28 Sustaining Outdoor Recreation and Forests in the United States

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Abstract: The key words in forest management for the 21st century are "sustainable management". In this paper we present an overview of the nature of outdoor recreation demand growth in the United States and its significance in light of the need to sustain the nation's forests. We show that outdoor recreation demand is growing faster now than at any time in the last five decades. Accelerated management of forest settings to meet the rising demand for recreation will provide substantial benefits for American society. At the same time, unprecedented levels of demand may challenge our abilities as a nation to sustain forest health and productivity into the future, as we have not been challenged before. We identify hot spots in the United States where recreation demands are greatest, and hot spots where future recreation pressures are likely to intensify. These hot spots are the places where serious and prompt attention to planning the future of our forest resources is needed if we are to be successful in sustaining them. Demand growth in other countries raises similar concerns about sustaining forests.

Key words: Outdoor recreation; demand trends; forest recreation; public lands; sustainable management; United States.

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28.1 Introduction

In the mid 1980s, the U.S. President's Commission on Americans Outdoors, followed by the Reagan Administration's Task Force on Outdoor Recreation (Cordell et al. 1990), found outdoor recreation demand growing rapidly, continuing a trend that had been developing for several decades. By the 1980s, the styles of outdoor recreation had diversified well beyond the driving for pleasure, picnicking, walking and camping that were highly popular in the 1950s and 1960s. The first few sections of this paper examine these and more recent outdoor recreation trends, as well as the importance of outdoor recreation as a use of forests in contemporary United States.[1]

[1] Most of the trends reported in this paper are from two recent sources. The first is the 1995 National Survey on Recreation and the Environment, NSRE 1995, a national household survey that was led by H.K. Cordell (Cordell 1999). The NSRE is the latest of the United States' continuing series of National Recreation Surveys (Cordell et al. 1996).

Table 1: Indexed growth since 1960 in millions of U.S. persons 12 years or older participating in outdoor recreation by activity relative to population growth since 1960 (1960 index = 1.00)

Activity	Growth index year			Millions of persons in 1995 (12 or older)
	1965	1983	1995	
Snow skiing	2.19	6.50	10.08	26.2
Canoeing/kayaking	1.65	5.77	6.73	17.5
Bicycling	1.98	4.63	4.87	63.3
Camping	1.44	2.99	4.50	58.5
Sailing	1.46	2.90	2.72	10.6
Swimming	1.17	1.63	1.92	118.0
POPULATION GROWTH	1.10	1.44	1.65	216.0
Fishing	1.13	1.48	1.47	63.3
Horseback riding	1.47	1.44	1.38	16.2
Hunting	1.10	1.08	0.99	20.6

(1960, 1965, 1983, and 1995 National Recreation Surveys [Cordell et al. 1996])

Forests play a highly significant role in the make-up of the natural lands of the United States. The total area of forest cover in the country is about 302 mill. ha. This is almost one third of the total land area of the country. The area in forest cover has been increasing slightly over the past two decades for a number of reasons, one being the reduction in some categories of agricultural land, which has allowed regeneration of forest cover. The majority of the forests in the eastern half of the country are privately owned with scattered public forests, mostly in the highlands. In contrast, most of the forests in the western half are publicly owned, with scattered private holdings. In both the East and in the West, and on both public and private forests, recreational uses have been assuming much greater prominence.

In response, federal land management policies have been shifting over the last few decades, amid rising recreation demands and growing and public concerns for the natural environment and ecosystem health. Ironically, these simultaneous shifts have created a new controversy to challenge sustainable management. The controversy? How can the rapidly growing demand for recreational access to forests be accommodated without compromising our ability to sustain the health and overall productivity of forest ecosystems? We will follow our examination of recreation trends in the United States with a spatial overview of hot spots of recreation demand pressures on forests likely by the year 2020.

28.2 Outdoor Recreation Participation Trends

Long-Term Participation Trends

The most recent Forest Service national assessment (called for by the 1974 Renewable Resources Planning Act) examined long-term trends up to 1995 using on-going National Recreation Surveys dating back to 1960 (Cordell 1999). In Table 1, indexed growth of numbers of people participating in the nine outdoor activities tracked consistently since 1960 is presented and compared with overall population growth.

