

# **RENEWABLE RESOURCES RECREATION IN THE UNITED STATES: SUPPLY, DEMAND, AND CRITICAL POLICY ISSUES**

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## ERRATA

### ERRORS

Page ii, paragraph 6, sentence 2 should read, "About 1.56 billion acres in the U.S. are classed as forest and range lands."

Page 13, paragraph 4, sentence 1 should read, "About 1.56 billion acres in the U.S. are classed as forest and range lands."

Page 46, paragraph 2, line 9 should read, "from \$0.11 to \$0.27 over this period."

Page 82, column 2, paragraph 1, sentence 1, should read, "Over two-thirds of the recreational use of National Forests in 1981--about 165 million visitor-days--was in wilderness, primitive, semi-primitive, and other undeveloped backcountry areas."

### OMISSIONS

#### Photo Credits

Cover photo: Randy Johnson, Backcountry Manager, Grandfather Mountain, Linville NC.

page 80 photo: USDA Forest Service photo

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#### Tables

Table 1: NOTE: North Region contains the states of CT, DE, IA, IL, IN, MA, MD, ME, MI, MN, MO, NH, NJ, NY, OH, PA, RI, VT, WI, and WV; South Region contains the states of AL, AR, FL, GA, KY, LA, MS, NC, OK, SC, TN, TX, VA, and Puerto Rico; Rocky Mountain and Great Plains Region contains the states of AZ, CO, ID, KS, MT, NB, ND, NM, NV, SD, UT, and WY; Pacific Coast Region contains the states of AK, CA, HI, OR, and WA.

Table 3: SOURCE: USDA Forest Service, ROS Users Guide (Washington D.C.; Government Printing Office, no date), pp. 7-8.

#### Figure Sources and Footnotes

Figure 1: Carlton S. Van Doren and Louis Hodges, America's Park and Recreation Heritage -- a Chronology. (Washington D.C.; Government Printing Office, 1975).

Figure 2: Executive Office of the President, Office of Management and Budget, The Budget of the United States Government: Fiscal Year(s) 1960, 1965, 1970, 1972, 1974, 1976, 1978, 1980, 1981, and 1982. (Washington D.C.; Government Printing Office), and Bureau of Economic Statistics, Inc., Handbook of Basic Economic Statistics, Vol. 36, No. 1 (Washington D.C.; Economic Statistics Bureau of Washington, 1982). pp. 99-101.

NOTE: These figures are based on Federal government estimates of outlays projected in each budget for the specific year cited. Actual outlays differ from the estimated amounts.

<sup>a</sup>Real dollars are current dollar appropriations deflated to base year 1967 using the Consumer Price Index.

Figure 3: USDA Forest Service, An Assessment of the Forest and Range Land Situation in the United States, (Washington D.C.; Government Printing Office, 1980), pp. 34-35.

Figure 4: Margaret Peterson, Trends in Recreational Use of National Forest Wilderness, Res. Note INT-319 (Missoula: USDA Forest Service, 1981), p. 8.

Figure 5: Carlton S. Van Doren, Dept. Recreation and Parks, Texas A&M University, Statistics on Outdoor Recreation, 1982. (Unpublished compilation).

<sup>a</sup>Estimated for 1979-1982.

Figure 6: Charles R. Goeldner and Stacy Standler, Proceedings of the 1980 National Outdoor Recreation Trends Symposium, vol. 1: Skiing Trends (Broomall: Northeast Forest Experiment Station, 1980), p. 114.

Figure 7: USDA Forest Service, An Assessment of the Forest and Range Land Situation in the United States, (Washington D.C.; Government Printing Office, 1980), p. 32.

NOTE: "other" includes cropland, improved pasture, industrial and urban land, and all other lands except forest and range land.

Figures 8-9: USDI Fish and Wildlife Service: Initial Findings Report on the 1980 National Survey of Fishing, Hunting, and Wildlife Associated Recreation, March 28, 1982. (unpub.).

Figure 10: Bicycle Manufacturers Association of America, Inc., Some Facts About Today's American Bicycle Market (Washington D.C.; Bicycle Manufacturers Association of America, Inc., 1982), 2p.

Figures 11-12: USDA Forest Service, An Assessment of the Forest and Range Land Situation in the United States, (Washington D.C.; Government Printing Office, 1980), pp. 100-101, 113.

Figures 13-19: USDA Forest Service, An Assessment of the Forest and Range Land Situation in the United States, (Washington D.C.; Government Printing Office, 1980), pp. 100-101; U.S. Department of Commerce, Bureau of the Census, Current Population Reports: Population Estimates, Ser. P-25, No. 909, Estimates of the Population of the United States to January 1, 1982. (Washington D.C.; Government Printing Office, 1982); and USDI Bureau of Outdoor Recreation, The Recreation Imperative: A Draft of the Nationwide Outdoor Recreation Plan (Washington D.C.; Government Printing Office, 1974), pp. 202-203.

Figures 20-21: U.S. Department of Commerce, Bureau of the Census, Statistical Abstracts of the United States, Section 14. (Washington D.C.; Government Printing Office, 1980), p. 451-451.

Figure 22: Executive Office of the President, Council on Environmental Quality, Environmental Trends, (Washington D.C.; Government Printing Office, 1981), p. 12.

#### Literature Cited

Cole, D.N. and R.F. Washburne. 1981. Problems and practices in wilderness management: a comprehensive survey of management in the National Wilderness Preservation System and likely additions. Draft report prepared at the USDA For. Serv. Intermountain Forest and Range Exp. Sta., Missoula, MT. 57pp.

Dardis, Rachael, Frederick Derrick, Alane Lehfeld, and K. Eric Wolfe. 1981. Cross-section studies of recreation expenditures in the United States. *J. of Leisure Research* Vol. 13 No. 3 pp 181-194.

Kelly, John R. 1981. Social benefits of outdoor recreation. Urbana, IL: Leisure Behavior Research Laboratory, University of Ill. at Urbana-Champaign.

Lucas, Robert C. 1980. Use patterns and visitor characteristics, attitudes, and preferences in nine wildernesses and other roadless areas. *USDA For. Serv. Res. Pap.*, INT-253. 89pp.

Roggenbuck, J.W., W.N. Timm, and AG. Watson. 1979. Visitor perception of the recreation carrying capacity of three wilderness areas in North Carolina. Unpubl. Rept. on file at Dept. of For., VPI&SU, Blacksburg VA. 303pp. (NOTE: This paper was erroneously cited as "Roggenbuck, 1979" on pg. 21).

Stankey, George H. 1980. A comparison of carrying capacity perceptions among visitors to two wildernesses. *USDA For. Serv. Res. Pap.*, INT-242. 34pp. (INT).

## FOREWORD

At this time, the American people are preoccupied with strategies for economic recovery. Widespread budget cutbacks are dramatically affecting many public programs including outdoor recreation supply, management, planning, and research. Dollars for site development, management and acquisition probably will never return to the real-dollar levels of the 1960's and early 1970's. Administrators of outdoor recreation management and research programs, therefore, are challenged to meet growing needs with greatly reduced resources.

Outdoor recreation permeates every segment of our society, and it is a vital part of the lifestyle of most Americans. Over three-fourths of the U.S. people regularly participate in some form of outdoor recreation, and they spend about \$250 billion per year in its pursuit. Forest and range lands and their associated waters are the focus of much of this participation.

In December of 1980, the American Forestry Association and other resource organizations sponsored the National Conference on Renewable Natural Resources. The conference assembled more than 200 national leaders and experts in renewable natural resources to examine fundamental goals for management of these resources. The conference was cosponsored by two dozen national organizations concerned with trends in the management and use of this Nation's renewable natural resources.

Background papers were commissioned from recognized national experts in the seven resource areas of soil, water, fish and wildlife, energy, timber, range, and recreation. Experts were asked to summarize the present condition, future trends, and emerging policies and programs for their respective areas. This monograph is the background paper for the Recreation Working Group of that National Conference. It has been updated to reflect the demand and supply situation in mid 1982 for renewable resources outdoor recreation in the United States. The conclusions of the Recreation Working Group at the National Conference, which are cited in the Introduction, recognize the growing importance of outdoor recreation in our society and suggest key policy direction for Government involvement.<sup>1</sup>

Subsequent to the National Conference, the principal author was designated the National Resource Specialist for the 1984 and 1989 Resources Planning Act (RPA) Assessments of Outdoor Recreation and Wilderness in the United States. Through publication of this monograph the American Forestry Association seeks to provide a benchmark description of the outdoor recreation and wilderness situation in the United States for use in the Resources Planning Act (RPA) process of the Forest Service and in teaching, research, policy and program analysis.

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<sup>1</sup> Key to the Future: Renewable Natural Resources. Report on the 1980 National Conference on Renewable Natural Resources, 56 p., American Forestry Association, 1319 18th St., NW, Wash. DC 20036.



# Renewable Resources Recreation in the United States: Supply, Demand, and Critical Policy Issues

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## EXECUTIVE SUMMARY

Analysis of supply and use of renewable recreation resources in the United States is needed to project likely trends. Social and economic factors are particularly important. The analysis presented here identifies likely trends as well as critical policy issues which must be addressed.

Outdoor recreation has become a fundamental expression of our national character. It is done because it is enjoyable, but outdoor recreation also generates major personal, social, and economic benefits. Government expenditures to provide outdoor recreation exceed \$5 billion per year, and the American public spends almost \$250 billion consuming it. At least three-fourths of all Americans participate in some form of outdoor activity.

Traditionally federal and state governments have provided leadership in supplying recreation opportunities, principally by providing facilities, access, and information concerning outdoor opportunities. Government agencies have heavily subsidized use of public recreation areas by providing access free or at token rates. Shortness of funds are forcing fee policies to be reexamined. User fees large enough to cover operating costs and greater dependence on market forces and private enterprise are being viewed as viable means to meet recreation demands where and when they arise--all at less public cost.

Increasingly, the role of government in outdoor recreation is being viewed as emphasizing primitive and semiprimitive opportunities with reduced regulation, services, and development. Such a trend has been underway for the last few years in response to federal and state financial deficits.

Government's role in outdoor recreation will continue to adjust to political, economic and social changes, and the private sector will react to government and market signals. Ultimately, a new balance between government and the private sector will emerge. It is not yet clear what that balance will be, but federal, state and local governments will continue to have essential responsibilities for outdoor recreation planning, coordination and information. Legislation, administrative actions, and a rich cultural tradition mandate a vital role for government in outdoor recreation and especially for provision of recreation use on public lands. Only the manner for providing recreation opportunities on public lands is likely to change. Public recreation management will continue to be needed, but the importance of private land, water and facilities will increase.

### THE SUPPLY SITUATION

Renewable resources provide a wide spectrum of outdoor recreation opportunities on forest, range land and specially designated areas such as National Parks and National Wilderness Areas. About 1.56 billion acres in the U.S. are classed as forest, range, and associated water. About 47.5 percent of this acreage is privately owned. Particularly in the South and East, private land is often strategically located with respect to large population centers.

In July 1981, the National Wilderness Preservation System (NWPS) had grown to nearly 80 million acres, but only modest additions are likely in the future. Enhancement of wilderness values will increasingly depend on better management of already designated areas. The issues of proximity to populations and recreational access to wilderness will continue to be key issues for debate over future additions.

In 1977, there were 281,000 miles of designated trails in the U.S., including 7000 miles in the National Trails System. Additions to the National Trails System since 1968 include three National Scenic Trails, five National Historic Trails, and 247 National Recreation Trails. In addition to trails, forest roads provide important access to backcountry areas for primitive and semiprimitive recreation. Where roads are not available, cross country

travel becomes the primary mode of access. In 1977, roughly one-fourth of the U.S. population used some form of motorized, off-road recreational vehicles to gain access to back-country areas.

Recreation facilities in natural settings include campgrounds, visitor information centers, second homes, resorts, and other highly modified settings. Although many federal, state, and local government agencies are beginning to reduce management of these developed areas, their numbers are large, and they continue to represent an important form of recreation for many. The private sector has not yet picked up the slack left by reduced government supply.

Water continues to be a focal point of outdoor recreation activity. There are approximately 107 million acres of water surface area in the U.S., including nearly 2 million rivers and streams. Pollution of both inland and coastal waters has been significantly reduced over the past few years, particularly near urban areas. But it is estimated that nearly 10,000 lakes are still in need of major pollution reduction and water quality restoration.

Snow and ice provide opportunities for a variety of recreational pursuits. Virtually all forest and range land in the Northern States is usable for winter recreational activities. During the late 1970's ski development, which had been very rapid, began leveling off.

Privately owned land and water resources should become more important sources of recreation opportunities, especially near population concentrations. Each year, however, almost 1½ million acres of private forest and range lands are lost to urban and other uses, and landowners are moving toward increased closure of this land to the public.

#### THE DEMAND SITUATION

Demand for virtually all outdoor recreation activities is projected to increase, but demand information is generally weak, making accurate projection highly uncertain. Recreation participation surveys often yield quite different estimates of future outdoor recreation participation.

In 1980, approximately 100 million people aged 16 years and older participated in a total of almost 7 billion days of wildlife-related recreation. Most of this participation was nonconsumptive and near home. Federal lands received 544 million visitor-days of recreational activity in 1981 (only 21.8 percent of this visitation occurred in fee management areas). From 1979 through 1981, levels of participation in most outdoor recreation activities either remained stable or increased. Winter sports, particularly downhill skiing, declined nearly one-third because of poor snowfall in some Western States.

Between 1965 and 1981, spending on leisure pursuits increased by 47% (adjusted for inflation). In 1981, leisure spending was at \$244 billion. Americans spent \$1 out of every \$8 for leisure pursuits.

Predictions to the year 2030 imply that capacities will have to be greatly expanded if we are to support the expected increases in snow and ice and water activities. Even larger increases in numbers of sites and facilities will be needed to accommodate expected demands for land-based activities.

#### PREDICTIONS

We have projected market responses to demand and supply trends in the United States for 1982 to 2000. These predictions are reported for several major categories of activity. The predictions are based on an analysis of the likely influences of 20 social and economic factors expected to significantly affect future demand and supply of outdoor recreation.

Primitive--(Essentially unmodified natural environment of fairly large size, low user interaction, managed to be perceptibly free from human restrictions and controls). The National Wilderness Preservation System (NWPS) will grow slowly to about 100 million acres as the current allocation process is completed. A moderate decrease in public and a major decrease in private sector non-wilderness primitive areas will result from economic pressures. A moderate increase in demand for wilderness opportunity, at a rate slightly greater than population growth, but less than the rate of the 70's, is predicted between now and 2000.

Semiprimitive--(Predominately natural or natural-appearing environment of moderate to large size, often evidence of other users, managed for minimum on-site controls. A moderate decrease in public and a major decrease in private sector semiprimitive, non-motorized areas will result from economic pressures. Demand is expected to increase moderately.

Roaded natural and rural--(Predominantly natural-appearing or rural environments with moderate evidences of human disturbance, low to moderate interactions with other users, resource modification and utilization practices are evident). Public areas (campgrounds, picnic areas, and swimming beaches) are expected to decrease moderately in relation to population growth. Reduced competition from government-developed sites and increased fees at public sites will stimulate private development of campgrounds and other facilities. Demand is predicted to grow faster than growth rate of population.

Rural--(Substantially modified natural environment, evidence of human activity readily apparent, interactions between users moderate to high, facilities often provided for special activities). Predictions are the same as for roaded natural. With slightly decreased supply in the face of growing demand, some severe imbalances may result.

Urban--(Substantially urbanized environment, resource modification to enhance specific activities, evidence of humans is predominant, large numbers of users present, with mass transit often available). Intensively developed public sites will face serious funding problems. To a lesser extent, private areas, such as theme parks, resorts, ski areas, will face the same funding pressures. There will be a moderate increase in demand for these services approaching the population growth rate.

#### CONCLUSIONS:

Recreation demand is going to increase and, if recent history is any indication, demands may be greater than we predicted and in directions we have not yet imagined. The uncertainty of even the best predictions and the increasing scarcity of public funds suggest a need for private responses to demand and supply imbalances. Government planning will continue to be needed, but we must also develop a system that is more responsive to short-term change. We need a recreation delivery system that will respond to unanticipated fluctuations, as well as to long-term trends.

General recommendations include:

- a more responsive delivery system,
- acknowledgement of the importance of outdoor recreation in American Life,
- a major research effort to better predict future recreation demands,
- decentralized recreation delivery systems,
- fiscal solvency and equitablity, and
- expanded coordination, cooperation, and partnership between the public and private sectors.

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*Outdoor recreation has become a fundamental expression of our national character. Over three-fourths of the U.S. population regularly participates in some form of outdoor recreation, spending about \$250 billion annually in its pursuit. Participation is predicted to increase during the next 50 years. The future role of government is being viewed as emphasizing primitive and semi-primitive opportunities, with the private sector expanding its influence as a provider of services and developed sites. (U.S. Forest Service photo.)*

## INTRODUCTION

### PURPOSE

**In this paper historical and current supply and use of renewable recreation resources in the United States are examined to predict future trends.** Social and economic factors related to supply and use are considered, and critical policy issues are discussed.<sup>1</sup> The future and the problems, options, and opportunities for shaping that

future are our primary concerns. The last section of this paper identifies some topics for action.

From November 30 to December 4, 1980, the National Conference on Renewable Natural Resources was convened by the American Forestry Association and 23 other conservation organizations to address the future of six renewable resource areas, one of which was outdoor recreation. An earlier draft of this report provided background for the Recreation Working Group of that conference. Following is a summary of the

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<sup>1</sup>The authors gratefully acknowledge J. Herbert Stevens, Jr., of the Department of Forestry at Clemson University, for assistance in compiling, summarizing, and interpreting data from a wide variety of sources; to Dr. N.E.H. Hull, of the University of Georgia, for developing and summarizing social-economic trend data; and to D. Kirkpatrick for compiling, summarizing, and editing data. The authors

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Working Group position statements and recommendations that were included in the final Conference Report (American Forestry Association, 1981).<sup>2</sup>

Recreation is essential to our health and enjoyment. It is also a major contributor to our economy, generating some \$200 billion of economic activity annually. Although everyone supports the need for outdoor recreation opportunities, there is conflict among various recreation interest groups as to: what forms of recreation should be permitted and where; who should pay and for what; what role the private sector should play in providing recreation opportunities, and at what price; and what should be the role of government at federal, state, and local levels.

The crux of this issue seems to be that demand for all outdoor recreation forms is expanding more rapidly than supply. One of the major suppliers of recreation opportunities, the federal government, is finding it more and more difficult to finance either the operation and maintenance of existing recreational facilities or the construction of new, high-cost facilities.

A critical review is urgently needed of recreation supply and demand, of future needs, and of how such needs may be met by both the private and public sectors of society.

#### Recommendation No. 31

The Administration and Congress should mandate and participate in a national assessment of outdoor recreation supply and demand to evaluate recreation trends and set priorities and direction for the future. The structure of the body and the mission might be patterned

after the Outdoor Recreation Resource Review Commission of the 1960's.

#### Recommendation No. 32

Since publicly owned lands support a high proportion of recreation use, the planning, development, and management of those lands should receive continued public financial support; however, recreation users should assume a greater share of program costs.

#### Recommendation No. 33

To accommodate the growing demand for recreation opportunities, incentives must be developed to encourage the private sector, including private landowners, to offer recreation opportunities. Those incentives should include equitable pricing between the public and private sector, reasonable limitation on landowner liability, and tax incentives to promote the development of high-quality recreation facilities and services.

### DATA AND ANALYSIS

This analysis is based primarily on existing documents and data. Primary sources include the 1965 Outdoor Recreation Participation Survey and the Recreation Imperative: A Draft of the Nationwide Outdoor Recreation Plan (U.S. Congress 1974), the 1977 Third Nationwide Outdoor Recreation Plan (U.S. Department of Interior 1979), the Outdoor Recreation and Wilderness chapter of the 1979 RPA Assessment (Forest Service, U.S. Department of Agriculture 1980), the RCA Assessment (Soil Conservation Service, U.S. Department of Agriculture 1980A), and an unpublished compilation of outdoor recreation statistics by Dr. Carlton Van Doren, Texas A&M University. We adapted and supplemented these data with additional

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<sup>2</sup>The final statement of the Recreation Working Group was developed under the leadership of chairman, Mr. William Shands, The Conservation Foundation, 1717 Massachusetts Avenue N.W., Washington, D.C. 20036. Members of the Working Group included William E. Shands (Chairman), Conservation Foundation; John C. Hendee, H. Ken Cordell, and Roy Feuchter, U.S. Forest Service; Derrick A. Crandall and William T. Jobe, Jr., International Snowmobile Industry Association; Keith A. Argow, Trout Unlimited; Herbert Brantley, Clemson

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calculations and displays and have presented our own analysis of social and economic influences on future renewable resources recreation supply and demand.

### IMPORTANCE OF OUTDOOR RECREATION

The outdoor recreation delivery system in the United States has evolved over the past 80 years to include four major activities:

1. Preserving natural, scenic, and historic resources.
2. Providing information, interpretation, and safety for visitors.
3. Providing public access to land and water.
4. Developing sites and facilities for recreation activities.

Recreation expenditures in 1981 totaled about \$250 billion, including \$1.9 billion by the Federal Government (for management and the Land and Water Conservation Fund), \$3.5 billion by state and local agencies, and an estimated \$244 billion by individuals (about \$77 billion more than is spent on national defense).

Outdoor recreation is a major expression of our national character. An estimated three-fourths of all Americans over 11 years old regularly participate in some form of renewable resources recreation (U.S. Department of Interior 1979). Passive activities such as picnicking and sight-seeing attract the greatest number of participants. The ranking of participation in various activities has not changed in recent years, but the number of participants has grown (U.S. Department of Interior 1979). The most participated in recreation activities are swimming (105.4 million participants), bicycling (69.8 million), camping (60.3 million), and fishing (59.3 million) (U.S. News and World Report 8/10/81:63).

We define renewable resource recreation as the leisure time use of natural and cultural resources on forests, and rangelands, and other open and green spaces. Our country has a long tradition of such use dating back to picnics on town commons, hunting and fishing for sport as well as

subsistence, and individual exploration of wild areas. These traditions reflect enduring patterns of leisure use for outdoor activities.

As the affluence of individuals grew, most citizens found it increasingly easy to meet basic survival needs. Better education and incomes meant a higher standard of living that was accompanied by a rapid growth of participation in outdoor recreation activities. However, the growth trends in real income that marked the period 1950-1970 have not persisted and the standard of living for most Americans has not improved appreciably in the last 10 years.

It is difficult to predict whether the stagnation of standard of living will continue, or what its impact on recreation demands will be. Some experts predict that people will engage in leisure activities closer to home, such as short day trips or activities that use local resources such as schools and urban parks. Some predict longer stays at fewer sites and car pool vacations (U.S. News & World Report, 1981: 8/10/81:61). Costs are certainly a factor. We must examine potential travel price changes and predict their likely impacts. The travel price index produced by the U.S. Travel Data Center indicates that travel costs increased 130 percent between 1972 and 1980 (Goeldner and Dicke 1981), while the consumer price index rose only 97 percent. Outdoor recreation is so deeply ingrained in our society's lifestyle, however, that increasing constraints on participation are likely to change the activities and settings for outdoor recreation rather than overall participation.

### BENEFITS FROM OUTDOOR RECREATION

Recreation is important because of the personal, societal and economic benefits it generates (Kelly 1981):

#### Personal benefits of recreation are those directly experienced by individuals.

These include many satisfactions that lead to an overall sense of enjoyment (Hendee and Bryan 1978). For example, various recreation activities and experiences provide participants with satisfactions such as excitement, relaxation, companionship, environmental appreciation, learning, or testing one's competence. Additional long-term benefits may be derived from these



*Outdoor recreation provides many satisfactions such as companionship, nature appreciation, physical exercise, solitude, and relaxation. These satisfactions may lead to other benefits such as increased self esteem, improved family and social bonds, physical and mental health, and increased productivity. (U.S. Forest Service photo.)*

recreation experiences and satisfactions such as self-enhancement through improved mental health, development of self-reliance and competence, establishment of relationships of trust and communication, "renewal" of both mind and body, and others.

**Societal benefits are those that accrue to larger social groups.** These include such things as strengthened family and friendship bonds, increased economic productivity, improved health, improvement and development of community cohesiveness. These benefits in part result from the personal benefits described above. For example, recreation participation can result in happier, more productive people whose renewed dispositions affect society at some level of social organization such as through their jobs, family, friends or community organizations.

**Economic benefits include both direct and indirect outcomes of recreation, such as increased employment and income.** Effects on communities near recreation sites are most obvious, but benefits occur throughout the national economy.

Direct economic benefits include income to recreation entrepreneurs in the form of business revenues and returns to public agencies in the form of user-generated revenues. Direct benefits also include jobs created directly in the private or public sector for recreation-related sales, management, and services.

Indirect benefits include the additional income and employment from the economic activity of public and private recreation enterprises. That is, the materials, supplies, and services they pro-

cure create secondary income and employment effects among their suppliers. Indirect economic benefits also include increased tax revenues to local governments, increased business, and growth in property values attributable to recreation.

Good estimates of most direct and indirect economic benefits do not exist. Nevertheless, there are some sources of data that shed light on the magnitude of these benefits.

In 1975, for example, **state park systems generated a total of over \$115 million of revenues** from operations including facility fees (65 percent), concessions on park lands (9 percent), entrance and parking fees (18 percent), and other sources (8 percent) (Van Doren 1982). In 1981, the total state park revenues were \$197.1 million. In 1975, a total of \$20.5 million in fee revenues was collected by federal agencies from users of designated fee areas (USDI 1981). In 1981, the federal fee revenue total was \$32.2 million. Additional revenues to public agencies were received through sales of state fishing and hunting licenses. In 1975, license sales generated over \$2.1 billion in state revenues (Beverly 1979), and in 1980, the total was over \$4.2 billion. In Colorado alone, total tax revenues from tourists and recreation-related activity was \$49.2 million in 1975 and included sales taxes, license sales, and income taxes from recreation businesses. **These examples of taxes, fees, and license sales show that recreation has major importance in financing government operations.** Uncounted in these totals are the billions of dollars gained through fuel and travel taxes for domestic and foreign visitor tourism in the United States.

Recreation-related expenditures in the private sector are even more significant. Expenditures for recreation in 1975 were \$66.5 billion; in 1980, they were in excess of \$110 billion. Total leisure-related expenditures in 1981 were \$248 billion (including recreation and sales of books, TVs, video games, entertainment, and other leisure equipment and services.) These revenues have enormous effects throughout our economy and have resulted in greater income and employment. They are particularly significant in some areas where industry is sparse but recreational opportunities are great because of the substantial forest and range land base.

## THE RECREATION LEGACY IN THE UNITED STATES AND CURRENT PROBLEMS

### ADMINISTRATIVE AND LEGISLATIVE HISTORY

For many years, the United States Government has subsidized outdoor recreation by providing essentially free use of public lands. Thus, the current shift toward increased fees to cover costs and the use of market forces to direct allocations is remarkable. Reductions in federal support for recreation planning, acquisition, and management offer unprecedented challenges (and we hope opportunities) for people involved in these activities.

For nearly 100 years, legislation and major administrative actions have shaped federal outdoor recreation policy. A comprehension of this history helps to understand the current situation.

A chronology of pertinent legislation from 1860 through 1975 appears in Figure 1 (Van Doren and Hodges 1975). Some of the more noteworthy of these actions over the



*Gifford Pinchot, first Chief of the U.S. Forest Service, near the end of his tenure in office.*

past century are described in the text below to illustrate how we responded to growing outdoor recreation participation. Many of these legislative actions were a part of or paralleled major environmental movements.

In 1850, the average work week was approximately 70 hours, but by 1900 it had dropped to 60 hours and productivity had more than doubled. During this era, Yosemite Valley was ceded to the State of California (1864) "for public use, resort, and recreation"; Yellowstone National Park was established (1872) as a "pleasuring ground"; and the Organic Forestry Act of 1897 provided for the administration of the "forest reserves". Central Park was established in New York City in 1853, and the Adirondack Forest Reserve Park was authorized in 1885. Between 1900 and 1910, Theodore Roosevelt placed 148 million acres

of public land under federal supervision; the Reclamation Act was passed in 1902; the first National Wildlife Refuge (Pelican Island) was established in 1903; and the Preservation of American Antiquities Act was passed in 1906. The TVA and Civilian Conservation Corps (CCC) were established in 1933. In 1934, the Taylor Grazing Act provided for regulation of the formerly open public domain, established grazing districts, and halted unrestricted homesteading. The Soil Conservation Service was established in 1935. The Duck Stamp Act passed in 1934 and the Historic Sites Act in 1935. In 1935, the Pittman-Robertson Act was enacted to tax guns and ammunition for state wildlife projects. Money was allocated to purchase 11 million acres of eastern forest lands under the Weeks Act in 1937, and in 1939, the Fish and Wildlife Service was established.

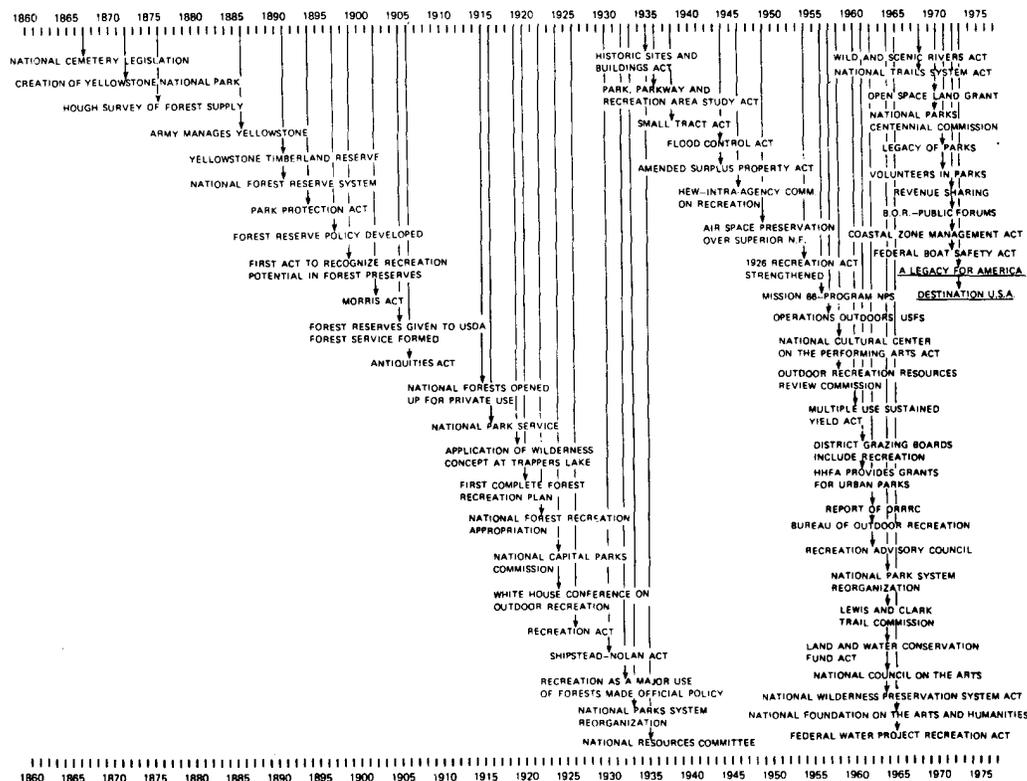


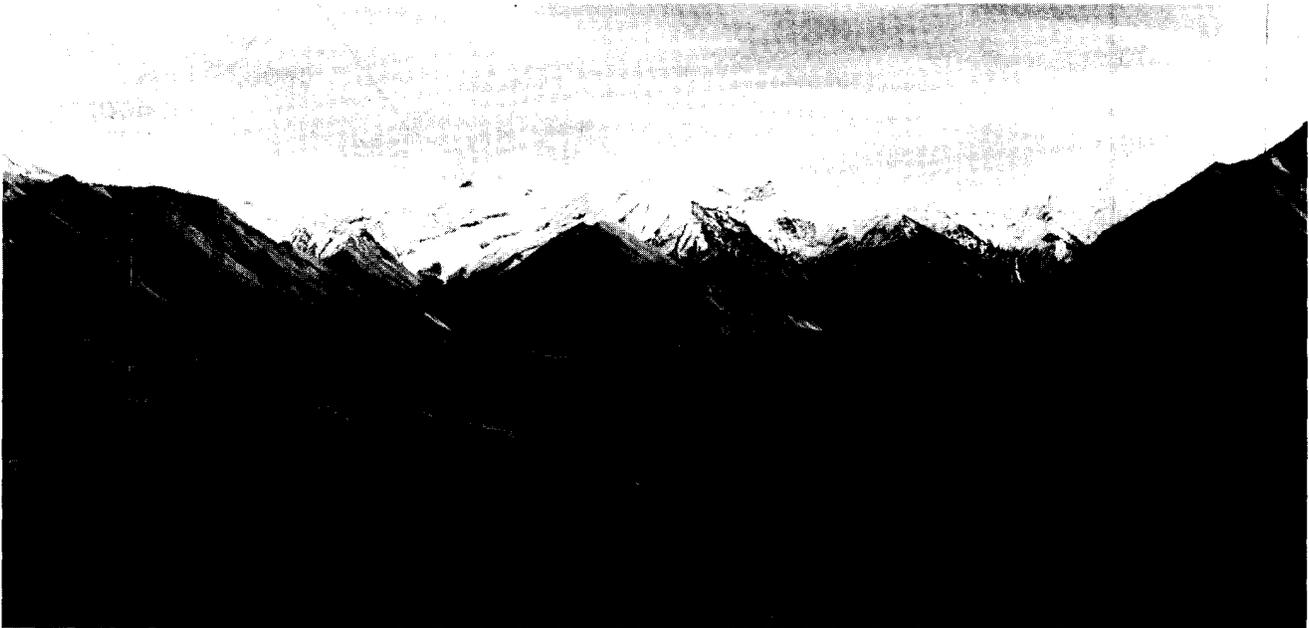
Figure 1 - Chronicle of federal recreation and parks legislation in the United States, 1860-1975.

