Owl and a national Leave No Trace program, and we have seen commitment to improved ethics by organizations such as the National Outdoor Leadership School.

Media Coverage on the Beneficial Role of Natural Ecological Processes

At the Eagle Cap Wilderness, only three percent of a 1965 sample of visitors felt lightning-caused fires should be allowed to run their course in Wilderness. By 1993, 44 percent of the visitors expressed that belief. A similar change in attitudes was evident toward native insect infestations. In 1965, five percent of visitors supported allowance of heavy infestations of native insects to run their course in Wilderness, while in 1993, 43 percent of visitors supported that action. It is believed that regional coverage of insect issues and national and regional coverage of fire issues are largely responsible for these swings in attitudes. In fact, there is evidence that accuracy of knowledge about fire effects is closely linked to positive support of prescribed natural fire policies, and that knowledge and support is highest in the regions where wildland fires occur most often and receive press coverage regularly.

Scientific Understanding

Biodiversity, a common goal of ecosystem management today, normally is not highest in currently designated Wilderness Areas. Greater diversity exists in lower elevation areas, which often are privately owned. Ecosystem management reflects concern about the often severe impacts of human activities on natural systems. Today, many people can engage in intelligent conversations about the costs of habitat fragmentation and the impacts of fire exclusion for so many years on the integrity of biological systems.

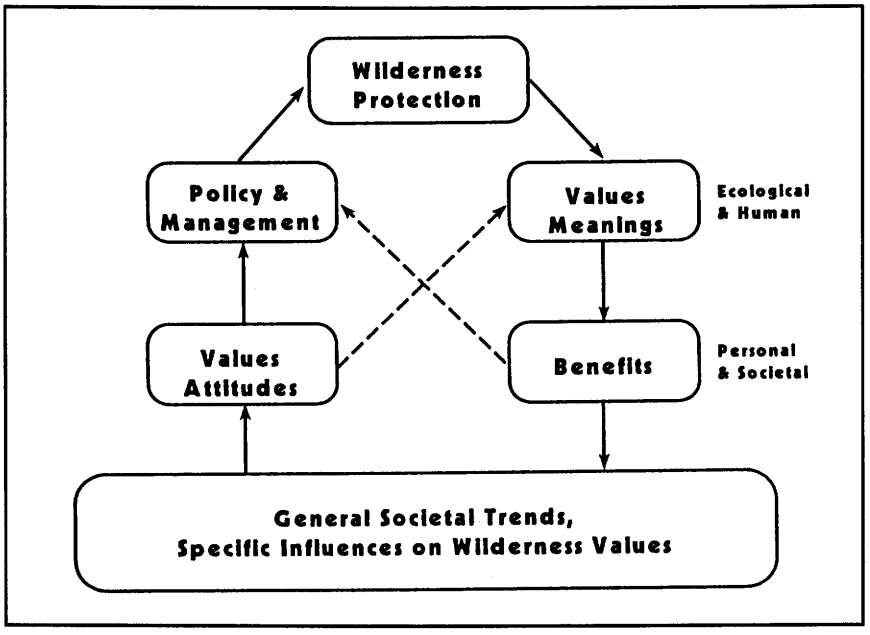
Development and Loss of Natural Areas that Lack Formal Protection

From the local to the national level, there has been a reduction in natural areas. We see it locally in clearing of lands for housing tracts, we hear it regionally when the timber industry and preservation interests debate on the future of remaining, unprotected, roadless lands in the Northern Rockies, and we hear it in stories about wetland development, offshore mineral exploration, and tourism development. Scarcity increases the value of natural landscapes in an urban society that is rapidly developing its unprotected places.

The Importance of Understanding Changes in Attitudes Toward Wilderness

Figure VIII.2 shows how values are modified and eventually contribute to understanding personal and societal benefits of Wilderness protection. In this flow chart the word *values* appears twice. In one place it is equated with *attitudes*. In this case, the general societal trends and specific influences described above combine to influence the beliefs people have about the advantages of protecting Wilderness lands and experiences. These beliefs, attitudes, and values influence formation of legislation, interpretation of legislation into policy, and on-the-ground management activities. In the last few years we have seen increasing mountain bike traffic in nonroaded areas, proposals to open up Wilderness Areas for more motorized access, salvage logging bills that promote commodity values in roadless areas, and increased debate over extending protected status to additional public lands. The challenge of the Resources Planning Act Assessment is to describe societal values accurately in order for the program to prescribe policy for the future. The attitudes of today's society are very different than those found in 1964 due to the many societal and specific influences that have come into existence since that time, and they continue to evolve. That is the difficult aspect of development of policy for the future.

Figure VIII.2: Flow Chart to Understand the Role of Values in Wilderness Management



The second use of "values" can be applied to describe the positive ecological and human services of Wilderness protection. Biodiversity has been judged by humans as a desirable value of Wilderness protection and management. Humans sometimes visit Wilderness for functional reasons, such as hunting, berry picking,

or escaping crowds. On the other hand, some people go to places we call Wilderness because they have personal relationships with that place, or because they desire to acknowledge the significance of entering a place our society has deemed appropriate to protect. These values give rise to either personal or societal benefits, those long-term, higher-order positive purposes of Wilderness protection. Society can benefit ultimately through maintenance of cultural traditions, through physical subsistence, through scientific advancement of knowledge, and through extension of ethical considerations to the natural world. These benefits are ultimately to humans and are constantly changing due to changes in society and specific things we do to influence the beliefs of people about the advantages of providing these benefits. Understanding these changing attitudes toward Wilderness and the human and ecological meanings Wilderness has in our rapidly changing society will continue to be a challenge for public land managers.