Numbers of people participating in six of the nine activities shown in Table 1 grew faster than the population in the 35 years represented. Fastest growth was in snow skiing (which in 1995 added snowboarding), canoeing/kayaking (mostly whitewater), bicycling (including mountain biking), and camping. Almost all activities grew faster than the population during the 1960s and 1970s. Generally, what stands out is the fast-paced, long-term growth

Design of the activity participation questions in the 1995 NSRE was kept consistent with previous National Recreation Surveys to enable description of trends in participation across a variety of outdoor recreation activities. The second source of participation trends is the just completed decennial federal assessment of outdoor recreation and wilderness, done every 10 years by the Forest Service, as required by the 1974 Renewable Resources Planning Act, usually referred to as the RPA Assessment (Cordell 1999). Other sources are included as appropriate and needed. In the final sections, we identify regions of this country where growing recreation demand and forests intersect.

Table 2: Millions and percentage change of persons 16 years or older participating at least once in 12 months in land, water and snow/ice activities in the United States, 1982–83, 1994–95, and 1999–2000

Resource base and activity	Number in millions			Percent change	Percent change
	1982–83	1994–95	1999–2000	1983–95	1983–2000
Land-resource-based activities					
Bird watching	21.2	54.1	38.2	+155.2	+80.2
Hiking	24.7	47.8	69.8	+93.5	+182.6
Backpacking	8.8	15.2	27.9	+72.7	+217.1
Primitive area camping	17.7	28.0	25.8	+58.2	+45.8
Off-road driving	19.4	27.9	35.0	+43.8	+80.4
Walking	93.6	133.7	172.3	+42.8	+84.1
Sightseeing	81.3	113.4	108.6	+39.5	+33.6
Developed area camping	30.0	41.5	41.3	+38.3	+37.7
Picnicking	84.8	98.3	118.3	+15.9	+39.5
Bicycling	56.5	57.4	86.2	+1.6	+52.6
Horseback riding	15.9	14.3	23.1	−10.1	+45.3
Hunting	21.2	18.6	20.9	−12.3	−1.4
Water-resource-based activities					
Motor boating	33.6	47.0	48.2	+39.9	+43.5
Swimming/river, lake, or ocean	56.5	78.1	94.8	+38.2	+67.8
Water-skiing	15.9	17.9	15.7	+12.6	−1.3
Fishing	60.1	57.8	67.9	−3.8	+12.9
Sailing	10.6	9.6	10.9	−9.4	+2.8
Snow & ice-resource-based activities					
Downhill skiing	10.6	16.8	19.3	+58.5	+82.1
Snow-mobiling	5.3	7.1	10.7	+34.0	+101.8
Cross-country skiing	5.3	6.5	8.8	+22.6	+66.0

(1983 National Recreation Survey [Cordell et al. 1996], 1995 National Survey on Recreation and the Environment [Cordell et al. 1996], and 1999–2000 National Survey on Recreation and the Environment [Cordell forthcoming])

in technology-driven, adventure activities; moderate growth in the more traditional, family-oriented activities; and slowing growth to decline in consumptive activities (mainly fishing and hunting). During the period from 1960 to 1995, the population of persons aged 12 or older grew 65%, reaching a total of 216 million.

More Recent Participation Trends

Our 1995 study showed that 94.5% of Americans 16 years old or older participated in some form of outdoor recreation during the 1994–95 survey period. The preliminary results of the current 2000 survey period show that this percentage has risen to 97%.[2] Among the activities in all three national recreation surveys (1982–83, 1994–95 and 2000), walking for pleasure, picnicking, sightseeing, swimming in natural waters, hiking, bicycling and fishing have retained their position as being among the most popular (Table 2). All of these activities are among those traditionally referred to as "forest recreation" in that they are pursued largely in forest settings. More than 25% of the current population participate in these seven activities. In 16 of the 20 activities listed in Table 2, the percentage growth of participants exceeded the percentage growth of the population (which was nearly 15%). The fastest growing activities since 1995 are backpacking, horseback riding, snow-mobiling, bicycling, hiking, cross-country skiing, walking, and off-road driving, in that order.

[2] NSRE 2000 is currently underway and the selected results provided in this section represent the first 10 000 respondents of a planned 50 000 by the close of the calendar year (USDA Forest Service 2000).