Unparalleled prosperity after World War II fueled rapidly rising demands for outdoor recreation. The National Park Service launched "Mission 66" to improve park facilities, many of which were constructed by the CCC projects in the 1930's and were beginning to deteriorate. At the same time, the Forest Service carried out "Operation Outdoors" to do essentially the same thing on National Forests.

Multiple use (including recreation) became official policy for the Forest Service and Bureau of Land Management in their multiple use acts of 1960 and 1964, respectively. The Multiple-Use Sustained-Yield Act of 1960 established the policy that the National Forest System lands would be managed to achieve multiple use of their natural resources and sustained yields of forest products. Subsequently, the Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA), as amended by the National Forest Management Act of 1976 (NFMA), the Federal Land Policy and Management Act of 1976 (FLPMA)--the BLM Organic Act, and the Public Rangelands Improvement Act of 1978, re-emphasized multiple use both for the Forest Service and for the Bureau of Land Management. **These statutes decreed that management of federal forests and rangelands would be based on detailed inventories of resources, on careful planning, and on public participation to achieve a balance among competing uses.**

In hand with Mission 66 and Operation Outdoors, the Outdoor Recreation Resources Review Commission (ORRRC) was formed in 1958 to study the planning, use, and coordination of public recreation needs and resources. As a result of ORRRC, the Bureau of Outdoor Recreation (BOR) was established in the Department of the Interior to coordinate various federal programs and to assist other levels of government in meeting demands for outdoor recreation. In 1964, Congress passed the Land and Water Conservation Fund Act to be administered by the BOR for funding recreation planning, land acquisition, and development. In this same year, the National Wilderness Preservation Act was passed. In 1968, the National Wild and Scenic River Act designated 8 rivers and identified 27 others for study. In addition, the 1968 National Trails System Act established the Scenic, Historic, and Recreation Trails System.

In 1975, the so-called "Eastern Wilderness Act" expanded wilderness eligibility to include many more areas in the East. In 1978, the Heritage Conservation and Recreation Service (HCRS) was established by consolidating the previous BOR functions with the heritage preservation functions of the National Park Service. (HCRS was abolished early in 1981 and its functions and most of its personnel were transferred back to the National Park Service).



*The Alaska Lands legislation in 1979 brought the total Wilderness Preservation System acreage to more than 56 million acres in Alaska, and nearly 80 million acres nationwide.*

The Clean Water Act of 1977 required consideration of recreation benefits in all wastewater treatment projects and water quality management plans. In 1978, the National Parks and Recreation Act was passed to mandate study of unutilized, underutilized, and excess federal real property for possible wilderness, wildlife conservation, and recreation and park uses. In 1978, the Forest Service embarked on its second Roadless Area Review and Evaluation, called RARE II, to identify land to be recommended to Congress for Wilderness classification, further planning, or non-wilderness use. RARE II helped focus attention on the need to complete allocations to the National Wilderness Preservation System and end the uncertainty that was restricting other uses. At the same time, BLM was inventorying public domain lands; it has identified 11 million acres of wilderness study areas. Far more significant than RARE II or the BLM's roadless area review in its effect on

Wilderness acreage was the Alaska Lands legislation in 1979. This legislation brought the total Wilderness acreage in Alaska to more than 56 million acres and the total in the NWPS to nearly 80 million acres.

**THE CURRENT CHANGE IN DIRECTION**

Legislation and administration actions through 1975 increased federal support for recreational and aesthetic values of natural resources. In the late 1970's, economic conditions and an increasingly conservative mood led to leveling off and some declines in proposals and appropriations for recreation management and environmental protection. For example, **real dollar appropriations for federal recreation management grew from about \$85 million in 1960 to \$718 million in 1978, but fell to only \$374 million in 1982 (Figure 2).**

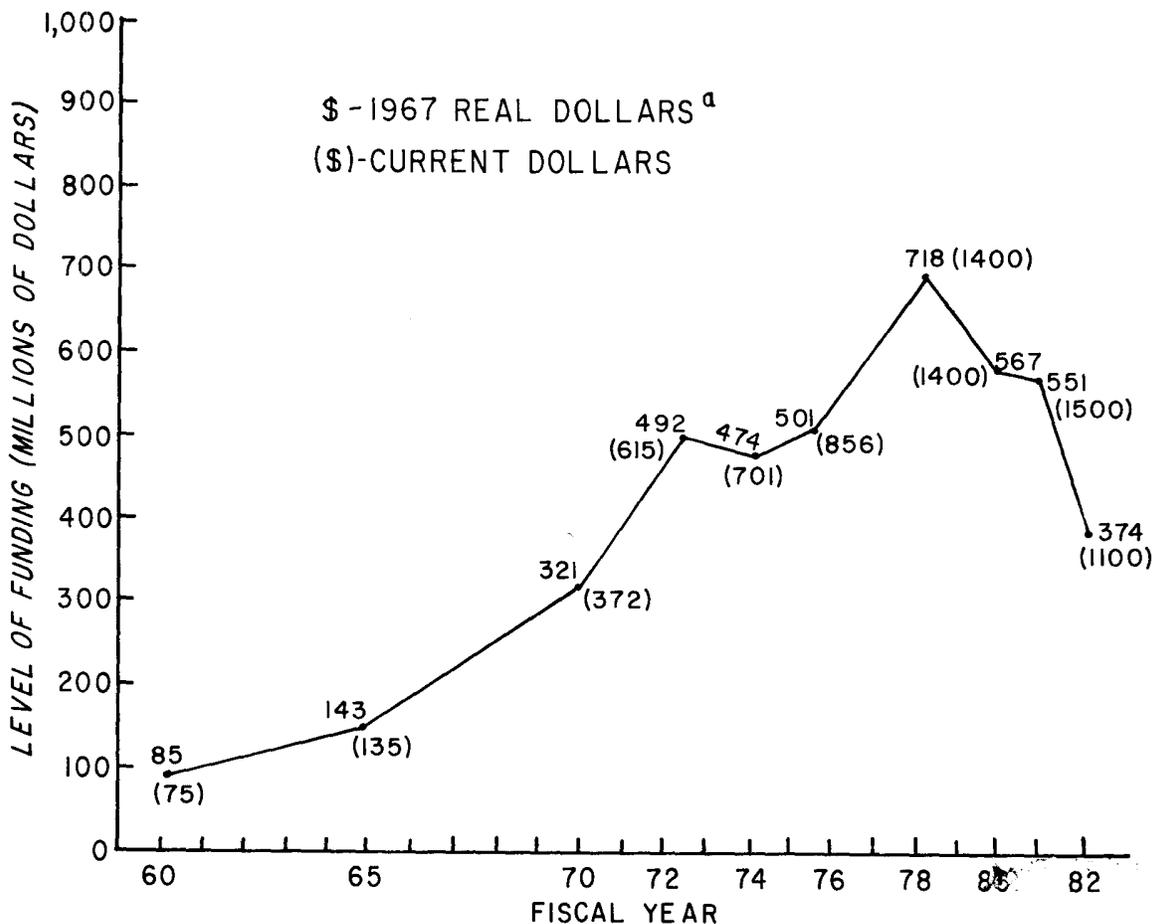


Figure 2 - Estimated federal outlays for recreation resources planning, acquisition and management in 1967 real dollars, 1960-1982 (selected years).



*Declining recreation budgets have forced several agencies to reduce maintenance, development, and supervision of many recreation sites. Some agencies are looking to volunteers to assist with operations and maintenance. (U.S. Forest Service photo.)*

Smaller recreation development and management budgets have forced several agencies to reduce maintenance, development, and supervision of many developed recreation sites. Some sites have been closed due to a lack of operating funds. To help offset closures and restricted service, some agencies are looking for volunteers to supervise, collect fees, and provide information. Local governments and private enterprise are also being encouraged to manage recreation sites. **Unprecedented withdrawal of federal support is causing higher fees on more areas and dependence on market and entrepreneurial forces to lower costs and increase recreation supply.**

**The move to involve the private sector and market forces in recreation management has been rapid and dramatic.** For example, the Tennessee Valley Authority (TVA) has opened several recreation sites for public use under cooperative maintenance arrangements with local agencies. They also have entered concession arrangements with private firms to operate some TVA facilities in exchange for the concessionaire keeping all fee-derived revenues.

In response to shrinking budgets, the TVA has also abolished its community recreation planning assistance program and is no longer inventorying recreation use and facilities. Likewise, the Forest Service, Corps of Engineers, and National Park Service have expanded use of fees, level of fees, and concessionaire arrangements for operating facilities.

Proposed legislation before the Congress would liberalize authorizations for charging fees for recreation on federal land. This proposed legislation seeks to broaden the range of recreation facilities and areas on which fees can be charged. A desired outcome is to help cover rising recreation operation and maintenance costs in the face of decreased management appropriations.

Other cutbacks in federal support for renewable resource recreation may be more difficult to absorb. For example, the nationwide planning and matching grants programs within the National Park Service have been reduced and may be discontinued under Administration-proposed budget reduc-

tions for fiscal year 1983. Major programs that would be most directly affected by the Administration's proposed budget include river and trail studies, recreation land acquisition, the Urban Park and Recovery Program, nationwide planning, and technical services.

Studies of rivers and trails for possible inclusion in the National Wild and Scenic Rivers System and National Trails System would be reduced to those authorized by their respective legislation, P.L. 90-542 and P.L. 90-543. In addition, study of the potential adverse effects of federal actions on study rivers, evaluation of new trail corridors, cooperative trail development, and evaluation of abandoned rights-of-way for trail development would be eliminated.

Land acquisition through the Land and Water Conservation fund (L&WCF) would be eliminated and a much reduced L&WCF would be targeted toward restoration and improvement of National Parks. Since the major use of acquisition and development funds in the past has been for state and local matching grants, a double-edged reduction would result. Likewise, revolving fund acquisitions by private organizations such as the Nature Conservancy, which depend on Federal purchase of their acquisitions with L&WCF dollars, will be affected. Financial assistance for improvement of urban park and recreation opportunities through the Urban Park and Recreation Recovery Program would also be eliminated as would technical services to state and local governments through workshops, demonstration projects, and publications.

Nationwide planning, including the Nationwide Outdoor Recreation Plan, would be reduced to an updating function with planning limited to specific issues and Congressionally mandated studies and plans. As a result, legislatively mandated planning for renewable resources, including the Assessments under the Resources Planning Act (RPA) by the Forest Service and the Resources Conservation Act (RCA) by the Soil Conservation Service, will likely become the more widely used national planning reference documents.

Among the small gains in federal involvement is passage of the 1981 National Tourism Policy Act for promoting foreign tourism in the United States. Because of

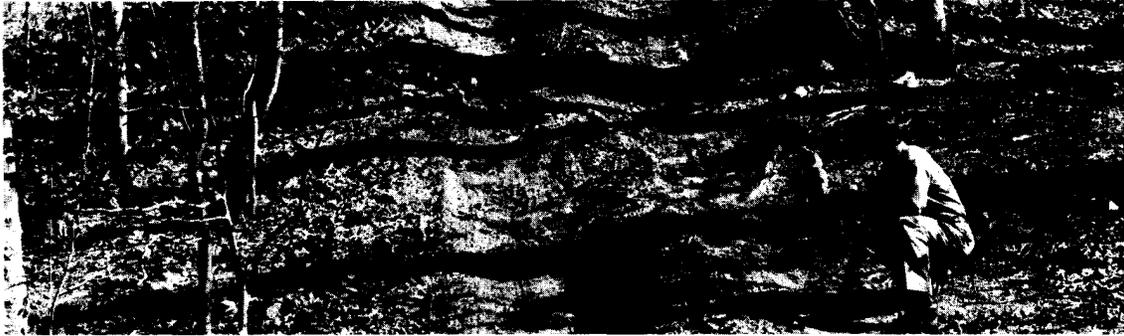
the importance of tourism and recreation to the economy, this Act established the Travel and Tourism Administration to develop and implement foreign tourism marketing plans and to administer a financial assistance program for regions with low or declining foreign tourism trade.

Increasingly, the courts have become arbitrators of conflicts between users of public lands. Recent rulings on special use permits have favored phasing out recreation residence permits on public lands in favor of agency proposals to use those lands for public purposes. An example is a case concerning the phase out of special use permits for summer homes on the Coronado National Forest in Arizona. Where such permits are not being phased out, dramatic increases in fees based on property valuations have resulted in increased revenues, but often unhappy tenants.

**While the proposed reductions in federal support for outdoor recreation are a shock to many administrators, they also represent challenge. Is there sufficient demand for outdoor recreation to stimulate market pressures and thus a response by the private sector? Can private entrepreneurs provide recreation services on public lands at desired quality levels? Will increased dependence on market forces to direct allocations among recreation programs compensate for reduced planning and study? Will market-allocated recreation resources provide equitable distribution of opportunities? The answers to these questions are yet unknown, but the shift toward deregulation of renewable resource recreation could lead to greater innovation and efficiency in our nation's recreation delivery system. We hope for a strong effort by the recreation management institutions whose actions will help dictate the degree of success.**

#### **MANAGEMENT PROBLEMS**

**Serious problems have evolved in the U.S. recreation supply system. These problems also implicate some of the above questions. Crowding and traffic congestion are serious in some areas, including many National Parks. For example, the National Park Service proposed a management plan for California's Yosemite National Park in 1980 that called for the relocation of administrative and housing facilities for some 1,900 concession and Park employees. The**



Heavy use of recreational lands has disturbed many sites. Other serious management problems include crowding, traffic congestion, visitor conflicts, and obtaining accurate use estimates in order to predict future demands. (U.S. Forest Service photo.)

plan is aimed toward reducing overnight lodging units and eventually eliminating automobile traffic in Yosemite Valley.

The Grand Canyon National Park also has had a large increase in number of visitors. Between 1967 and 1972, the number of persons floating the Colorado River soared from 2,099 to 16,432 and posed a serious threat to Canyon wildlife and vegetation. After several studies, the Park Service proposed a management plan that established use levels, redistributed launching times for trips, and established regulations to minimize impacts on soil, vegetation, and wildlife. The plan originally called for phasing out motorized river craft by 1985, so that all trips would be oar powered, and only 70 percent commercial. However, controversy surrounding these cutbacks now threaten their attainment.

**Crowding and conflicts on streams, in Wilderness, and other sensitive areas are a concern of all land management agencies.** In April of 1981, a national conference was held to discuss recreation use allocation. Sponsored by the Forest Service, Bureau of Land Management, and the National Park Service, the conference addressed the need for use limits, rationales for allocating use between commercial and private users, and the equity of various management and allocation strategies. Managers and users generally agreed that allocation policies and practices are needed in many areas. They also agreed that tools such as pricing will become increasingly acceptable to allocate use among competing groups (Cordell 1981).

**Collection, management, and proper use of data and information are persistent problems in managing public lands for recreation.** Legislative mandates (e.g., NFMA and FLPMA) require that resource allocation be based on analysis of relevant

benefit/cost comparisons. Such an analysis depends on good estimates of the unit value of recreation outputs consumed by the public. Such unit values are yet to be developed for regionwide and nationwide planning. Reliable and affordable methods for estimating the amount of participation in visits, visitor-days, or other units are also lacking. Unit values and accurate use estimates are equally important in cost/benefit analyses that are comparable to those for competing resource values such as timber and minerals, for which better data are available. **Research is needed to improve recreation use estimation procedures.**

**Other major problems for resource managers include: wilderness allocation controversies; maintaining the visual quality of forest and rangelands managed for timber, water and mineral development; resolving conflicts between different recreation visitors such as motorized versus non-motorized users; projecting future demands; and maintaining and restoring heavily used sites. On a broader scale, we need to know more about the satisfactions and benefits resulting from recreation experiences so recreation environments and use can be managed to optimize benefits.**

Efforts to address these problems and needs are being reduced as philosophies about government's role in outdoor recreation are changing. Current philosophies lean toward government providing primitive and semiprimitive opportunities, with reduced regulation, services, and development. The private sector is viewed as the source for capital investments and intensive site development and services. In spite of these emerging philosophies, the previous approach by government clearly had enduring effects. Providing recreation opportunities is still a mandated government

responsibility. Authority, facilities, coordination, and administrative mechanisms for providing outdoor recreation are in place. Legislation to clean up air and water is causing a return of fishing and swimming to formerly polluted waters. A vast National Wilderness Preservation System has been created; National Parks, Forests, and Recreation Areas, and Wild, Scenic, and Recreation Rivers have been established and support impressive levels of use.

Previous government direction has been to expand public supplies in response to rising participation rates. Recreation demand can no longer be met so readily because resources for expanding public recreation supplies are more limited. Earlier gains from better coordination and expanded authority probably cannot be duplicated. Meeting future recreation needs will require more than linear extensions of historical policies and approaches. Projections indicate increased demand for outdoor recreation in the face of greater uncertainty about that future, an already

saturated supply, increasing development and opportunity costs, continued inflation, and more intense competition for public expenditures. All these factors suggest a need for new and more comprehensive policy directions and creative solutions that are compatible with current conditions and philosophies.

#### RENEWABLE RESOURCES RECREATION SUPPLY SITUATION IN THE UNITED STATES

Forests and rangelands provide a wide spectrum of outdoor recreation opportunities. The kinds of opportunities provided are largely determined by the distribution of land and water areas among various categories of public and private ownership and the geographic distribution of land and water relative to that of the population. We summarize acreages of land and water, per capita regional distributions, ownership and management responsibilities, and other relevant characteristics of these resources.



*The 755.4 million acres of federally owned land in the United States include about 33 percent of the land base. Another 6 percent (about 173.6 million acres) is owned by state and local governments, and 2 percent is owned by native Americans. (U.S. Forest Service photo.)*

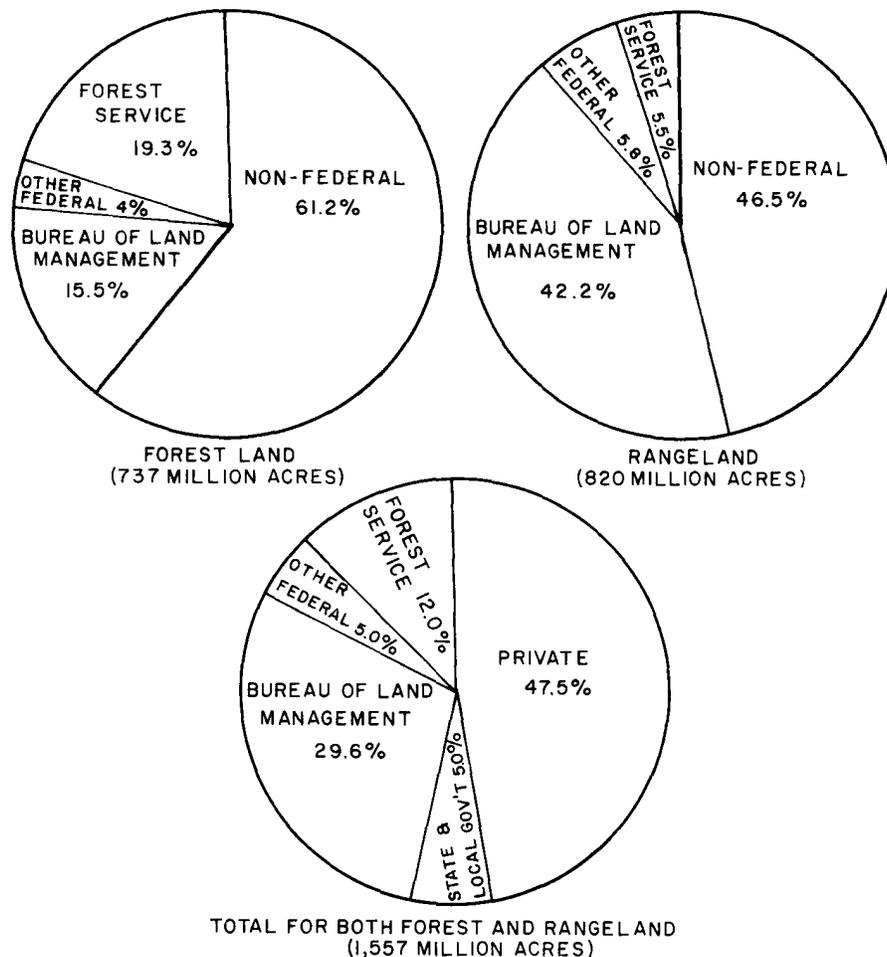


Figure 3 - Percentage of forest and range land area by ownership in the United States, 1977.

### OWNERSHIP AND AMOUNT

The land base of the United States includes about 2.265 billion acres surrounded by 84,200 miles of coastal shoreline. Approximately 2 million rivers and streams have a total length of 3.2 million miles. Nearly 30,000 miles of streams have been inundated to create the 49,000 large reservoirs and 2 million small reservoirs so important as recreation settings.

There are about 755.4 million acres of Federally-owned land in the United States. These lands are managed primarily by four agencies: USDA Forest Service (25 percent), USDI National Park Service (3 percent), Bureau of Land Management (62 percent), and Fish and Wildlife Service (4 percent). Federal lands represent 33 percent of the U.S. land base. Another 6 percent (about 173.6 million acres) is owned by state and local governments, and 2 percent is owned by native Americans.

Fifty-nine percent of the land base in the U.S. is privately held (about 1.336 billion acres) by an estimated 34 million different corporate and noncorporate owners (Lewis 1980). Almost 90 percent of these private owners are individuals or married couples, the majority of whom (57 percent) are 55 and over.

About 1.56 billion acres in the U.S. are classified as forest and range lands and associated waters. Approximately 47.5 percent of this area is privately owned. Management responsibility for the 46.6 percent in federal holdings is divided among the Bureau of Land Management, which administers the most (29.6 percent), the U.S. Forest Service (12.0 percent), and other agencies, including the National Park Service (5.0 percent). State and local governments own about 5.9 percent of the forest and range acreage. As Figure 3 shows, private owners control a higher proportion of the forest (61.2 percent) than

the rangeland acreage (46.5 percent). There are also regional differences with more range in the West and more forest in the South and East.

Private land is likely to be an increasingly important source of recreation opportunities because it is more strategically located near major population cities in the South and East. Table 1 shows the disproportionate distribution of forest and range lands relative to population in the four regions of the United States. Almost 50 percent of the U.S. population, for example, lives in the Northern Region which contains only 10.5 percent of the forest and range land acreage. This region has 1,476 such acres per 1000 population compared to 6,774 acres per 1000 population nationally. Of the 164 million acres of forest and range in the North, 78 percent is privately owned. In contrast, the Pacific Coast Region, with only 14.4 percent of the population, has 33.4 percent of the forest and range land; and only 12 percent of these 520 million acres are privately owned. Because opportunities for recreational use of private lands are generally more limited than opportunities on public lands, there appears to be a severe imbalance in available recreation opportunities.

The greatest amount of per capita forest and range land in almost all ownership categories is in the Rocky Mountain-Great Plains Region with almost 32,000 acres per 1000 population. Acreages per capita are lowest in the Northern region (1,476 per 1000) and next lowest in the Southern Region (4,732 per 1000). Even though the population is shifting from the North to the West and South, significant changes in the distribution of acres per 1000 population probably will not occur between now and the year 2000.

State lands are likely to be more important in the future because, among other reasons, they are regionally well distributed relative to population, even though there is somewhat more acreage per state in the West. There is a need, however, to examine the policies governing these lands relative to their recreation opportunity potential. As of 1977, 53 percent of state lands had no use designation and thus are not managed for recreation (table 2).

## RECREATION RESOURCES CLASSIFICATION

For comprehensive land resource planning, systems have been developed for classifying, inventorying, and mapping recreation resources. **One of the most widely-accepted current systems is the Recreation Opportunity Spectrum (ROS) which is based on possible mixes of activities, settings, and probable experience opportunities** (Buist and Hoots 1982). ROS has six classes ranging from primitive areas to very intensively developed urban areas. Probable experience in each of these settings are shown in Table 3.

The Forest Service and the Bureau of Land Management have formally adopted the ROS System. Since these two agencies manage the majority of public forest and range land, descriptions in this paper of the recreation resource situation in the United States are keyed to the six ROS classes.

## PRIMITIVE AND SEMIPRIMITIVE OPPORTUNITIES

Particular emphasis is placed on wilderness in this section because of the importance of pending wilderness allocation decisions. **Rarely in our history has a single natural resource issue so clearly defined the interests of competing resource user groups as has the wilderness issue.** The remaining discussion of primitive and semiprimitive opportunities focuses on trail and road access to backcountry areas.

## The National Wilderness Preservation System

**The Wilderness Act of 1964 established the National Wilderness Preservation System (NWPS) with an initial allocation of 9.1 million acres. Over the past 18 years the NWPS has grown to nearly 80 million acres, but only modest additions are likely in the future.**

The debates over wilderness allocations have clearly been among the most spirited experienced for any resource policy issue. Some claim that debate has increased sensitivity to intangible values and environmental analysis by resource managers, greatly improved public involvement, and increased membership and tactical sophistication by environmentalists. While wilderness allocation debates on individual areas will surely continue, other wilderness

Table 1.--Forest and range land acreage and acreage per 1000 population by region and ownership, 1980

Region	Acreage of Forest and Range Land													
	Population in 1981		Regional Total				Forest Service				Other Fed. State and Local Private			
	(millions)	Acres (000)	Acres per 1000 pop.	Acres (000)	Acres per 1000 pop.	Acres (000)	Acres per 1000 pop.	Acres (000)	Acres per 1000 pop.	Acres (000)	Acres per 1000 pop.	Acres (000)	Acres per 1000 pop.	
North	111.2 (48.4) <sup>a</sup>	164,171.0 (10.5) <sup>a</sup> (100) <sup>b</sup>	1,476.4	11,513.7 (6.2) (7.0)	103.5	2,437.0 (0.4) (1.5)	21.7	22,556.5 (24.4) (13.7)	202.8	127,663.8 (17.3) (77.8)	1,148.1			
South	68.3 (29.7)	323,163.2 (20.8) (100)	4,731.5	12,481.3 (6.7) (3.9)	182.7	6,667.0 (1.2) (2.1)	97.6	19,756.6 (21.4) (6.1)	289.3	284,258.3 (38.4) (88.0)	4,161.9			
Rocky Mtn. and Great Plains	17.3 (7.5)	549,255.6 (35.3) (100)	31,748.9	97,947.3 (52.4) (17.8)	5,661.7	168,409.3 (31.3) (30.7)	9,734.6	18,462.5 (20.0) (3.4)	1,067.2	264,436.5 (35.7) (48.1)	15,285.3			
Pacific Coast	33.0 (14.4)	519,970.9 (33.4) (100)	15,756.7	64,919.6 (34.7) (12.5)	1,967.3	359,967.0 (67.0) (69.2)	15,756.7	31,785.2 (34.4) (6.1)	963.2	63,299.1 (8.6) (12.2)	1,918.2			
U.S. Total	229.8 (100)	1,556,560.7 (100) (100)	6,773.5	186,861.9 (100) (12.0)	813.2	537,480.3 (100) (34.5)	2,338.9	92,465.3 (100) (6.0)	402.4	739,753.2 (100) (47.5)	3,219.1			

SOURCES: U.S. Department of Commerce, Bureau of the Census, Current Population Reports: Population Estimates, Ser. P-25, No. 909, Estimates of the Population of the United States to January 1, 1982 (Washington, D.C.: Government Printing Office, 1982) and U.S. Department of Agriculture, Forest Service, An Assessment of the Forest and Range Land Situation in the United States, (Washington, D.C.: Government Printing Office, 1980), pp. 34-35, Table 2.3.

NOTE: Estimates based on 0.3 percent annual growth in North, 1.2 percent in South, 1.7 percent in Rocky Mountain and Great Plains, and 1.7 in the Pacific Coast.

<sup>a</sup>Percent of U.S. (column) total.

<sup>b</sup>Percent of regional (row) total.

Table 2.--Use and acreage of state lands, 1977

Use	Acres (thousands)	Percent of total
Forests	26,503	34.0
Fish and/or wildlife mgt.	9,006	11.6
Parks	<u>5,528</u>	<u>7.1</u>
Subtotal	41,037	52.7
Schools	431	0.6
Unclassified	<u>36,400</u>	<u>46.7</u>
Subtotal	36,831	47.3
TOTAL	77,868	100.0

SOURCE: U.S. Department of Interior, Bureau of Land Management, Public Land Statistics: 1977, (Washington, D.C.: Government Printing Office, 1978).

issues will increasingly command attention. The most heated debates now center on: (1) how and whether to release, for nonwilderness development and use, lands already under consideration but not yet selected for NWPS designation; and (2) to what degree existing NWPS units should be opened to oil, gas, and mineral exploration and development.

**Future preservation and enhancement of wilderness values will increasingly depend on better management of already designated areas.** Major policy issues include the need to establish carrying capacities, to disperse visitors to combat overuse in spots, to increase emphasis on light-handed management using minimum regulation and force to meet management objectives, and to increase use of volunteers to accomplish wilderness management.

**Recent history—The most heated wilderness controversies have centered on National Forest land where alternative uses compete for proposed wilderness areas.** About 110 million of the 188 million acres of National Forest lands are roaded and the rest are

undeveloped. In 1977, 15.6 million of these acres were included in the NWPS. In 1977, the Forest Service initiated its second Roadless Area Review and Evaluation (RARE II) to determine which of the remaining 62 million acres should be included in the NWPS, set aside for further planning, or released to nonwilderness uses. The RARE II goal was to resolve the controversy over as many of the contested areas as possible so management programs could proceed.

As a result of RARE II, the Administration recommended an additional 15.4 million acres of National Forest System lands (8 percent of the National Forest System) for NWPS classification by Congress. It recommended further study for another 10.8 million acres.