FOREST SERVICE WILDERNESS MANAGEMENT

(By Thomas F. Geary and Gerald L. Stokes, USDA Forest Service, Washington, DC)

Since passage of the Wilderness Act in 1964, the National Wilderness Preservation System (NWPS) has grown from its initial 9.1 million to 103.5 million acres. The system now includes nearly 4.5 percent of the total areas of the United States. Four hundred of the total 630 units in the NWPS are managed by the Forest Service, a total of 35 million acres. The Wilderness managed by the Forest Service represents 63 percent of the NWPS in the contiguous 48 states and more than one-third of the entire NWPS when Alaska is included. This amount is 18 percent of the 191 million acres of national forests in the National Forest System (NFS). Forest Service Wilderness areas are found in 38 states and range in size from the 2.3-million-acre Frank Church River of No Return Wilderness in Idaho to the 994-acre Leaf Wilderness in Mississippi.

Forest Service Policy and Management

Forest Service wilderness managers follow agency policy and regulations, derived from the Wilderness Act, to ensure mandated preservation of the Wilderness resource. Increasingly, however, Wilderness decisions are challenged by administrative oversight, judicial and legislative review, and public involvement. These challenges result from provisions in the Wilderness Act that seem at odds with each other in contemporary interpretations. Today's challenges to Wilderness management are best displayed by reviewing parts of the Wilderness Act itself.

Section Two of the Wilderness Act defines a somewhat poetic management ideal. In Sec.2(a),

> Wilderness areas . . . shall be administered for the use and enjoyment of the American people in such a manner as will leave them unimpaired for the future use and enjoyment as Wilderness, and so as to provide for the protection of these areas, the preservation of their Wilderness character.

In the definition of Wilderness articulated in Sec.2(c), the following key phrases provide the philosophical framework to guide managers in implementing the Act

> an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain; land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions; and which generally appears to be primarily affected by the forces of nature, with the imprint of man's work substantially unnoticeable.

The act provides the fundamental basis and intent for Wilderness management in Section 4(c). In this section is the clause entitled, "Prohibition of Certain Uses." This clause generally limits commercial enterprises, permanent roads, motorized equipment, and mechanical transport. However, the act is complicated by the political compromises that were necessary for its passage. These compromises are embodied in Sec.4(d), "Special Provisions," which provides for exceptions to the prohibitions found elsewhere in the act. Special provisions allow, under certain conditions subject to regulation by the secretary of agriculture, the continued use (where established prior to Wilderness designation) of aircraft and motorboats, livestock grazing, mineral exploration, and mining. Commercial outfitter and guide operations may also be allowed "for activities that are proper for realizing the recreational or other Wilderness purposes." These allowances require Wilderness man-

agers to revisit Congressional intent and interpretation of the act continuously, and of other legislation adding units to the NWPS, using management policy set forth in Forest Service Manual direction.

Several current situations illustrate the inherent dilemma these definitions and provisions pose to managers and the trend toward more administrative, legal, and political challenges to Wilderness management decisions. These situations include proposed legislation to abrogate Forest Service regulations limiting motorized use in the Boundary Waters Canoe Area Wilderness in Minnesota and the Sylvania Wilderness in Michigan; a court decision limiting the facilities and structures the Forest Service could allow to support outfitter and guide operations in the Frank Church River of No Return Wilderness in Idaho; and administrative and judicial decisions that uphold Forest Service management of livestock grazing in the Gila and Aldo Leopold Wildernesses in New Mexico. The conflict between Wilderness and human development is sure to increase.

The Benefits from Protecting Wilderness

Wilderness provides habitat for some of the country's rare and endangered species to sustain their gene pools. In Wilderness, natural processes dominate, within practical limits. Wilderness protects geological resources, is a unique repository of historical sites, and is a laboratory for research on mostly unaltered natural systems. The water supply of many cities and rural communities comes from the headwaters of streams and rivers flowing from Wilderness. Activities that conflict with Wilderness character, such as mining and grazing, are permitted if they existed before a Wilderness was designated by Congress. Local and regional economic development benefits from hunting, fishing, livestock grazing, mining, irrigation, and tourism in Wilderness. Wilderness provides solitude, recreation, and a resource for teaching conservation and ecosystem management.

Growth of the NWPS and increased understanding of the physical, biological, and social interactions between Wilderness and surrounding landscapes has brought increased recognition of the complexity of managing these wildlands. The uniqueness of Wilderness requires an approach different from that used over the rest of the NFS in managing grazing, mining, and oil exploration; resolving fish and wildlife management issues; administering access across NFS lands to private inholdings; management of structures and other modern, unnatural intrusions; conducting research; dealing with adjacent development and its associated effects; regulation of fire, in particular, facilitating the role of fire as a natural process; and preserving environments of primeval character that offer unique, primitive and unconfining human experiences.

The Forest Service objectives in Wilderness management are:

- to preserve and protect the physical, biological and social values of designated Wilderness on NFS lands;
- to provide Wilderness experience opportunities to the public that increase their awareness and understanding of themselves and Wilderness;
- to train agency personnel for their Wilderness stewardship role;
- to maintain strong professional leadership in Wilderness stewardship;
- to improve efficiency in administration;
- and to enhance public and interagency partnerships.

Management actions are taken when necessary to maintain acceptable conditions as specified in land and resource management plans. Many national forests utilize the limits of acceptable change approach.

Recreational Use

Trends in recreation use of Wilderness are not clear at this time. The last major RPA assessment of Wilderness was completed in 1989 and focused on the recreation value of Wilderness (Cordell, et. al, 1990). The assessment found the rate of increase in Wilderness recreation visits had slowed to where use had leveled or even declined in some areas. However, non-recreational use of wilderness for education, scientific study, habitat preservation, and ecosystem preservation was increasing. Since 1989, however, recreation use of Wilderness has increased, especially in backpacking. Patterns of recreation use have also changed. Shorter, more frequent trips are common. Use is more intense on weekends, holidays, and during favorable weather than in past years, especially in Wilderness areas near cities. These changes in how Wilderness is used are expected to continue, but the meaning of these trends for management of overall recreational use remains unknown.

