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A Look at Wilderness Use and Users in Transition

ABSTRACT

Wilderness has a variety of values for individuals and society. Some of these values are derived from onsite use of the wilderness resource. Other values come from offsite uses. Recreational use poses a strong challenge to those who manage wilderness. Recreational use of wilderness, after many years of rapid growth, has leveled off or declined in many areas in recent years. The reasons for this change are unclear, but the implications of changes in use patterns and user characteristics are important for both management and future wilderness allocation decisions.

INTRODUCTION

Although "wilderness use" commonly serves as a synonym for "recreational use" within wilderness, there are many other wilderness uses, some even taking place outside wilderness boundaries. Manning has discussed many of these uses in an earlier paper in this issue. These uses vary in the degree to which they depend on the wilderness setting. Without wilderness, some uses would scarcely be possible, while other uses take place in wilderness almost coincidentally, for reasons unrelated to wilderness conditions. This paper discusses recreational uses of wilderness as arguably the most important and certainly the most studied wilderness use. Although wilderness and related land classifications and management are found in several countries, this paper focuses on the United States National Wilderness Preservation System (NWPS) that now includes about 450 areas and 89 million acres.

Understanding wilderness use and users is an essential foundation for any decisions about wilderness management.¹ Most wilderness values stem from wilderness use, and so do most threats to the resource. Because of this, most management problems arise from wilderness use, and most wilderness management is use management. Management is inherently complex and difficult, and without good knowledge of the character of

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1. J. HENDEE, G. STANKEY & R. LUCAS, WILDERNESS MANAGEMENT 281 *passim* (USDA Forest Service Miscellaneous Publication No. 1365, 1978).

use, effective management is impossible. This is particularly true for recreational use if management seeks to minimize visitor regimentation and rely instead on indirectly influencing use, thus providing visitors more freedom.²

Decisions about what lands should or should not be classified as wilderness also are aided by understanding uses, the benefits they yield, and who receives benefits. Trends in various uses may help form expectations about likely future uses and thus contribute to decisions about possible allocation of lands to wilderness.

RECREATIONAL USE

Amount of Use

Recreational use includes commercial operations by outfitters and guides, as well as general public use. Up to a fifth of the visitors use outfitters in some Rocky Mountain wildernesses.³ Most outfitters offer horseback camping trips, especially during hunting seasons. Some provide river float trips while some rent canoes and camping equipment. National Forests in Idaho, for example, have about 300 outfitting businesses with permits to operate. The proportion of visitors using outfitters may be declining.⁴

Current recreational use of wilderness totals about 15 million, 12-hour recreation visitor days [RVD] annually. Wilderness in National Forests accounts for about 85 percent of this use, a figure close to the National Forest's proportion of total wilderness acres in the lower 48 States. Wilderness in National Parks makes up almost all of the remainder, with only light use of wilderness in National Wildlife Refuges and Bureau of Land Management areas. Comparing recreational use among wildernesses managed by the four Federal agencies with wilderness responsibilities (Forest Service, Park Service, Fish and Wildlife Service, and Bureau of Land Management) requires conversions using approximate rules of thumb because units of measure vary among agencies, as do reporting procedures.⁵

Wilderness recreational use can be characterized in many ways, such

2. Lucas, *The Role of Regulations in Recreation Management*, 9 WESTERN WILDLANDS 6 (Summer 1983).

3. R. LUCAS, VISITOR CHARACTERISTICS, ATTITUDES, AND USE PATTERNS IN THE BOB MARSHALL WILDERNESS COMPLEX, 1970-1982, at 7 (USDA Forest Service, Intermountain Research Station, Research Paper INT-345, 1985).

4. *Id.*; Lime, *Who Uses Rivers for Recreation and What of the Future?* in NATIONAL RIVER RECREATION SYMPOSIUM 15, 19-22 (Oct. 31-Nov. 3, 1984) (Baton Rouge, La).