RARE II greatly heightened the controversy over releasing lands not selected for wilderness to other, nonwilderness uses. The first post-RARE II wilderness bills to pass the Congress designated as wilderness a 2.2 million-acre section of the Salmon River area in central Idaho called the River of No Return Wilderness. This bill also added 105,600 acres to the existing Selway-

Table 3.--ROS Users Guide

ROS					
Primitive	Semi-Primitive Non-Motorized	Semi-Primitive Motorized	Roaded Natural	Rural	Urban
<b>Setting Characterization*</b>					
Area is characterized by essentially unmodified natural environment of fairly large size. Interaction between users is very low and evidence of other users is minimal. The area is managed to be essentially free from evidence of human-induced restrictions and controls. Motorized use within the area is not permitted.	Area is characterized by a predominantly natural or natural-appearing environment of moderate-to-large size. Interaction between users is low, but there is often evidence of other users. The area is managed in such a way that minimum on-site controls and restrictions may be present, but are subtle. Motorized use is not permitted.	Area is characterized by a predominantly natural or natural-appearing environment of moderate-to-large size. Concentration of users is low, but there is often evidence of other users. The area is managed in such a way that minimum on-site controls and restrictions may be present, but are subtle. Motorized use is permitted.	Area is characterized by predominantly natural-appearing environments with moderate evidences of the sights and sounds of man. Such evidences usually harmonize with the natural environment. Interaction between users may be low to moderate, but with evidence of other users prevalent. Resource modification and utilization practices are evident, but harmonize with the natural environment. Conventional motorized use is provided for in construction standards and design of facilities.	Area is characterized by substantially modified natural environment. Resource modification and utilization practices are to enhance specific recreation activities and to maintain vegetative cover and soil. Sights and sounds of humans are readily evident, and the interaction between users is often moderate to high. A considerable number of facilities are designed for use by a large number of people. Facilities are often provided for special activities. Moderate densities are provided far away from developed sites. Facilities for intensified motorized use and parking are available.	Area is characterized by a substantially urbanized environment, although the background may have natural-appearing elements. Renewable resource modification and utilization practices are to enhance specific recreation activities. Vegetative cover is often exotic and manicured. Sights and sounds of humans, on-site, are predominant. Large numbers of users can be expected, both on-site and in nearby areas. Facilities for highly intensified motor use and parking are available with forms of mass transit often available to carry people throughout the site.
<b>Experience Characterization*</b>					
Extremely high probability of experiencing isolation from the sights and sounds of humans, independence, closeness to nature, tranquility, and self-reliance through the application of woodsman and outdoor skills in an environment that offers a high degree of challenge and risk.	High, but not extremely high, probability of experiencing isolation from the sights and sounds of humans, independence, closeness to nature, tranquility, and self-reliance through the application of woodsman and outdoor skills in an environment that offers challenge and risk.	Moderate probability of experiencing isolation from the sights and sounds of humans, independence, closeness to nature, tranquility, and self-reliance through the application of woodsman and outdoor skills in an environment that offers challenge and risk. Opportunity to have a high degree of interaction with the natural environment. Opportunity to use motorized equipment while in the area.	About equal probability to experience affiliation with other user groups and for isolation from sights and sound of humans. Opportunity to have a high degree of interaction with the natural environment. Challenge and risk opportunities associated with more primitive type of recreation are not very important. Practice and testing of outdoor skills might be important. Opportunities for both motorized and non-motorized forms of recreation are possible.	Probability for experiencing affiliation with individuals and groups is prevalent, as is the convenience of sites and opportunities. These factors are generally more important than the setting of the physical environment. Opportunities for wildland challenges, risk-taking, and testing of outdoor skills are generally unimportant except for specific activities like downhill skiing, for which challenge and risk-taking are important elements.	Probability for experiencing affiliation with individuals and groups is prevalent, as is the convenience of sites and opportunities. Experiencing natural environments, having challenges and risks afforded by the natural environment, and the use of outdoor skills are relatively unimportant. Opportunities for competitive and spectator sports and for passive uses of highly human-influenced parks and open spaces are common.

Bitterroot Wilderness. A proposed amendment to the River of No Return bill (the McClure Amendment) called for release of an adjacent 987,000-acre area set aside by the Forest Service for additional study. The "release amendment" was aimed at preventing future consideration for wilderness of the areas not included in these bills. Although the amendment was rejected, similar provisions have been inserted in other bills. **Legislative release of roadless lands for nonwilderness development and use has become one of the most controversial wilderness issues of the 1980's.**

RARE II resolved much of the wilderness issue in many states but was clouded by a

Federal District Court decision in January 1980 (California v. Bergland). California, the only state that wanted more of its land designated as wilderness than the President recommended, challenged the adequacy of the RARE II environmental impact statement for California roadless areas that were not recommended for wilderness or further study. The court decided that the EIS was inadequate and enjoined further development of the affected areas until requirements of the National Environmental Protection Act were adequately met. Thus, RARE II, like previous efforts, resolved only part of the wilderness allocation question on National Forest lands, but it facilitated resolution for many specific areas and focused atten-



*The National Wilderness Preservation System includes nearly 80 million acres and may be about 80 percent complete. Increased demand for wilderness use will intensify pressures for more and better wilderness management. (National Park Service photo.)*

**tion on whether unselected lands should be released for other uses.**

In a process similar to RARE II, the U.S. Department of the Interior is conducting its own wilderness suitability reviews of roadless areas managed by the National Park Service, the Fish and Wildlife Service, and the Bureau of Land Management (BLM). Under authority of the Federal Land Policy and Management Act of 1976 (FLPMA), the President directed the Secretary of the Interior to establish a review system. For the BLM, the FLPMA's Section 603 directed that public lands managed by the agency be inventoried for wilderness values. **By May 30, 1980, inventory of the 174 million acres of BLM managed land in the contiguous states had eliminated 124 million acres which were found to have too few wilderness characteristics.** Approximately 11 million acres were identified as wilderness study areas, and these are being examined to determine suitability for wilderness designation. Under the Act, BLM must make its wilderness recommendations to the President by 1991, and by 1993 the President must make recommendations to Congress. The BLM review has also highlighted related issues such as interim management policies for candidate

areas and the ultimate wilderness management policies for areas that will eventually be classified.

**Amount and location of wilderness—The Wilderness Act of 1964 (P.L. 88-577)** established the NWPS and made 54 National Forest units (9.1 million acres) the nucleus of the system. Subsequent legislation added 104 Wilderness Areas and enlarged 20 existing Wilderness Areas, to add approximately 16.2 million more acres of National Forest System land to the NWPS. During 1980 alone, 48 areas totaling approximately 9.82 million acres of National Forest System lands were added to the NWPS. There are now 158 wilderness areas within National Forests totaling approximately 25.2 million acres. These wilderness acres include Alaska and represent about 13.4 percent of all lands administered by the Forest Service (Table 4).

The National Park Service, Fish and Wildlife Service, and Bureau of Land Management, all in the Department of Interior, had no wilderness acreage designated under the Wilderness Act of 1964. By early 1981, the National Park System contained 3.0 million acres of Wilderness in the contiguous U.S. and 35.4 million acres in Alaska. The Fish and Wildlife Refuge System now has only .6 million acres of

Table 4.--Area of the National Wilderness Preservation System by location, managing agency, and year

Managing Agency	Contiguous states and Hawaii			Alaska	United States
	(1964)	(1979)	(1981)	(1981)	(1981)
(millions of acres)					
Forest Service, USDA	9.1	15.3	19.7	5.4	25.1
National Park Service, USDI	0.0	2.8	3.0	32.4	35.4
Fish & Wildlife Service, USDI	0.0	0.7	0.6	18.7	19.3
B. of Land Management, USDI	<u>0.0</u>	<u>0.0</u>	<u>0.01</u>	<u>0.0</u>	<u>0.0</u>
TOTAL	9.1	18.8	23.31	56.5	79.8

SOURCE: U.S. Department of Agriculture, Forest Service, Wilderness Fact Sheet (unpublished), February 1982. 1 p.

wilderness in the lower 49 states (including numerous islands and some other sensitive habitat), but has 18.7 million acres of wilderness in Alaska. The Bureau of Land Management has only about 10,000 acres of designated wilderness but, as indicated above, 11 million acres of BLM lands have been designated for wilderness study.

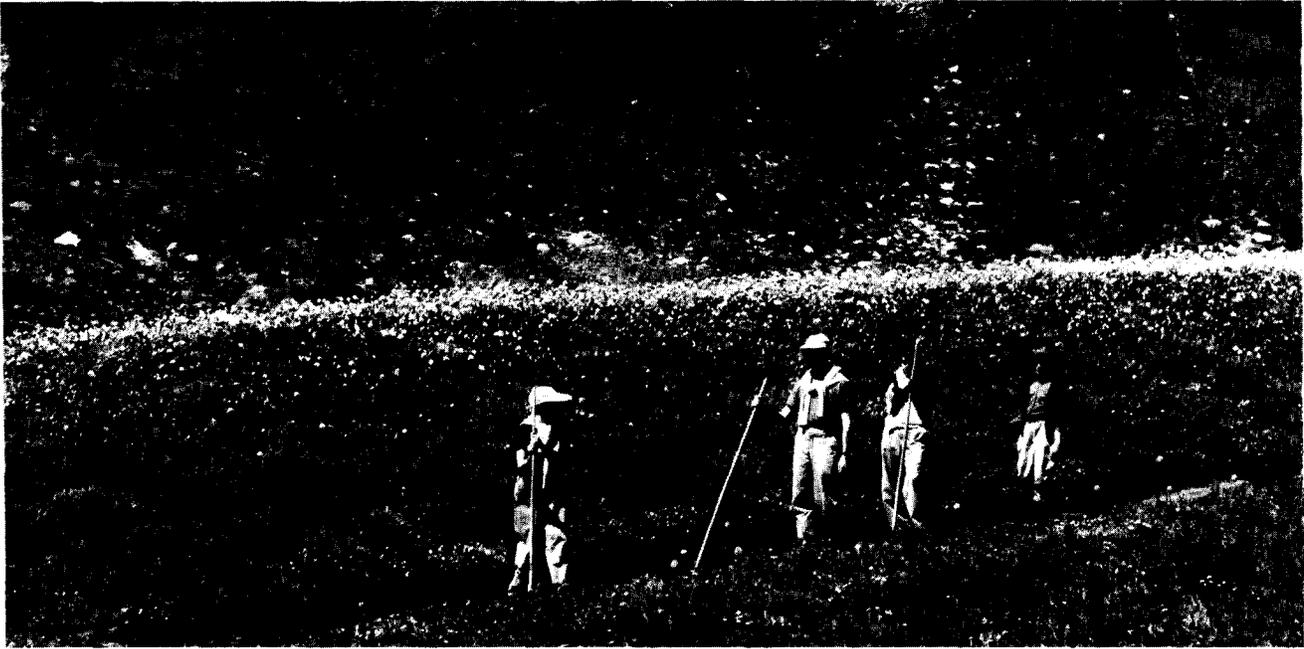
**On January 1, 1981, the NWPS totaled 79.8 million acres. These areas included 56.5 million acres designated in Alaska.**

Table 4 and this discussion indicate the phenomenal growth in the NWPS since 1964. What these figures do not reveal is the limited access and proximity to population of the majority of this acreage. Recreational access to wilderness in Alaska is extremely limited and these areas are distant from significant populations. Furthermore, most of the NWPS acreage in the contiguous states is in the West and is not readily accessible to the more heavily populated East. In the East, there are approximately 2.6 million acres of wilderness, most of which is in the North Central region and Florida. Almost 1.1 million acres of the wilderness in the East are in the National Forest System and 1.5 million acres are in the National Park System. **A little over 3**

**percent of the NWPS is in the East where over three-fourths of the U.S. population resides.** These two issues--proximity to population and recreational access--will continue to be key issues for debate over future additions to the NWPS.

**Wilderness use**--During fiscal year 1980 (October 1, 1979 September 30, 1980), the number of visitor-days use (9,267,800) in Wildernesses and Primitive areas decreased about 4 percent compared to fiscal year 1979. This decrease does not necessarily reflect a decline in the popularity of wilderness, but more likely reflects improvements in visitor use estimation procedures, as well as restrictions on use in certain areas. More important is the fact that **wilderness visitor use more than doubled from 1965 to 1980.**

**Only a small part of the increase in wilderness use resulted from additions to the NWPS.** Use of the 14.6 million acres in 88 Wilderness and Primitive areas that existed in 1965 still accounted for 88 percent of the total visitor-days of use in 1980 (Peterson 1981). The average annual rate of growth in use from 1965 to 1980 was 4.3 percent (solid curve, Figure 4). Use of all the NWPS areas on National Forests is



*Visits to the nearly 80 million acre National Wilderness Preservation System more than doubled between 1965 and 1980. Most visits (88 percent in 1980) occur on the 14.6 million acres included in the original NWPS created in 1964. (National Park Service photo.)*

plotted as a broken line and indicates that use of areas added since 1965 is a relatively small proportion (12 percent in 1980) of the total system use.

**The distribution of use is uneven, both among and within Wilderness Areas.** Visitor-days per acre on individual areas range from a low of .01 to a high of 7.95. Within most Wilderness Areas, the different entry points, travel routes, and campsites vary greatly in use.

On most Wilderness Areas, use is heaviest in summer and peaks on weekends and holidays. It is too unevenly distributed for best utilization of the resource (Hendee et al. 1978). In fact, overuse in spots is a major problem in some areas.

**Wilderness management--In simplest terms, wilderness management calls for doing only what is necessary to meet objectives established with the help of public involvement and outlined in individual management plans. Use of tools, force, or regulation should be the minimum needed to meet these objectives and prevent loss of the area's wilderness qualities** (Hendee et al. 1978; Hendee 1981). The intensive use of a relatively small portion of the NWPS and its resulting impacts are a source of management concern. There is interest among managers

in establishing carrying capacities to limit wilderness use where necessary to avoid resource damage from overuse. Monitoring techniques are needed to identify where unacceptable change is occurring from overuse and to reveal management's success in reducing such impacts.

Already a considerable wilderness management capability has evolved from field experience, research-based knowledge, and application of available technology. Recent studies reveal the spotty presence of a growing list of wilderness management techniques and substantial management interest (Cole and Washburne 1981; Roggenbuck and Watson 1982). The immediate challenge is to strengthen management but with reduced budgets. Emphasis on light-handed management is growing and a need for public involvement in area-based management plans and proposals has been recognized.

Requests for activities related to mineral exploration, leasing, and mining in Wilderness Areas are increasing. These activities are a topic for proposed legislation and regulation, all spurred by the December 31, 1983, mineral entry and leasing deadline. Difficult decisions need to be made on suitable lease locations and necessary restriction on development, production, and use of support facilities.

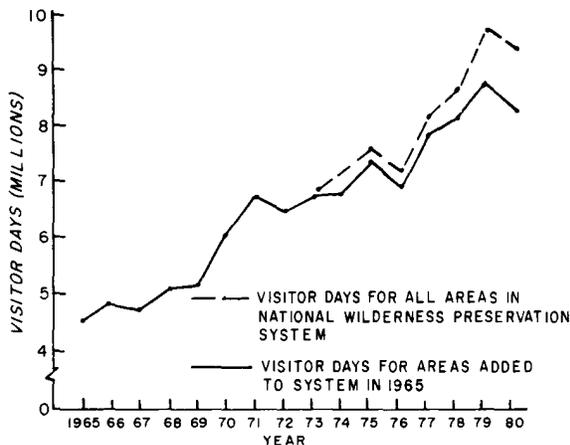


Figure 4 - Trends in recreational use for wilderness and primitive areas from 1965-1980.

Increasing volunteers are accomplishing such wilderness tasks as sign and trail maintenance, campsite rehabilitation, debris removal, and visitor contacts for interpretive and educational services. In one wilderness in Oregon, for example, 21 volunteers did the equivalent of \$73,000 worth of work. These volunteers included concerned individuals and members of local and national organizations such as the Sierra Club, Student Conservation Association, and Boy Scouts of America. The YCC and YACC programs have also contributed significantly, but these programs are being eliminated. **Clearly volunteers can be an important source of help to wilderness managers with increasingly stringent budgets.**

**Characteristics of wilderness users**—All age groups are represented among wilderness users; but they tend to be younger than the general population. Approximately three-fourths of all visitors to most wilderness areas are male (Hendee et al. 1978). They tend to have more than average education, and large percentages are students or are employed in professional and technical occupations. Skilled laborers are the next most common occupational category, and housewives are well represented among women. Income levels are much higher than the national average. Wilderness users reflect higher educational and income attributes even more strongly than do other outdoor recreationists.

Use of wilderness areas is mainly by people from within the surrounding region (Hendee et al. 1978; Lucas 1980), and the majority of wilderness users are urban resi-

dents (Hendee et al. 1968; Murray 1974; Roggenbuck 1979; Lucas 1980).

The majority of wilderness visitors come in small family or friendship groups (Table 5). Less than 10 percent of use in most areas is by organization-sponsored groups (Lucas 1980). One-half to three-fourths of the groups in most areas include two to four individuals and lone individuals are uncommon. Most visits are short, lasting an average of only 2 days (Table 5). For many small- and medium-sized areas, day-users may be most common (Hendee et al. 1978).

Hiking is the primary method of travel, although in certain areas horseback riding is dominant. Fishing, photography, nature study, swimming, and hunting are activities often engaged in by visitors during wilderness trips.

Wilderness users in the East and West tend to seek the same experiences: enjoyment of scenery and nature; escape from noise, crowds, and mental stress; and development of physical fitness (Haas 1977; Roggenbuck 1980). Similar environmental features such as water, wildlife, and views are valued by users of all areas.

**Wilderness users' preferences and perceptions**—Studies over the past 15 years have revealed much about what users seek and find in the Wilderness System. **There is widespread similarity of user preferences and perceptions even among Wilderness Areas which differ greatly in geographic location, use intensity, types of use, and physical characteristics** (Echelberger and Moeller 1977; Stankey 1973; Lucas 1980; Roggenbuck 1980). Users tend to report high overall satisfaction with their wilderness visits (Lucas 1980; Roggenbuck 1980). The most common reason cited is a favorable reaction to the natural environment. Although total satisfaction tends to decline as crowding increases, the association of total satisfaction with total number of encounters is not particularly strong. Rather, it appears that the kinds and locations of encounters may be more critical than numbers alone. Wilderness visitors tend to be more sensitive to contacts with other users at campsites than on trails, and they strongly prefer to camp out of sight and sound of other groups (Stankey 1978, 1980; Lucas 1980; Roggenbuck 1982). Study of three Wilderness Areas in the Southeast revealed

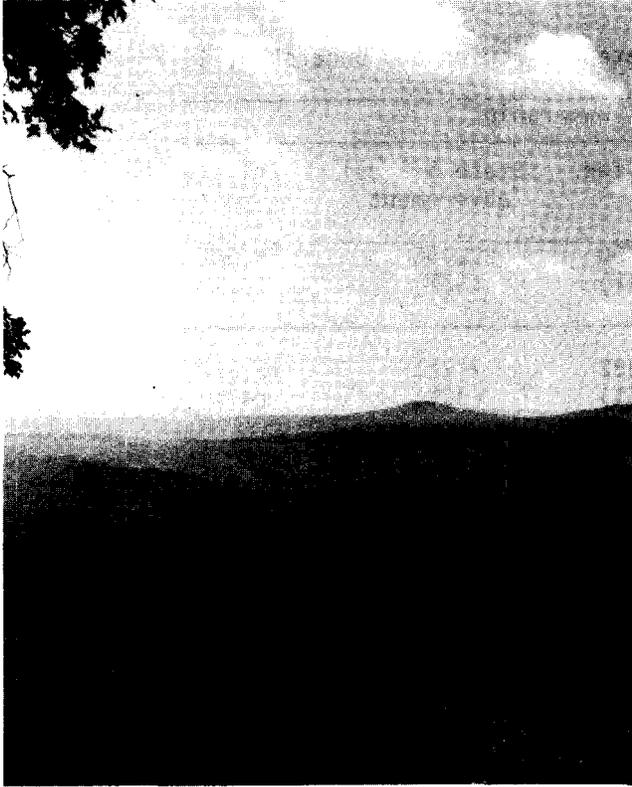
Table 5.-- Characteristics of user groups of National Park backcountry and National Forest Wilderness and Primitive areas

Area(State)	Year	Length of stay <sup>a</sup>	Party size				Major Activity							Party Composition						
			1	2-4	3-10	10+	Hike with horse back	Hike stock	Fish	Hunt	Photography	Swim	Nature Study	Mtn. Climbing	Family	Friends	Friends	Organization	Group	
<b>Boundary Waters</b>																				
Canoe Area (Minn.)	1974	4.2	41	3	70	27	0	3	NA	NA	97	-	-	-	-	-	-	27	11	1
Bob Marshall W. (Mont.)	1970	5.9	14	6	51	27	7	31	59	6	4	61	34	58	22	28	0	43	15	8
Scapegoat W. (Mont.)	1970	2.9	41	6	61	20	14	69	18	12	1	62	11	53	20	27	2	36	21	7
Cabinet Mtns. W. (Mont.)	1970	1.6	67	5	72	18	4	90	7	2	1	61	6	45	15	25	2	40	15	5
Spanish Peaks P. A. (Mont.)	1970	1.8	63	8	57	27	6	72	20	7	1	41	16	53	9	29	4	38	13	10
Mission Mtns. P. A. (Mont.)	1970	1.7	62	5	57	32	5	97	2	1	0	74	2	56	18	31	2	46	17	5
Selway-Bitterroot W. (Idaho-Mont.)	1971	3.0	48	5	66	22	6	70	20	6	4	42	16	58	17	35	2	40	14	6
Desolation W. (Calif.)	1974	3.2	40	9	69	18	5	99	1	0	0	48	1	54	46	52	4	33	16	10
John Muir W. (Calif.)	1972	-	-	9	72	12	7	-	-	-	-	-	-	-	-	-	-	-	-	-
San Geronio W. (Calif.)	1972	-	-	7	53	15	25	-	-	-	-	-	-	-	-	-	-	-	-	-
Yosemite N.P. (Calif.)	1972	-	-	14	71	12	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Sequoia-Kings Canyon N.P. (Calif.)	1972	-	-	13	75	7	5	-	-	-	-	-	-	-	-	-	-	-	-	-
Grand Teton N.P. (Wyo.)	1974	-	62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
North Cascades N.P. (Wash.)	1974	3.5 <sup>b</sup>	-	13	63	18	6	-	-	-	-	-	-	-	-	-	-	-	-	-
Olympic N.P. (Wash.)	1974	2.8 <sup>b</sup>	-	14	72	9	5	-	-	-	-	-	-	-	-	-	-	-	-	-
Mount Rainier N.P. (Wash.)	1974	1.9 <sup>b</sup>	-	13	71	14	2	-	-	-	-	-	-	-	-	-	-	-	-	-
Glacier Peak W. (Wash.)	1965	-	-	-	-	-	-	82	18	0	0	-	-	-	-	-	-	-	-	-
Three Sisters W. (Oreg.)	1965	-	-	-	-	-	-	85	15	0	0	-	-	-	-	-	-	-	-	-
S. Appalachian Trail (Va., Tenn., N.C. Ga.)	1970-1971	2.5	53	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOURCE: John C. Hendee, George Stankey, and Robert C. Lucas, 1978 Wilderness Management (Washington, D.C.: USDA Forest Service, 1978): 296, table 13-3.

<sup>a</sup>Length of stay is expressed in ordinary calendar days.

<sup>b</sup>Based only on overnight campers; no day-use included.



*Even though wilderness opportunities are limited in the East, research indicates that visitors there seek the same kinds of experiences as visitors to wilderness in the West--enjoyment of scenery and nature, solitude--escape from noise and crowds, and traditional outdoor activity in a primitive setting. (U.S. Forest Service photo.)*

that "observing other people in the area" and "knowing others are nearby" were the major detracting factors of a wilderness experience (Roggenbuck and Dawson 1979). This study also showed that wilderness users in the East and West have similar concerns and management preferences. Many visitors also feel that meeting several small groups is more acceptable than seeing one large group (Lucas 1980; Roggenbuck 1982). There is some evidence to suggest that visitors to heavily used areas tend to be more tolerant of contact with other groups (Stankey 1980; Vaske, et al. 1982).

A survey of the general public (Opinion Research Corp. 1977) found that only 7 percent of the respondents thought there was "too much" wilderness, while 32 percent said there was "too little", and 44 percent said the current amount was about right. Though this survey and another poll of the Illinois

public (Young and Crandall 1979) found that knowledge of wilderness is still relatively low, they concluded that the public continues to support the NWPS.

**Some control of use is fairly well accepted by wilderness users** (Stankey 1978, 1980; Lucas 1980; Roggenbuck 1980). Party size restrictions are generally endorsed. Users also favor improved information about conditions. They are neutral to slightly in favor of restricting use through permits. If permits are used, an advance reservation system is the most favored allocation strategy (Stankey 1978; Roggenbuck et al. 1982). Users generally reject distributing permits by lottery and charging user fees. Rigid preplanned itineraries and campsite assignment are strongly rejected. Users generally prefer indirect over direct management controls and tend to support what they perceive as the minimum control necessary to maintain wilderness values. However, several studies have found a greater acceptance of direct regulation in areas which receive heavy use (Stankey 1980; Roggenbuck 1980).

A recent study indicated that about half of the visitors who had made previous trips to the same Wilderness Areas in the West felt conditions in these areas are stable (Lucas 1980). Among the other half, more thought conditions were much worse than thought they had improved. While perceptions of specific problems vary from area to area, the most common ones are a feeling of declining quality, more crowding, and more worn and littered areas. Litter, destruction of vegetation, fire rings, not enough wildlife, too many people in certain places, and not enough information on use are generally perceived as problems in areas in the East. The actual situation may be somewhat worse since visitors who perceive deteriorating conditions may have stopped using these areas.

There is general support among users for only minimum facilities in Wilderness. Low standard trails, bridges over large streams, fire rings, and fish stocking are considered appropriate for wilderness by most visitors (Lucas 1980). Responses are mixed on the desirability of pit toilets, pole horse corrals, and bridges over small streams. Picnic table and cemented rock and metal grill fireplaces are not favored by most. Rustic shelters are generally considered inappropriate.

Table 6.--Trail mileage in the United States by region and ownership, 1977

Region	Total	Ownership			
		USFS	Other fed.	State & local government	Private
North	97,295 (35%)	4,405 (5%) <sup>a</sup>	708 (1%)	32,496 (33%)	59,686 (61%)
South	26,064 (9%)	4,649 (18%)	1,382 (5%)	7,711 (30%)	12,322 (47%)
RM&GP	94,923 (34%)	55,041 (58%)	5,078 (5%)	6,867 (7%)	27,937 (29%)
Pacific Coast	62,776 (22%)	29,538 (47%)	9,168 (15%)	7,931 (13%)	16,139 (26%)
Total U.S.	281,058 (100%)	93,633 (33%)	16,336 (6%)	55,005 (20%)	116,084 (41%)

SOURCES: U.S. Department of Agriculture, Forest Service, An Assessment of the Forest and Range Land Situation in the United States (Washington, D.C.: Government Printing Office, 1980), pp. 116-117 and National Association of Conservation Districts, Survey of Private Recreation Enterprises, (unpublished computer data file).

#### OTHER PRIMITIVE AND SEMIPRIMITIVE OPPORTUNITIES

Trail mileage is a primary indicator of the availability of lands for recreation in undeveloped settings. Of the more than 281,000 miles of officially designated trails nationally in 1977, 94,000 (33 percent) were on National Forest land, an additional 16,000 (6 percent) were on other federal land, 55,000 (20 percent) were on state-owned land, and 116,000 miles (41 percent) were on private land (Table 6). Motorized use is not permitted on most of these trails.

Some of the trails described above are included within the National Trails System. Since establishment of the National Trails System in 1968, three National Scenic Trails, five National Historic Trails, and

257 National Recreation Trails (about 2,590 miles) have been designated. The U.S. Forest Service has established and registered 145 of these National Recreation Trails, meeting a target of 2 per National Forest, and others will be added by other agencies in the near future at the direction of the President. In total, the National Recreation Trails System encompasses 681 trails with a total of over 7,000 miles (Table 7).

There are major differences between regions in total trail mileage (Table 6), the most striking being the low mileage in the South (26,064; 9 percent) relative to the other three regions. Most of the mileage in the South is nonfederal land, and much is privately owned. Private trails are also quite prevalent in the North (59,686 miles; 51 percent) and in the Rocky

Mountains and Great Plains Regions (27,937 miles; 24 percent). National Forests provide the most trail mileage in the Pacific Coast (29,538 miles; 47 percent) and Rocky Mountain and Great Plains (55,041; 58 percent) Regions.

In addition to trails, forest roads ranging widely in quality provide access to backcountry forest and range areas for primitive and semi-primitive recreation. Roads are the base from which many recreational activities occur, such as cross-country skiing, trail hiking, camping, fishing, and hunting. Clearings, stream crossings, and small openings along forest roads often are used for a variety of recreational activities, including camping at small sites

established by users. The National Forests alone have nearly 247,000 miles of forest roads; 40 percent are in unimproved condition, 33 percent are maintained dirt, 22 percent gravel, and 4 percent paved (Hogans 1979).

Off-road vehicular use of forest and range lands has increased steadily in the last 15 years, both as an activity and as a means of gaining access to backcountry areas. Policies allowing such use are usually liberal. In 1977, about 43.6 million people engaged in some form of motorized, off-road recreational activity (Siehl 1979). Because it can damage resources, however, motorized use of some public land is being restricted. Currently, nearly

Table 7.--Number and mileage of National Recreation Trails in the United States by region, 1982

Region	Number of Trails <sup>a</sup>	Trail Mileage
North	144 (21) <sup>b</sup>	1276.6 (18)
South	160 (23)	2035.0 (29)
RM&GP	208 (31)	2087.2 (30)
Pacific Coast	169 (25)	1609.5 (23)
Total U.S.	681 (100)	7008.3 (100)

SOURCE: United States Department of Interior, National Park Service, unpublished annual report on National Trail System, 1982.

<sup>a</sup>Seven of the NRTs cross state lines (Ark./Okla., Ida./Mont., Calif./Ore., Conn./Mass., Wash./Ore., Tenn/Ga., and Wisc./Mich. They are listed in each state involved, but counted only once in the number and mileage grand totals. Two NRTs in Puerto Rico are not counted in the above totals. District of Columbia figures are included in the North Region.

<sup>b</sup>Percentage of column total.



*The Appalachian Trail is part of the 2,590 mile National Trails System. (National Park Service photo.)*

**41 million acres of federal land have restrictions on season of use and on type of vehicle permitted.** Off-road vehicular use in the East is primarily on private land. Where private land is open for general recreation, it also is usually available for off-road vehicular use. Currently, about 230 million acres of private forest and range land are considered open to recreation nationwide.

The severity of the problem caused by off-road vehicles is demonstrated in the California desert. **Each year, BLM processes more than 100 permits for motorcycle races, some of which are annual events with as many as 3,000 competitors.** There are intense conflicts between the users of motorized vehicles and conservationists over off road vehicle use. BLM is attempting to reduce the impact on natural and cultural resources of the desert, thus reducing user conflicts.

In the San Joaquin Basin in the southern half of the great Central Valley of California, one of the major forces of desertification is reported to be damage

from off-road vehicles. A USGS study in the San Joaquin Basin indicates that intensive off-road vehicular use has reduced productivity of some 521,000 acres of the Basin's rangeland (CEQ 1980).

#### NON-PRIMITIVE OPPORTUNITIES

Nonprimitive opportunities (roaded natural, rural and urban) often center on developed sites including campgrounds, visitor information centers, second home developments, resorts, and other highly modified settings. On National Forests, for example, developed sites account for about one-third of total visitor days of recreation use. In addition, the Bureau of Land Management, Tennessee Valley Authority, Corps of Engineers, National Park Service, state agencies, and private landowners provided numerous and varied developed facilities and sites.

In recent years, many government agencies have begun to redefine their roles in providing recreation opportunities. **Many federal, state, and local government agencies which have invested heavily in developed sites are beginning to reduce their numbers and management.** General strategies



*The National Forests have nearly 247,000 miles of forest roads. Road and trail mileage is an important indicator of access to forest and range lands for outdoor recreation. (U.S. Forest Service photo.)*

Table 8.--Number and acres of selected National Forest System non-primitive areas and facilities in the United States, 1960-1980

Area or facility	Year					
	1960		1970		1980	
	(No.)	(Acres)	(No.)	(Acres)	(No.)	(Acres)
Camp and picnic areas	5,067	29,470	6,855	164,844	6,328	49,244
Swimming areas	188	374	311	716	313	1,187
Organization camps	563	7,733	564	6,829	518	6,365
Winter sports areas	184	27,576	204	23,137	234	29,546

SOURCE: Carlton S. Van Doren, Dept. Recreation and Parks, Texas A&M University, unpublished compilation of statistics on outdoor recreation, 1982.

include closure of little-used facilities, consolidation of small units into larger ones for easier management, and transfer of operating responsibility to private individuals or local governments. These strategies are becoming visible in agency statistics. For example, in the National Forest System (Table 8), the number of camp and picnic areas increased from 5,067 in 1960 to 6,855 in 1970, but fell to 6,328 in 1980. Between 1970 and 1980 the number of National Forest organization camps decreased by 6.8 percent. In contrast, the number of winter sports areas, which are operated by private concessionaire, increased over the past 20 years, going from 184 areas in 1960 to 234 in 1980.

Other agencies also accelerated development from the late 1950s through the 1960s and 1970s. The Tennessee Valley Authority (TVA) had 76,812 land-based facilities (campgrounds, rental units, private seasonal residences, etc.) in 1960, 217,966 in 1970, and 455,936 in 1978. The explicit current policy of the TVA, however, is to close, consolidate and relinquish management of some of the areas currently under agency jurisdiction.

Recreation and development associated with Corps of Engineers projects has followed a pattern similar to the TVA. Figure 5 shows, for example, a peak annual development of 1454 new recreation areas in the period 1963-66, falling to a low of 34 in 1979-82. The Corps plans reductions in involvement throughout the 1980s. To meet a 20 percent targeted reduction in both manpower and budgets in fiscal years 1982 and 1983, the Corp plans to close more than 400 recreation areas. The strategy at some other Corps areas includes reduced length of operating seasons, temporary closures during periods of low use, reduced interpretive services, use of volunteers for management and fee collection, and other retreat measures including contracting maintenance, increasing user fees, and encouraging concessionaire operation of some sites.