The most popular activities through the years have usually been those, which can be enjoyed close to home without large outlays of time or money, as well as those that do not require high levels of specialized skills. Only hunting and water-skiing have tended recently to decrease in popularity. Hunting declines seem to reflect both shrinking interest and increasing difficulties in finding suitable places to hunt. Water-skiing declines reflect substitution of personal watercraft for in-tow skis.

A number of new forms of outdoor participation have been added to the menu of Americans' outdoor recreation activities. Not all of these are listed in Table 2. Many of these popular new forms include activities resulting from technology advances in outdoor equipment and transportation. Others include activities driven by potential risk and the sense of adventure. There is continued growth of interest in viewing and learning activities, trails, winter sports, motorized participation, and various forms of camping. All these are commonly pursued in forest settings. Among the four regions of the United States, growth in participation has recently been highest in the South, next highest in the Northeast, and slowest in the North Central.

While demand has been growing, the demographic makeup of outdoor recreation participants has been shifting. In part these shifts reflect changes in the makeup of the population. However, some of the changes represent shifts in preferences. There have been disproportionately *smaller* increases in college-educated and black participants relative to their growth as proportions of the overall population. In contrast, there has been disproportionately *higher* growth in proportions of participants earning over USD 50 000 per year, participants from one or two-person households, and retired participants relative to increases in their numbers as a proportion of the population.

In pursuing their outdoor recreation, people in the United States have increased the number of trips they take away from home over the amount of recreational travel they did in past decades. Across a variety of activities, the percentage of participants who took trips away from home increased from 20% to almost 40% between the early 1980s and mid-1990s. The number of trips taken per person has also risen dramatically, while the average travel time from home has decreased. Generally, participation in chosen activities is occurring at places further from roads than was the case in the early 1980s, and more participation is taking place in forest settings.

A Time of Change

The decades of the 1980s and 1990s, and certainly the first years of the 21st century have seen and will continue to see persistent strong growth in Americans' pursuit of outdoor recreation. In fact, there is no reason to believe this growth will not continue throughout the 21st century. The Bureau of Census predicts that the United States population will double by 2100 to over 570 million people. Economic forecasts also indicate continued prosperity and strong employment. Will this mean double the number of people on our national forests, in our national parks, and along our scenic highways? We think the answer to this question is probably, "yes".

In addition to population growth, there are other factors driving demand growth. For one, despite popular beliefs and perceptions that Americans have less and less leisure, what we actually see are gains (Robinson and Godbey 1996). As people perceive they are losing some of their leisure and as they perceive a more stressful work place, the value they attach to leisure seems to rise. Some seem to react to their perceived loss of leisure by trying to pack more activities into their daily lives, including outdoor recreation. More outdoor recreation is among the things Americans say they would add if they had more leisure.

Long-term, on-going national surveys of recreation participation often do not pick up just-emerging shifts to new outdoor activities. Examples include sky diving, rock climbing, cave scuba diving, bungee jumping, base jumping, off-road in-line skating, paraskiing, whitewater canoeing or kayaking, whitewater body surfing, rock or ice climbing, and orienteering (Heath 1997). Interest and participation in new and risky recreational activities is growing steadily. According to Heath, growing interest in risk recreation is strongly associated with growing income levels, changing life cycle status, improving safety of associated equipment, and improved skills and knowledge among outfitters facilitating risky activities. Risk recreation has been a prime contributor to the growth enjoyed by the outdoor recreation equipment industry in the United States.

In many ways linked to risk recreation, technology is often a driver for the choices people make in their outdoor recreation. An example is snow shoeing. The technology revolution in snow shoes only started in the late 1980s. Solid decking and narrower shoes increase floatation, mobility, and hiker resilience. Because of the new designs, winter hiking

and camping are now more commonplace. The Outdoor Recreation Coalition of America (ORCA 1997) highlighted six high-growth markets. They include mountain biking, climbing, hydration systems, kayaking, snow shoeing, and in-line skating. All of these are technology driven.

28.3 International Tourism in the United States

In addition to domestic demand for outdoor recreation and travel, people from other countries take millions of trips to the United States for pleasure, to visit friends and/or family, and for business. For many of these international visitors, the United States' vast network or forests, parks, protected areas, refuges and recreation areas is an important part of their travel itinerary and experience. In particular, choices of travel destinations seem often to be influenced by the existence of public lands and natural settings. Among the more popular destinations are those with natural features and forests (O'Leary and Lang 1995). Shares of people stating that location of forests and parks was important in trip destination choices ranged from 70% of Japanese to 91% of Venezuelan visitors.