5. J. HENDEE, G. STANKEY & R. LUCAS, *supra* note 1.

as length of stay, party size, and others. Roggenbuck and Lucas provide the most recent data about wilderness use characteristics.⁶

Length of Stay

Most wilderness visits are short, and many smaller wildernesses are mainly day-use areas. Average lengths of stay in a few large areas, such as the Boundary Water Canoe Area Wilderness in Minnesota and the Bob Marshall Wilderness in Montana, both over 1 million acres in size, exceed five days, but about two to three days is a much more common average in most wilderness areas. Trips of a week or more are uncommon almost everywhere. Differences seem related to area size and type of use, not regional location or managing agency. Stays appear to be a little shorter in recent years.

Group Size

Groups of wilderness visitors are typically small. From half to three-fourths of the parties at all areas for which data are available consist of two to four people. Lone visitors are rare although more common in National Parks than in National Forests. In most wilderness areas, parties of more than ten people are scarce, usually accounting for only about five percent of all visitor groups. Party size is declining everywhere data are available.

Method of Travel

Hiking is the most common method of travel in almost all wilderness areas. An exception is the Boundary Waters Canoe Area, where about 80 percent of visitors use canoes while most of the rest travel by motorboat in parts of the area where this is permitted.⁷ In a few western areas—the Bob Marshall Wilderness, for example—more than half the visitors ride horses. Hiking and nonmotorized boating have become more common relative to horse travel and motorized boats everywhere trend data are available.

Activities

In many wilderness areas, especially in the West, fishing is the leading activity in participation rate (leaving out travel). Photography, nature

6. Roggenbuck & Lucas, *Wilderness Use and User Characteristics: A State-of-Knowledge Review*, in PROCEEDINGS—NATIONAL WILDERNESS RESEARCH CONFERENCE: ISSUES, STATE-OF-KNOWLEDGE, FUTURE DIRECTIONS 204 (USDA Forest Service, Intermountain Research Station, General Technical Report INT-220, 1987).

7. *Id.* at 215.

study, and wildlife observation are also common activities, and swimming is common in many areas—all low-impact, nonconsumptive uses. Hunting varies from minor to common in these areas open to hunting. (Almost all National Park areas and part or all of many Wildlife Refuges are closed to hunting.) Mountain climbing is rare in all but a few areas.

Season of Use

For most places, summer is the main use season. Even in two wilderness areas well known for elk hunting, the Bob Marshall and the Selway-Bitterroot in Montana and Idaho, summer visitors substantially outnumber fall hunters. Many of the areas in the South, Southwest, and low elevations in California receive most of their use in winter or spring.⁸ In the North, and at higher elevations in mountain wilderness, winter use is light but more common than a decade ago and growing. In many areas, use seasons are becoming longer, with more people coming earlier and later.

Weekend peaks in use also vary, with sharp peaks at some smaller, more accessible areas, but not at many large areas with longer stays and small local populations. Eastern wildernesses seem to show much less peaking, even though many are small. Weekend peaks are probably becoming less severe over time.

Type of Group

In almost all wilderness, a large majority of the visitors are family groups, sometimes also with friends. A half to a third of the groups in most areas studied include children under 16. The next most common type are small groups of friends. Organization-sponsored groups range from almost none in some areas to about a tenth in others.⁹

Distribution of Use

The geographical distribution of wilderness recreational use is uneven—heavy in a few places and light in many others. This unevenness is evident among different wilderness areas as well as within individual wilderness areas, whether the focus is on numbers of visitors by trailheads, on trails through the area, or at campsites.

Area-to-area variation covers a wide range (Table 1). Total use per National Forest wilderness in 1986 varied from more than 1 million, 12-hour RVD at the Boundary Waters Canoe Area Wilderness to only 100 RVD at Hell Hole Bay Wilderness in South Carolina. If use intensity is

8. R. WASHBURNE & D. COLE, PROBLEMS AND PRACTICES IN WILDERNESS MANAGEMENT: A SURVEY OF MANAGERS 18-23 (USDA Forest Service, Intermountain Forest and Range Experiment Station, Research Paper INT-304, 1983).