Conflicts abound in the management of recreation in Wilderness. Many hikers dislike encountering horses or even the evidence of horse use in Wilderness. Non-hunters do not want hunting. Subsistence users in Alaska

resent recreational use. Some climbers resist efforts to preserve solitude on popular peaks. A "light-handed" educational approach is typically used with some success in reducing offensive behaviors, changing attitudes based on misconceptions, and increasing tolerance for others. However, strong polarization of values suggests the need for greater efforts at conflict resolution. Increased management actions to minimize unnecessarily severe impacts now caused by recreation are also needed.

Fire in Wilderness

The role of fire in Wilderness is of increasing importance to both managers and the public. Air quality and fire management were major concerns expressed by the public through comments on the 1995 draft RPA program. Public concern about fire and air quality is supported by information obtained through the Forest Service's annual Wilderness reporting process. Only the management of impacts from recreation is a more important issue to the public.

Fire exclusion policies of recent decades threaten Wilderness preservation by interfering with the free play of natural processes specified in the 1964 Wilderness Act. When fire is excluded, fuels accumulate and Wilderness ecosystems become unnaturally dense and dominated by species different from those present under historical fire regimes. These synthetic plant communities are easily damaged by droughts, insects, diseases, and fires.

The conflict between the values of clean air and good visibility and the ecological value of fire is a management challenge. Smoke from fires is a significant but intermittent source of fine particulates that can threaten human health and decrease visibility. The Environmental Protection Agency (EPA) and the states, through implementation of the Clean Air Act, are developing programs to reduce emissions of fine particulates and protect Wilderness from unacceptable effects of air pollution, particularly from industrial sources. The Forest Service is also working with other regulatory agencies to develop practices that better balance the ecological benefits of fire while protecting human health and scenic values.

Forest Service goals for management of fire in Wilderness are to permit lightning-caused fires to play their natural role, yet reduce to an acceptable level the risks and consequences of wildfire. Under these goals, all fires in Wilderness must be prescribed. A prescribed fire is a fire burning under planned, specified conditions to accomplish specific, planned resource management objectives. It may be ignited by nature, for example, by lightning (Prescribed Natural Fire—PNF) or management (Management Ignited Prescribed Fire—MIPF). All other fires are wildfires. PNFs are the preferred means of assuring the role of fire as a natural ecosystem process. Where PNF occurrences are not adequate to accomplish these goals, a MIPF may be needed to supplement the PNF within Wilderness and on adjacent lands. The total land area burned by PNFs has been highly variable in recent years, but remains a tiny portion of that needed to maintain understood natural and historical fire regimes.

Training and Research

The Forest Service seeks to develop excellence in Wilderness stewardship through implementation of the national Interagency Wilderness Strategic Plan (1995). This plan was written by a devoted group of Wilderness experts, and endorsed by leaders of the Bureau of Land Management, National Park Service, U.S. Fish & Wildlife Service, U.S. Forest Service, and the previous National Biological Service. The Arthur Carhart National Wilderness Training Center fosters interagency excellence in Wilderness stewardship by improving managers' and the public's understanding of Wilderness. The Aldo Leopold Interagency Wilderness Research Institute provides improved scientific understanding needed to improve Wilderness management.

In recognition of the importance of Wilderness management and to raise the profile of the Wilderness resource in the agency, in 1996 the Forest Service established the position of assistant director for Wilderness in the Forest Service's Recreation, Heritage, and Wilderness Resources staff.

Future Trends

The greatest challenge facing managers of Forest Service Wilderness in the 21st century will be the continuing increases of human population and associated development surrounding areas of the National Wilderness Preservation System. Population growth, fueled by immigration, and shifting cultural values may bring unforeseen views on how Wilderness should be used and managed. Threats to Wilderness and impacts from human use may particularly impact opportunities for solitude, the role of natural fire, and levels of ambient air pollution.

Additional designation of lands in the National Forest System as Wilderness is a political process usually involving confrontations between commodity and environmental interests. The amount of land area to be added to the NWPS is decided by Congress; the Forest Service only recommends additions. The NFS has an additional 54 million acres of undeveloped, roadless area that might qualify for inclusion in the NWPS. Of this area, Congress has identified more than four million acres covering 40 areas for study and possible inclusion. The Forest Service has already recommended to Congress that 19 of these 40 study areas, an area of 2.5 million acres, be designated as Wilderness. In its forest plans, the Forest Service has identified another 2.1 million acres for consideration. More areas could be recommended as forest plans are revised (usually on a 10-year cycle) and roadless areas are reconsidered.

Given the political complexities of adding to the NWPS, it is impossible to predict how much of the remaining national forest roadless area will be designated. But a conservative estimate would be an increase from today's 35 to 39 million acres in 2045, a rate of increase much less than that predicted for recreation use. The result will be more visitors per unit acre of Wilderness, with possible losses of quality in Wilderness experiences, particularly in the more accessible areas.

Air quality and fire issues, as noted previously, are closely linked. The Forest Service's goal is for natural visibility conditions in Wilderness, including visibility conditions resulting from prescribed natural fire. Managing fire to minimize its effects on visibility and visual quality within and around Wilderness will be a challenge. But without prescribed fire, fuel loads will accumulate and increase the intensity of fire occurrences, perhaps to levels unacceptable for protecting visibility and human health in Wilderness.