In a recent 10-year period, international visits to the United States grew about 66%, going from around 27.8 mill. visits in 1987 to an estimated 46.2 mill. in 1997 (O'Leary 1999). Canadians led the 1996 arrivals to this country with 15.3 mill. visits. Mexico (8.5 mill.), Japan (5.0 mill.), the United Kingdom (3.1 mill.) and Germany (1.9 mill.) completed the top five countries of origin for inbound visitors.

28.4 Outdoor Recreation Supply

This section will summarize the status of outdoor recreation supply in the United States. It is based primarily on the Renewable Resources Planning Act (RPA) assessment of outdoor recreation in which the United States Forest Service has provided a comprehensive look at national outdoor recreation supply trends. This recent assessment was published as Chapter 4 (Betz et al. 1999) in the book entitled, *Outdoor Recreation in American Life* (Cordell 1999). In addition, the text describing forests in the United States (one of the most highly pursued settings for outdoor recreation) is adapted from the draft of the overall United States assessment of forest and range lands (USDA forthcoming).

Recent Trends

When we assess supply in the United States, we include both rural and urban locations at all three levels of government – federal, state, and local. We also cover the private sector, with focused coverage of private rural lands. Included is a very brief summary of trends in supply from the Forest Service's decennial assessment already mentioned.

Most national forests, national parks, and wildlife refuges are forested. Most Bureau of Land Management lands are not. By policy, almost all federal lands and water resources are open for public outdoor recreation. However, open by policy does not necessarily assure access. For the most part, access to federal lands is limited to those areas having roads and trails. At least this is the way access has been determined historically. Recent technology advances in motorized off-road transport has begun to change the definition of what is or is not accessible. For example, jet boats, helicopters, and all-terrain motor vehicles have extended and made easier access to much larger areas of federal forests and parks than were accessible just 20 years ago. Improved non-motorized technology, such as the snow shoe designs described earlier, has also extended the limits of access. Growing and highly contested issues concerning easier and extended access to public land in the United States are the potential impacts of increased use on ecosystem health and wildlife, and the conflicts that arise with owners of adjacent private lands over rights to cross these lands in order to enter public areas.

In the United States, there is, and always has been, a significant spatial disparity between the location of federal land and the residency location of the population. Most federal lands are in the West; most of the population is in the East. Of the four primary federal land managing agencies, the two with the largest total surface area are the United States Forest Service (Department of Agriculture, 77.5 mill. ha) and the Bureau of Land Management (Department of the Interior, 108.3 mill. ha). Both agencies manage for multiple uses. Both also protect large areas of remote, roadless land, including areas of the National Wilderness Preservation System (NWPS). While much of the Bureau's land is

arid and non-forested, forests are prevalent and an important aspect of the recreational opportunities the NWPS lands provide. The next largest federal provider is the National Park Service (33.7 mill. ha). The Fish and Wildlife Service is also a major provider of recreation opportunities, although their mission is primarily habitat protection for wildlife species (36.6 mill. ha).

Together, these four land managing agencies provide thousands of developed recreation sites, with the Forest Service providing the most. A highly significant aspect of the federal supply of outdoor recreation is the system of designated areas. Between 1987 and 1995, Congress has added hectares and kilometers to these systems as shown below:

National wilderness system	41.9 mill. ha (+15.5% added)
National recreation areas	2.8 mill. ha (+10.7%)
National recreation trails	16 100 km (+14.0%)
National wild and scenic rivers	17 400 km (+40.5%)

States are also important as suppliers of outdoor recreation. Across the 50 state governments, an impressive network of state park systems have been established that include parks, forests, recreation areas, natural areas, scenic drives, historic areas, and environmental education sites. Nationwide, state park systems include a total of about 4.8 mill. ha, around 5 500 areas. Ninety percent of state park systems are typically open for public recreation. Two-thirds of the overall state park system area is in state parks (3.2 mill. ha). State forests are also a significant contributor to the overall state recreation resources (around 20.2 mill. ha). State fish and wildlife areas are a third major type of state-managed natural resources that are available for outdoor recreation. Fish and game areas provide mostly primitive facilities and dispersed forms of recreation and are estimated at around 6 mill. ha (Cordell et al. 1990). State lands are distributed much like the country's population, except for the Great Plains states.