9. Roggenbuck & Lucas, *supra* note 6, at 226.

TABLE 1

**Examples of Variation in Amount and Intensity of Recreational Use of
National Forest Wildernesses, 1986.***

<i>Area</i>	<i>Total recreation visitor-days (RVD)</i>	<i>RVD per acre</i>
<i>Total Use Variation</i>		
<i>Most Used:</i>		
Boundary Waters Canoe Area (MN)	1,031,100	1.00
Three Sisters (OR)	959,900	3.37
John Muir (CA)	451,400	.78
<i>Least Used:</i>		
Hell Hole Bay (SC)	100	.05
Little Lake George (FL)	200	.08
Rock Creek (OR)	300	.04
<i>Use Intensity Variation</i>		
<i>Most Intensely Used:</i>		
Devil's Backbone (MO)	79,500	12.05
Glacier View (WA)	27,900	9.15
San Geronio (CA)	190,600	5.41
<i>Least Intensely Used:</i>		
Endicott River (AK)	500	.01
South Prince Wales (AK)	1,300	.01
Russell Fjord (AK)	2,900	.01
Total for all National Forest wilderness	12,014,700	0.37

*Based on the fiscal year from October 1, 1985, through September 30, 1986.

expressed in RVD per acre, thus accounting for variation in size of wildernesses, values vary from 12 to only 0.01. National Park wilderness areas also exhibit wide variation in camping use (total use is not reported for Park wilderness).

The reasons for such different drawing power are poorly understood. The most heavily used wilderness areas are almost all relatively close to large population concentrations. California, Minnesota, Southern Appalachian, and New England wilderness areas receive the most intense recreational-use pressure. However, in these same regions many wilderness areas close to large numbers of people are used only lightly.

Location near many people makes heavy use possible, but a reputation as an attractive area is also necessary. Some people believe that just the classification alone attracts extra use because of the identity and appeal of the word "wilderness." This stimulation of use is often called the "designation effect." But evidence that it leads to a spurt in use is limited. For example, the only area studied both before and after designation, the

Rattlesnake Wilderness in Montana, showed a small decline in use.¹⁰ An analysis of changes in use in newly designated wilderness areas showed that use of the new areas usually increased more rapidly than long-established wilderness areas, but the differences were variable and probably less than the "designation effect" would suggest.¹¹ Furthermore, use within any particular wilderness often varies as much as use between wilderness areas (Table 2). For instance, four percent of Yosemite National Park's trailheads received 68 percent of the total use in 1979.¹²

Use of trail systems not only reflects uneven use of access points but also accentuates it as use drops off rapidly on some trails, typically after the first attractions, and less so on other trails. Usually only 10 percent of the trail miles account for more than half of all use. The shortness of typical trips also contributes to uneven use of trail systems. In most areas studied, only 10 to 15 percent of all visitor groups travel at least 20 miles round trip.¹³

Uneven use results in variation in impacts to soil, vegetation, water, and wildlife, and in level of solitude or congestion experienced. This is not necessarily all bad because locations vary in durability. Furthermore, most impact occurs with initial use unless it is light and by visitors skilled in minimum-impact use techniques, suggesting that concentrating most use on a few sites may minimize the total impacted area. Visitors also vary in the importance they attach to solitude and their standards for acceptable solitude. Variation in use intensity can provide a range of solitude experiences to match different visitors' desires. In the Boundary Waters Canoe Area Wilderness, Lime¹⁴ found that visitors experienced 40 times as many encounters on some lakes as on other lakes, often nearby, separated by only a few portages.

Use patterns in most wildernesses are strongly trail related. From studies of Forest Service wilderness areas, it is estimated that fewer than 20 percent of the visitors to most areas do any off-trail traveling, and an even smaller percentage of the total distance covered in the wilderness is off-trail travel.¹⁵

Campsite use is also uneven. In the Boundary Waters Canoe Area,

10. McCool, *Does Wilderness Designation Lead to Increased Recreational Use?*, 83 J. FORESTRY 39 (1985).

11. M. PETERSEN, TRENDS IN RECREATIONAL USE OF NATIONAL FOREST WILDERNESS (USDA Forest Service, Intermountain Forest and Range Experiment Station, Research Note INT-319, 1981).