Besides addressing fire issues, a huge task will remain for protecting Wilderness from air pollution from industries and cities. It will become necessary to identify specific air quality-related values of Wilderness and the species and resources sensitive to pollutants that should be protected.

Baseline and trend information is needed for all critical values of Wilderness, social, biological, and physical, so they can be monitored for unacceptable changes and effectiveness of management strategies. Currently, no widely accepted set of Wilderness condition indicators have conceptualized, nor is a monitoring system in place.

Under current levels of appropriated funding, the Forest Service may be severely challenged to complete desired actions in the Interagency Wilderness Strategic Plan. If there is stable funding, there may be a steady reversal of extant unacceptable conditions in Wilderness. However, slow, steady progress toward restoration of recreational and solitude values, reintroduction of fire, and mitigation of air pollution effects may be unacceptable to the public. Although conflicts over use, fire, and air pollution may often be resolved in the courts, the Forest Service could resolve an increasing proportion of conflicts if there were better monitoring and research to improve understanding of conditions and trends.

The following individuals provided assistance in the development of the RPA issue paper from which this paper was adapted: Dave Barone, Harry Croft, Jim Saveland, Susan Sater, Liz Close, and the staff of the Aldo Leopold Wilderness Research Institute.

WILDERNESS IN THE BUREAU OF LAND MANAGEMENT

(By Jeff Jarvis, Bureau of Land Management, Washington, DC)

The Bureau of Land Management (BLM) was not included in the original Wilderness Act of 1964 because long-term retention or disposal of land under its jurisdiction had not yet been resolved. By 1976, however, the retention issue had been resolved with passage of the BLM's organic act, the Federal Land Policy and Management Act (FLPMA). In FLPMA, Section 102 directed that extant public land would be retained in federal ownership. Section 603 required the review of BLM land for Wilderness characteristics and required the BLM recommend which lands were suitable for inclusion in the National Wilderness Preservation System. With enactment of FLPMA, BLM joined the other three agencies as a full partner in management of Wilderness. Currently, BLM manages 5.2 million acres as Wilderness.

As directed by FLPMA, an inventory of BLM land was completed and 27.5 million acres (865 areas) in the lower 48 states were identified as Wilderness Study Areas. Study of these potential areas was completed in 1991 and recommendations were made to the president and Congress for designation as Wilderness (Dombeck, 1995). As a result of these recommendations, Congress passed Wilderness legislation for Arizona (1984 and 1990) and southern California (1994), as well as numerous smaller bills designating Wilderness in other states.

As of the writing of this book, the BLM manages 135 areas in the National Wilderness Preservation System in 10 western states. Approximately 22 percent of areas and five percent of the acreage in the National

Wilderness Preservation System are managed by BLM. Wyoming is the only western state without BLM-managed Wilderness. In addition to designated Wilderness, BLM manages 17 million acres made up of 622 Wilderness Study Areas that await Congressional action.

Characteristics of BLM–Managed Wilderness

Although it is impossible to describe the typical BLM Wilderness, they generally differ from other agency Wilderness areas in size; topography, water, and vegetation; accessibility; and historical uses and developments.

Size

The average BLM Wilderness area is 38,500 acres in size, similar to those of the Fish and Wildlife Service in the lower 48 states. Average sizes of Forest Service (76,000 acres) and Park Service (270,000 acres) areas in the lower 48 tend to be larger. BLM Wilderness areas range in size from the 209,000-acre Palen McCoy Wilderness in California to small areas designated as additions to other agency Wilderness areas. These areas include an 800-acre addition to the Frank Church River of No Return Wilderness and a 240-acre addition to the Ishi Wilderness. Twenty percent of the BLM's "stand alone" Wilderness areas are fewer than 15,000 acres. This smaller size increases the miles of boundary relative to the total acres under Wilderness management and increases the potential impacts of outside uses on Wilderness values.

Topography, Water, and Vegetation

In contrast to the rugged headwater landscapes that typify other agencies' Wilderness areas, most BLM Wilderness areas are in lower elevation desert lands. Many are dry. Seldom do the headwaters of a river or minor creek reside within a BLM Wilderness. Springs are often the only source of surface water. Trees may be limited, with the dominant vegetation being brush, cactus, or grasslands. Consequently, many BLM Wilderness areas have values that differ from the prototypical mountainous or alpine wilderness. Numerous ecosystems that otherwise would not be represented in the National Wilderness Preservation System have now been protected as BLM Wilderness.

Accessibility

Locations at lower elevations mean that many BLM Wilderness areas are closer in proximity to local communities. Boundaries are often defined by a highway, road, or vehicle trail, increasing the areas' accessibility to local residents. In many cases, the areas may be more accessible to some local communities than to the widely dispersed BLM offices responsible for management. A large number of the BLM's Wilderness areas are in locations where climate, weather, and elevation ensure virtually year-round access and use. Many BLM areas, due to their size, accessibility, proximity to population centers, and lack of water are essentially used for day use or weekend use instead of longer, two-week, pack trips.

Historical Uses and Developments

Most BLM Wilderness areas have a use history that includes grazing, mining, oil and gas exploration, off-road vehicle use, or other vehicle-based recreation activities. Few BLM Wilderness areas contain developed horse or hiking trails or other facilities designed to support nonmotorized recreation.