**Campgrounds**--Among nonprimitive sites, campgrounds seem to exemplify the emerging developed recreation supply situation. The number of campground facilities nationwide has decreased by 10 percent since 1973, and most of this decrease is in the private sector. The number of private campgrounds

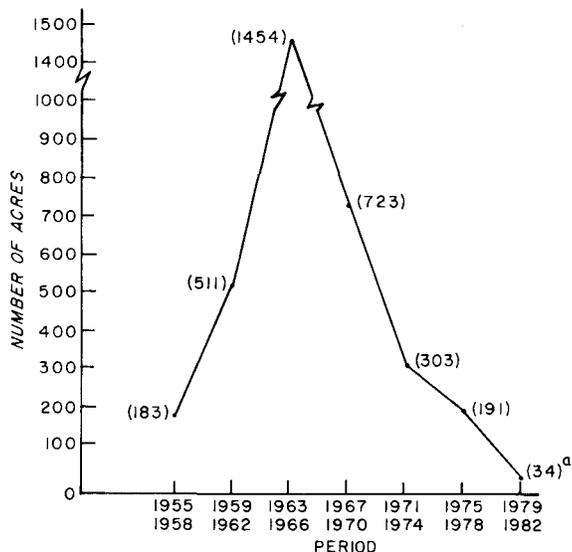


Figure 5 - Number of acres in new recreation areas established and developed at Corps of Engineers projects during 4-year periods, 1955-1981.

remained fairly stable between 1973 and 1977, but decreased by 23 percent between 1978 and 1981.

Changes in numbers of campgrounds have varied among regions. Between 1973 and 1977 in the North and South, there were modest increases (+7 and +1 percent, respectively). Since then, these regions have encountered sharp decreases (-16 and -26 percent). The Rocky Mountains and Great Plains and the Pacific Coast Regions, each of which had a 10 percent decline in private campgrounds between 1973 and 1977, have since had even greater decreases (-30 and -33 percent, respectively). **These decreases in number of private campgrounds have occurred despite reported increases in the number of camping participants.**

The number of public campgrounds in the North and South also declined between 1977 and 1982 (-1 and -.7 percent, respectively). In the Rocky Mountain and Great Plains and Pacific Coast Regions there were modern increases (+7 and +4 percent, respectively).

**In summary, the supply of developed campgrounds has declined nationwide, and surprisingly, the reduction has been greatest in the private sector. Whether reduced numbers of federal campgrounds and the stimulus of increased fees will trigger more activity in the private sector is a major issue in the immediate future.**

**Vacation Homes**—Vacation homes provide another important form of developed site recreation; most are on private land. In 1970 (latest data, Ragatz 1978), there were 2.1 million vacation homes representing 3.1 percent of the total number of housing units in the United States. Highest numbers of vacation homes in 1970 were in Michigan (188,864), Minnesota (83,855), New York (181,138), Pennsylvania (92,813), Texas (130,580), and Wisconsin (100,336). Although they do not represent large numbers relative to the national total, the New England States of Maine (18.5 percent), New Hampshire (15.6 percent), and Vermont (16.5 percent) have very high percentages of their total statewide housing units classed as vacation homes. Of the total number of vacation homes in 1970, 56.6 percent were in the Northern Region, 23.6 percent were in the South, and 11.8 and 8.0 percent were in the Rocky Mountain and Great Plains and the Pacific Coast Regions, respectively (Cordell et al. 1980).

**Recent rises in mortgage interest rates and limited availability of mortgage funds have depressed sales of single-family vacation homes. A trend which may dominate the middle-income family vacation-home investments in the coming years is condominium time-sharing.** For a substantially lower price than that of owning a traditional vacation home, a family can jointly own a condominium and have access to it for a few weeks each year. An added advantage to this arrangement is that time sharing units can be traded, so that the family is not geographically moored.

**Other Nonprimitive Facilities**—In 1975, United States totals for other selected private nonprimitive facilities were 234,202 family picnic units, 832,546 acres of land in developed resorts, and 660,899 acres in vacation farms and ranches. Regions differ in per capita supply of these facilities. In general, the North has a much lower per capita supply of developed sites and facilities than the other regions. There are 129 shooting preserves and 137 picnic units per million population in the North as compared to the South which has 995 shooting preserves and 834 picnic units per million population. Concentration of developed vacation farms and ranches is greatest in the Rocky Mountain and Great Plains Regions with 34,257 acres per million population.



*From 1978 to 1981 there was a 23 percent decrease in private campgrounds, despite reported increases in the number of camping participants. Surprisingly, the reduction has been greatest in the private sector. Whether reduced federal participation in providing campgrounds and the stimulus of increased fees will trigger more activity in the private sector is a major issue in the immediate future. (U.S. Forest Service photo.)*

#### **WATER RESOURCE OPPORTUNITIES**

**The Outdoor Recreation Resources Review Commission reported in 1962 that water is usually a focal point of outdoor recreation. This desire for water to camp beside, boat on, or swim in has not changed. Rivers, streams, reservoirs, and natural lakes are often the primary attractions.**

In total, there are approximately 107 million acres of water surface area in the United States. This includes 59 million inland water acres and 48 million coastal water acres, excluding the coastal waters of Alaska and Hawaii. Just over 23 million acres of water are in the South, and 56 million acres are in the North. Approximately 9 million acres are in the Rocky Mountain and Great Plains Region, and over 18 million acres are in the Pacific Coast Region.

**Pollution of both inland and coastal waters has been significantly reduced over**

**the past few years, particularly in waters near urban areas.** This pollution reduction is likely to become even more important as travel becomes more expensive and the lakes and streams near population centers become more of a focus for outdoor recreation. However, it is estimated that 10,000 of the 37,000 lakes in the United States are still in need of major pollution reduction and water quality restoration (CEQ 1980). Under the EPA Clean Lakes Program, diagnoses of some polluted lakes is underway. **Most of these are in urban parks.**

An important component of the water resource situation in the United States is ownership and use of shoreline. Along the coast of the contiguous 48 states there are almost 37,000 miles of shoreline; along the Alaskan coast there are 47,300 miles (Table 10). **Most (over 70 percent) of the coastal shoreline in the lower 48 states is privately owned and only 28 percent (8,500 miles) is owned by either federal, state, or local government.** In the lower 48 states, only 9

Table 9.--Number and percentage of campgrounds in the United States by region, ownership, and year, 1973, 1977, and 1981

Region	TOTAL						PUBLIC						PRIVATE					
	Number		Percent Change		Number		Percent Change		Number		Percent Change		Number		Percent Change			
	1973	1977	1981	73-77	77-81	73-81	1973	1977	1981	73-77	77-81	73-81	1973	1977	1981	73-77	77-81	73-81
North	5,301 (34) <sup>a</sup>	5,579 (35)	4,969 (36)	+5	-11	-6	1,809 (24)	1,827 (24)	1,801 (23)	+1	-1	0	3,492 (42)	3,752 (45)	3,168 (50)	+7	-16	-9
South	3,475 (22)	3,589 (23)	3,019 (21)	+3	-16	-13	1,355 (18)	1,447 (19)	1,437 (18)	+7	-1	+6	2,120 (26)	2,142 (26)	1,582 (25)	+1	-26	-25
RM & GP	3,673 (23)	3,526 (22)	3,293 (23)	-4	-7	-10	2,228 (30)	2,230 (30)	2,388 (31)	0	+7	+7	1,445 (17)	1,296 (16)	905 (14)	-10	-30	-37
Pacific Coast	3,313 (21)	3,158 (20)	2,873 (20)	-5	-9	-13	2,103 (28)	2,065 (27)	2,143 (28)	-2	+4	+2	1,210 (15)	1,093 (13)	730 (11)	-10	-33	-40
TOTAL U.S.	15,762 (100)	15,852 (100)	14,154 (100)	+1	-11	-10	7,495 (100)	7,569 (100)	7,769 (100)	+1	+3	+4	8,267 (100)	8,283 (100)	6,385 (100)	0	-23	-23

SOURCES: U. S. Department of Agriculture, Forest Service, An Assessment of the Forest and Range Land Situation in the United States (Washington, D. C.: Government Printing Office, 1980), p. 126, Table 3.8 (for 1973 and 1977 data) and Rand McNally and Company, Campground and Trailer Park Guide, (Skokie: Rand McNally and Company, 1982) (for 1981 data).

<sup>a</sup>Numbers in parentheses represent percentage of column totals.

Table 10.--Ownership and use of United States coastal shoreline, 1971

Ownership and use	U.S. (excluding Alaska)		Alaska	
	Miles	Percent	Miles	Percent
<u>Ownership</u>				
Federal	3,900	11	41,300	87
State and local	4,600	12	5,500	12
Private	25,800	70	500	1
Uncertain	2,600	7	0	0
	<u>36,900</u>	<u>100</u>	<u>47,300</u>	<u>100</u>
<u>Use</u>				
Recreation				
Public	3,400	9	0	0
Private	5,800	16	0	0
Nonrecreational	<u>27,700</u>	<u>75</u>	<u>47,300</u>	<u>100</u>
	<u>36,900</u>	<u>100</u>	<u>47,300</u>	<u>100</u>

SOURCE: U.S. Department of the Interior, Heritage, Conservation and Recreation Service, The Third Nationwide Outdoor Recreation Plan: The Assessment (Washington, D.C.: Government Printing Office, 1980), pp. 98-99, Tables IV-2 and IV-3.

percent of the total shoreline is developed or has purposely been made accessible by government for public recreation. Only 16 percent of the private shoreline has been made accessible for recreation. **In total, only 25 percent of the U.S. coastal shoreline has been developed or otherwise designated as accessible for public recreation.**

#### Rivers and Streams

**There are nearly 2 million rivers and streams in the United States.** These rivers and streams total 3.2 million linear miles including almost 30,000 miles which have been inundated by reservoirs.

A crucial segment of the recreational stream resource includes rivers in the National Wild and Scenic Rivers System established by Congress in 1968. In 1969, there were only 789 miles of rivers in this System; by 1978 the total had grown to 2,318

miles. These rivers are protected because of their high scenic, wild, or recreational values. In the President's 1978 Environmental Message, agencies were directed to accelerate review of potential rivers and to submit an Eastern Inventory by 1979 and a Western Inventory by 1981.

#### Flat Water Resources

The rapid increase in the flat water resources (lakes, ponds, reservoirs) in the 1940s, 1950s, and 1960s slowed as the Corp of Engineers, Bureau of Reclamation, TVA, and private power companies inundated the most desirable, and least costly, reservoir sites. As a result of this development, over 99 percent of the United States population lives within 50 miles of a publicly owned fresh water lake, and about 33 percent live within 5 miles of a lake. Unlike coastal shoreline, most of the lake and reservoir shoreline is publicly owned, making most of the almost 12 million acres of reservoirs accessible.



*The United States has over 84,000 miles of shoreline. Of the over 36,900 miles in the lower 48 states, however, only 9 percent has been made accessible by government for recreational use. Only 16 percent of the private coastal shoreline has been made accessible for recreation. (National Park Service photo.)*

The U.S. Army Corps of Engineers is one of the primary suppliers of reservoir recreation opportunities. In 1981, the Corps managed 442 lakes and reservoirs with a combined shoreline in excess of 53,000 miles. On these reservoirs, they provided approximately 3,400 recreation areas. There were 11.1 million acres of land and water encompassed by these Corp projects, of which 5.3 million acres were water surface. About 80 percent of the Corps projects are within 50 miles of urban areas with populations of more than 50,000 people.

The USDI Bureau of Reclamation (BUREC) (previously Water and Power Resources Service) is also a major provider of flat water recreation opportunity in Western States. BUREC projects provide about 4.3 million acres of land and 1.6 million acres of water surface for recreation. Combined, these projects encompass 12,573 miles of shoreline. Although ash fallout from Mt. St. Helens has severely affected water

quality of some BUREC projects, most are still heavily used. Facilities around BUREC reservoirs are mostly provided by state governments and other federal agencies.

**Construction of private farm ponds continues to increase in the United States, and such ponds occupy 2.6 million acres nationwide--11.6 acres per 100,000 population in 1981 (Table 11).** Based on a 1978 survey by the Soil Conservation Service, 1.7 million (66 percent) of the farm ponds are used for recreational fishing or other activities. An additional 773,000 ponds covering 825,000 surface acres are not currently used for recreation.

Most farm ponds used for recreation are in the North (31 percent) and South (62 percent). They are quite small (0.95 acres average size) and thus have limited recreation potential. Ponds in the West are somewhat larger (1.4 acres average size) and thus may offer greater recreational potential.



Water is a major focal point for outdoor recreation. There are nearly 2 million rivers and streams in the United States. These streams total 3.2 million linear miles, 2,318 of which are in the National Wild and Scenic Rivers System. (U.S. Forest Service photo.)

Private swimming ponds covered 182,368 acres nationwide in 1975. Two-thirds of these acres were in the Pacific Coast and Northern Regions. To accommodate recreational boating, the private sector, including private power companies, provided more than 311,000 boat slips and 12,000 boat launching ramps in 1975. In addition, thousands of ramps are provided by public agencies such as the TVA, Corps of Engineers, state fish and game agencies, and local government. Private operators also provide beach facilities and rent boats. In 1975, they provided almost 3 million linear feet of improved beach, and rented over 11,000 canoes and 35,000 motorboats.

#### SNOW AND ICE RECREATIONAL OPPORTUNITIES

Snow and ice provide opportunities for downhill and cross-country skiing, sledding, skating, snowmobiling, and other activities. In late fall, winter, and early spring, virtually all forest and range lands in Northern States are usable for winter activities, particularly snowmobiling and cross-country skiing. Some problems caused by

Table 11.--Number and acreage of farm ponds by region and recreational use status in the United States, 1978

Region	Used for recreation		Not used for recreation		Total	
	(Number)	(Acres)	(Number)	(Acres)	(Number)	(Acres)
North	533,811	454,657	70,170	55,958	603,981	510,615
South	1,055,090	1,127,772	415,347	434,981	1,470,437	1,562,753
RM & GP	132,427	234,640	260,895	272,070	393,322	506,710
Pacific	<u>3,163</u>	<u>6,313</u>	<u>27,080</u>	<u>61,668</u>	<u>30,243</u>	<u>67,981</u>
TOTAL	1,724,491	1,823,382	773,492	824,677	2,497,983	2,648,059

SOURCE: U.S. Department of Agriculture, Soil Conservation Service, 1980 Appraisal Part I Soil, Water and Related Resources in the United States: Status, Condition and Trends (Washington, D.C.: Government Printing Office, 1979), p. 280, Table 79.



*Over 99 percent of the United States population lives within 50 miles of a publicly owned fresh water lake, and about 33 percent lives within 5 miles of a lake. Almost 12 million acres of reservoirs are accessible to the public. (U.S. Forest Service photo.)*

snowmobiling are littering, property damage, wildlife disruption, and noise disturbances. There is a growing concern that these problems and conflicts with private landowners will cause acreage to be withdrawn from public access.

According to industry figures, annual snowmobile sales peaked at 332,000 at the beginning of the decade (1971-72). But since 1976, the figure has only once exceeded 150,000. Though lack of snow in the West is credited with depressing sales in the 1979-80 and 1980-81 seasons, the sharp decline in sales long before then suggests reduced attraction of new participants in this outdoor motorized activity (International Snowmobile Industry Association 1982.)

Particularly in the 1960s, the skiing industry's growth was very rapid. In the



*Virtually all forest and range lands in the northern states are usable for winter activities, particularly snowmobiling and cross-country skiing. Snowmobile sales peaked in the early 1970's, but is still a popular winter-time sport. The rapid growth of ski areas in the 1960's was followed by a dramatic leveling off in the 1970's. (Michigan Travel Bureau photo.)*

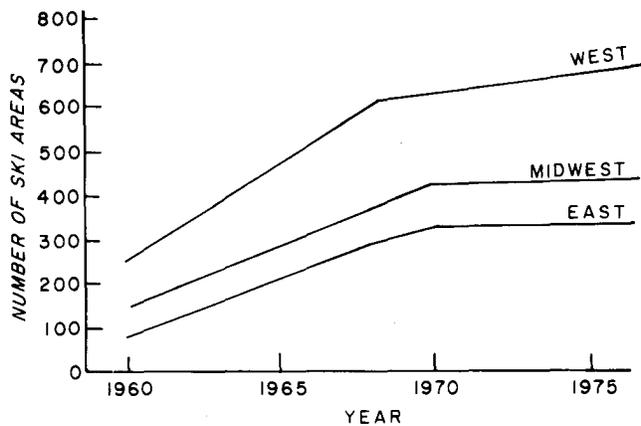


Figure 6 - Cumulative number of ski areas, 1960-1978.

1970s it leveled off (Figure 6). Daily capacity is expected to increase by 30,000 skiers in the West through new area development and expansion of existing facilities (Goeldner and Standley 1980). Future development will be constrained, however, by environmental concerns regulated through the

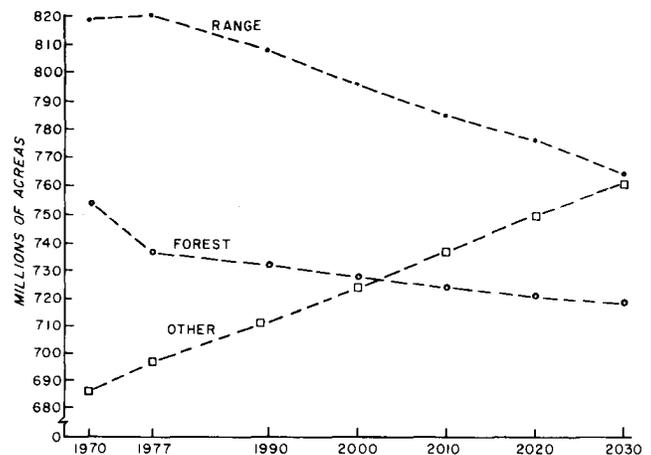


Figure 7 - Land area of the United States by classification, 1970, 1977 and projections to 2030.

National Environmental Policy Act (NEPA) and by high initial development costs. The number of ski lifts increased by more than 500 percent from a National total of 475 in 1960, to 2,246 in 1978 (Table 12). Thirty percent of all ski lifts are on National Forests; 60 percent are in the North.

Table 12.--Total number of ski lifts operating in the United States by land ownership and region, 1978

Region	Total		Forest Service Land		Other	
	(No.)	(Percent)	(No.)	(Percent)	(No.)	(Percent)
North	1,341	60	74	11	1,267	80
South	52	2	0	0	52	3
RM & GP	499	22	330	49	169	11
Pacific Coast	<u>354</u>	<u>16</u>	<u>265</u>	<u>40</u>	<u>89</u>	<u>6</u>
Total, U.S.	2,246	100	669	100	1,577	100

SOURCE: U.S. Department of Agriculture, Forest Service, An Assessment of the Forest and Range Land Situation in the United States (Washington, D.C.: Government Printing Office, 1980), pp. 135-136, Table 3.10.

NOTE: Ski lifts include aerial and surface lifts.

Table 13.--Acreage of industrial and nonindustrial private forest and range land (1977) and percent population (1980) in the United States by region

Region	Forest and range land (1977)				Percent of population (1980)
	Industrial		Nonindustrial		
	Thousands of acres	Percent of total	Thousands of acres	Percent of total	
North	17,522	26	110,142	16	48
South	36,009	53	248,249	37	30
RM & GP	2,095	3	262,436	39	8
Pacific Coast	<u>12,349</u>	<u>18</u>	<u>50,950</u>	<u>8</u>	<u>14</u>
United States	67,975	100	671,777	100	100

SOURCE: H. Ken Cordell, Michael H. Legg, and Robert W. McLellan, The Third Nationwide Outdoor Recreation Plan, Appendix IV, The Private Outdoor Recreation Estate (Washington, D.C.: Government Printing Office, 1980), p. 46, Table 1. and U.S. Department of Commerce, Bureau of the Census, Current Population Reports: Population Estimates, Ser. P-25, No. 909, Estimates of the Population of the United States to January 1, 1982 (Washington, D.C.: Government Printing Office, 1982).

#### PRIVATE SUPPLY

Privately owned land and water resources should become increasingly important sources of recreation opportunities. Table 13 describes ownership of industrial and nonindustrial private forest and rangeland by region of the United States. About 91 percent of this private land is owned by nonbusiness interests such as individuals and families and is in small tracts.

Regional distribution of private land varies. The North has almost 50 percent of the population but only 16 percent of the nonindustrial and 26 percent of the industrial private forest land. In general, the other three regions have proportionately more private forest and range land than population, especially the South, with 53 percent of the industrial and 37 percent of the nonindustrial forest and range.

The large amounts of private land in the North and South, where 78 percent of the United States population lives, indicates how important it will be to retain access to lands now open for public recreation and to stimulate opening of more land. Since public use of private land often conflicts with landowner objectives, incentives are needed to make it worthwhile for owners to open their lands. Some possibilities include low-cost liability insurance, increased profit potentials from reduced public competition, tax breaks, and favorable recognition for private recreation suppliers. **The shaping of policies and the creation of conditions to stimulate private recreation supply are two major renewable resource management challenges.**

Table 14 shows the availability of private forest and range land for outdoor recreation as of 1977. Fifty-eight percent

Table 14.--Percentage of private forest and range land in the United States available for public recreation use by region, 1977

Region	Open without permission		Open only with fee, permit or verbal permission		Closed except for owner, special group or employee use		Not designated	
	Industrial	Nonindustrial	Industrial	Nonindustrial	Industrial	Nonindustrial	Industrial	Nonindustrial
North	62	10	<1	24	<1	40	36	26
South	39	3	19	15	22	16	20	15
RM & GP	73	12	<1	41	<1	25	27	23
Pacific Coast	33	<1	24	17	12	34	31	49
United States	44	6	14	25	15	42	27	27

SOURCE: H. Ken Cordell, Robert McLeilan, Herbert Stevens, Gary Tyre, and Michael Legg, Existing and Potential Recreation Role of Privately Owned Forest and Range Lands in the United States: An Assessment, (Clemson: U.S. Department of Agriculture, Forest Service, 1978), p. 6.



*The private sector is an important supplier of many forms of outdoor recreation, particularly hunting. About 91 percent of these lands are owned by nonbusiness interests, such as individuals and families. The large percentage of private land in the North and South, where 78 percent of the United States population lives, indicates how important it will be to retain access to land now open for public recreation and to stimulate opening of more land. (U.S. Forest Service photo.)*

of the industrial and 31 percent of the nonindustrial land were available for use either without a permit or with fee or verbal permission. An additional 42 percent of the nonindustrial, but only 15 percent of the industrial land, were available only to the owner's friends, employees, or special groups. The availability of an additional 27 percent of both industrial and nonindustrial land is not known. Table 15 shows the conditions under which various percentages of forest and range land owners would make more acreage available for public recreational use. Monetary advantages would influence 58 percent of industrial and 56 percent of nonindustrial owners to open their land.

In 1978, the private sector provided 177,000 acres of lakes and ponds for fee

fishing. The South has almost two-thirds of these acres (65 percent) and the North has about 29 percent (Table 16). Fee fishing is much more limited in the West where water is more scarce and most of the land is publicly owned.

**Aggravating the problem of private land availability is the increasing loss of forest and range to more intensive land uses such as crops, pasture, urban, and industrial uses. Figure 7 projects a loss of approximately 75 million acres of forest and range to such uses over the next 50 years. These losses, combined with availability of only part of the private land for recreation use, suggest that demands on public land will be even greater than projections indicate.**

Table 15.--Percentage of private forest and range landowners in the United States by condition for making more land available for public recreation and type of ownership, 1977

Conditions for opening more lands	Type of private ownership	
	Industrial	Nonindustrial
	(percent)	(percent)
Under no conditions	29	39
For a reasonable profit	22	20
With protection from law suits	11	16
With tax incentive	9	4
To improve public relations	7	5
If revenues would cover costs	7	4
If someone else managed	5	2
With insurance protection	4	6
Other	5	4

SOURCE: U.S. Department of Interior, Heritage Conservation and Recreation Service, The Third Nationwide Outdoor Recreation Plan, Appendix IV: Private Sector Outdoor Recreation (Washington, D.C.: Government Printing Office, 1979), p. 76, Table 16.

Table 16.--Number and size of fee fishing operations by region in the United States, 1978

Region	Catfish		Trout		Total		Percent of Total Acres <sup>a</sup>
	(No.)	(Acres)	(No.)	(Acres)	(No.)	(Acres)	
North	593	10,304	584	3,779	2,204	33,637	28.7
South	1,555	29,417	125	540	5,792	76,231	65.2
RM & GP	15	53	265	4,155	604	5,802	5.0
Pacific Coast	70	400	112	215	274	1,330	1.1
	2,233	40,174	1,086	8,689	8,874	117,000	100.0

SOURCE: U.S. Department of Agriculture, Soil Conservation Service, 1980 Appraisal Part I: Soil, Water and Related Resources in the United States: Status, Conditions and Trends (Washington, D.C.: Government Printing Office, 1980), p. 286-287, Table 82.

<sup>a</sup>Includes operations which feature other species of fish such as bass, bluegill, and carp.

Table 17.--Number and percentage of United States population 12 years and older that participated in selected outdoor recreation activities in 1977

Recreation activity	Participates at least once a year		Participates five or more times a year	
	(millions)	(percentage)	(millions)	(percentage)
Visits to amusement parks, zoos, aquariums, fairs, etc.	127.3	73	68.0	39
Picnicking	125.6	72	85.5	49
Driving for pleasure	120.3	69	99.4	57
Walking or jogging	118.6	68	99.4	57
Pool swimming and sunbathing	109.9	63	85.5	49
Sightseeing	108.1	62	62.8	36
Attending sports events	106.4	61	76.7	44
Playing outdoor sports or games	97.7	56	75.0	43
Fishing	92.4	53	62.8	36
Nature walks, bird-watching, or wildlife photography	87.2	50	62.8	36
Bicycling	82.0	47	68.0	39
Non-pool swimming and sunbathing	80.2	46	61.0	35
Attending dances, concerts, or plays	71.5	41	38.4	22
Boating (not including sailing or canoeing)	59.3	34	34.9	20
Tennis	57.6	33	41.9	24
Camping in developed areas	52.3	30	20.9	12
Hiking or backpacking	48.8	28	27.9	16
Use of off-road motor vehicles or motorcycles	45.3	26	34.9	20
Camping in primitive areas	36.6	21	15.7	9
Sledding	36.6	21	20.9	12
Hunting	33.1	19	24.4	14
Canoeing, kayaking, or river-running	27.9	16	8.7	5
Waterskiing	27.9	16	14.0	8
Golfing	27.9	16	19.2	11
Ice skating	27.9	16	15.7	9
Horseback riding	26.2	15	14.0	8
Sailing	19.2	11	8.7	5
Snowmobiling	14.0	8	8.7	5
Downhill skiing	12.2	7	7.0	4
Cross-country skiing or ski touring	3.5	2	1.7	1

SOURCE: U.S. Department of the Interior, Heritage Conservation and Recreation Service, The Third Nationwide Outdoor Recreation Plan The Assessment (Washington, D.C.: Government Printing Office, 1979), p. 40, Tables II-12 and II-13.



*Surveys estimate that over half of the United States population fishes. Such estimates from recreational use surveys are vital for predicting future participation rates. Unfortunately, prediction techniques are not accurate. We know that participation will increase; how much is uncertain. (U.S. Forest Service photo.)*

#### **OUTDOOR RECREATION PARTICIPATION**

**Demand for virtually all outdoor recreation activities is projected to increase. Changes in factors that influence both demand and supply, however, make projections of participation highly speculative.**

**Demand information for planning our Nation's recreation programs is generally inadequate, and leaves great uncertainty about future recreation participation.** In this section, we examine participation data from nationwide population surveys and other indicators of participation. The principal source of participation data is the 1977 National Outdoor Recreation Participation Survey conducted by the former Heritage Conservation and Recreation Service (HCRS).

#### **1977 HCRS RECREATION PARTICIPATION SURVEY**

Table 17 reports the percentages of the United States population 12 years and older who participated in specific recreation

activities once and five times or more during 1977. The most popular activities listed in the survey include visiting amusement parks, zoos, aquariums, fairs, etc. (73 percent participated at least once during 1977); picnicking (72 percent); driving for pleasure (69 percent); walking or jogging (68 percent); pool swimming and sunbathing (63 percent); sightseeing (62 percent); attending sports events (61 percent); and playing outdoor sports or games (56 percent). A majority of Americans (57 percent) drove for pleasure and walked or jogged five times or more per year. Nearly half (49 percent) picnicked, swam, or sunbathed five or more times during the survey year. These most popular activities, with the possible exception of picnicking, are activities that do not heavily depend on a natural setting and thus are mostly within ROS classes "rural" and "urban". **Only fishing, among traditional outdoor recreation activities that are natural-environment dependent, has attracted participation by a majority of the United States population (53 percent). Nevertheless, the numbers of participants in many of**

Table 18.--Comparison of estimates of percentages of population participating  
in selected outdoor recreation activities from three national surveys<sup>a</sup>

Outdoor Recreation Activity	Nielsen (1976)	Opinion Research (1977)	HCRS (1977)
Picnicking	--	42	72
Driving for pleasure	--	58	69
Swimming	49	43	63
Playing outdoor games	--	41	56
Fishing	30	32	53
Bicycling	36	26	47
Tennis	14	17	33
Camping (developed areas)	29	20	30
Camping (remote)	--	11	21
Off-road recreation vehicles	--	6	26
Hunting	10	13	19
Water skiing	7	8	16
Down-hill skiing	5	5	7

SOURCE: A.C. Nielsen Company, Sports Participation 1978, A Study of Sports Participation and Equipment Purchases by the American Household, (Northbrook: Marketing Research Group USA A.C. Nielsen Company, 1978); Opinion Research Corporation Caravan Studies, The Public's Participation in Outdoor Activities and Attitudes Toward National Wilderness Areas, (Princeton: Opinion Research Corporation, 1977) pp. 5-6, tables 5 and 5-1; and U.S. Department of Interior, Heritage Conservation and Recreation Service, The Third Nationwide Outdoor Recreation Plan, The Assessment (Washington, D.C.: Government Printing Office, 1979).

<sup>a</sup>Nielsen Company survey of persons of all ages; Opinion Research Corporation survey of persons 18 years and older, for the American Forest Institute; Heritage Conservation and Recreation Service survey of persons 12 years and older.

**the traditional primitive-to-semiprimitive outdoor recreation activities are impressive; e.g., 52 million campers, 49 million hikers and backpackers, 45 million off-road motorized vehicle users, and 33 million hunters.**

Participation patterns may change as the American population continues to age.

Hiking, developed and primitive camping, hunting, whitewater boating, snowmobiling, and downhill and cross-country skiing are physically demanding activities. Participation in these activities is generally less among older persons, and in the absence of other social changes, one might expect overall decreases in these outdoor activities in the next few decades.

Table 19.--Number and percentage of population, 16 years and older, participating in fishing, hunting, and wildlife-associated recreation in the United States, 1981

Activity	Participation	
	Number (million)	Percent
Fishing and/or hunting	46.7	27
Fishing	42.1	25
Freshwater	36.4	21
Saltwater	12.3	7
Hunting	17.4	10
Big game	11.8	7
Small game	12.4	7
Migratory birds	5.3	3
Other	2.6	2
Nonconsumptive <sup>a</sup>	83.2	49
Away from home	28.8	17
Near home	79.7	47
Observe/identify	55.9	33
Photograph	12.4	7
Feed birds	62.5	37

SOURCE: U.S. Department of Interior, U.S. Fish and Wildlife Service, Initial Findings Report on the 1980 National Survey of Fishing, Hunting, and Wildlife Associated Recreation, 1982. (unpublished).

<sup>a</sup>Involves observation, photography, or feeding of wildlife.

Other social and economic changes which are likely to influence future participation will be examined in a later section.

#### ADEQUACY OF ESTIMATES FROM RECREATION PARTICIPATION SURVEYS

An important consideration in interpreting the results of a national population survey is accuracy. Table 18, compares estimates from three surveys for 13 selected activities. **For most recreation activities three quite different estimates of participation rates are indicated.** One likely reason for differences between the estima-

tes is definitions of the populations being sampled. The HCRS survey included people 12 years old and older, the Opinion Research Corporation survey included people 18 years old and older, and the Nielsen survey included everyone in a household, regardless of age. These age differences, however, are not likely to account for all of the differences between the estimates. The Opinion Research Corporation survey results are much more in agreement with the Nielsen survey than with the HCRS survey, even though the Opinion Research Corporation and Nielsen surveys were more different in age groups sampled.