12. van Wagtenonk, *The Effect of Use Limits on Backcountry Visitation Trends in Yosemite National Park*, 4 LEISURE SCI. 311 (1981).

13. R. LUCAS, USE PATTERNS AND VISITOR CHARACTERISTICS, ATTITUDES AND PREFERENCES IN NINE WILDERNESS AND OTHER ROADLESS AREAS 39-40 (USDA Forest Service, Intermountain Forest and Range Experiment Station, Research Paper INT-253, 1980).

14. Lime, *Sources of Congestion and Visitor Dissatisfaction in the Boundary Waters Canoe Area*, in THIRD BOUNDARY WATERS CANOE INSTITUTE PROCEEDINGS 68-79 (1975).

15. R. LUCAS, *supra* note 13, at 41.

TABLE 2
Concentration of Total Wilderness Use Among
High-Use Entry Points by Area

Wilderness area (State)	Year	High-use entry points		Source
		Percentage of:		
		Total entry points	Total number of visitors	
Bob Marshall (MT)	1970	25	83	a
	1982	37	79	b
Great Bear (MT)	1970	9	85	a
Mission Mountains (MT)	1970	25	81	a
Spanish Peaks (MT)	1970	38	82	a
Scapegoat (MT)	1970	25	85	a
Selway-Bitterroot (MT-ID)	1970	26	82	a
Desolation (CA)	1970	29	83	a
Boundary Waters Canoe Area (MN)	1974	10	70	d
Yosemite NP backcountry (CA)	1973	4	68	d
	1979	4	60	e
Maroon Bells-Snowmass (CO)	1978	23	80	f
Linville Gorge (NC)	1978	21	55	g
Shining Rock (NC)	1978	38	85	g

a. R. LUCAS, USE PATTERNS AND VISITOR CHARACTERISTICS, ATTITUDES AND PREFERENCES IN NINE WILDERNESS AND OTHER ROADLESS AREAS 39-40 (USDA Forest Service, Intermountain Forest and Range Experiment Station, Research Paper INT-253, 1980).

b. *Id.*

c. Percent of total user groups, rather than visitors.

d. J. HENDEE, G. STANKEY & R. LUCAS, WILDERNESS MANAGEMENT 281 *passim* (USDA Forest Service Miscellaneous Publication No. 1365, 1978).

e. Van Wagtendonk, *The Effect of Use Limits on Backcountry Visitation Trends in Yosemite National Park*, 4 LEISURE SCI. 311 (1981).

f. F. Haas, J. Arnold, P. Brown & B. Driver, Final Report of Research Results for the Cooperative Management-Research Demonstration Project Focusing on the Maroon Bells-Snowmass Wilderness in Colorado 93 (submitted to USDA Forest Service, Rocky Mountain Forest and Range Experiment Station, Fort Collins, Colo. 1982).

g. J. ROGGENBUCK, W. TIMM & A. WATSON, VISITOR PERCEPTION OF THE RECREATION CARRYING CAPACITY OF THREE WILDERNESS AREAS IN NORTH CAROLINA 303 (1979).

Merriam and others¹⁶ reported that 33 campsites varied from 28 to 2,361 total visitor days of use over five years. Western wilderness shows similarly uneven campsite use. Some *potential* campsites show no evidence

16. L. MERRIAM, JR., C. SMITH, D. MILLER, CHING TIAO HUONG, J. TAPPEINER II, K. GOECK-ERMAN, J. BLOEMENDAL & T. COSTELLO, NEWLY DEVELOPED CAMPSITES IN THE BOUNDARY WATERS CANOE AREA: A STUDY OF FIVE-YEARS' USE 12 Univ. of Minnesota, Agriculture Experiment Station, Station Bull. 511, Forest Series 14, 1973).

of ever having been used at all.¹⁷ In the Desolation Wilderness, the most popular 16 percent of the camps accounted for half of all use, and the least used half accounted for only 18 percent of all use.