Current Management Issues

The BLM is concentrating on three areas: designated Wilderness area management, interim management of Wilderness study areas, and participation in the legislative process. Of these, the first priority is management of the Bureau's 135 Wilderness areas. Immediately after designation, management emphasis is on completing surveys, boundary maps, and legal descriptions; locating and signing boundaries; notifying individuals and groups directly affected by designation; training employees to understand Wilderness management responsibilities; and ongoing patrols and monitoring. Over time, management emphasis shifts to long-term upgrading of staffing, field patrols, monitoring resource conditions, and compliance with use authorizations. Special projects include monitoring mineral operations, restoring past disturbances, public education, completing land exchanges with state and private inholders, and responding to the various requested uses of Wilderness areas. A long-term goal of Wilderness management is to protect or restore the biodiversity of each individual area. This aim includes managing Wilderness in the context of the larger landscape, restoring fire to a natural role, and managing exotic plants and animals.

The second priority for the Wilderness program is management of study areas awaiting congressional action. Section 603 of FLPMA directed the BLM to manage Wilderness study areas, "so as not to impair the suitability of such areas for preservation as wilderness." This "Interim Management" is designed to ensure that wilderness values remain intact until Congress can determine whether a study area warrants Wilderness designation or release.

The legislative phase of the BLM's Wilderness designation process will continue to be dominated by controversy among special interests. With rare exceptions, Congress will likely continue to deal with BLM Wilderness nominations state-by-state, perhaps taking decades to resolve. Legislative issues will include topics such as specific language for releasing areas from study status, aircraft overflights, water rights, acreage to be designated as Wilderness, use of motorized equipment, vehicular access, grazing of domestic livestock, acquisition of or access to privately-owned inholdings, and mining. The BLM will participate in the legislative process to ensure that Congress and the public are informed about the resource values involved and to assist whenever possible in specifying the final law.

Prospects for Wilderness Expansion

Congress is increasingly interested in BLM Wilderness issues and will likely continue to designate new Wilderness areas. Depending on the future actions of Congress, the BLM could ultimately manage 15-25 million acres of Wilderness in the lower 48 states, 20 percent of the total system acreage. More important than total acreage, are the contributions BLM Wilderness makes to the diversity and quality of the National Wilderness Preservation System. These contributions include:

- Expanding the diversity of representation of ecosystems
- Creating linkages with other agencies' Wilderness, which in some cases may complete a mountain Wilderness area and protect surrounding lower elevation lands
- Ensuring the long-term protection of numerous, easily accessible areas in the West
- Expanding Wilderness-based recreation opportunities
- Creating nontypical Wilderness areas in some of the more arid, lower-elevations in western states.

The Future of BLM-Managed Wilderness

Combined, the above factors create a fundamentally different wilderness management challenge for BLM than those faced by the other Wilderness managing agencies. These issues are expected to affect BLM Wilderness in the following ways:

Wilderness Management Emphasis

The unique physical characteristics and management complexities of BLM Wilderness areas represent a departure from more traditional Wilderness management. For many areas, the emphasis will be on restoration of natural values, protection of natural processes, and enhancement of biological values, as opposed to mostly focusing on managing visitor use.

Recreation Opportunities in Natural Settings

Since most of BLM's Wilderness areas have not been managed previously for recreation, the agency has the option of starting with a clean slate. For many areas, priority will be given to protection of the basic Wilderness ecosystem and management of biological values, rather than providing a recreation opportunity. In the long term, this change will mean that these areas will not have traditional recreation facilities such as developed trails, trail heads, or directional signs. Few will contain developments such as bridges or require entry permits. Users will be free to chose travel routes and campsites, and after entering the area can freely travel through and experience completely wild landscapes. Less visited areas are likely to continue to offer freedom to experience outstanding opportunities for solitude. Management to emphasize natural conditions will reduce ongoing construction, maintenance, and management costs.

Creative Management

The BLM is expanding use of field manager positions for Wilderness. Eleven new Wilderness field positions have recently been created to manage areas in the California desert. However, the BLM will not likely have the funding or personnel needed for intensive management in coming years. Indirect management meth-

ods such as offsite education, use of volunteers to assist in management, and partnerships will be emphasized. Management will be undertaken cooperatively with adjacent landowners and communities.

Planning

The era of isolated Wilderness planning is ending. Planning focused exclusively on the area within Wilderness boundaries and exclusion of external issues from Wilderness plans has seemed to hamper effective management. Because Wilderness does not exist in a vacuum, the BLM will continue an ecosystem approach to Wilderness planning. Sound management decisions must consider the larger landscape, and include participation by adjacent land owners, other agencies, state and local governments, tribes, and interested citizens. For example, the BLM in Arizona has developed creative approaches to planning that have immediately improved on-the-ground management.

Science

BLM, along with all other land managing agencies, will be challenged to improve the use of scientific research in wilderness management. With the majority of BLM study areas still awaiting congressional action, BLM has an opportunity to consider recent research results relating to such issues as biological diversity, biological corridors, and plant and animal habitats in decisions on Wilderness designation. Incorporating existing scientific research and developing a Wilderness management process that will quickly adapt to new science as it becomes available will be emphasized.

Special Legislative Language

BLM Wilderness bills often contain special management provisions that deviate from the Wilderness Act of 1964. For example, the California Desert Protection Act and the Arizona Desert Wilderness Act allow motor vehicles for wildlife management and to conduct law enforcement, border patrol, and surveillance operations. The 104th Congress considered a Utah Wilderness bill that would have allowed unprecedented motorized access for a wide variety of uses. Expanded motorized uses were considered to have had valid existing rights, and the bill would have allowed the maintenance and repair of vehicle routes without consideration of Wilderness values or resources.

If the trend toward more legislative direction that differs from the intention of the Wilderness Act of 1964 continues, the long-term effect is expected to be that BLM-managed Wilderness will have a higher incidence of inconsistent uses, greater vehicle use, and more miles of vehicle trails than other agencies. This trend would ultimately lead to creation of two types of Wilderness, with areas designated after 1990 allowing generous use of motorized vehicles and other exceptions to the original Wilderness Act. This practice would, of course, deviate from the earlier stated goal of providing more solitude in undisturbed setting, as well as reducing other Wilderness values.