*Nonconsumptive use of wildlife is a major recreational activity. In 1977, 87.2 million people participated in nature walks, bird-watching, or nature photography. This figure represents 50 percent of the population sampled. (National Park Service photo.)*

Sampling procedures, size of sample, clarity of questions, and accuracy of respondent recall are other reasons for differences between the estimates. The divergent results of these surveys are a cause for concern. For example, participation estimates as different as 63 and 43 percent for swimming, 53 and 30 percent for fishing, and 33 and 14 percent for tennis suggest uncertainty. Admittedly, national surveys contain expected errors in estimated participation rates, but wide differences between survey results hamper demand forecasting and recreation planning based on them.

#### 1980 NATIONAL SURVEY OF FISHING, HUNTING, AND WILDLIFE ASSOCIATED RECREATION

From January to May 1981, the Bureau of the Census conducted the National Survey of Fishing, Hunting, and Wildlife Associated Recreation for the U.S. Fish and Wildlife Service. The survey included 12,661 house-

holds reporting in general and more than 38,000 individuals 16 years and older who reported in detail on their fishing, hunting, and wildlife-related recreational activities during 1980. Selected results from this survey are summarized in Table 19.

Wildlife-related recreation involves a large number of participants, especially when non-consumptive users are included. In 1980, approximately 100 million people aged 16 years and older participated a total of almost 7 billion days of wildlife-related recreation. Most of this participation (78 percent) was non-consumptive and near home.

Over 27 percent of the U.S. population either fished or hunted during 1980 (consumptive use). In comparison, 49 percent enjoyed wildlife nonconsumptively through observation, photography, or feeding. These participants accounted for 83 percent of all wildlife-related recreation days. These findings give an expanded view of fish and wildlife as a resource offering widespread, close-to-home enjoyment without catching or killing. Near-home, nonconsumptive use of wildlife has a surprisingly large participation rate (47 percent of the U.S. population) and may have important implications for management of urban vegetation and wildlife and fish resources.

Traditional hunting and fishing have been reported by some surveys to have declined in recent years, though they still attract substantial numbers of people (almost 47 million--12 million of whom both hunt and fish). Sales of fishing and hunting equipment, supplies, and licenses continue to be an important contributor to the national economy.

#### FEDERAL RECREATION USE REPORTS

Table 20 shows recreation participation for 1979 and 1981 on the Nation's 755.4 million acres of federal land. Federal lands received 544 million visitor-days in 1981, two-thirds of which were provided by the Forest Service (43.4 percent) and the Corps of Engineers (22.8 percent). The National Park Service received 18.4 percent and the Bureau of Land Management 6.8 percent of the total use. The small remainder occurred on Bureau of Reclamation, Tennessee Valley Authority, and Fish and Wildlife Service lands. Visitor-days were down 16

Table 20.--Visitation to fee and nonfee management units by agency, 1979 and 1981 (visitor days in thousands)

AGENCY	YEAR					
	1979		1981			
	Fee Unit Visitation	Nonfee Unit Visitation	Total Visitation	Fee Unit Visitation	Nonfee Unit Visitation	Total Visitation
Bureau of Land Management	6,538.5	37,205.3	43,743.8 ( 7.8) <sup>d</sup>	1,474.5	35,511.5	36,985.9 ( 6.8)
Bureau of Reclamation <sup>a</sup>	349.1	33,883.8	34,232.9 ( 6.1)	123.3	38,270.2	38,393.6 ( 7.1)
Corps of Engineers <sup>b</sup>	10,460.3	152,921.7	163,382.0 (29.2)	9,345.0	114,622.3	123,967.3 (22.8)
Fish and Wildlife Service <sup>c</sup>	47.2	2,072.2	2,119.4 ( .4)	47.1	1,882.0	1,929.0 ( .4)
Forest Service	26,749.0	193,416.6	220,165.6 (39.3)	28,104.6	207,604.6	235,709.2 (43.4)
National Park Service	73,495.4	11,203.6	88,865.7 (15.9)	78,826.5	21,033.3	99,859.8 (18.4)
Tennessee Valley Authority	558.3	6,762.3	7,320.7 ( 1.3)	591.9	6,084.4	6,676.3 ( 1.2)
TOTAL	118,197.8	437,465.6	555,663.4 (100)	118,512.8	425,008.3	543,521.1 (100)

SOURCE: U.S. Department of the Interior, National Park Service, Federal Recreation Fee Report 1981. p. 39, Exhibit C (Draft) and U.S. Department of the Interior, Heritage Conservation and Recreation Service, Federal Recreation Fee Report 1979 and Federal Recreation Fee Report 1977.

<sup>a</sup>Preliminary estimates of expected visitation.

<sup>b</sup>An additional 57,094.5 visitor-days occur on project lands which are not designated as recreation areas.

<sup>c</sup>Includes the National Wildlife Refuge System, except fish hatcheries.

<sup>d</sup>Percent of column total.

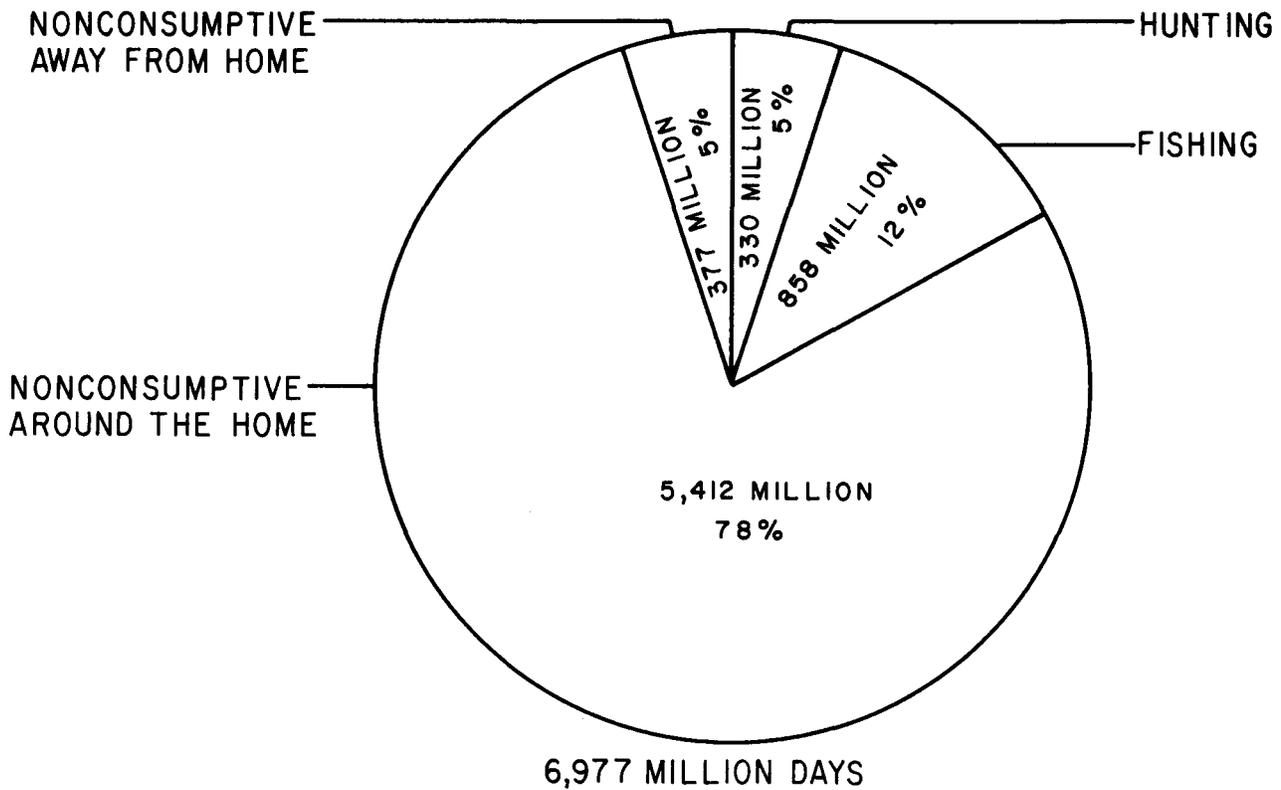


Figure 8 - Total days of wildlife-related recreation in the United States by type of use, 1980.

million in 1981 from a total of almost 560 million in 1979. Most of this decrease (12 million visitor-days) occurred on non-fee units which include undeveloped primitive and semiprimitive areas where only essential maintenance and facilities are provided. occur. Between 1979 and 1981, the percentage of total visits occurring on National Forests and National Parks increased from 39 to 43 percent and from 16 to 18 percent, respectively. Percentages of total federal visitor days decreased proportionately on other agency lands (with the exception of the Bureau of Reclamation), particularly on Corps of Engineers projects whose share fell from 29 percent in 1979 to 23 percent in 1981.

Visitor days of use and receipts from user fees in Federally designated fee areas are shown in Table 21. Overall, only 21.8 percent of visits at Federal areas occurs in fee management units. Receipts from fees charges at these sites have gone from \$20.5 million in 1975 to \$32.2 million in 1981. The average fee per visitor-day increased from \$0.11 to \$10.27 over this period. Average fee per visitor day varies considerably by agency, however, ranging from \$0.20 for visits to National Park fee areas to \$4.73 for Bureau of Reclamation visits in

1981. Most average fee levels are substantially less than \$1.00 per visitor-day. These averages are low because the majority of visitor-days are on non-fee areas and where no fees are paid. There is obvious potential for increasing fee areas and revenues on federal land.

In most cases, the fee collected is not sufficient to cover the cost of site management and fee collection. Traditionally, users of federal sites have paid only a small percentage of the costs associated with management and collection of fees. This situation is changing, however, because limited operating budgets are forcing agencies to change fee policies. One example is the U.S. Forest Service, which, late in 1981, increased the number of \$4.00 per night campgrounds from 65 to 185 and the number of \$5.00 campgrounds from 12 to 51. The purposes were to reduce competition with the private sector, to encourage private investment, and to provide additional federal revenues. The National Park Service currently has the most fee revenues, accounting for 50.2 percent of all federal recreation receipts (\$16.1 million in 1981).

Experiences sought by visitors to public lands vary, according to the 1977

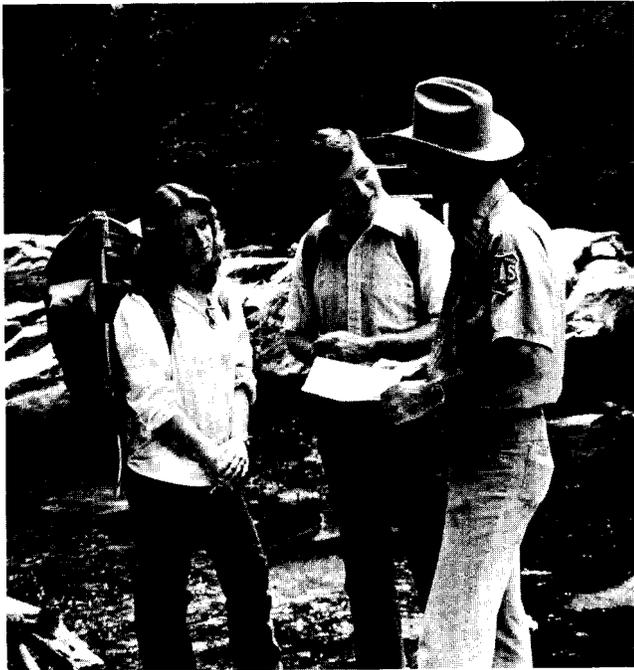
Table 21.--Visitor-days use in fee areas and fees collected by agency, 1975-1981

AGENCY	-----Visitor days of use-----		---Receipts from fees collected---				-----Receipts per visitor day-----					
	1975	1977	1979	1981	1975	1977	1979	1981	1975	1977	1979	1981
	(thousands)		(thousands of dollars)									
Bureau of Land Management	7,542	7,039 <sup>a</sup>	6,539	1,475	\$208	\$302	\$388	\$359	\$0.03	\$0.04	\$0.06	\$0.24
Bureau of Reclamation	167	146	349	123	299	286	559	582	1.79	1.96	1.60	4.73
Corps of Engineers	31,433	11,238	10,460	9,345	2,388	3,403	4,396	6,036	.08	.30	.42	.65
Fish and Wildlife Service	8	1,123	47	47	20	120	79	86	2.50	.11	1.68	1.83
Forest Service	25,667	25,646	26,749	28,105	4,611	5,528	6,097	8,518	.18	.22	.23	.30
National Park Service	115,417	79,596	73,495	78,827	12,884	16,404	14,980	16,138	.11	.21	.20	.20
Tennessee Valley Authority	275	542	558	592	146	188	207	502	.53	.35	.37	.85
TOTAL	180,509	125,330	118,197	118,514	\$20,556	\$26,231	\$26,706	\$32,221	\$0.11 <sup>b</sup>	\$0.21	\$0.23	\$0.27

SOURCES: U.S. Department of the Interior, Heritage Conservation and Recreation Service, Federal Recreation Fee Reports for 1975, 1977, 1979 and 1981, (Washington, D.C.); Heritage Conservation and Recreation Service, U.S. Department of the Interior.

<sup>a</sup>Estimated because of questionable source data that reported 39,915 visitor days in BLM fee areas for 1977.

<sup>b</sup>Grand average.



*Federal lands received 544 million visitor-days in 1981, over 43 percent of which were supplied by the Forest Service. Overall, only 21.8 percent of visits occur on fee management units. In most cases, the fee is not enough to cover the costs of site management and fee collection and handling. (U.S. Forest Service photo.)*

U.S. Department of Interior HCERS survey of federal estate users. "Good facilities" were cited the most by visitors to Corps of Engineers areas; "desire to see a new area" was the most frequent reason given by visitors to National Parks; and "scenic beauty" was most important to National Forest visitors. National Forest visitors also stayed the longest, with 50 percent staying more than 2 days and 20 percent staying at least 7 days (U.S. Department of the Interior, Heritage Conservation and Recreation Service, 1980).

The Forest Service hosts the largest number of visitors (43 percent). Participation data for the past 3 years for various outdoor recreation activities on National Forest are shown in Table 22. Over 60 percent of all land, water, and snow-based activities are in primitive or semiprimitive, undeveloped areas on National Forests. Nonprimitive area activities include camping (not backpacking); picnicking; downhill skiing; resort, camp and cabin use; and visitor information use. Overall, most use occurs during summer. From 1979 through

1981, all activities have remained stable or experienced increased participation, except for winter sports, particularly downhill skiing which declined nearly one-third.

Both on-road and off-road mechanized travel (55 million visitor days), fishing (17 million), hunting (16 million), and hiking and climbing (13 million) remain highly popular activities.

The rapid rise in popularity of white-water kayaking and rafting is illustrated by the activity on the Ocoee River in eastern Tennessee. In 1976 the TVA diversion project on that river was closed and normal flow returned. That first year, TVA's photographic counter system recorded 7,000 trips down the river; by 1980, 56,000 trips were recorded and more than 70,000 were anticipated in 1981. With no formal promotion, white-water recreationists quickly discovered the new river opportunity. The annual economic benefits to the Georgia-Tennessee region from tourist dollars have been substantial (an estimated \$3 million in revenues). Plans to reinstitute the hydro-electric diversion plant have threatened this recreation area, but enthusiastic river recreationists are opposing diversion plans in the courts.

#### INDICATORS OF RECREATION PARTICIPATION

Observed patterns of expenditures and travel for outdoor recreation can often provide new insights into current as well as near-future participation. The priorities individuals set for use of their "leisure dollars" signify priorities in recreational pursuits.

#### Personal Expenditures on Recreation

In 1981, \$1 of every \$8 spent by persons in the United States was for leisure pursuits. In 1965, Americans spent \$58 billion for leisure pursuits including sports, outdoor recreation, and other entertainment. By 1981, spending in current dollars had increased 321 percent to \$244 billion. In real dollars, the actual percentage increase was 47 percent, an increase of just under 6 percent annually.

From 1960 through 1979, direct expenditures in current dollars for outdoor recreation participation alone went from

Table 22.--Estimated National Forest recreation use for 1979-1981 (visitor days<sup>a</sup> in thousands)

Activity	1979	1980	1981
Camping	54,780.3	57,211.3	59,627.7
Picnicking	8,874.2	9,511.6	9,707.2
Recreation Travel (Mechanized)	49,536.5	54,998.1	55,198.0
Automobile	41,013.8	44,980.3	44,999.0
Scooter and Motorcycle	4,525.5	5,092.9	5,293.5
Ice and Snowcraft	3,408.4	3,448.2	3,141.3
Other	588.8	1,476.7	1,763.3
Water Travel	7,072.1	7,890.4	8,132.2
Boats, Power	4,029.3	3,925.6	4,084.0
Boats, Non-Power	3,042.8	1,651.0	1,724.0
Other Water Travel	---	2,313.8	2,319.2
Games and Team Sports	832.8	968.9	1,033.5
Waterskiing and Other Water Sports	888.0	995.0	983.4
Swimming and Diving	4,632.3	5,139.9	5,333.8
Winter Sports	14,485.0	13,864.2	11,262.5
Downhill Skiing	12,549.4	11,006.7	8,585.8
X-Country Ski/Snowshoe	---	1,204.2	1,349.2
Other Winter Sports	1,935.0	1,653.3	1,327.5
Fishing	16,776.0	17,117.1	16,972.8
Hunting	15,327.9	15,746.8	16,412.8
Hiking and Mountain Climbing	11,176.9	12,258.8	12,791.4
Horseback Riding	3,166.4	3,346.2	3,650.9
Resort Use	4,308.9	4,443.2	4,429.4
Organization Camp Use	4,086.8	4,112.4	3,935.8
Recreation Cabin Use	6,651.6	6,838.2	6,399.5
Gathering Forest Products	3,916.1	4,739.3	5,055.7
Nature Study	1,210.9	1,723.5	2,018.6
Viewing Scenery, Sports, Environment	8,321.1	8,003.4	8,525.3
Visitor Information (Exhibits, Talks, Etc.)	4,121.8	4,641.0	4,238.7
<b>SERVICE-WIDE TOTAL</b>	<b>291,258.6</b>	<b>310,372.0</b>	<b>310,296.0</b>

SOURCE: U.S. Department of Agriculture, Forest Service, Annual National Forest Visitation Reports for 1979, 1980 and 1981. (Unpublished).

<sup>a</sup>Recreational use of NF land and water which aggregates 12 person-hours. May entail 1 person for 12 hours, 12 persons for 1 hour, or any equivalent combination of individual or group use, either continuous or intermittent.

Table 23.--Personal consumption expenditures for recreation and percentage of total personal expenditures (billions of dollars), for the United States, 1960-1979

Level and percentage	1960	1965	1970	1973	1974	1975	1976	1977	1978	1979
Current Dollars	17.9	25.9	41.0	55.2	60.9	66.5	73.3	81.0	91.2	101.0
1970 Dollars	23.7	32.1	41.0	48.4	50.3	49.4	50.0	52.2	55.2	56.7
Percentage of total personal expenditures (current dollars)	5.5	6.0	6.6	6.8	6.8	6.8	6.7	6.7	6.8	6.7

SOURCE: U.S. Department of Commerce, Bureau of the Census, Statistical Abstracts of the United States, Sec. 14, (Washington, D.C.: Government Printing Office, 1980), p. 442.

**\$17.9 to \$101.0 billion** (Table 23). After correction for inflation, the real increase was 23.9 percent. **These data show that the percentage of total personal expenditures for recreation has remained stable at between 6 and 7 percent per year since the mid-1960s and that expenditures for outdoor recreation seem to be growing at a more rapid rate than other leisure expenditures.**

Dardis et al. (1981) examined factors influencing recreation expenditures by households in the United States and found that level of expenditures was most positively correlated to income and education. Other findings were that more money was spent on recreation by households in the middle of the family cycle than at earlier or later stages. Urban families spent more on recreation than their rural counterparts and households headed by nonblacks spent more than those headed by blacks.

Tourist expenditures are another general indicator of leisure activity. In 1979, \$15.6 billion were spent for tourism in Florida alone, making it the leading state in terms of tourism expenditures. Other states reporting tourist spending in excess of \$2 billion in 1979 were New York, Pennsylvania, Wisconsin, Texas, Michigan, Arizona, Missouri, Georgia, Hawaii,

Virginia, Louisiana, and Alabama. Though no data were available for 1979, California, New Jersey, and Ohio have also previously recorded tourism expenditures in excess of \$2 billion (Goeldner and Dicks, 1981). These amounts not only indicate levels of tourist spending, but also give some idea where the tourist dollars are being spent.

**Foreign tourism to the United States is increasing. The U.S. Travel Service predicted that 24 million tourists from abroad would visit the United States in 1981, up 7 percent from the 22.5 million who visited in 1980. The 1981 estimates also predicted that \$14.5 billion would be spent by foreign visitors, up 19 percent over the previous year. Through these visits, the U.S. is exporting its recreation resources, and this is an economically important and challenging area for future emphasis.**

#### Fishing, Hunting, and Other Wildlife-Associated Expenditures

**Wildlife and fish-related expenditures are one of the largest categories of recreation expenditures** according to the 1980 National Survey of Fishing, Hunting, and Wildlife Associated Recreation. As Figure 9 indicates, **wildlife-related recreation expenditures were estimated at**

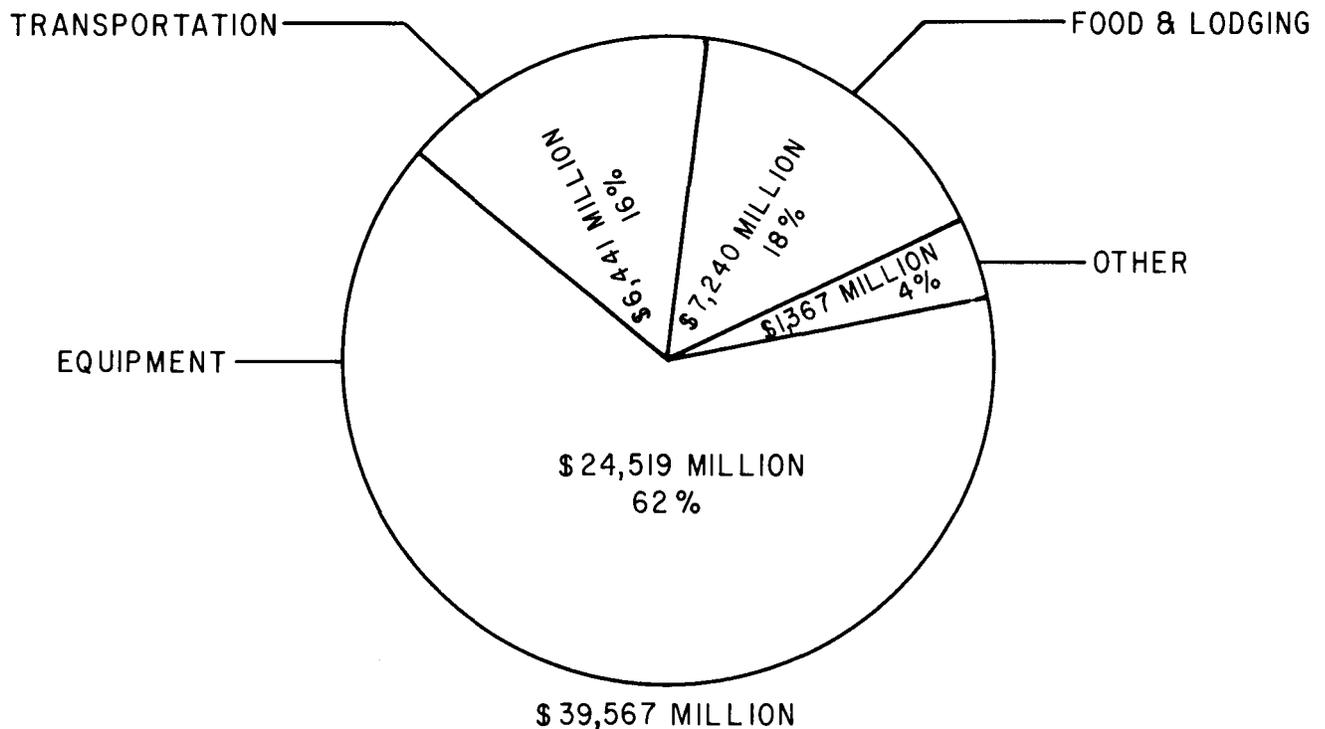


Figure 9 - Total expenditures by category (millions) for wildlife-related recreation in the United States, 1980.

**\$39.6 billion in 1980. An estimated \$24.5 billion or 62 percent of these expenditures were for equipment (fishing, hunting, photographic, etc.), not including boats and vehicles.**

On the average, each fisherman spent approximately \$244 during 1980, or about \$12 for each day of activity. Fees, licenses, tags, and permits accounted for only 8.2 percent of their total expenditures, estimated nationally to be \$10.2 billion.

Hunters spent an estimated \$5.6 billion on hunting in 1980. Two billion dollars or 36 percent of it was spent for hunting equipment. Each hunter spent an average of \$32 during 1980, an average of \$17 per day of activity. This is substantially greater than the amount spent per day by fishermen.

### Sporting Goods Sales

The sporting goods market recorded \$8.6 billion in sales in 1980 versus \$8 billion in 1979. Fishing gear and camping equipment were the greatest growth areas. Sales of rod/reel combinations increased 37 percent

in 1980. Backpack sales were up 11 percent and tent sales increased 20 percent. Sales of all camping equipment, however, did not increase. Sales of some related goods were down, such as sleeping bags (30 percent) and hiking boots (10 percent). Other indicators of outdoor recreation participation trends also showed declines. Downhill ski sales dropped 16 percent. Recreational transport sales (bicycles, pleasure boats, recreational vehicles, and snowmobiles) showed a sharp 27 percent decline in 1980 versus 1979 sales.

The 1981 sporting goods industry summary shows a slowdown in the previous rates of growth of retail sales. Fishing and camping gear in general are still growth items, but declines in sales of specific camping and fishing goods were observed.

Bicycle ownership and sales numbers are an indicator of participation in the more active, near-to-residence outdoor recreation activities. The Bicycle Manufacturers Association (BMA) estimated that there were 64.5 million bikes and 105 million riders in the United States as of February, 1982. The BMA has forecast a market potential of 90 million new customers based on population growth, expected gasoline prices, and apparent concern for physical fitness. But sales of domestically manufactured bicycles

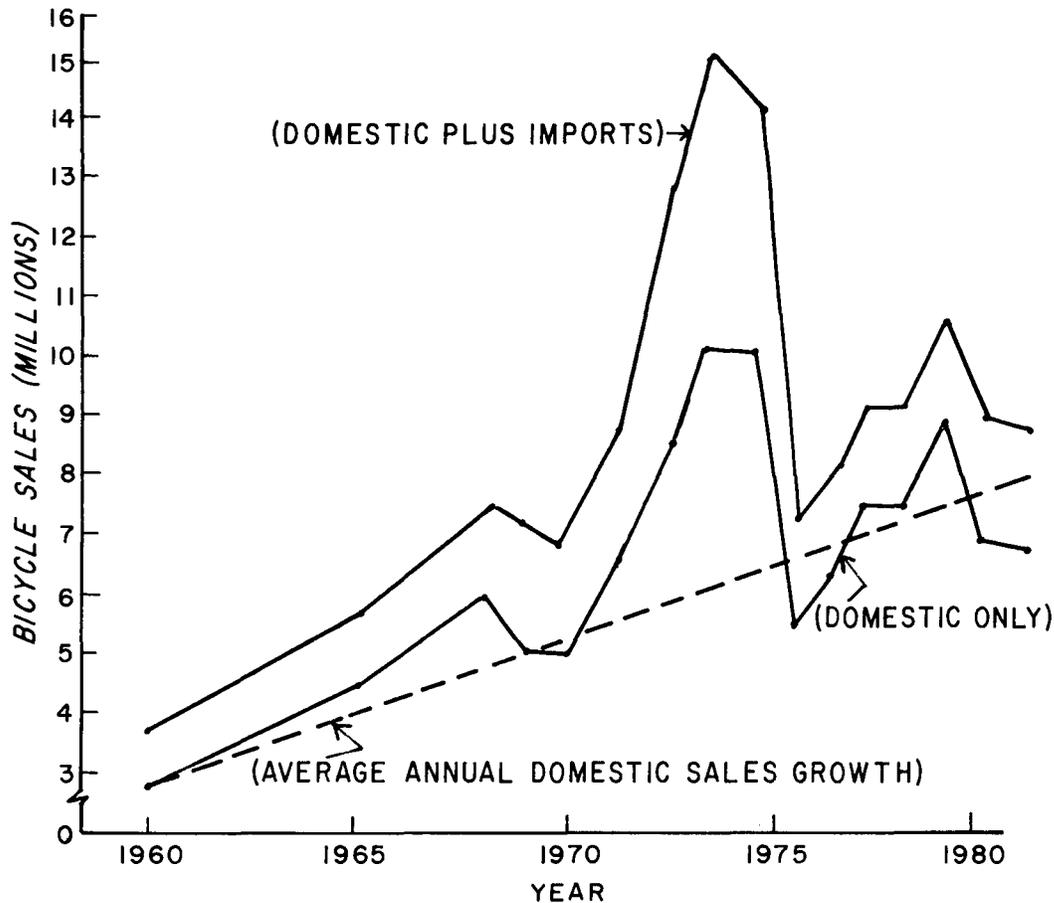


Figure 10 - Number of domestic and domestic plus imported bicycles sold in the United States, 1960-1981.

have grown erratically since 1960 at an average rate of 27,000 units per year (Figure 10).

The erratic growth and decline between 1970 and 1975 seems closely tied to the popularity of lightweight bikes with up to 10 gear "speeds". Much of the observed growth was obviously fad buying, but it could also have been a response to the gasoline shortages of 1972 and 1973. A rise in concern over physical fitness in the United States is another likely factor in this growth.

An important implication of this trend toward more bicycles is the possible substitution of this activity for other, more traditional outdoor recreation activities that occur farther from the place of residence. Growth in near-residence, wildlife-associated recreation (reported earlier) substantiates this interpretation of the bicycle sales data.

### Motorized Recreation Equipment

Table 24 shows another indicator of recreation participation in the United States. **The number of motorized recreation vehicles has grown rapidly in the last 20 years. In 1976, there were over one-half million camping vehicles, almost 6.4 million motorcycles, 12.8 million recreational boats, and 1.5 million snowmobiles.**

The estimated number of registered motorcycles had grown to 5.8 million by 1980, an increase of approximately 16.8 percent in four years (Motorcycle Industry Council, Inc. 1981). The Council also estimates that approximately 78 percent of all motorcycles are registered for highway use. These data suggest that the total number of motorcycles in the U.S. was more than 7.5 million in 1981.

Retail sales in 1980 were estimated at 1,065,000 units valued at \$8.31 billion.

Table 24.--Estimated number of motorized recreation vehicles  
in the United States, 1976

Type of Vehicle	Number
Camping and travel vehicles	541,000
Truck camper	42,000
Camping trailer	53,300
Travel trailer	187,700
Motor home	256,000
Motorcycles registered for on road use	4,984,164
Off road only (unregistered)	1,405,790
Registered Snowmobiles	1,579,284

SOURCE: Mack L Hogans, A nationwide assessment of dispersed motorized recreation opportunities and participation: A Resource Planning Act (RPA) Report, (Portland: USDA Forest Service, Pacific Northwest Forest and Range Experiment Station, 1979), 126 p. (Unpublished).



*The percentage of personal expenditures for recreation has remained stable at between 6 and 7 percent since the mid-1960's. Expenditures for outdoor recreation seem to be growing at a more rapid rate than other leisure expenditures. (U.S. Forest Service photo.)*



*Over one million motorcycles, valued at \$8.31 billion, were sold in 1980. Nearly one-half of all motorcycles were used for off-road riding. (U.S. Forest Service photo.)*

Nearly one-half of all motorcycles (3.9 million in 1980) were used for off-road riding. An estimated 1.6 billion miles, or 14 percent of the total motorcycle usage in 1980, was for off-road riding.

Use of motorcycles and other motorized recreation vehicles on forest and range lands has opened new forms of recreation opportunity. It has, however, caused some problems. Noise, site disturbance, wildlife disturbance, and conflict with other recreation users are among the problems of greatest concern. Though gasoline is increasingly expensive, the number of motorized recreation vehicles continues to grow as the demand for associated activities is stimulated by technology and design innovations.

Another indicator of recreation consumption is the number of recreational boats. Table 25 shows numbers of recreational boats by ownership and region. From 1973 and 1976, the number of boats rose in the United States by more than one-third, with the percentage growth being approximately equal among regions. Approximately one-half of the recreational boats in 1977 were owned by Northern Region residents-- which corresponds with the fact that over

half of the Nation's water surface (excluding the coastal water of Alaska and Hawaii) is in this region. Twenty-two percent of the Nation's water surface is in the South, yet 32 percent of boat ownership is in the South, reflecting its desirable warm climate and long boating season. Both Rocky MountainGreat Plains and Pacific Coast Regions have more water surface area than recreational boats relative to the rest of the country.