One study¹⁸ showed that the most frequently used campsites in the Spanish Peaks Primitive Area, Montana, and the Bridger Wilderness, Wyoming, shared the same characteristics: (1) proximity to both water and fishing opportunities, (2) scenic and water views (usually of a lake, not a stream), (3) location within 700 feet of a trail, (4) availability of at least 500 ft² of level land (4 percent or less slope), and (5) availability of firewood within 300 feet. The development of efficient backpacker stoves, and the growing proportion of visitors who use them, should reduce the importance of proximity to firewood. About half of the campsites were within 50 feet of the shoreline of a lake or stream and 85 percent were within 200 feet. Camping so close to water causes problems, but it is also obvious that sites close to water are highly attractive, and getting people to change their selection of campsites, if desired by managers, may not be easy.

RECREATIONAL USERS

Understanding who the wilderness visitors are is important for both policy and management decisions. Policy is influenced by knowledge of who receives the benefits gained from wilderness use. Just as businesses conduct market research to understand their customers, so do wilderness managers need to gain understanding of visitors' characteristics and values, especially to use information and education effectively to manage use.

Stereotypes of wilderness visitors are common,¹⁹ but are an unreliable guide for planning. The facts about wilderness users' characteristics are well established, so stereotypes should be discarded. In fact, the profile of the wilderness visitor is clearer than that of most other recreationists. The characteristics are quite similar from area to area, even in different parts of the country.

Age

Wilderness visitors tend to be younger than the general population (which is true for most types of outdoor recreationists), and yet all age groups are at least fairly well represented.²⁰ Data from areas studied show

17. P. Brown & J. Schomaker, Final Report on Criteria for Potential Wilderness Campsites, (1974) (unpublished paper) (available at USDA Forest Service, Intermountain Research Station, Forestry Sciences Laboratory, Missoula, Mont.).

18. *Id.*

19. Norgaard, Kovalicky & Stankey, *Wilderness Myths: Some Falsehoods Are Put to Rest*, 9 MONT. MAG. 53 (July-Aug. 1979).

20. Roggenbuck & Lucas, *supra* note 6.

large proportions of children and young adults in most places (from 30 to 57 percent are 25 or younger). There are almost as many older adults (30 to 50 percent are 26 to 45 years of age), especially in some of the areas with many visitors traveling by horse.

In the Bob Marshall Complex, the only place where data on trends in visitor ages are available,²¹ the age structure of wilderness visitors did not change over time, although the general population is growing older.

Physical Ability

The only study of physical condition as related to wilderness use concluded that college men who visited wilderness were neither stronger nor more fit than those who did not, but that they had more favorable attitudes about exercise and had parents who were more physically active. As a barrier to participation, lack of *interest* was more critical than lack of *ability*.²²

Sex

Wilderness has sometimes been viewed as a male sanctuary, but now about a fourth of the visitors are female. The larger, horse-oriented wildernesses average less female visitation; the smaller, hiking areas a little more. Trends show increasing numbers of women visitors.

Residence

Most wilderness visitors are from urban areas, as are most Americans. However, because visitors do not typically travel long distances to visit wilderness, the proportion from urban places depends largely on the degree of nearby urbanization. Thus, 51 percent of the Montana population lived in urban areas in 1980, and about 60 percent of the 1982 visitors to Montana wilderness come from urban areas. In southern California, with much larger cities within the region, over 90 percent of wilderness visitors come from cities with over a million people.

Although current residence is overwhelmingly urban, several studies show more rural background for wilderness visitors during childhood.²³ Some people may be attracted to wilderness by the contrast between rural