With addition of Wilderness areas, BLM's responsibilities for management will grow. BLM is committed to improvement of Wilderness management and supports the Aldo Leopold Wilderness Research Institute and the Arthur Carhart National Wilderness Training Center in Montana. The BLM also helps sponsor the *International Journal of Wilderness* and is active in implementation of the Interagency Wilderness Strategic Plan of 1995. The BLM will continue to be a full and equal partner with the Forest Service, National Park Service, Fish and Wildlife Service, and the Biological Division of the U.S. Geological Service to foster stewardship of the Wilderness resource.

NATIONAL PARK SERVICE WILDERNESS MANAGEMENT

(By Wes Henry, National Park Service, Washington, DC)

The Wilderness Act of 1964 significantly strengthened protection and management of National Park Service (NPS) areas designated or recommended as Wilderness. While the NPS administers the largest portion of the U.S. National Wilderness Preservation System, many environmental constituencies believe that NPS Wilderness management has not been effective. Despite the devotion of many field staff, strong leadership in regional or national offices has been lacking to provide needed policy consistency across the agency. A Wilderness task force in 1986 acknowledged a lack of collective understanding of the relationship between the mandates of the 1916 NPS Organic Act and the 1964 Wilderness Act. Wilderness management has not been differentiated from basic park management. Many NPS Wilderness studies and recommendations have languished for longer than 20 years. Recently, however, this passivity has begun to change.

Director Kennedy convened an NPS Task Force in November, 1993, to develop recommendations for improving wilderness management through leadership, partnerships, communication, training, planning, resource management, and designation. The director endorsed the Task Force recommendations on September 3, 1994, the Thirtieth Anniversary of the Wilderness Act. He highlighted them at the Sixth National Wilderness Conference in New Mexico, in November, 1994. Progress toward implementation of these recommendations is continuing.

Leadership

The key task force recommendation for improving NPS Wilderness management concerned better leadership. One specific recommendation was to form a National Wilderness Steering Committee (NWSC). Formed in 1995, this committee is made up of four senior superintendents (Rocky Mountain, Mount Rainier, Great Smoky Mountains, and Saguaro National Parks), the associate director for operations and education, and staff specialists from across the service. The NWSC is providing much needed leadership in four critical areas:

- Revising Wilderness management policies for the National Park Service.
- Developing guidelines for Wilderness management that address Wilderness planning, minimum requirements, cultural resource management, rockclimbing, and scientific uses.
- Ensuring Wilderness management is a critical performance element for superintendents, identified as a major duty for positions with Wilderness management assignments, and incorporated into park plans in response to the Government Performance and Results Act.
- Initiating a Wilderness awards program to honor employees and private sector organizations for excellence in leadership.

In addition to the NWSC, leadership is provided through the national program leader and the intermountain region wilderness coordinator, who also serve on the steering committee.

Wilderness Training

A second major series of recommendations of the Wilderness task force recognized that investing in training is one of the best long-term ways to improve Wilderness management. The NPS now has a full-time trainer stationed at the interagency *Arthur Carhart National Wilderness Training Center* to provide Wilderness-related training to the National Park Service.

The mission of the Arthur Carhart National Wilderness Training Center is to foster interagency excellence in Wilderness stewardship by cultivating knowledgeable, skilled, and capable Wilderness managers and by improving public understanding of Wilderness. Program areas offered include advanced management for line officers and staff, planning, wilderness fire planning, cultural resources management, rehabilitation and restoration, K-12 wilderness box curriculum, management correspondence courses, and Leave No Trace.

The National Park Service has been an active participant in most courses, especially recent National and Regional Wilderness Training courses. This emphasis on training will likely continue as the method because an assessment conducted by the Carhart Center of NPS Wilderness managers and staff show the choice to build skills in planning, public education/awareness, Leave No Trace ethics, resource management, and use management.

Planning

Improved Wilderness planning was another priority identified by the NPS Wilderness Task Force and the Carhart Center. Progress is being made by identifying needed changes to policy, implementing the director's orders on Wilderness, and providing Wilderness guidelines. This three-tiered guidance addresses identification of the Wilderness resource, establishment of accountability, identification of minimum-requirement alternatives, establishment of planning policy, and identification of critical issues in interagency relationships.

In a March 1997 memorandum to superintendents with Wilderness units, the NPS director requested that management and protection of Wilderness be integrated into the individual park strategic plans being developed in response to the Government Performance and Results Act. He asked that completion of an approved Wilderness management plan by 2002 be one of the objectives.

The National Wilderness Steering Committee has authorized the national office to help parks in developing Wilderness management plans where circumstances warrant. One example is the assistance being provided to Cumberland Island National Seashore to address the extreme complexity of that planning effort.

Partnerships and Improving Communications

The task force also urged the NPS to forge Wilderness management partnerships with industry, educators, environmental groups, and other organizations. Many important and creative partnerships have been formed for improving the NPS Wilderness management program. Partnership will likely become even more important in the future as urbanization and population diversification continue.

The 30th anniversary of the Wilderness Act was the springboard for a campaign to bring more attention to Wilderness. The NPS and other agencies developed a cost-share agreement with the National Geographic Society to develop Wilderness education programs for teachers through the Geographic Education Program's *Wilderness Workshop.* Educators were selected from state *geographic alliances* to participate in annual summer institutes. The theme for the 1994 institute was to give participants knowledge and skills about Wilderness and related environmental issues so they can more effectively provide professional development opportunities to their colleagues.