**Pleasure boats, according to the sporting goods industry, were a "high-decline category" from 1979 to 1980. Though retail expenditures on boating declined in these two years, the total number of recreational boats, boat registrations, and persons participating in boating increased.** This phenomenon may be explained by the type of boats being bought: **more inexpensive sail boats and canoes were purchased, while outboard motor sales declined.** As one of the more expensive capital-investment recreation activities, large-motor pleasure boating may have an uncertain future.

**Snowmobile sales hit an all-time high in the late 1960s and early 1970s. In 1971, snowmobile retail sales as reported by the**

Table 25.--Number and percent of recreational boats in the contiguous United States by region in relation to the supply of water, 1976

Region	Number in 1976 (thousands)	Percent of total	Percentage increase from 1973 to 1976	Water Surface Acres	
				Percent of U.S. total	Acres per boat
North	6,410	50	34.9	52	8.7
South	4,060	32	33.1	22	5.8
Rocky Mountain & Great Plains	790	6	38.6	9	11.7
Pacific Coast	<u>1,490</u>	<u>12</u>	<u>35.5</u>	<u>17</u>	<u>12.1</u>
Total U.S.	12,750	100	34.1	100	8.4

SOURCE: U.S. Department of Agriculture, Forest Service, An Assessment of the Forest and Range Land Situation in the United States (Washington, D.C.: Government Printing Office, 1980), p. 129.

International Snowmobile Industry Association (ISIA) **were 342,000 units.** In 1975, 192,000 units were sold, and in 1980, 127,000 units. **In 1981, retail sales were just 99,000 units.** There were 129 active snowmobile manufacturers in 1970, some of whom have since gone out of business. Nevertheless, it is estimated by ISIA that **snowmobile participants spend over \$2.1 billion per year in the United States and Canada on equipment, clothing, travel, and accessories.** There are an estimated 10,000 snowmobile clubs in North America. Over 1.5 million members belong to the International Snowmobile Council, which was created to unify snowmobilers for lobbying and other efforts to enhance opportunities to pursue snowmobiling.

#### Membership in Conservation Organizations

The wide range of organizations listed in Table 26 indicates how important conservation efforts have become to many Americans and their enduring interest in environmental and recreational activity. Many of these organizations recorded substantial growth in membership from 1970 through 1981 (National

Audubon Society, Sierra Club, Ducks Unlimited, and the National Rifle Association). Other organizations such as the Appalachian Mountain Club, Environmental Defense Fund, and National Wildlife Federation had a steady increase in membership through 1979 and then a pattern of stabilization or moderate decline. Memberships will most likely grow as greater cutbacks occur in outdoor recreation and wilderness program expenditures and as environmental protection programs are scaled back.

Membership in these groups indicates a strong interest in the environment in general and usually in some aspect of natural resources in particular. Many members of these conservation organizations are also avid outdoor recreation participants. The organizations also serve as valuable environmental education sources for their members and are a conduit for communication of recreation policies and events. The current high levels of membership point to a strong concern for the quality and general condition of our renewable resources and support for the quality of outdoor settings as recreation opportunities.

Table 26.--Conservation organization membership 1970-1981 (selected years)

Organization (Year founded)	Membership in thousands				
	1970	1975	1979	1980	1981
American Forestry Association (1875)	82	78	75	66	55
Appalachian Mountain Club (1876)	14	22	23.5	25	25
Ducks Unlimited (1937)	50	150	350	375	400
Environmental Defense Fund (1967)	9	57	46	46	46
Friends of the Earth (1969)	-	20	23	25	25
National Audubon Society (1905)	121	340	404	422	452
National Campers and Hikers Association (1954)	52	70	70	50	50
National Parks & Conservation Association (1919)	50	45	40	40	40
National Rifle Association (1871)	1053	1040	1100	1800	2000
National Wildlife Federation (1936)	-	3500	4100	4600	4600
Sierra Club (1892)	80	-	185	189	275
Wilderness Society (1935)	70	90	70	50	50
World Wildlife Fund (1961)	35	50	65	65	75
Zero Population Growth (1968)	20	10	6.5	6.5	11

SOURCE: This table was compiled from membership lists provided by the above mentioned conservation organizations and National Wildlife Federation, Conservation Directory 1982 (Washington, D.C.: National Wildlife Federation, 1982), pp. 38-96.

#### RECREATION DEMAND AND SUPPLY PROJECTIONS

This chapter presents projections of recreation participation in several land, water, and snow and ice activities. It shows predicted percentage and absolute increase in numbers of participants, expected regional variations, and limitations of the projections for resource management.

#### PROJECTIONS OF RECREATION PARTICIPATION

Table 27 shows future participation in selected land, water, and snow and ice recreational activities for 1980-2030 (U.S. Department of Agriculture, 1980). These projections were developed from regression models relating participation one or more times per year in selected recreation activities (as indicated in the 1977 HCERS

Table 27.--Indices of future participation in outdoor recreation in the contiguous states by activity, 1977-2030 (1977 = 100 percent)

Activity group and type of activity	Projection level <sup>a</sup>	Projections by year					
		1977	1990	2000	2010	2020	2030
Population index <sup>b</sup>	Medium	100	112	120	127	134	139
<u>Land</u> (Total)	High	100	122	144	175	208	245
	Medium	100	111	121	135	149	161
	Low	100	105	109	113	118	120
Camping (developed)	High	100	130	180	236	297	369
	Medium	100	118	150	181	214	245
	Low	100	116	133	149	167	181
Camping (undeveloped sites)	High	100	130	161	207	254	311
	Medium	100	116	133	157	182	205
	Low	100	111	121	132	145	155
Driving off-road vehicle	High	100	118	134	154	177	201
	Medium	100	108	118	128	139	147
	Low	100	108	115	120	125	126
Hiking	High	100	124	149	187	225	270
	Medium	100	109	117	132	146	159
	Low	100	101	102	103	107	109
Horseback riding	High	100	125	151	194	233	284
	Medium	100	109	118	137	155	173
	Low	100	102	102	105	113	119
Nature Study	High	100	123	146	176	210	247
	Medium	100	110	110	133	145	155
	Low	100	106	111	117	125	131
Picnicking	High	100	119	140	166	196	230
	Medium	100	112	124	137	150	162
	Low	100	107	114	119	125	127
Pleasure driving	High	100	118	136	159	186	215
	Medium	100	110	120	130	141	149
	Low	100	105	111	114	117	118
Sightseeing	High	100	121	143	171	202	237
	Medium	100	112	123	136	148	159
	Low	100	105	111	115	118	120

SOURCE: U.S. Department of Agriculture, Forest Service, An Assessment of the Forest and Range Land Situation in the United States, (Washington, D.C.: Government Printing Office, 1980), pp. 100-101, Table 3.2.

<sup>a</sup>Projection levels are keyed to the projections of population, economic activity, and income shown in Table 1.1 on pp. 10-11 of the aforementioned source.

<sup>b</sup>Index of projected increases in population (medium level).

Table 27.--Continued

Activity group and type of activity	Projection level <sup>a</sup>	Projections by year					
		1977	1990	2000	2010	2020	2030
<u>Water (Total)</u>	High	100	131	164	218	261	322
	Medium	100	118	134	158	181	206
	Low	100	108	115	124	134	144
Canoeing	High	100	140	182	243	305	384
	Medium	100	121	140	170	200	233
	Low	100	109	117	128	141	155
Sailing	High	100	159	221	305	396	511
	Medium	100	144	182	231	281	337
	Low	100	130	155	183	212	242
Other Boating	High	100	132	164	209	257	315
	Medium	100	119	136	159	182	207
	Low	100	110	110	127	137	147
Swimming outdoors	High	100	123	150	189	229	278
	Medium	100	114	127	146	164	183
	Low	100	106	111	117	125	131
Water skiing	High	100	127	156	204	249	308
	Medium	100	109	117	137	155	175
	Low	100	98	96	96	101	105
<u>Snow and ice (Total)</u>	High	100	139	179	239	300	377
	Medium	100	123	143	175	207	240
	Low	100	113	124	137	155	170
Cross-country skiing	High	100	154	211	290	376	479
	Medium	100	133	161	200	241	280
	Low	100	118	134	151	172	190
Downhill skiing	High	100	162	227	318	416	538
	Medium	100	142	178	228	279	334
	Low	100	125	146	171	199	226
Ice skating	High	100	137	176	234	293	367
	Medium	100	123	143	174	205	237
	Low	100	113	124	138	155	170
Sledding	High	100	131	165	218	268	334
	Medium	100	117	132	160	187	215
	Low	100	109	116	126	140	154
Snowmobiling	High	100	126	151	191	229	277
	Medium	100	109	120	141	161	181
	Low	100	107	114	122	133	141

National Recreation Participation Survey). The participation prediction variables making up the regression models included population, economic activity (GNP), urban/rural residence, age, education, race, length of workweek, vacation time, income, sex, availability of sites or facilities for the particular activity being modelled, and an assumed price of the recreation activity (Hof 1979). **These predictive models were statistically significant, but their predictive power was weak because of poor quality and incomplete data.** Regardless of the generality and suspected weaknesses in the projections, **they are the best information available and do provide some insights into future recreation participation.**

There were enormous spreads between the high and low projections for most activities (Table 27). For example, the projected 50-year percentage increase in developed camping ranged from a low of 81 percent to a

high of 269 percent. Other large ranges between low and high activity projections for 2030 include canoeing (229 percent), downhill skiing (312 percent), hiking (162 percent), and picnicking (103 percent).

Among the selected activities in Table 27, the largest projected percentage increases by 2030 at the high level are for downhill skiing (483 percent), canoeing and white-water boating (284 percent), and developed camping (269 percent). But the largest projected increases expected at the high level in terms of participants is for picnicking, projected to 289 million participants by 2030, an increase of 164 million participants. If the total projected increases for hiking, developed camping, and fishing become a reality, there will be serious crowding and resource impacts.



*Growth of whitewater boating on Wild and Scenic Rivers is exemplified by the Chattooga River on the South Carolina/Georgia border: 800 people in 1971; 22,800 in 1975; and 36,000 users in 1979. Demand for water-based recreation may triple in the next 50 years. (U.S. Forest Service photo.)*

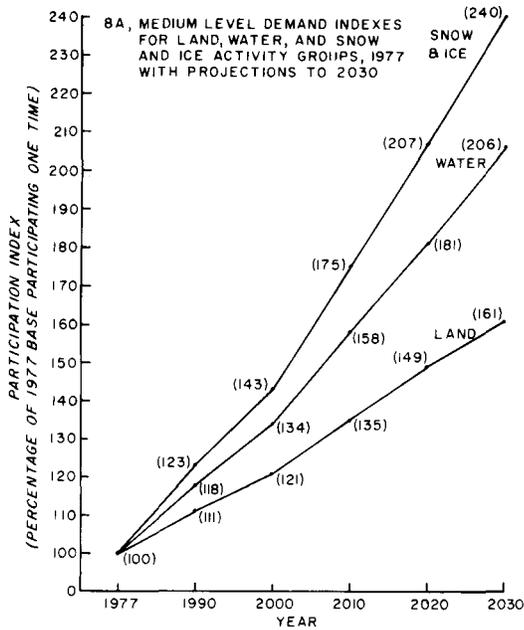


Figure 11 - Medium-level projections of indices to national participation in land, water, and snow and ice recreational activities, 1977-2030.

Figure 11 shows projections for three major categories of activities—land, water, and snow and ice. The largest projected percentage increases are for snow and ice activities including cross-country skiing, snowmobiling, and skating. Next largest increases will be in water activities, followed by land activities. However, in terms of the actual number of projected participants, land-based activities will be higher because of the much larger current base number participants.

Figure 12 illustrates this point by showing medium-level projected visitor-days on National Forests. The largest growth in number of visitor-days is projected to be in land-based activities (105 million), even though the percentage increases are higher for snow and ice and water activities (Figure 11).

The implications are that greatly expanded facilities will be needed to support the large percentage increases in snow and ice and water activity should they become a reality. But even larger increases in numbers of sites and facilities will be needed to accommodate land based participation increases.

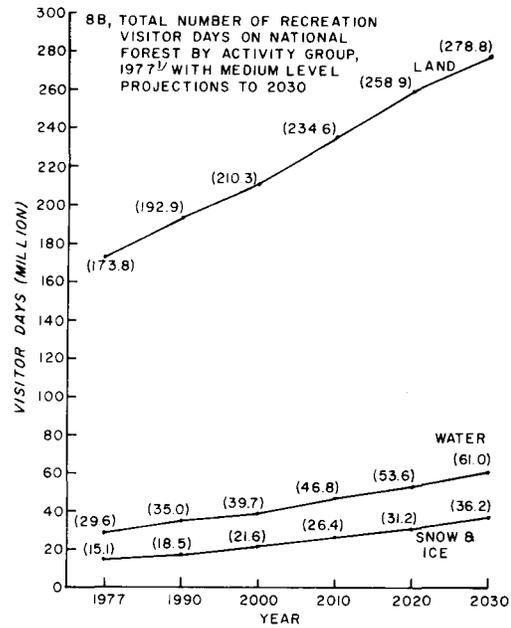


Figure 12 - Medium-level projections of millions of visitor days of participation in land, water, and snow and ice recreational activities on National Forests, 1978-2030.

Table 28 shows indices of projected participation in land, water, and snow and ice activities for 10 regions. Expected regional patterns are for greater percentage increases in land recreation in the West (12 to 30 percent in 1990) than in other regions (2 to 16 percent). The expected pattern in land recreation is the same for 2010 and 2030. The Northeast and North Central regions, with 53 percent of the land, 54 percent of the water surface, and 75 percent of the snow and ice opportunities, will experience the largest increases in number of participants. In the Sun Belt, the increase in participants will also be great because of rapidly growing population. The West (including the Pacific Coast and the Rocky Mountains and the Great Plains) is still expected to have the largest percentage increases for water activities by 2030 (150 to 221 percent), but larger population contributes to greater increases in participation elsewhere. For snow activities, greatest percentage and number increases are expected in the North and West by 2030 (115 to 330 percent).

Projected future rates of participation reflect the relative availability of opportunity (such as public lands for camping and hiking in the West and snow for skiing in

Table 28.--Indices of demand for outdoor recreation in the contiguous states by activity group and region, in 1977, with projections to 2030 (1977 = 100 percent)

Activity group and region	Projections					
	1977	1990	2000	2010	2020	2030
<b>Northeast</b>						
Land	100	102	105	110	114	116
Water	100	111	121	137	152	167
Snow and Ice	100	121	139	165	191	215
<b>North Central</b>						
Land	100	107	113	123	131	138
Water	100	116	130	152	174	197
Snow and Ice	100	123	143	178	214	255
<b>Southeast</b>						
Land	100	116	132	153	174	195
Water	100	124	146	183	223	272
Snow and Ice	100	109	125	160	198	247
<b>South Central</b>						
Land	100	114	129	149	169	189
Water	100	122	143	178	216	262
Snow and Ice	100	107	122	156	193	239
<b>Rocky Mountain and Great Plains</b>						
Land	100	123	141	163	186	208
Water	100	127	148	179	213	250
Snow and Ice	100	140	175	223	278	334
<b>Northern Rocky Mountains</b>						
Land	100	123	151	186	226	267
Water	100	127	159	204	258	321
Snow and Ice	100	141	188	256	337	430
<b>Southern Rocky Mountains</b>						
Land	100	130	152	178	207	235
Water	100	134	159	196	237	282
Snow and Ice	100	149	189	245	309	378
<b>Great Plains</b>						
Land	100	112	120	128	135	138
Water	100	115	125	141	155	166
Snow and Ice	100	128	149	176	202	223

SOURCE: U.S. Department of Agriculture, Forest Service, revised RPA regional recreation participation projections, 1982, (Unpublished).

Table 28.--Continued

Activity group and region	Projections					
	1977	1990	2000	2010	2020	2030
Pacific Northwest						
Land	100	123	149	179	213	247
Water	100	128	157	198	244	295
Snow and Ice	100	139	181	242	313	392
Pacific Southwest						
Land	100	117	133	152	172	191
Water	100	121	140	168	197	229
Snow and Ice	100	128	154	198	245	296

the North and West). They also reflect current and expected population levels and population characteristics, such as increased population in the Sun Belt states and larger numbers of older people who participate less in the more vigorous outdoor recreation activities.

#### COMPARISON OF PROJECTIONS

The best projections of recreation participation would logically be based on actual participation trends and an awareness of all the available survey-based projections. Figures 13-19 show such data for participation in selected activities including picnicking, hiking, developed camping, hunting, fishing, white-water canoeing, and downhill skiing. The projections are based on actual participation trends, 1965-1977; RPA projections for high, medium and low levels of the prediction variables, 1977-2030; and projections based on the 1965 BOR National Participation Survey. Figures 13-19 show both the rate of expected increase and the millions of visitor days expected. The RPA-assumed mid-level population projections are also shown to add perspective.

There are obvious limitations in the projections shown in Figures 13-19. They lack precision, their accuracy is suspect, and they may be based on some unsupported assumptions. For example, the models used by the U.S. Forest Service in the 1979 nationwide RPA planning efforts were sta-

tistically significant. But only 3 of the 23 models for individual activities explained more than 15 percent ( $R^2 = 0.15$ ) of the total variation in recreation participation among the sample of U.S. individuals over 11 years old from which participation data were obtained (Hof 1979). **In addition, the range between high and low activity projections 50 years hence is now large.** For many activities, increases at the high and medium projections exceed anticipated rates of population growth and deviate from recent recorded trends in actual recreation participation. Finally, the data and statistical relationships upon which the projections are based are 5 years old--a time period marked by significant social and economic changes.

These problems with the available projections limit the conclusions about implications for resource allocations and management. During the past 25 years it was safe to predict increases in outdoor recreation as Americans exercised newfound affluence, leisure time, and increased environmental awareness. Increases also resulted from expanded opportunities through government development and subsidization of participation in outdoor recreation. Development of new technology and commercial production have also been important to such activities as snowmobiling, white-water boating, camping, and backpacking. Conditions are changing, however, and it is difficult to predict future recreation participation in light of these uncertainties.

### PICNICKING

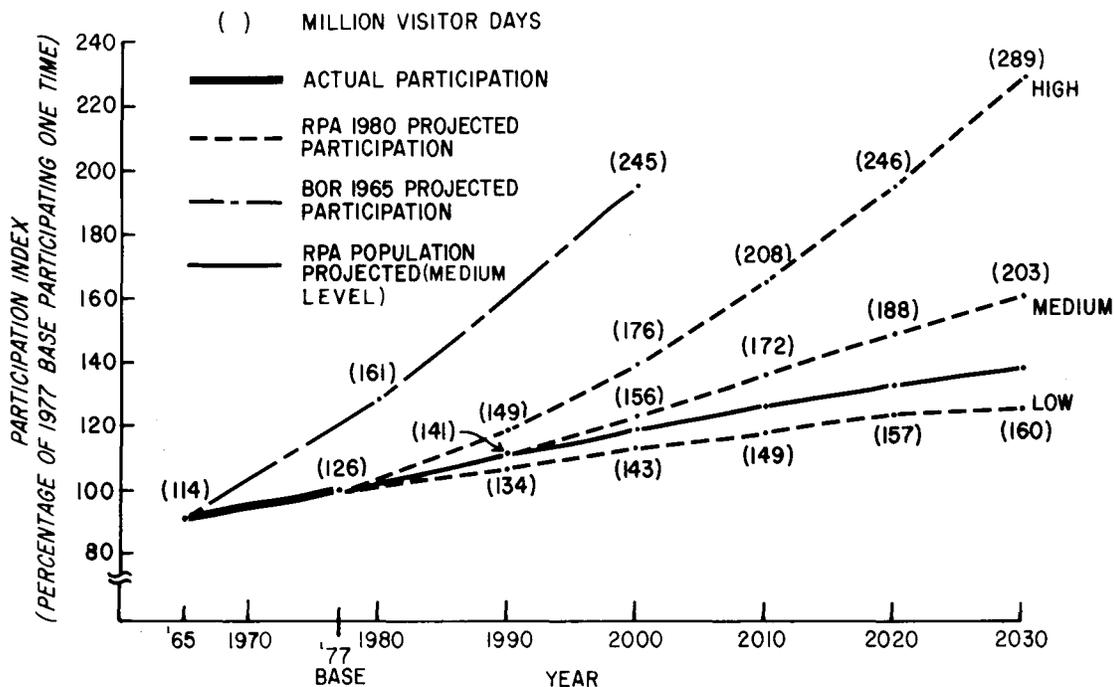


Figure 13 - Actual trend (1965-1977) and projected participation in picnicking to 2030, United States.

### HIKING

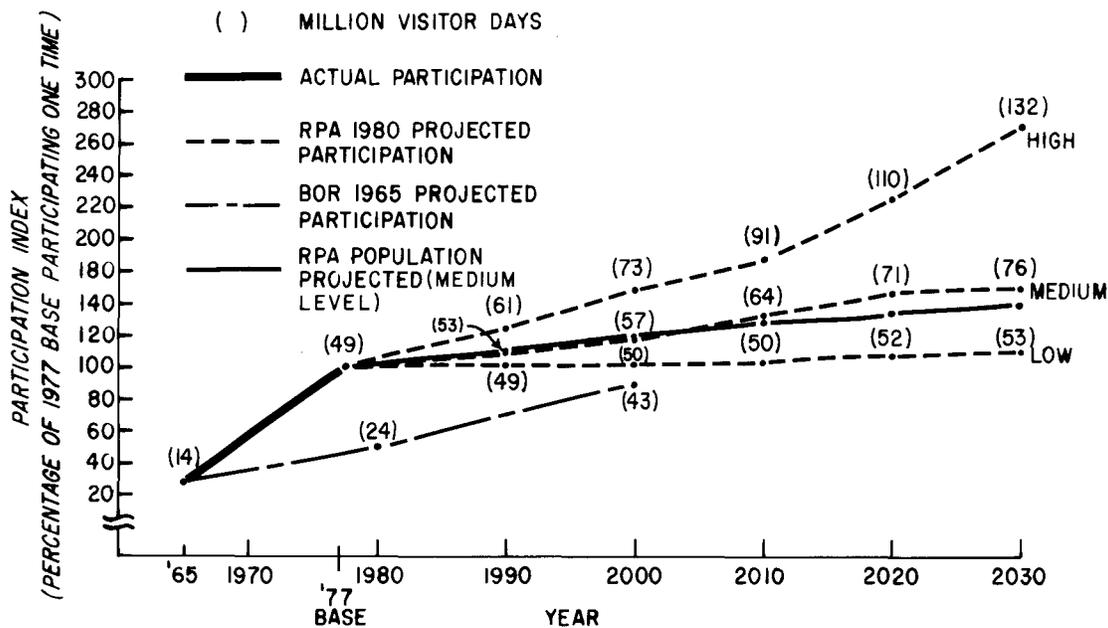


Figure 14 - Actual trend (1965-1977) and projected participation in hiking to 2030, United States.

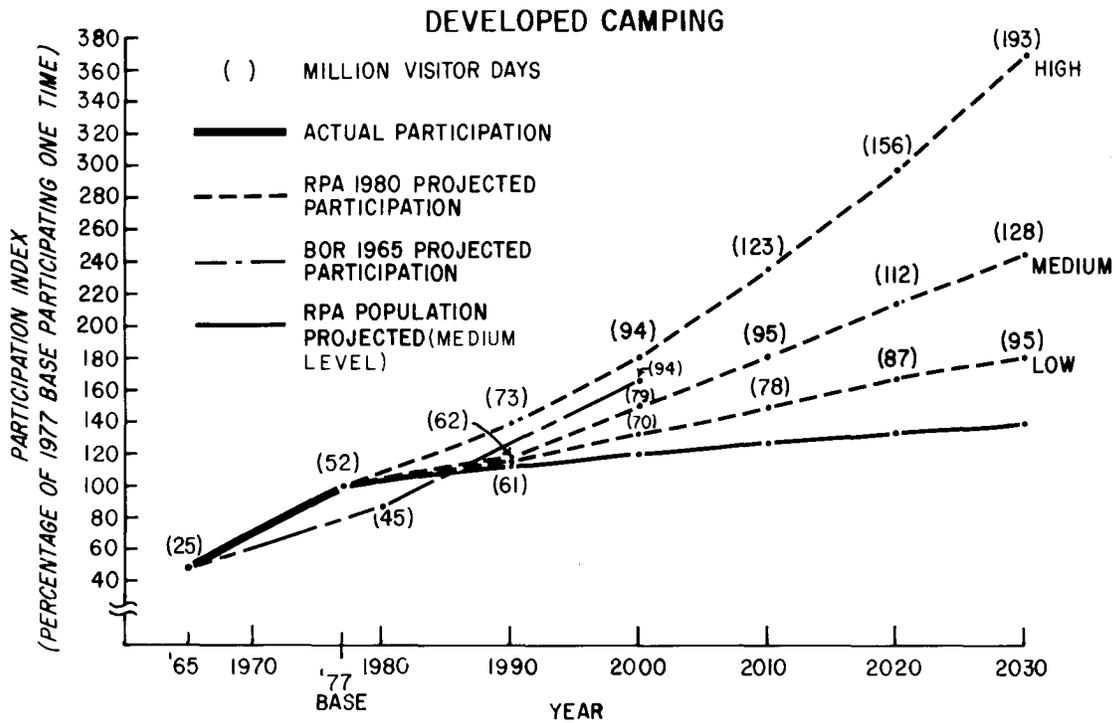


Figure 15 - Actual trend (1965-1977) and projected participation in developed camping to 2030, United States.

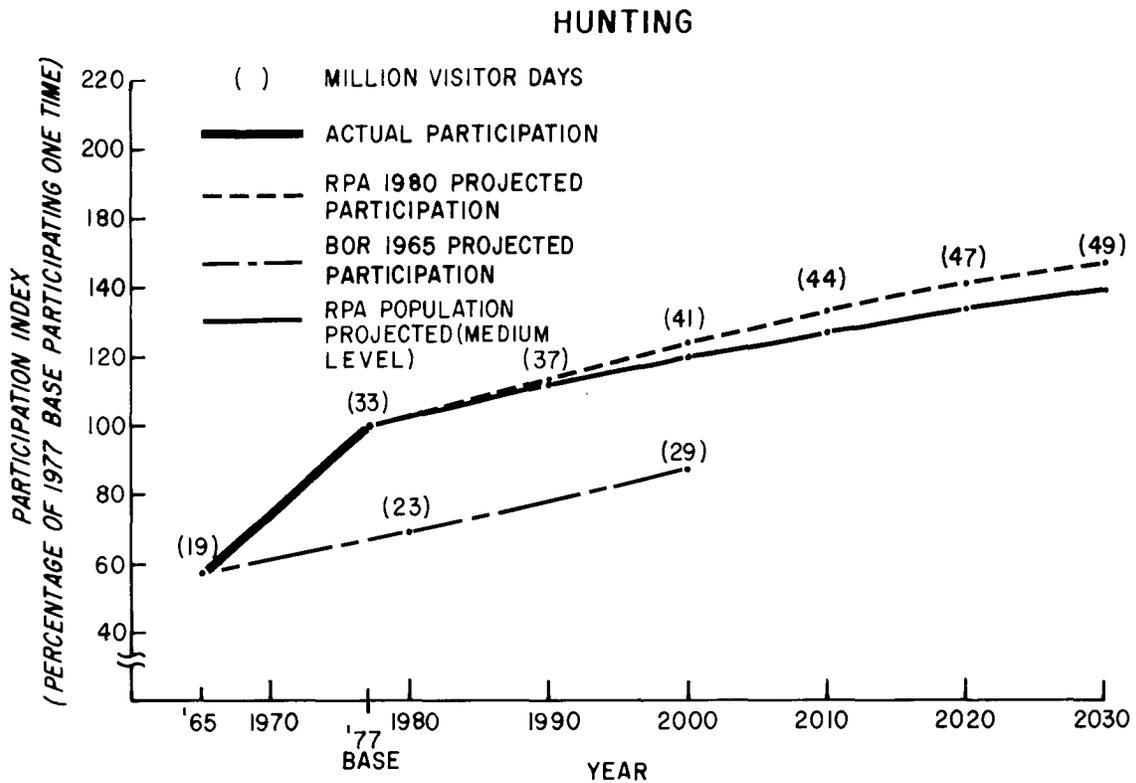


Figure 16 - Actual trend (1965-1977) and projected participation in hunting to 2030, United States.

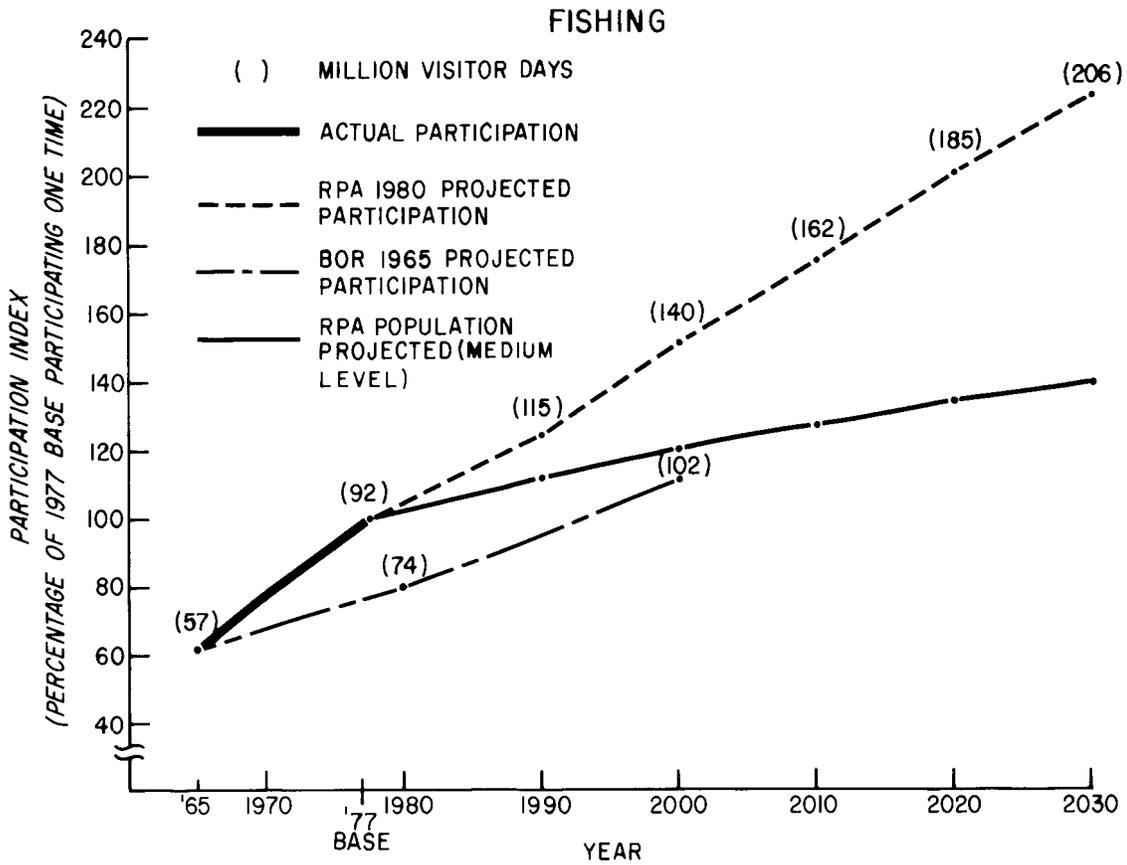


Figure 17 - Actual trend (1965-1977) and projected participation in fishing to 2030, United States.