At the local government level, outdoor opportunities are much more developed and managed. Typical local sites include parks, trails, athletic fields, golf courses, tennis courts, exercise areas and playgrounds. Often local sites and facilities are located close to or within the neighborhoods they serve.

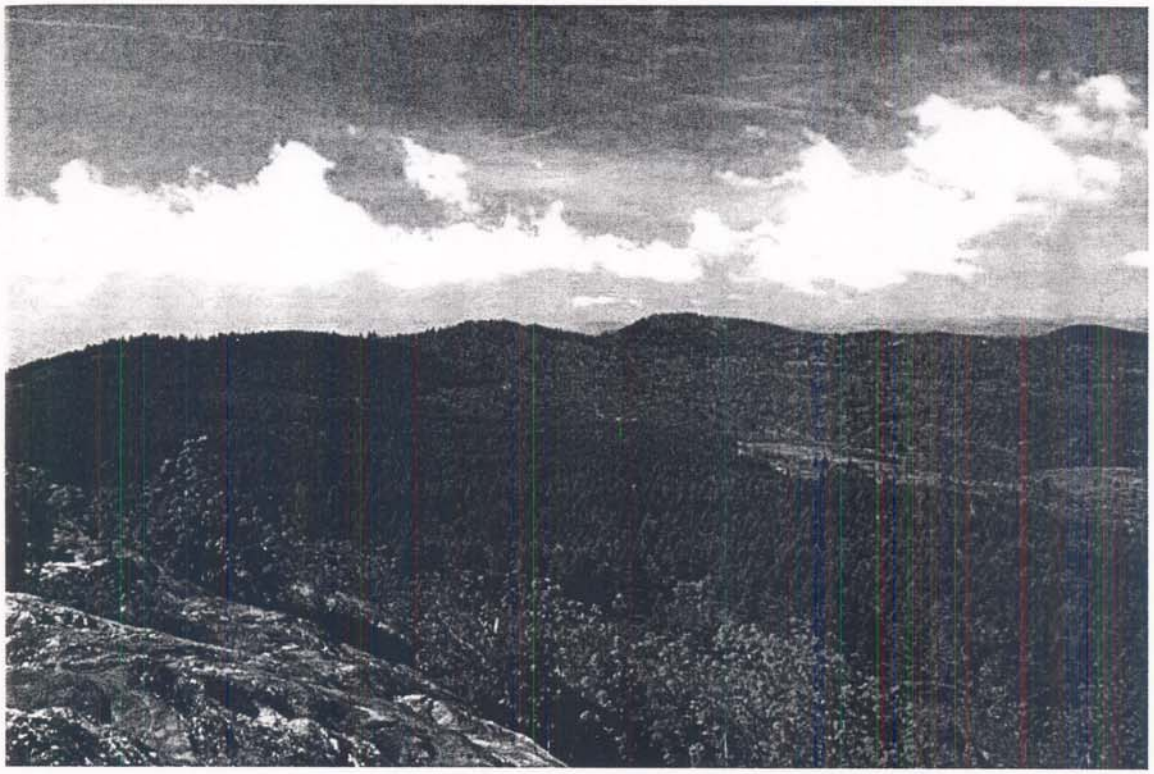
Our research indicates that the private sector is rapidly expanding its role as a supplier of outdoor recreation. For example, downhill ski areas increased from 384 to 449 between 1987 and 1996. Lift capacity increased 38% in this same time period. Cross-country skiing areas increased as well from 421 in 1987 to 636 in 1996.

Rural lands are used by their owners in a variety of ways to earn income. These include grazing cattle, sharecropping and leasing to outside interests (Teasley et al. 1999). Protection of their land is very important, and approximately 40% of owners post signs stating "No Trespassing" as a way of controlling use. Among problems experienced that have led some owners to post were destruction of property, littering, poaching and loss of privacy. Hunting, fishing, hiking and camping are among the top activities listed by owners as permissible on their land. But access to private lands for recreation has been declining since the 1970s. From 1986 to 1996, the percentage of private tracts on which access for recreation is permitted decreased from 25% to 15%. This loss of access is part of the reason hunting as an activity has shown decreases in the last two decades.