Following the summer institute, workshop participants, working with interagency personnel and the National Geographic Society, spearheaded a campaign to promote enthusiasm and awareness about the importance of Wilderness protection and management during National Geography Awareness Week. The cost-share agreement also produced educational materials, including lesson plans, posters, a banner, and a map. These materials were used by the agencies and by the educators for the 30th Anniversary of the Wilderness Act and National Parks Week. These efforts reached an estimated 72 million citizens, 85,000 teachers, and perhaps 20 million students.

The Leave No Trace program is another important NPS partnership. Leave No Trace (LNT) is a nationwide partnership between four federal agencies, the National Outdoor Leadership School (NOLS), and numerous representatives from industry, education, and recreation groups. The mission of the LNT program is to develop a national backcountry system to educate wildland users, land managers, and the public. NOLS assists with the LNT program by working with the Arthur Carhart National Wilderness Training Center to provide LNT master courses, distribute LNT materials, and conduct research on use impacts. NOLS also runs courses in 21 national parks and preserves.

The NPS Leave No Trace program has made progress through grants from the *Parks as Classrooms* program. LNT employs the "train the trainers" strategy to train LNT masters who in turn train others. NPS LNT masters have been introducing LNT to the public, park employees, industries, and other organizations. In addition to LNT masters training, NPS is exploring how to incorporate LNT into other training programs.

The Leave No Trace program is also being used as a vehicle for partnerships with industry. Newly formed Leave No Trace, Inc., is a non-profit organization to work with manufacturers, outdoor retailers, user groups, educators, and individuals who share a commitment to maintaining and protecting public lands. Important progress has resulted from NPS and other agency participation at outdoor marketing shows where LNT trainers explain opportunities for participating in the program.

The Internet is another likely area where Wilderness management agencies can partner. It is critical that Wilderness managing agencies and institutions capitalize on the Internet's unique opportunity to further understanding of Wilderness both within managing organizations and with the external public. The NPS is working as part of an interagency project with the University of Montana School of Forestry, the Arthur Carhart National Wilderness Training Center, and the Aldo Leopold Wilderness Research Institute to make Internet connections. These connections would help move users among different levels of information and communication to serve managers, educators, students, researchers, wilderness users, and advocates. The network could also link to agency home pages and to external sources. An issue is making the partnership work while addressing the ethical dilemma of potential intrusion of the *information superhighway* on basic Wilderness values.

Improving Resource Management

The NPS Wilderness Task Force also recommended improving understanding and management of Wilderness. This goal requires that the NPS recognize Wilderness as a component of both visitor and resource management. It also involves use of resource management plans to identify needs in the budget process and encouragement of use of the Aldo Leopold Wilderness Research Institute (ALWRI) for research, technology transfer, technical assistance, education, and cooperative studies.

The mission of the institute is improving ability to sustain Wilderness resources, both ecologically and socially. A strategic plan has been developed and core issues identified to focus ALWRI research. Topics include recreational and non-recreational uses of Wilderness; physical, ecological, and social impacts on the Wilderness resources; National Wilderness Preservation System monitoring; and development of information useful for Wilderness management and education.

Wilderness Designation

Passage of the California Desert Protection Act (P.L. 103-433) in 1994 was significant for NPS Wilderness. The percentage of NPS acreage designated as Wilderness rose to nearly 52 percent. The NPS now has the largest wilderness unit in the lower 48 states, the 3,158,038-acre area in the Death Valley National Park. The measure also changed the Joshua Tree National Monument to a National Park, increased the park by 234,000 acres, and designated 132,000 Wilderness. The act also established the 1,419,800-acre Mohave National Preserve and designated 695,000 acres of the new preserve as Wilderness. The NPS now has 44 designated Wilderness Areas, 10,170,455 acres in the lower 48 states and Hawaii and 32,979,370 acres in Alaska. The current listing of Wilderness areas in the National Park System is shown as Table VIII.1.

Table VIII.1: Wilderness in the National Park Service

Field Area	Park/Wilderness	Acres of Wilderness	Year of Designation
Alaska	Denali	2,124,783	1980
	Gates of the Arctic	7,167,192	1980
	Glacier Bay	2,664,840	1980
	Katmai	3,384,358	1980
	Kobuk Valley	174,545	1980
	Lake Clark	2,619,550	1980
	Noatak	5,765,427	1980
	Wrangell-St. Elias	9,078,675	1980
	(All Alaska Areas)	(32,979,370)	
Intermountain	Bandalier	23,267	1976
	Black Canyon of the Gunnison	11,180	1976
	Carlsbad Caverns	33,125	1978
	Chiricahua	9,440	1976
	Great Sand Dunes	33,450	1976
	Guadalupe Mountains	46,850	1979
	Mesa Verde	8,100	1976
	Organ Pine Cactus	312,600	1978
	Petrified Forest	50,260	1970
	Rocky Mountain	2,917	1980
	Saguaro	71,400	1976
	(All Intermountain Areas)	(602,589)	
Midwest	Badlands	64,250	1976
	Buffalo River	34,993	1978/1993
	Isle Royale	132,018	1976
	Theodore Roosevelt	29,920	1978
	(All Midwest Areas)	(261,181)	
Northeast	Fire Island	1,363	1980
	Shenandoah	79,579	1976
	(All Northeast Areas)	(80,942)	

Table VIII.1 Cont.