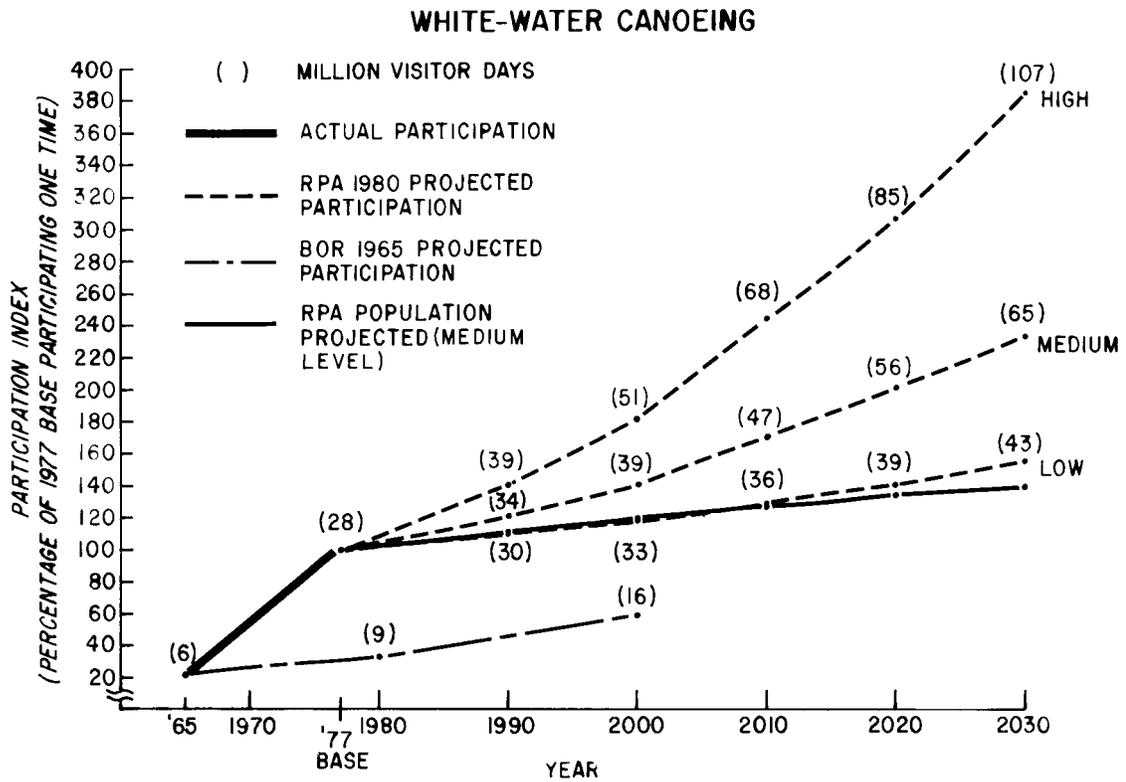


Figure 18 - Actual trend (1965-1977) and projected participation in white-water canoeing to 2030, United States.

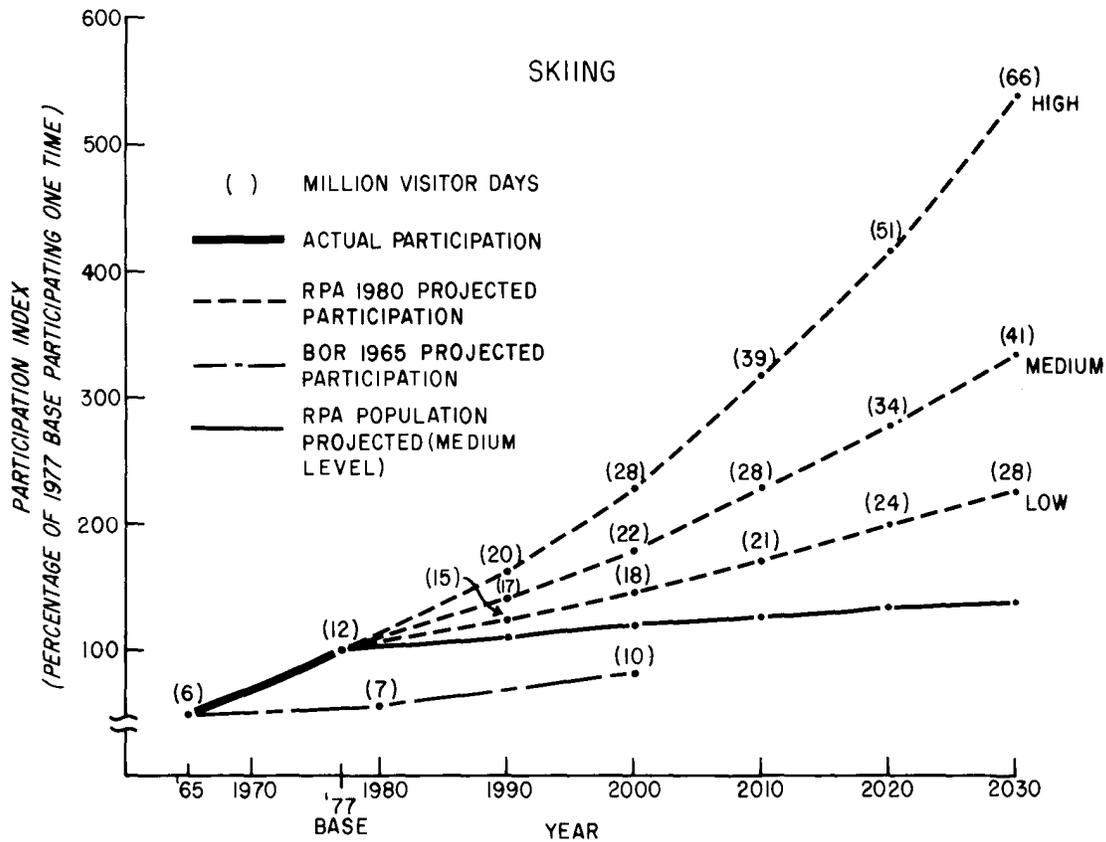


Figure 19 - Actual trend (1965-1977) and projected participation in skiing to 2030, United States.

While past participation trends and the projected future increases in participation are two important sources of information for weighing possible future demands and needs, one must also consider current changes in social and economic factors that influence consumption of outdoor recreation opportunities. We examined 20 social-economic factors and their likely impacts individually and collectively on future recreation participation.

**SOCIAL AND ECONOMIC INFLUENCES ON OUTDOOR RECREATION SUPPLY AND DEMAND**

The likely effects of 20 social and economic factors on recreation supply and demand are summarized in Table 30. This analysis seeks to answer two questions: (1) what are the important trends in social and economic factors, and (2) what then are the predicted effects of these factors on various forms of recreation. The major

conclusion of this analysis is that uncertainty is certain, given the considerable lack of predictability for both the social-economic factors and their specific relationships to recreation supply and demand. There are, however, logical links between social and economic forces and outdoor recreation which--though incompletely understood--should be monitored and studied to aid future prediction and planning.

**Social and Economic Factors**

Twenty social-economic factors are examined in the following pages for their influence on recreation supply and demand: (1) inflation, (2) energy prices, (3) energy availability, (4) population growth, (5) interest rates, (6) non-work time, (7) recreation information and technology, (8) national defense spending, (9) geographic distribution of population, (10) population age, (11) personal income, (12) income

distribution, (13) unemployment, (14) demand for raw materials, (15) political attitudes, (16) level of government spending, (17) government funding for recreation, (18) demographic characteristics of population, (19) urban/rural population distribution, and (20) legal restrictions on use and users.

We assumed no governmental or market intervention, beyond that which currently exists, to ameliorate the supply and demand effects of changes in the 20 social-economic factors. The anticipated direction of change for each of these factors is indicated by an arrow ( ). A major source of information for these descriptions is Social Indicators (Bureau of the Census, 1977), although we drew on many other sources.

1. Inflation (↑)—Average prices for goods and services in both wholesale and retail markets will increase with inflation

at average rates of 8 to 10 percent per annum. Inflation, as indicated by the consumers price index (CPI), was 1.7 percent in 1965, 5.9 percent in 1970, 9.1 percent in 1975, and 11.3 percent in 1979. While inflation has slowed in 1982 to a predicted annual rate of 6 percent, we anticipate a resumption of higher rates of inflation as the temporary effects of the 1981 oil glut dissipate.

2. Energy prices (↑)—Average price per unit for petroleum and other transportation, manufacturing, heating, and cooling energy is expected to rise more rapidly than prices for other goods and services in the next 20 years. The early 1982 decrease in petroleum prices reflects conservation and conditions in the world economy that affected oil supply on the world market. However, the price decrease, which began to reverse in mid-1982, was a short-run phenomenon. The trend over the next 20 years will likely be upward at a



*Complex social and economic forces that affect outdoor recreation participation make accurate prediction of trends difficult. These forces include inflation, energy prices and availability, population growth, leisure time, recreation technology, population age and geographic distribution, personal income, unemployment, government funding for recreation, legal restrictions, and many others. (U.S. Forest Service photo.)*

rate exceeding price increases for most other goods and services. Some of the gasoline price rises will likely be the result of increased state and local government tax increases to meet budget deficits.

**3. Energy Supplies (availability) (↓)**  
**--In general, energy supplies, particularly of gasoline, will become more scarce.** There will be periodic, short-term shortages in local areas, even at the projected higher prices. Rationing may be instituted in some form to insure allocations to essential services. The pressures reducing energy availability include political instability among foreign oil exporters to the United States, environmental concerns, and general economic conditions slowing exploration and development of new sources of fossil, hydroelectric, nuclear and synfuels.

**4. Population growth (↑)**--**Population in the 1980s will increase at an annual rate of slightly more than 1 percent per year with population reaching about 260 million by the year 2000.** Total population grew 8.3 percent (17 million) between 1970 and 1979. In the previous decade, growth was 13.3 percent. Population reached 221 million by January, 1980, and is growing about 2 million persons per year. Total percentage growth between 1980 and 1990 is predicted by the U.S. Bureau of the Census to be 11.4 percent. Though the birthrate had been dropping (to a low of 14.5 babies per thousand population), the latest figures point upward. In 1980, the rate rose to 16.2 and some experts predict that it will reach 17.1 in 1982. Part of this new population explosion is due to later pregnancies among the baby boom generation, now in their late twenties to mid-thirties. Apparently, as many of these women approach the age at which their reproductive capacity will disappear, they are giving birth to the babies they postponed earlier in favor of careers. We should not, however, expect another boom generation twenty years from now, since experts predict smaller families than in the past (Time Magazine, February 22, 1982:52-58). **Population is one of the more important factors driving outdoor recreation demand.** At a minimum, a 1 percent rise in population will result in a proportionate decrease in per capita supply of outdoor recreation opportunity.

**5. Interest rate (O)**--**Interest rates on long-term and short-term loans seem likely to remain at the high levels they**

**have attained during the last 10 years.** Sharp short-term rises and retreats, in combination with inflation, will affect second home financing, financing of expensive recreational equipment such as boats and motor homes, and may cause shifts in consumer spending. For example, high mortgage rates for housing are deterring purchases which sometimes leave households with discretionary income likely to be used for vacations and other recreation.

**6. Amount of non-work time (↓)**--**Average hours per week spent in the major non-work activities of sleep, family care, personal care, and leisure increased from 1965 to 1975; work time declined from 33 to 32.5 hours per week.** But this trend may not continue in the future. Recent United Auto Workers' contracts with Ford and General Motors seem to point toward the reduction of American workers' vacation time which, in turn, could constrain recreation and leisure pursuits. Foreign industrial productivity threatens American Manufacturers. Thus, concessions by American unions will probably continue beyond the economic recession of the early 1980s. It is reasonable to assume, therefore, that **non-work time will be reduced in the decades to come** (Wall Street Journal, March 23, 1982). Likewise, talk of extending retirement age and reduced or tightened unemployment, disability and retirement income may affect people's choices away from non-work options.

**7. Recreation information and equipment technology (↑)**--**Advances in recreation technology will continue moderately and continue to influence leisure activity.** Major breakthroughs are expected in mass transit, dispersed land and water recreation gear, boating equipment, and clothing. Recent examples of new equipment are light-weight backpacking equipment, hang gliders, more durable white-water craft, hot air balloons, recreationally equipped vans, and more economic 4-wheel drives. Refinement and improvement of specialized recreation equipment will likely put a larger gap between specialized and non-specialized recreationists. The effect may be greater conflict between these groups regarding rights to access.

**8. National defense spending (↑)**--**There will be moderate increases in rates and the overall level of defense spending.** International tensions exemplified by conflicts in the Mideast; between India and Pakistan; Great Britain and Argentina; among

Russia, the United States, and China; and in Indochina; all contribute to a more defense-minded American public that will support increased levels of defense spending. This will reduce fiscal resources for other government services and functions, such as providing outdoor recreation. One result of this trend will be more recreation development opportunity for the private sector reflecting enhanced profit potential.

**9. Population geographic distribution**

**--The fastest growing regions of the country are the South and the West--the Sunbelt.** California, Texas, and Florida each added 2 million residents between 1970 and 1979. The main reason for this population growth is migration. The West still has the highest growth rate, even though it has slowed considerably because of decreased migration to California. Percentage growth has been greatest in Nevada, Arizona, and Wyoming (44, 38, and 35 percent since 1970 respectively). Concerns about energy consumption suggest that industry and population movement to the sunbelt will continue in the future, though counter concerns over the adequacy of water to support larger populations may slow large-scale migration.

**10. Population age (↓)--The American population is aging, but with a new crop of young people under 14 years.** The next two decades will have increased recreation participation by the growing numbers of young and old in the population. The median age of our population is increasing. Although between 1980 and 1990, the proportion of the population under 14 years is expected to increase by 11.4 percent, the population between the ages of 14-17 and 18-25 (those groups dominating the demographic picture during the last twenty years) will decrease by 23.3 and 13.1 percent, respectively. Even more dramatic are changes expected in the upper levels of the age spectrum. Those 45 to 54 will increase by 9.2 percent; those 65 to 74 will increase by 19.2 percent; and those 75 and over by 31.8 percent. The aging American public may actually stimulate some kinds of recreation participation due to better health care, concern for fitness, and greater lifelong commitments to recreation activity.

**11. Personal income (0)--During the last decade, level of real personal incomes has stabilized.** The expansion of personal incomes after World War II has now



Figure 20 - Median income for all families in the United States, 1950-1979 (in constant 1979 dollars).

Table 29.--Gross weekly earnings and 10-year change for two categories of workers in real dollars, 1960-1980

Work Category	Year			Change			
	1960	1970	1980	1960-1970		1970-1980	
				(dollars)	(percent)	(dollars)	(percent)
Private, non-agricultural	\$90.95	\$103.04	\$94.21	+\$12.09	+13.3	-\$8.83	-8.6
Manufacturing	\$101.15	\$114.64	\$114.98	+\$13.49	+13.3	+\$0.34	+0.3

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, Current Labor Statistics: Establishment Data In Monthly Labor Review, vol. 103, no. 7 (Washington, D.C.: Government Printing Office, 1980), p. 86.

slowed or halted completely, primarily due to the effects of inflation and slower growth of labor productivity. Figure 20 shows median family income for 1950 through 1979 and Table 29 shows gross weekly earnings for 1960 through 1980. These data clearly show that real income increased markedly from 1950-1970, but that gains for the average worker since then have been slight to none. As a result, most Americans' standard of living has not improved appreciably in the last ten years. This leads us to believe that **future per capita recreation expenditures in real dollars will remain about the same**--approximately 8 percent.

**12. Income distribution**--When controlled for inflation, the distribution of personal income (for families) has remained relatively stable. As seen in Figure 21, the greatest increases in personal income occurred between 1950 and 1970. Since then, the percentage of American families in the upper income range has remained essentially at 1970 levels. When the percentage change over time is examined for white and non-white families (Figure 21), it is clear that non-whites made greater gains from 1950-1970 than white families. In the last nine years, however, the percentage of non-white families in the upper income levels has not increased at all, while the percentage of white families with incomes over \$10,000 has slightly increased. **Thus, the gap between incomes for whites and non-whites is again widening.**

Since participation in outdoor recreation has largely been by middle-to-upper income whites, the expected income distribution pattern should mean some increase in participation. These increases may offset some of the declines that are predicted to result from general real income level declines.

**13. Unemployment** (↑)--The percentage of the work force that is unemployed has steadily increased since 1969 and is expected to climb slowly between 1980 and 2000. As the work force becomes larger, this will result in larger numbers of unemployed. Unemployment is greatest among minorities, unskilled workers, and youth. Cutbacks in the automobile industry, a record number of bankruptcies (both small businesses and farms), and the layoff of government employees have resulted in record numbers of unemployed. Economic forecasters do not see an immediate end to this situation.

**14. Demand for raw materials** (↑)--The demand for raw materials for manufacturing and development is expected to increase faster than the annual growth rate of population. Recent emphasis by the Administration for oil and mineral exploration on public lands underscores the rise in raw materials demand. Raw materials, including wood, fiber, minerals, water, and undeveloped space come from forest and range lands and compete with recreation.

**15. Political attitudes of the public**—Recent conservative political shifts will probably be reversed moderately in future elections due to developing economic conditions. Less conservative political attitudes will probably make gains in the second half of the 1980s, though the public and Congress will continue to favor reduced taxes, lower federal government spending (including recreation), and greater state and local control. Public sentiment favoring protection of the environment will continue and may grow among all categories of the population, but more immediate concerns for jobs and the economy may blunt the environmental movement.

**16. Levels of nondefense spending** (↓)—There is, and will continue to be, strong sentiment against large deficits in the federal budget. Liberal and conservative economists and politicians agree

that federal and state deficit spending has partly been responsible for high inflation and interest rates. Opposition to deficit spending has prompted 32 states to call for a constitutional convention to pass a "balanced budget" amendment. Such actions are indicative of public discontent with recent levels of government spending. Domestic programs will undoubtedly absorb the major impact of cutbacks for the foreseeable future as deficit spending continues and defense spending increases.

**17. Government funding for recreation** (↓)—Government funds (in real dollars) for federal recreation programs including information, safety, services, and maintenance of sites and facilities will decrease as unemployment, income redistribution, national defense, and energy development assume greater priority. Projected decreases in recreation acquisition and

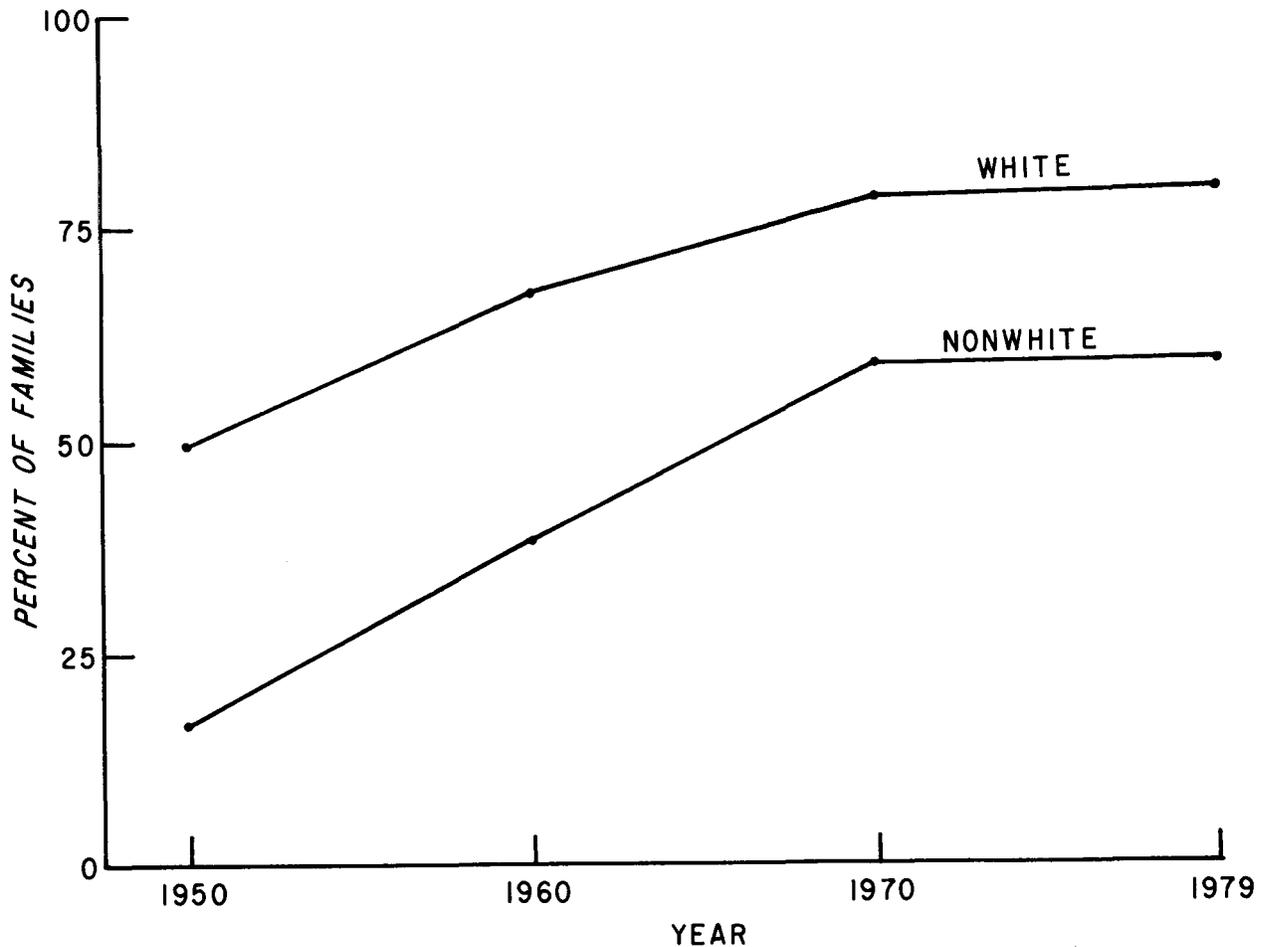


Figure 21 - Percent of white and non-white families with incomes of \$10,000 or more (constant 1978 dollars) in the United States, 1950-1979.

management funding are gradual, but steady. Emphasis will shift from providing capital-intensive developed sites to providing primitive and semi-primitive recreation sites. More emphasis will also be placed on providing information to visitors and on facilitating and coordinating supply activities by state and local governments and the private sector. In real dollars, funding appropriated for federal recreation resources management reached a peak of \$676 million in 1978. Since then, recreation funding has been reduced to its current real dollar level of less than \$400 million.

**18. Population characteristics**--The so-called baby boom generation (born 1946-65) numbers about 80 million and will make up the bulk of recreation consumers in the 1980's and 1990's. The economic outlook for this generation is not as good as for the previous generation. They are an educated group but will be underemployed. The 1980 census statistics indicate that there will probably be economic "boom" classes. The upper end will be

characterized by the two-income family with money to spend on recreation items including extensive travel and expensive vacations. Because both partners work, time will be at a premium. The resulting leisure time squeeze may, therefore, reduce two-income households' participation in outdoor recreation pursuits. Two other demographic factors emerging from the 1980 census are: (1) the shrinking size of American families. Average household size has declined from 3.1 in the 1970s to 2.7 persons today. (2) The number of single-person households has also increased. Both of these factors may result in changes in the kinds of demand for recreation experiences, if not in overall levels of demand.

**19. Urban to rural ratio of population (O)**--Metropolitan areas in the United States are growing (and will continue to grow) in number, population, and land occupied. Figure 22 shows projections by the Council on Environmental Quality (CEQ) of urban regions to the year 2000 when more than 75 percent of the U.S. population is expected

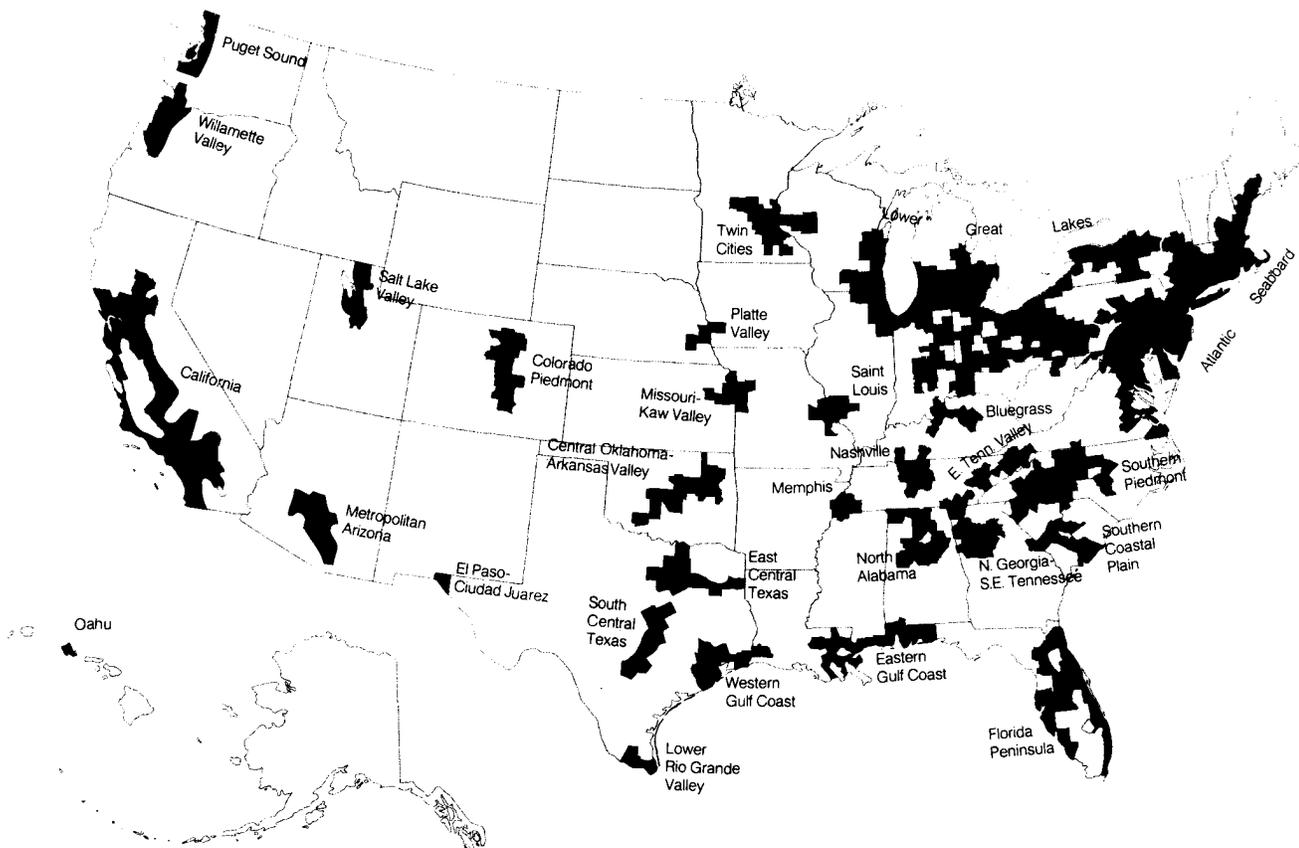


Figure 22 - Projected areas of urban population concentration in the United States, 2000.

to live in 29 distinct urban regions. The distribution of population between urban and rural areas seems likely to remain nearly constant. We are a predominantly urban nation. Though there have been short-term trends to move "back to the country", much of this "country" is the suburban fringe-- which is soon enveloped by expanding development.

**20. Regulation of recreation use and users (↑)--Crowding in public and private developed and dispersed areas, with its impacts on the environment, visitor health, safety, quality, and nature of the outdoor experience will require new restriction and regulation of users.** Private landowners may also more severely restrict public use of their lands unless there are incentives to allow such use. Economic incentives may lead some owners to open their lands, but the necessary scale of operation and desire to make more money suggests that the favored locations may also be crowded and therefore require regimentation and control of users. Tolerance of regulation by an increasingly urban public will, however, grow. Thus, efficiency of providing recreation may increase in terms of serving more people at larger, more densely populated sites with more restrictions and regulations--all conditions essential to privately supplied areas.

### **Predicted Supply Response**

Our subjective predictions of net effects of the above social and economic factors on outdoor recreation supply for the period 1980 to 2000 are shown in Table 30. Symbols to indicate the likely response of recreation supply are: ++ = major positive response, + = moderate positive response, 0 = little or no response, - = moderate negative response (decrease), and -- = major negative response. Supply responses are discussed below for each category of outdoor recreation and wilderness opportunity.

**Wilderness (0)--The National Wilderness Preservation System will grow slowly to about 100 million acres as the current allocation process is completed.** Completion of BLM's roadless area inventory will probably add the most acreage with the Forest Service also adding a few million acres. Few new areas will be identified for study, however, and a moderate decrease in availability of wilderness should result

from population growth in the South and West. It is unlikely that future increases in wilderness classification will significantly affect wilderness recreation use since current figures show that 88 percent of the current use takes place on the original 14.6 million acres classified in 1964 when the Wilderness Act was passed.

Factors working against the rapid growth of the Wilderness System are increased demand for raw materials resulting in rising opportunity costs of wilderness allocations, a more conservative political mood, and rising non-wilderness recreation demands. Increasingly, wilderness allocations will include legislatively mandated compromises for competing recreation and non-recreation uses. The rising value of wilderness as scientific reserves and environmental baselines will, however, create pressures for continued allocation to preserve such values. With most of the allocations to wilderness completed, much of the protection and enhancement of wilderness values will depend on better management-- especially of the 20 percent of the Wilderness System that supports almost 90 percent of the use.

**Public primitive and semiprimitive (-)--A moderate decrease in public sector primitive and semiprimitive recreation opportunities will result from pressures for more intensive land uses and resource utilization.** Increased demand for raw materials will displace some semiprimitive opportunities because they are often not compatible. The decline in real government dollars allocated for recreation management will moderate the decrease in primitive and semiprimitive recreation supply on public lands. The emphasis is shifting from site development and management on public lands to providing more information about and assistance with backcountry opportunities.

**Private primitive and semiprimitive (-)--Pressures for intensified management of private lands are likely to lead to a major decrease in both non-roaded and roaded backcountry recreation opportunity.** Economic factors have an even more dramatic effect on private land management than on public land management. These factors include real and inflationary increases in prices for raw materials and consumer goods and services, increasing costs and scarcity of energy and capital, and competition for

Table 30.--Influences of selected social, economic and political factors (SE) on future trends in demand for and supply of outdoor recreation and wilderness opportunities, 1982-2000

Categories of Outdoor Recreation and Wilderness Opportunity	SOCIAL AND ECONOMIC FACTORS (SE)																					
	Inflation(5)	Energy prices(5)	Energy availability(5)	Population growth(4)	Interest rates(4)	Amount of non-work time(4)	Recreation equip. technology(4)	National defense spending(4)	Personal income(4)	Population distribution(4)	aging(3)	Income distribution(3)	Unemployment(3)	Demand for raw materials(3)	Political attitude of public(3)	Level of gov't spending(3)	Gov't budget for recreation(5)	Other socioeconomic composition of pop(3)	Urban/rural population distribution(3)	Legis. restrict. on use and users(3)	NET EFFECT	
<b>SUPPLY</b>																						
Primitive wilderness <sup>c</sup>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Primitive and semi-primitive (non-motorized and motorized)																						
Public	--	--	--	--	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	--
Private	--	--	--	--	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	--
Roaded Natural and Rural																						
Public	--	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	--
Private	--	--	--	--	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	--
Rural and Urban																						
Public	--	--	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	--
Private	--	--	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	--
<b>DEMAND</b>																						
Primitive wilderness	+	-	-	0	+	+	0	+	++	-	0	0	0	0	0	+	+	+	-	-	+	+
Primitive and semi-primitive																						
Non-motor	0	-	-	0	+	+	0	0	+	-	0	0	0	0	0	+	+	+	-	-	+	+
Motor	-	-	-	0	+	++	0	--	+	-	-	+	0	0	0	+	+	+	0	0	0	0
Roaded natural and rural	--	-	-	0	++	+	0	+	0	++	+	+	0	0	0	-	+	+	0	0	++	++
Rural and urban																						
Importance and expected change in SE factor	C	C	C	C	C	C	I	C	C	I	I	I	C	I	C	I	I	I	C	I	I	I
Importance <sup>d</sup>	R	R	R	R	M	M	R	M	M	M	M	M	L	M	L	M	M	M	M	L	M	M
Expected rate of change to 2000 <sup>e</sup>	R	R	R	R	M	M	R	M	M	M	M	M	L	M	L	M	M	M	L	M	M	M

Table 30. --Continued.

NOTES: Degree of influence of each factor on each element of outdoor recreation demand and supply is represented by a 5-point scale as follows: ++ = major positive influence, + = moderate positive influence, 0 = little or no influence, - = moderately negative influence (decrease), and -- = major negative influence.

<sup>a</sup> Categories of opportunity are adapted from the ROS (Recreation Opportunity Spectrum) System Users Guide, USDA Forest Service, Washington, D.C.

<sup>b</sup> Supply refers to quantity available (e.g., acres, number of sites, number of miles) and does not refer to either social or physical capacity. <sup>c</sup> Wilderness refers to areas established by Congressional mandate plus areas designated for study (Congressionally or Administratively) as candidate wilderness areas.

<sup>d</sup> C = critical, I = important

<sup>e</sup> R = rapid, greater than expected population growth; M = moderate, about the same as expected population growth; L = little, no growth or less than the rate of population growth.

land for urban and agricultural purposes. These economic factors will increase pressures on industrial forest and range land owners to shorten harvesting cycles and to dip into resource reserves. Private non-industrial owners are likely to increase resource harvesting as a means of supplementing personal incomes. All of these trends will tend to depress the supply of private primitive and semiprimitive recreation opportunities. Drastic changes in private acres reported as open to public recreation use are improbable because most industrial landowners want to preserve a good public image. Conditions such as leases, charges, or personal affiliation with owners could limit the public's opportunities and change the quality of the experience as well.