21. R. LUCAS, *supra* note 3, at 17.

22. Wiesner & Sharkey, *Some Characteristics of Wilderness Backpackers*, 36 PERCEPTUAL MOTOR SKILLS 876 (1973).

23. W. BURCH, JR., & W. WENGER, THE SOCIAL CHARACTERISTICS OF PARTICIPANTS IN THREE STYLES OF FAMILY CAMPING 18 (USDA Forest Service, Pacific Northwest Forest and Range Experiment Station, Research Paper PNW-48, 1967); J. HENDREE, W. CATTON, JR., L. MARLOW & F. BROCKMAN, WILDERNESS USERS IN THE PACIFIC NORTHWEST—THEIR CHARACTERISTICS, VALUES, AND MANAGEMENT PREFERENCES 16-17 (USDA Forest Service, Pacific Northwest Forest and Range Experiment Station, Research Paper PNW-61, 1968); R. LUCAS, *supra* note 13, at 46; R. LUCAS, *supra* note 3, at 16; OUTDOOR RECREATION RESOURCES REVIEW COMM'N, WILDERNESS RECREATION—A REPORT ON RESOURCES, VALUES, AND PROBLEMS 133 (ORRRC Study Report 3, 1962).

surroundings in childhood and the pressures of city living in adulthood, a "nostalgia theory" of a part of the attraction to wilderness.²⁴ Wilderness visits may thus fulfill a longing for open spaces and contact with nature for some people who have not entirely adapted to city living.

Income

Wilderness visitors are above average in income in most areas (as are almost all types of outdoor recreationists) but usually only moderately so. Studies reporting income refer mainly to the early 1970s.²⁵ The proportion of visitors to 13 wilderness areas studied in that period reporting annual family incomes in excess of \$15,000 varied from 16 to 50 percent, compared to 22 percent of all United States families with incomes above that level. However, high incomes are not necessary to visit wilderness. In the late 1960s and early 1970s, typical expenditures for wilderness visits were low, on a per-person basis usually under \$10 for travel and less than \$10 for all other trip expenses.²⁶

Occupation

Persons in professional-technical occupations and students together form the majority of visitors to most wildernesses.²⁷ Generally, from 20 to 40 percent of the visitors of working age are in professional or technical work. The professions most well represented are in the fields of education, research, social service, and religion, rather than law, medicine, and engineering. Usually about a fourth of adults and young adults are students, although some areas have reported few students.

Housewives and skilled laborers usually are the next most common professions, each comprising about a tenth of the total in most areas. Other occupational categories are not well represented.

The occupational breakdown of wilderness visitors is strikingly different from that of the general population. Most wilderness visitors are in occupations that emphasize working with people, ideas, or abstractions rather than working with things. The contrast between their working environment and the wilderness is strong, and this could be one important appeal of wilderness—an escape or compensatory hypothesis.

Education

The characteristic that most distinguishes wilderness visitors from the general population is high educational levels. All studies agree on this.²⁸

24. R. LUCAS, *supra* note 13, at 46.

25. Roggenbuck & Lucas, *supra* note 6, at 222.

26. R. LUCAS, *supra* note 13, at 41-43.

27. Roggenbuck & Lucas, *supra* note 6, at 221.

28. *Id.* at 220-21.

With few exceptions, 60 to 85 percent of the visitors to most wilderness areas have attended college, and 20 to 40 percent have done graduate study.

Does advanced education somehow help develop an interest in the natural world and primitive recreation? Or are certain types of people drawn to both university education and wilderness by some sort of innate curiosity? One can only speculate, but leveling off or declining college enrollments could slow growth in wilderness recreational use in the future if education is, in fact, an important source of interest in wilderness.

Conservation Organization Membership

Between 20 and 30 percent of the visitors to areas studied belong to a conservation group or outdoor recreation activity club.²⁹ This compares to less than 10 percent of car campers.³⁰ About 40 percent of the club members (or about a tenth of all visitors) belong to a wilderness-oriented organization such as the Sierra Club, Wilderness Society, or National Parks and Conservation Association. Probably no more than one percent of the total adult population belongs to these organizations.

USE TRENDS

Wilderness recreational use has increased greatly over the last 40 years, but recently use has leveled off and even declined in some areas.