Field Area	Park/Wilderness	Acres of Wilderness	Year of Designation
Pacific West	Craters of the Moon	43,243	1970
	Death Valley	3,158,038	1994
	Haleakala	19,270	1976
	Hawaii Volcanoes	123,100	1978
	Joshua Tree	561,470	1976/1994
	Lassen Volcanic	78,982	1972
	Lava Beds	28,460	1972
	Mohave	695,200	1994
	Mount Rainier	228,498	1988
	North Cascades	634,614	1988
	Olympic	876,669	1988
	Pinnacles	12,952	1976
	Point Reyes	25,370	1976
	Sequioa-Kings Canyon	736,980	1984
	Yosemite	677,600	1984
	(All Pacific West Areas)	(7,900,436)	
Southeast	Everglades	1,296,500	1978
	Congaree Swamp	15,010	1988
	Cumberland Island	8,840	1982
	Gulf Islands	4,957	1978/1994
	(All Southeast Areas)	(1,325,307)	

In 1996 President Clinton addressed the long-standing backlog of Wilderness designation proposals for the National Park Service in his *Parks for Tomorrow* initiative. He urged Congress to act on previous Wilderness recommendations and directed the secretary of the interior to work with Congress to make necessary changes to these proposals during the legislative process. President Clinton stated that the National Park Service and Presidents Nixon, Ford, and Carter recommended Wilderness designations in 17 national parks, covering some five million acres, which Congress has never really seriously considered. These areas include such well-known parks as the Yellowstone, Glacier, Grand Teton, Great Smoky Mountains, Zion, Bryce Canyon, and Canyonlands National Parks.

Emerging Issues

Democratic government is, by nature, an evolving experiment, and Wilderness is one of the pieces that will continue to evolve. Major challenges include the following:

1. Wilderness issues are shifting from primary allocation (how many acres and where) to stewardship (seeing the Wilderness condition perpetuate itself). The NPS will continue to press for park Wilderness designations, but we must impress our considerable land stewardship experience into the service of Wilderness management. Land stewardship is not independent from social and political realities, but entwined with our history, culture, economy, politics, and faith. Knowing this, the NPS will reach out for new partners to help inform Americans of both their legacy and continuing need to steward the land.
2. Dramatic demographic changes in the West are influencing and will influence Wilderness. The proportion of total U.S. population living in the West has tripled since 1950. Were the 20 counties in and adjacent to the Greater Yellowstone Ecosystem a state, it would be the nation's fastest growing one. The NPS will need to approach the stewardship of parklands, Wilderness and other resources in ever more collegial fashion. The NPS should seek to lend rather than to insist upon use of NPS expertise. Many new residents are now drawn to the West because of its wildland character.
3. The U.S. population is aging, growing more ethnically diverse, and growing in numbers. The NPS needs to broadcast the benefits from Wilderness that accrue, whether one visits a Wilderness area or not. The

NPS will need to seek out, learn, and carefully enfranchise the wildland connections and heritage of ethnic groups as partners and stakeholders. The NPS must continuously examine its own cultural assumptions. The NPS will aggressively impress upon Wilderness users the Leave No Trace and other zero impact awareness ethics. The NPS will need to become apostles for sensitive, sustainable, environmental stewardship among all who share park boundaries or live upwind and upstream.

4. How the public and our other federal agencies view public lands is shifting. Federal land policy in general has shifted toward retention and management and away from disposal. But multiple claims continue to be asserted for public land resources from timber and mining to tourism, outdoor recreation, vision questing, scientific research, and Wilderness. The NPS will need to seek cooperation, not competition, with other land management agencies. Long-term social agreement on Wilderness values may well prove unlikely or at least unstable over time. The Park Service will reach out in both public debate and education to clarify public land values. The NPS must do a better job of engaging in this debate and provide education where people actually live, work, and learn. The NPS can no longer merely wait for people to come to parks before pressing the case.
5. American politics has shifted toward adversarial struggles for privilege and away from shared commitments to civic responsibility and the common good. Recent politics challenge our public school textbook assumption that Americans in fact constitute a people and, moreover, a people somehow committed to a common good. The Park Service will no longer simply assume it stands for the common good. The NPS must seek out partners among those who also affirm a common good, particularly among nonprofit and nongovernmental organizations who share heritage concerns and commitments.
6. Public involvement in public land management has increased greatly. When powerful opponents of Wilderness at the eleventh hour injected the review process into the Wilderness Act, they hoped thereby to stymie the Wilderness System. Quite the opposite happened. They motivated citizens to learn how to influence federal decision making and soon put an end to the old closed-committee mode of the Congress. The Park Service appreciates the voice of citizens as individuals and members of nonprofit organizations as wholesome expressions of the common good. Again, the NPS must both share expertise with and work to encourage public involvement for Wilderness allocation and management. As proponents of biodiversity, the NPS can have no argument with the rich mix of interests at the grassroots of politics.
7. The role of science is changing in America. Since World War II, scientists in the United States began a half-century expansion of their role in policy making. Conservation biology and the new forestry express this expansionism today. The concept of limits-of-acceptable-change (LAC) is a good example of the injection of social science concepts into resource policy. But increasing numbers of Americans now reject science and have lost faith in technology. The Congress is also often impatient with science. The Park Service must continue to make use of good science to inform Wilderness management decisions. Responsible science in Park Wilderness should be encouraged. (Source: Gary Machlis, U. of Idaho.)

These seven challenges will influence both NPS stewardship of Wilderness and its overall heritage-protection mission. Indeed, the meaning and value of Wilderness stewardship will continue to be challenged in the future, just as national parks themselves have faced recent challenges. To the extent that Wilderness remains the exclusive concern of a small cadre of professionals, aficionados, and Wilderness users, such challenges are better assured. The same democracy that raised the Wilderness system can also raze it. It is incumbent on the National Park Service, steward of 51 percent of the Wilderness system, to involve ever more citizens. Stewardship intended to last in perpetuity, as the Wilderness Act clearly mandates, must keep asking, "Who benefits? Who loses? Who has the power?" and perhaps most of all, "Who cares?" The National Park Service will continue to improve its caring stewardship of the 43 million acres of Wilderness assigned to it by the Congress.

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