**Public roaded natural and rural (-)**  
Public roaded areas and less intensively developed sites which are heavily dependent on natural settings (campgrounds, picnic areas, and swimming beaches) are expected to decrease moderately in relation to population growth. Inflation, scarce energy, and higher energy costs will make road and trail maintenance, as well as site development, increasingly costly. At the same time, government budgeting for recreation is expected to level off in current dollars and decline in real dollars. Public attitudes favoring government spending for resource utilization rather than recreation will sway decision-makers away from recreation development and maintenance expenditures. Available funds for maintenance of roads, trails, and sites on federal lands will decrease steadily through 2000 with hope that the slack may be partially taken up by volunteer activity. Public campgrounds on state lands may increase slightly through programs designed to attract tourists. Such actions are more feasible for states because they can capture a larger share of operating and maintenance costs through fees than can federal agencies. Economic activity stimulated by recreation development benefits and is often subsidized by states.

**Private roaded natural and rural (-)**  
Overall, a small decrease in supply is projected, relative to population, including less facility development and closure of some existing sites and access roads and trails requiring maintenance. Reduced competition from government-developed sites and increased charges at more of those sites, including increased opportunities for con-

cessionaire operations, will stimulate private development of sites such as campgrounds. Population aging, declining rates of growth in personal income, and decreasing hours per week spent at work will encourage some development by rural landowners seeking supplemental income and constructive use of non-work time. These stimuli, though, will be countered by the strong negative influences of inflation, energy shortages, rising interest rates, and reductions in private landowner assistance.

**Public rural and urban (intensively developed sites) (—)**—Intensively developed public sites, such as ski lifts, resorts, hut systems, and visitor centers also face serious downward pressures from the above-mentioned influences. An increasingly conservative public mood, competing budget priorities, and declining appropriations for recreation will cause additional concerns. Collectively, these factors will depress new development and the needed rehabilitation of some existing intensive-development sites. These influences are already present and will rapidly increase through 2000.

**Private rural and urban (intensively developed sites) (—)**—With some assistance and coordination from government, a relatively stable supply of private, intensively developed sites is expected between 1980 and 2000. Private theme parks, resorts, ski areas, lodges, marinas, and other intensively developed facilities will be subjected to the same inflationary and competitive pressures as public facilities. But these operations have greater potential for financial returns. Modest governmental assistance and coordination could help boost the potential of such sites. This downward trend in number of private campgrounds is likely due to failure of small and inefficient firms expected to succumb anyway because they are marginal operations which cannot withstand the recent economic recession.

#### **Predicted Demand Response**

Estimates of influences on demand for outdoor recreation are indicated below.



*Population growth, an aging population, and a shift toward groups that traditionally demand developed site and road-oriented recreation will result in increased demand for picnicking, camping, beach swimming, and other related activities.  
(U.S. Forest Service photo.)*

**Primitive wilderness (+)**--A moderate increase in demand for wilderness opportunity, at a rate slightly greater than population growth, but less than the rates of the 70s, is predicted between now and 2000. Major influences include population growth and reduced federal recreation budgets. Government agencies will place more emphasis on providing backcountry recreation and wilderness opportunities and environmental education. Inflated prices for goods and services will increase attractiveness of low-cost wilderness recreation which is time intensive rather than equipment intensive. Shifts in population toward the West and classification of some study areas will make wilderness more visible and accessible to people. Increasing scarcity of natural environments and growing public sentiment favoring environmental protection--spurred by rising education levels--will increase demand. Decreasing energy for travel, an aging population, crowding, and increases in non-traditional users of wilderness will exert moderately negative pressures on wilderness demand. The net effect will be a moderate growth of wilderness demand and potential crowding in those wilderness areas closer to population centers.

**Primitive and semiprimitive non-motor (+)**--Demand for other primitive and semiprimitive non-motorized recreation is expected to increase at a moderate rate. Dominant positive influences will include population growth, advances in backcountry recreation equipment, movement of population to the West where more opportunity exists, and greater promotion of non-developed opportunities. Non-wilderness primitive recreation involves more road and trail facilities and is generally less strenuous. This characteristic will attract less avid backcountry users. Negative influences include competing demands for raw materials that will spur greater resource harvesting activity and make some public and private primitive and semiprimitive areas less desirable.

**Primitive and semiprimitive motor (+)**--Demand for primitive and semiprimitive motor recreation will grow at about the same rate or slightly less than population growth. Rapidly increasing energy prices, periodic severe shortages of gasoline, plus increasingly stringent restrictions on motorized vehicles on forest and range lands will depress demand for motorized

recreation. These downward pressures will be moderated by more quiet and fuel-efficient motorized recreation equipment, by population growth, and by the redistribution of population toward the South and West where most opportunities exist. There will also be an increase in population groups who have traditionally made up the major portion of motor-recreation users. These influences will collectively create a growth in demand at about the same rate or less than projected population growth.

**Roaded natural and rural (++)**--Demand for roaded natural and rural recreation is predicted to increase faster than the rate of population growth between 1982 and 2000. Inflation will exert a negative influence on demand for picnicking, camping, beach swimming, and similar activities. Less negative influence will likely be exerted by rising energy prices, decreasing facility development, and more restrictive user regulations. These negative influences, however, will be more than offset by the upward pressures from population growth, an aging population, and a shift toward groups which traditionally demand developed-site and road-oriented recreation. Moderate upward influences will be exerted by advances in recreation equipment technology and redistribution of income toward traditional user groups.

**Rural and urban (intensively developed) sites (+)**--There will be a moderate increase in demand for intensively developed sites between 1982 and 2000 at a rate approaching the projected population growth rate. Inflation, rising energy prices, less non-work time, and decreasing quality of some intensively-developed sites will depress demand. These downward pressures will be offset by population growth, by an aging population desiring less strenuous recreation, and by personal income growth.

**Other demand changes**--Other expected demand changes include:

--a moderate increase in demand for forest, range, and agricultural land opportunities, approximating the rate of growth of population, versus a more rapid rise in demand for urban and indoor recreation,

--a leveling off of recent strong trends toward dependence on natural settings for quality recreational experiences,

Table 31.--Summary of net effects of exogenous social and economic factors on rural outdoor recreation supply and demand

Category of resource opportunity		Supply	Demand
Primitive wilderness		0	+
Other primitive and semi-primitive	(public) (private)	- --	+
Roaded natural and rural	(public) (private)	- -	++
Rural and urban	(public) (private)	-- 0	+

NOTE: Degree of change of each recreation demand and supply is represented by a 5-point scale as follows:

- ++ = major positive influence
- + = moderate positive influence
- 0 = little or no influence
- = moderately negative influence (decrease)
- = major negative influence.

--a slightly-reduced average distance traveled from home for recreation opportunities,

--a dramatic geographic redistribution of demand toward the Southwest and South.

Table 31 summarizes the general implications for recreation supply and demand of the social and economic influence analysis. Major conclusions are that:

1. Without major public policy changes, both public and private recreation supply will decrease.
2. Moderate rises in demand for all acti-

vity categories are expected, leading to a severe supply/demand imbalance due mainly to strong supply decreases.

3. No growth will occur in private non-primitive opportunities and there will be a moderate decrease in private, intensively developed sites. This will all occur in the face of a needed increase in private sector supply of recreation opportunities to offset declining public sector involvement.
4. Major changes are needed in the structure of the recreation delivery system so that supplies can respond to demand when and where it occurs.

## CONCLUSIONS AND RECOMMENDATIONS

Data and analyses presented in this paper suggest that participation rates will continue to rise in response to increased demand, but by how much is not known. Expanding supply to meet increased use is expensive and resources for doing so are increasingly scarce, especially in the public sector. A plethora of social and economic factors influence recreation supply and demand. Combined with questionable use data, the complex effects and interactions of these factors make the needed predictions risky. Generalized projections, however, are not adequate for guiding the heavy public investments in capital facilities and labor that characterize the existing outdoor recreation delivery system.

### Needed--A More Responsive Delivery System

General predictions that outdoor recreation participation will increase are of little use in planning. Plans require specific knowledge of changes in participation and supply by sector, location, and activity. Before making heavy capital investments for opportunities such as developed camping and downhill skiing, we need to be more certain about the future. Our track record for specific predictions is not good. We were unable to predict the emergence of many currently popular activities such as hang-gliding, whitewater boating, and snow skiing. But improving predictions will not solve our problems; nor will it make more fiscal or natural resources available.

Recreation demand is going to increase and, if recent history is any indication, maybe to levels greater than our predictions indicate and in directions we have not yet imagined. Because we do not know specific directions and amounts of demand increases, and because of increasingly scarce resources, the broader and more lasting solution is to rely less on long-range planning and more on a system that is responsive to short-term change. We need a self-adjusting recreation delivery system that will quickly respond to unanticipated demand fluctuations and as well as to long-term changes in recreation demand.

Flexibility is the key to more efficient delivery of outdoor recreation oppor-

tunities. Our existing system is not very responsive, even to known demand changes, because of the cumbersome and time-consuming processes through which resources are allocated. It also is not responsive because of the slow and often inaccurate techniques used to measure and report demand changes.

Improving the responsiveness of the delivery system will require major policy changes, improved research and management technology, and perhaps new legislation. Five major characteristics seem essential to improve the delivery system:

1. It must provide appropriate amounts of outdoor recreation, which Americans appear to need.
2. It must incorporate a much expanded and improved knowledge base.
3. It must accommodate local and regional differences in demand and supply.
4. It must be fiscally solvent and equitable in distribution of financial burden.
5. It must include expanded coordination, cooperation, and partnership among federal, state, local, and private entities.

In the following we discuss these characteristics and recommend directions for action and policy.

**Provide appropriate amounts of outdoor recreation**--Currently, the various levels of government spend about \$5 billion per year to provide outdoor recreation, and the American public spends almost \$250 billion consuming it. At least three-fourths of all Americans over 11 years old participate in some form of outdoor activity. The best available projections to the years 2000 and 2030 predict that participation in these traditional activities will continue to grow at rates greater than projected population growth.

Though some projections may be based on statistically weak models, even slow-growth assumptions indicate participation increases by 2030 of 50 percent or more. A mid-level projection for National Forest System recreation participation, for example, is for growth from 219 million visitor-days in 1978 to 376 million in 2030. Almost 70 per-



*Outdoor recreation is an important part of the American way of life. At least three-fourths of all Americans over 11 years old participate in some form of outdoor activity. Currently, the various levels of government spend about \$5 billion per year to provide outdoor recreation, and the American public spends almost \$250 billion consuming it.*

cent of this growth will likely be in the more traditional land-based activities. But the National Forest land base is unlikely grow beyond its current 187 million acres, and increasing pressures for minerals, timber and water from these lands signal an intensifying dilemma.

Even greater percentage increases in participation are expected in adventure or high-risk activities such as hang-gliding, sky diving, sailing, downhill skiing, cross-country skiing and white-water boating. Though the rapid rise in these activities has been recent, it has been strong enough to warrant substantial response from the recreation delivery system. But the system has been slow and awkward in responding.

An efficient recreation delivery system must respond with appropriate balance to dramatic shifts in participation. Numbers of participants in new activities are usually small, and the projected increases in numbers of participants are also relatively small. We must guard against a bias toward activities with the most dramatic

percentage growth at the expense of much larger numerical increases in traditional activities such as camping and hiking.

Especially for participants in adventure and skill activities, outdoor recreation often has very high psychic personal value. Recreational use of time has become a significant life goal.

**Incorporate expanded knowledge base--**

Sound technical knowledge is required to determine timing, location, and scale of recreation programs; to coordinate among suppliers; to manage recreation activities, facilities and programs; to protect recreation-related environments; to achieve equity in distribution of opportunities and financial burden; and to allocate resources efficiently among competing uses. Inadequacies in the current knowledge base are widely acknowledged and are a major concern in the nation's outdoor recreation delivery system.

Weaknesses in the projections of outdoor recreation activities are largely

attributable to a poor knowledge base. The best available data are often of questionable accuracy and prediction models rely upon uncertain and inconsistently measured relationships. They usually show upward sloping projections paralleling population growth. Since these projections represent the state-of-the-art, they dramatically indicate a need to improve the art. The vision of the future they give for outdoor recreation is vague and possibly misleading when focused to any detail. In addition, since data were collected by different methods at different times, expensive participation surveys usually fail to provide precise measures of change, and are mainly documentations of conditions 2 or more years ago. Thus, participation projections provide a questionable basis for guiding annual public expenditures of over \$5 billion and private expenditures of over \$244 billion.

A major research and development effort is needed to: (1) develop the basic knowledge, methods, and techniques for measuring recreation participation; (2) establish systems for using these data; and (3) improve models and other methods for predicting future recreation trends. The effort should lead to a national recreation indicator system to supplement market signals and to continuously inform the leisure industry and all levels of government about demand trends.

Improving our ability to measure and predict use is important, but only a small part of the needed knowledge. We also need basic information about who participates and why. We must be able to determine costs and benefits and their distribution among various populations and enterprises. With such information, recreation can be provided in a more equitable manner.

#### Decentralize the delivery system--

There are some major imbalances in distribution of outdoor recreation supply and demand. Among regions, for example, there are relatively smaller supplies of wilderness, trails, campgrounds, and public lands in the South and East. There are fewer water resources in the West, a much larger amount of forest land in the East (85 percent privately owned), and more rangeland in the West. In contrast, there are more people in the South and East--175 million persons east of the 100th Meridian--and population growth is greatest in the South and Southwest. Per capita participation

rates and total demand also vary between regions because of subcultural differences and the tendency for people to take advantage of opportunities available in their region.

Imbalances in recreation opportunities also occur among social groups. Outdoor recreation in natural settings traditionally has been a white, middle class phenomenon. But increasing awareness of outdoor settings and opportunities created by better education and other media (e.g., television) is leading to increased demand among other social groups. Decentralization should include an appropriate balance among levels of government, such that all outdoor recreation demands are recognized and responded to in some form. The Federal delivery system has not and often cannot be responsive to local and specialized needs.

Different patterns of opportunity and participation among regions and social groups make it obvious that one national outdoor recreation plan or program cannot apply everywhere. Outdoor recreation plans and programs must be decentralized and dynamic. They must also improve cooperation among regional, state, county, and local entities. Much of the data and most of the program alternatives in the various national plans developed over the past 15 years have inadequately addressed social group and regional differences. Often regional, and sometimes even state plans, are developed from national data and trends, even though these trends may not describe local conditions and needs.

Achieve fiscal solvency and equity--Most federal and many state agencies do not now receive adequate funding to operate their recreation programs. They have been relying heavily (up to 25 and 30 percent or more) upon human resource programs such as the Young Adult Conservation Corps for operation and maintenance support. Within federal fiscal year 1982, however, most of these programs will be abolished. Examination of participation projections and the escalating costs of management dispels the notion of ever again having full funding of traditional programs. The roles of government and the private sector in managing and financing recreation opportunities must be evaluated. Government must closely examine strategies to cover operation and maintenance costs with user fees and consider limiting its role to pro-

viding access to natural lands and waters, providing information about opportunities and safety for visitors, and protecting environmental values of recreation sites. Capital intensive operations will have to be vested in the private sector, and government should examine opportunities to enhance returns to private sector investments.

Few would argue that the current recreation delivery system is solvent. It is heavily dependent on human resource programs and volunteers. In 1978, the budget for recreation management and development on National Forests was \$128 million. The RPA Program recommended that this will grow to between \$231.6 and \$338.4 million (1978 dollars) by the year 2000 to accommodate the projected 40 to 160 percent increase in visitation. Stronger justifications than those presented, including dollar valuations of recreation benefits, are going to be needed to sustain recreation management budgets adequate for even the limited goals proposed.

Expanding the scope and level of user fees to at least cover operation and maintenance costs may be the key to flexibility in the recreation delivery system. Higher fees can provide desperately needed revenues; provide market value data for recreation valuation so it can be more fairly compared with other resource uses; provide clearer signals about needs for supplies; and increase opportunities for the private sector. Fees are now charged at only a small percentage of developed sites on federal land. As a result, revenues in 1981 from user, special permit, and entrance fees were only \$32 million for all Federal agencies. A study by the Forest Service Policy Analysis Division estimated that expanding NFS fees to include both dispersed and developed recreation would cost an additional \$5 to \$10 million. But revenues could be increased by up to an estimated \$250 million. If these fees exclude hunting and fishing, additional administrative costs could be reduced to between \$5 and \$8 million annually, and yield additional revenues of about \$200 million.

Visitors are accustomed to paying small fees for use of developed sites. There is a need, however, to include fees for opportunities like wilderness, backcountry, river use and back-road vehicle camping. A fee system for hunting and fishing licenses has been in effect for decades. The public now accepts this system without question.

Over two-thirds of the recreational use of National Forests in 1981--about 165 million visitor-days--was in wilderness and other primitive or semiprimitive backcountry areas. A charge of only \$.50 per visitor-day would have produced about \$82.5 million of revenue (assuming this nominal user fee would not have reduced use). Among all federal agencies in 1981, fees were charged for only 22 percent of all visitor-days of use. Nearly 436 million visitor-days of use were without charge. Again, at a mere \$.50 per day of use, \$218 million in additional revenues could have been generated.

Currently, there is marked variability in the net income derived from fee-based recreation facilities among different agencies. The cost of direct and indirect fee collection is 35 percent of the level of fee revenues. Though not an unreasonable proportion, this figure masks problems for particular agencies. Three of the seven federal land management agencies actually spend more in collection costs than they derive in fee revenues. Collection costs as a percentage of fee revenues exceeded 100 percent for the Bureau of Land Management (111 percent), Bureau of Reclamation (105 percent), and the Fish and Wildlife Service (163 percent).

Another possible source of operational revenues is a surcharge (tax) on recreational equipment. Revenues from such a tax would be substantial, and they could be directed to obviously related activities. For example, revenues from camping equipment could be spent on development and management of campsites; those from backpacking equipment on trail development and maintenance; and those from canoe and kayak sales on river maintenance and protection. This source of revenue should be seriously considered.

Expanded fee and tax policies will encounter resistance. Two decades ago the introduction of user fees at federal recreation sites was greeted with reluctance by managers and users alike. But the positive benefits of such a policy have become apparent--the receipts, though meager, attached a tangible value to recreation, campers' behavior improved because they had a financial stake in the facilities and services, and the private sector and state and local governments responded when they saw an opportunity to at least recover a share of their operating and maintenance costs.



*The future will depend on an effective partnership between the public and private sectors. Private landowners and public land managers must share in decisions affecting outdoor recreation supply. With government assistance, the private sector must respond to rising demand that equals or exceeds anything experienced in the past.*

Opponents of user fees cite the legacy of free recreation on public land and the need to make it available to the poor who may need it most and can afford it least. But outdoor recreation has always attracted mostly people in middle and upper income brackets and below-cost provision of public recreation is a subsidy to these people, not to the poor. Reasonable fees for the use of recreation sites and services are but a fraction of the overall cost of participating, and the typical participant can afford them.

Expanding user fees and appropriate redirection of federal policy will require forward-looking legislation. Many questions remain to be answered. Widespread education of users, policymakers, and legislators is

needed and the thinking and philosophy of some practitioners may need to be redirected. Nothing may be so crucial to the future of outdoor recreation as the user fee issue.

**Expand coordination, cooperation, and partnership**--For most of the history of outdoor recreation in the United States, there has been a belief that public lands and agencies can and should meet most public demands for sites, facilities, and opportunities for outdoor recreation. Intrinsic in this belief was that federal appropriations for acquisition, development, and management of the recreational resources would grow indefinitely. Recently there has been a sobering realization of the shift toward more conservative fiscal policies and shrinking or no-growth budgets.

Rather than broadly assuming that government can or should take the lead in outdoor recreation supply, we should identify areas where private leadership can occur with public agencies providing a supplementary and supportive role. There is a critical need to better define, implement, and coordinate desirable roles by the private sector and by local, state, and federal governments.

The private sector already plays a large and vital role in outdoor recreation supply. Approximately 40 percent of the trail mileage and 45 percent of the campgrounds in the United States are privately owned and operated. In 1978, 58 percent of the industrial and 31 percent of the nonindustrial private lands (a total of 248 million acres) were available and open to some degree for recreational use (Cordell, et al. 1980).

Increasingly, federal, state, and local governments have the opportunity to facilitate private supply of facilities and services. Exercising this opportunity is critical to development of a more responsive recreation delivery system, since the private sector is more responsive to market signals. Public programs to encourage private investment could include expanded

financial and consultation assistance, providing information on private as well as public recreation opportunities, reduced liability and visitor impact costs, and providing enterprise feasibility information. Development of these kinds of programs is a desirable option during this transition period where extensive changes in the government delivery system may cause traumatic short run demand and supply imbalances. **In the long run, much less government assistance should be needed.**

Greater private sector involvement should also include private management of some sites and facilities that currently are under public management. Because many of these public services and facilities are provided either free or at below-cost levels, a larger quantity is often demanded than is economically efficient. Private operation of public areas in a competitive market would provide an on-going test of operation feasibility. For example, campgrounds, marina facilities, and controlled-access parks could be provided at cost or market-level prices. Level of revenues relative to costs would indicate whether the services or facilities were in sufficient demand. If not, continued operation would then be questioned.

## LITERATURE CITED

- A.C. Nielsen Company. 1978. Sports participation 1978, a study of sports participation and equipment purchases by the American household. Northbrook, Ill.: Marketing Research Group USA, A.C. Nielsen Company.
- American Forestry Association. 1980. Renewable natural resources. Rep. on the Nat. Conf. on Renew. Nat. Resour., Nov. 30-Dec. 3, 1980. Washington, D.C. Washington, D.C.: Am. For. Assn.
- Bevers, Thomas D. 1979. Importance of recreation to the economy. Pp. 256-336. In the Third Nationwide Outdoor Recreation Plan, Appendix IV: Private Sector Outdoor Recreation. Washington, D.C.: Govt. Print. Off.
- Brown, P.J., Driver, B.L., and McConnell, C. 1978. The opportunity spectrum concept and behavioral information in outdoor recreation resource supply inventories: background and applications. In Proceedings of Integrated Inventories of Renewable Natural Resources Workshop, Fort Collins, Colo. USDA For. Serv. Rocky Mtn. For. and Range Exp. Stn., USDA For. Serv. Gen. Tech. Rep. RM-55.
- Brown, Tommy L., and Hustin, K.L. 1980. Evaluation of the 1976 ORRRC projections. Unpub. rep. Ithaca, N.Y.: Cornell Univ. Dept. Nat. Resour.
- Buist, Leon, and Hoots, Thomas A. 1982. Recreational opportunities spectrum and approach to resource planning. J. For. 80(2):84-86.
- Clark, Roger N., and Stankey, George H. 1979. The recreation opportunity spectrum: a framework for planning, management and research. Portland, Ore. USDA For. Serv. Pac. Northwest For. and Range Exp. Stn., USDA For. Serv. Gen. Tech. Rep. PNW-98.
- Cordell, H. Ken, McLellan, Robert W., Stevens, Herbert, Tyre, Gary, and Legg, Michael. 1978. Existing and potential recreation role of privately owned forest and range lands in the United States: an assessment. Rep. submitted to Resour. Prog. and Assess. Staff, Div. of Prog. and Legis. Asheville, N.C. USDA For. Serv. Southeast For. Exp. Stn.
- Cordell, H. Ken, Legg, Michael H., and McLellan, Robert W. 1980. The private outdoor recreation estate. Pp. 14-83. In The Third Nationwide Outdoor Recreation Plan, Appendix IV: Private Sector Outdoor Recreation. Washington, D.C.: Govt. Print. Off.
- Cordell, H. Ken. 1981. Pricing for allocating low-density recreational use between private and commercial users of natural areas. Pp. 77-103. In Proceedings of the National Conference on Recreation Use Allocation. Reno, Nev.
- Council on Environment Quality (CEQ). 1980. Environmental quality: the eleventh annual report. Washington, D.C.: Govt. Print. Off.
- England, J. Lynn. 1981. Rural community benefits of outdoor recreation. Pp. 54-58 in John R. Kelley (ed.) Social Benefits of Outdoor Recreation. Urbana, Ill.: Univ. Ill. at Urbana-Champaign.
- Gale, Richard P. 1981. Environmental benefits of outdoor recreation. Pp. 59-64 in John R. Kelley (ed.) Social Benefits of Outdoor Recreation. Urbana, Ill.: Univ. Ill. at Urbana-Champaign.

- Goeldner, Charles R. and Dicke, Karen P. 1981. Travel Trends in the United States and Canada. Bus. Res. Div., Grad. Sch. of Bus. Adm., Univ. of Colo., Boulder in cooperation with the Trav. and Tourism Research Assoc.
- Goeldner, Charles R., and Standley, Stacy. 1980. Skiing trends. Vol. 1. Pp. 105-120. In Proceedings of the 1980 National Outdoor Recreation Trends Symposium, Broomall, Pa. USDA For. Serv. Northeast For. Exp. Stn., USDA For. Serv. Gen. Tech. Rep. NE-57.
- Hendee, John C., Catton, W.R., Marlow, L.D., and Brockman, C.F. 1968. Wilderness users in the Pacific Northwest: their characteristics, values and management preferences. Portland Ore. USDA For. Serv. Pac. Northwest For. and Range Exp. Stn., USDA For. Serv. Res. Pap. PNW-61.
- Hendee, John C., Stankey, George H. and Lucas, Robert C. 1978. Wilderness management. Washington, D.C.: USDA For. Serv. Misc. Publ. 1365. 381 p.
- Hendee, John C. and Bryan, H. 1978. Social benefits of fish and wildlife conservation. Pap. pres. to West. Assoc. Fish and Wildl. Comm. Annu. Meet. July, 1978, San Diego, Calif.
- Hendee, John C. 1981. Principles of wilderness management: applications for the East. Pap. pres. to Wilder. Mgmt. in the East Symp., Nov. 1980, Univ. of Tenn., Knoxville.
- Hof, John G. 1979. Design improvements in the recreation supply and demand analyses for the 1990 RPA Assessment (mimeogr.) Rep. submitted to RPA staff. USDA For. Serv., Washington, D.C.
- Hogans, Mack L. 1979. A nationwide assessment of dispersed motorized recreation opportunities and participation: a resources planning act (RPA) report. Portland, Ore. USDA For. Serv. Pac. Northwest For. and Range Exp. Stn.
- International Snowmobile Association. 1982. Personal communication with Catherine A. Ahern, Director of Information Services concerning snowmobile retail sales from 1971-1981.
- Lewis, James A. 1980. Landownership in the United States, 1978. USDA Info. Bull. No. 435. Washington, D.C.: Economics, Statistics, and Cooperative Services.
- Lucas, Robert C. 1982. Recreation regulations--when are they needed? J. For. 84(3):148-151.
- Motorcycle Industry Council, Inc. (MIC). 1981. 1981 Motorcycle Statistical Annual. Irvine, Calif.: Motorcycle Industry Council, Inc.
- Murray, Judith B. 1974. Appalachian trail users in the southern National Forests: their characteristics, attitudes, and management preferences. Asheville, N.C. USDA For. Serv. Southeast. For. Exp. Stn., USDA For. Serv. Res. Pap. SE-116.
- National Wildlife Federation. 1982. Conservation directory 1982. 27th Ed. Jeannette Bryant, Ed. Washington, D.C.: Nat. Wildl. Fed.
- Opinion Research Corporation. 1977. The public's participation in outdoor activities and attitudes toward National Wilderness Areas. Princeton, N.J.: Opinion Research Corporation Caravan Surveys.

- Peterson, Margaret. 1981. Trends in recreational use of National Forest Wilderness. Missoula, Montana. USDA For. Serv. Intern. For. and Range Exp. Stn., USDA For. Serv. Res. Note INT-319.
- Ragatz, Richard L., Associates, Inc. 1978. Private seasonal-recreational property development and its relationship to forest management and public use of forest lands. Eugene, Ore.: Richard L. Ragatz Assoc., Inc.
- Rand McNally and Company. 1982. Campground and Trailer Park Guide. Skokie, Ill.: Rand McNally and Co.
- Roggenbuck, J.W., and Dawson, M.S. 1979. Recreation experience preferences of wilderness and backcountry hikers. Unpub. rep. to USDA For. Serv.
- Roggenbuck, J.W. 1980. Wilderness user preferences--eastern and western areas. Pp. 103-146. In Proceedings of Wilderness Management Symposium, Nov. 13-15. USDA For. Serv. and Univ. of Tenn., Knoxville, Tenn.
- Roggenbuck, J.W., Watson, A.E., and Stankey, G.H. 1982. Wilderness management in the southern Appalachians. South. J. Appl. For. (in press).
- Roggenbuck, J.W. and Watson, A.E. 1982. Wilderness management in the East and implications for technology transfer. Wilder. Psych. Gp. Conf. (in press).
- Siehl, George H. 1979. Outdoor recreation considerations in river basin planning and management with possible applications to the Potomac. Congr. Res. Serv. Rep. No. 79-243 ENR. Washington, D.C.: Congr. Res. Serv. Libr. Congr.
- Stankey, G.H. 1973. Visitor perception of wilderness recreation carrying capacity. Fort Collins, Colo. USDA For. Serv. Rocky Mtn. For. and Range Exp. Stn., USDA For. Serv. Res. Pap. INT-142.
- Time Magazine. 1982. The new baby bloom. (February 22):52-58.
- U.S. Congress, Senate, Committee on Interior and Insular Affairs, Henry M. Jackson, Chairman. 1974. The recreation imperative: A draft of the nationwide outdoor recreation plan. Washington, D.C.: Govt. Print. Off.
- U.S. Department of Agriculture, Forest Service. 1979. User payment for recreational opportunities. (Mimeogr.) Washington, D.C.: USDA For. Serv.
- Annual National Forest Visitation Reports for 1979, 1980, and 1981 (Unpublished).  
1980. An assessment of the forest and range land situation in the United States. U.S. Dept. Agric. FS-345. Washington, D.C.: U.S. Dept. Agric.
- U.S. Department of Agriculture, Forest Service. 1982. Wilderness fact sheet (unpublished), 2 p.
- \_\_\_\_\_. 1982. Revised RPA regional recreation participation projections. (Unpublished).
- U.S. Department of Agriculture, Soil Conservation Service, 1980. Review drafts of: summary of appraisal, parts I and II, and program report; appraisal, part I; appraisal, part II; and program report and environmental impact statement. Washington, D.C.: Govt. Print. Off.

- U.S. Department of Commerce, Bureau of the Census. 1977. Social indicators 1976--selected data on social conditions and trends in the United States. Washington, D.C.: Govt. Print. Office.
- U.S. Department of the Interior, Bureau of Outdoor Recreation. 1966. The 1965 survey of outdoor recreation activities. Washington, D.C.: Govt. Print. Off.
- U.S. Department of the Interior, Bureau of Land Management. 1978. Public land statistics: 1977. Washington, D.C.: Govt. Print. Off.
- U.S. Department of the Interior, Heritage Conservation and Recreation Service. 1975. Federal recreation fees 1975. Washington, D.C.: Herit. Conserv. and Rec. Serv.
- \_\_\_\_\_. 1977. Federal recreation fee program 1977. Washington, D.C.: Herit. Conserv. and Rec. Serv.
- \_\_\_\_\_. 1979. Federal recreation fee report 1979. Washington, D.C.: Herit. Conserv. and Rec. Serv.
- \_\_\_\_\_. 1981. Federal recreation fee report. (Draft), p. 20, table 17.
- \_\_\_\_\_. 1979. The third nationwide outdoor recreation plan: the executive report, the assessment and the appendices. Washington, D.C.: Govt. Print. Off.
- U.S. Department of the Interior, U.S. Fish and Wildlife Service, Initial Findings Report on the 1980 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation, 1982. (Unpublished.)
- U.S. Department of the Interior, National Park Service. 1982. Unpublished annual report on National Trail System.
- U.S. News and World Report. 1981A. The quest for fun on a shoestring. (August 10):60-61.
- U.S. News and World Report. 1981B. Recreation: a \$244 billion market. (August 10):61-63.
- U.S. Travel Data Center. 1976. 1975 National travel expenditures--summary report. Washington, D.C.: U.S. Travel Data Cent.
- Van Doren, C.S., and Hodges, L. 1975. America's park and recreation heritage--a chronology. Washington, D.C.: Govt. Print. Off.
- Van Doren, C.S. 1982. Statistics on outdoor recreation. Unpubl. Stat. rep. College Station, Tex.: Texas A&M Univ.
- Vaske, Jerry J., Graefe, Alan R. and Dempster, Andrew. 1982. Social and environmental influences on perceived crowding. Forthcoming in Proceedings of the Annual Meeting of the Wilderness Psychology Group, July 8-9, West Virginia Univ. and Society of American Foresters, Morgantown, West Va.
- Wall Street Journal. 1982. Labor letter: a special news report on people and their jobs in offices, fields, and factories. (March 23):1.