Wilderness Use Data Sources

Forest Service wilderness use data are most complete and cover the longest period. Total use, including both overnight and day use, have been estimated for each wilderness and primitive area since 1946, and some data go back to 1941.³¹ National Park Service data are more limited and available for a shorter period. Data are not available for designated wilderness areas at all, but since 1971, overnight stays in backcountry have been reported. Day use is common in many wilderness areas, but is not reported for National Park wilderness. Besides variation in units of measure and length of records, the Park Service and Forest Service wilderness recreation data also vary in accuracy. Park Service figures probably are more accurate than Forest Service data.

As use figures are aggregated for large regions or for the nation, errors probably cancel out to some extent, and remaining errors have a diminished effect on large amounts of more reliable data. Trends are most

29. *Id.* at 224.

30. Hendee, Gale & Harry, *Conservation, Politics, and Democracy*, 24 J. OF SOIL & WATER CONSERVATION 212, 214 (1969).

31. Elsner, *Recreation Use Trends: A Forest Service Perspective* in 2 PROC.—NATIONAL OUTDOOR RECREATION TRENDS SYMPOSIUM II, at 143, 145 (1985).

reliable if considered over several years, rather than emphasizing change from one year to the next.

Trends in National Forest Wilderness Use

Table 3 shows the growth in National Forest wilderness use between 1946 and 1985, roughly by decades. Due to changes in the way use was measured in 1965, it is not possible to directly compare the growth rates over the 40 years. Between 1946 and 1964, however, man-days grew sevenfold, at an average annual growth rate of 11.5 percent. In the two decades following passage of the 1964 Wilderness Act,³² RVD use increased more than two and a half times, averaging five percent per year.

At the time of passage of the Wilderness Act in 1964, the National Forests contained 88 units reporting wilderness use. Many new areas have been added to the National Wilderness Preservation System [NWPS]. At present there are more than 340 National Forest units in the NWPS. To trace the underlying trends in wilderness use, it is necessary to eliminate the effects of this major expansion in the number of units reporting use.

To do this, we can follow the growth of recreational use in the original 88 units, the "core system." Since 1965, the rate of annual growth in use of the core system declined steadily, from five percent per year from 1965 to 1970, to minus two percent per year since 1980.³³ The peak year of use of the core system occurred in 1979. In 1985, use of the core system was only 83 percent of 1979 use. The core system still accounted

TABLE 3
Growth in National Forest Wilderness Use, 1946-85.*

<i>Period</i>	<i>Use (thousands)</i>	<i>Average annual percentage growth</i>
<i>Man-days</i>		
1946-1955	406	
	1,175	12.5
1964	2,872	10.4
<i>Visitor-days</i>		
1965-1975	4,522	
	7,802	5.6
1985	12,000	4.4

*See generally, United States Forest Service Annual Wilderness Recreational Use Reports, 1946-1985.

32. Wilderness Act of 1964, 16 U.S.C. §§ 1131-1136 (1982).

33. See generally, NATIONAL PARK STATISTICAL ABSTRACT (1971-1986) (Statistical Office, Denver, Service Center).

for 60 percent of the total recreational use of National Forest wilderness in 1985, which lends weight to using it as an indicator of trends.

Still, in absolute terms, the growth in use of National Forest wilderness exceeds that for many other forms of recreation on the National Forests because other types of recreation have also leveled off or declined. As a percentage of total National Forest recreation use and of National Forest campground use, wilderness use has grown steadily, from about one percent of total use in 1946 to six percent in 1986, and from five percent of campground use to more than 35 percent. Wilderness use is still increasing its share of National Forest recreation, despite slower growth.

Trends in National Park Wilderness Use

During the first five years following 1971, when records began, use of National Park backcountry grew rapidly, more than doubling from 1.1 million overnight stays to a peak of 2.6 million in 1976, and remained there for 3 years. This was followed by a slight decline and a period of relative stability from 1979 to 1982. Use again reached its former peak of 2.6 million overnight stays in 1983, then dropped each year, reaching 1.6 million in 1986. Reported use in 1986 was less than in 1973 despite a 20-percent growth in the number of units reporting backcountry use. Between 1976 and 1986, National Park backcountry use declined about 37 percent, while in the same period National Forest wilderness use grew nearly 69 percent. There is little association between the patterns of annual use for the two agencies. Between 1971 and 1985, there are only four years when the changes reported by the two agencies were even in the same direction, up or down.

The decline in National Park backcountry use is further confirmed by examining the year of peak use and contrasting it with 1986. For 17 National Parks with significant backcountry or wilderness portions, the peak year of use in 12 instances was prior to 1980 and in only one case was it as recent as 1982. In Shenandoah National Park, for example, 1986 use was only 32 percent of the 1973 peak. No park reported peak backcountry use after 1982.

The decline in National Park use is not limited to the backcountry. All recreational overnight stays in the National Parks declined eight percent from a peak in 1977 to 1986, but backcountry stays declined more, about 36 percent from a peak in 1976.

For comparative purposes, about 20 National Forest wilderness areas were selected from the core system. Three show 1986 as the peak use year, but a number are similar to the National Park areas, with most reporting their peak year as 1981 or earlier.

Wilderness use, like participation in many other recreational activities, apparently has begun to stabilize. Much of the apparent growth is ac-

counted for by the rapid expansion in the number of units, primarily under National Forest administration, that report wilderness use. This growth, however, is partly a bookkeeping phenomenon as new areas with a history of use are tabulated as wilderness, whereas previously their use was included within some other recording category. Whether this use was much less or similar cannot be determined.

REASONS FOR SLOWING GROWTH

Trends in wilderness use are puzzling. The reasons underlying slowing growth are not clear, but it seems likely they are a combination of changes, to some extent in the socio-demographic structure of society and to some degree in social preferences and tastes. Research is insufficient to provide firm answers.

This downward trend should not be seen as wholly inconsistent with the general trends forecast for other outdoor recreation activities. Clawson,³⁴ for example, speculates that the rate of increase in outdoor recreation activity for the next 25 years will be more on the order of four percent annually, as opposed to the 10 percent rates found in the past 25 years. Jungst and Countryman³⁵ project wilderness use to the year 2020 to grow at a rate between two and seven percent, depending on the prediction model used and the assumptions about the independent variables used in the models.

Wilderness use will undoubtedly remain an important form of recreation use in the National Forests and National Parks. Despite the apparent decline in National Park wilderness use, it remains a consistent seven percent of total National Park overnight use, indicating that other styles of use are also declining. As noted earlier, wilderness use in the National Forests has increased its share of the total recreation pie, now accounting for about six percent.

IMPLICATIONS OF SLOWING GROWTH IN USE

A Chance to Catch Up

If the changes in wilderness use are real, and if they continue, they might represent an opportunity for managers to "catch up" with problems that a few years ago looked overwhelming. Not only are growth rates slowing, but trends in the character of use and users also hold promise for reducing impact levels. This includes a shift toward activities having lower impacts (for example, a shift from horse use to hiking), smaller visitor groups, greater visitor knowledge on how to minimize impact, and a reduction in littering.

The Wilderness Allocation Debate

For years many people have cited rapidly growing recreational use as a reason to designate more wilderness. This now appears to be an uncertain foundation. Wilderness has many values besides recreation. Lack of growth in recreational use suggests that other values such as ecosystem representation, scientific value, and vicarious use will need to become more central to debates over whether certain lands should be wilderness.

Reconsider Management Policies

Many wilderness management policies were adopted when use was growing rapidly and in anticipation of massive future growth. Use rationing, assigned campsites, length-of-stay limits, camping setbacks from water, and other policies adopted to head off serious problems before use got out of hand may now merit reconsideration in light of less use and possible future declines. The use of education and information for visitor management should become more effective. Perhaps visitor freedom can be increased and the quality of visitors' experiences enhanced.

CONCLUSION

Wilderness recreational use and users are changing in many ways, as is the wilderness system. The analogy to a crossroads seems appropriate. Recreation use remains the source of major wilderness values. Many of the changes suggest increased chances for managerial success as growth rates slow and many users learn to reduce their impacts. The situation seems ripe for shifting emphasis in management more to education and information and away from tight regulations. The best efforts of managers will be needed if both wilderness itself and the human experiences it provides are to endure.