The Challenge of Growing Demand

Growing demands for access to and use of forest lands has both positive and negative sides to it. On the positive side, recreation in the out of doors is almost universally seen as contributing to people's health and sense of well-being. Hiking, canoeing, and a variety of other outdoor activities provide exercise, enjoyment, and a number of other benefits (Driver et al.1999). At the same time, many millions of dollars of business activity are generated as a result of the public's pursuit of outdoor recreation. This economic activity is often especially important to local economies in forested parts of the country, which are dependent on forest-based enterprises for at least a part of their economic livelihood. Often, local economic growth stimulated from recreation and tourism helps to diversify local economies once mostly dependent on timber harvesting or other extractive uses. This economic diversification creates more resilience in rural communities in times of economic downturn.

On the negative side, rising demands on public and private lands have raised a number of concerns. First is concern over the growing numbers of recreation users and their increasing ability to penetrate



USDA Forest Service

Figure 1: Diverse forest cover dominates the Southern Appalachian landscape (vista perspective from the top of Black Balsam Mountain in North Carolina)

ever deeper into forested backcountry areas. This concern focuses on possible impacts on riparian areas, wildlife populations, soil stability, endangered species, water quality, visual quality, and wildlife migration patterns. A second concern is over the rising number of conflicts between different styles of recreational use. Conflicts are especially notable between users with significantly different modes of travel, such as between hikers, horseback riders, mountain bikers, motorized vehicle users, canoeists, jet ski users, air craft users, leave-no-trace users, and orienteering participants (to name but a few). A third concern is the disruption of traditional uses or values of forests (such as hunting, gathering, resource extraction, or protection of ancestral sites). This latter concern is often closely tied to the economic and lifestyle health of local communities in forested areas of the country. While often benefiting these local communities economically, greater recreation and tourism sometimes result in unwanted shifts in lifestyles and community cohesion.

The managers of public lands and owners of private lands are facing the challenge of setting a strategic course to accommodate growing demand and its attendant increases in conflicts over forest access. Federal and state government agencies are responding to rising demands and conflicts by putting much greater emphasis on open participation in planning and management. By opening up the decision-making process, potential ecosystem impacts are identified, different recreation users are brought together in open forums, and multiple other interests in the management of public lands are voiced. A generic term for this process is collaborative management. Collaborative management tends to identify problems and encourage negotiated resolution of differences through an on-going process of information sharing and involvement. In addition to collaborative management, public forest management agencies are increasingly placing ecosystem health as a first priority, after which carefully considered policies and practices of access and resource removal are formulated. Finding ways for special interests to share in the resolution of their differences while sustainably managing forest resources for the good of all is fast becoming the only acceptable public land management style.

28.5 Forests in the United States

Forests are among the most significant of settings for outdoor recreation in the United States (Figure 1). Because they are so much a part of this country's supply of outdoor recreation opportunities, they often are the focus of a number of heavy demand pressures, recreation being only one. We offer below a brief description of this important national resource.

The total area of the United States in forest cover is about 302 mill. ha. During the period 1982–1997, there was a net increase in this area on non-federal lands of about 324 000 ha. This is just over one percent of the total non-federal forest area extant in 1982. The largest loss of forest was to development (4.73 mill. ha). The largest single gain was regeneration of forests on former pastureland (5.59 mill. ha). In total, 10.16 mill. ha of forest (6.3%) was converted to other uses between 1982 and 1997 and 10.49 mill. ha (6.5% of the area in 1997) was added (USDA forthcoming).

Forests provide numerous ecosystem services, including the protection of soil, moderation of climate, carbon sequestration and regulation of water flow. North America has experienced significant reforestation since the devastating "cutovers" for timber and agriculture prior to the forest conservation movement of this century. Figure 2 shows counties in the United States by current proportion of their total area that is forested.

Forests across the United States have long provided a way of life and the resources for carving out a living for many generations of pre- and post-European-settlement residents. Timber harvesting, mining, hunting, greenery for floral uses, mushrooms, berries, water for irrigation, and many other uses have played a major role in the evolution of rural United States. In recent times, timbering, mining and other extractive uses on public forests have begun to give way to management for tourism, recreation and ecological services. There are 77.3 mill. ha in the country's federal National Forest System. Recent shifts are directing the management of these federal forests toward ecosystem health, watershed restoration, recreation and protection of special places.

For the most part, the eastern half of the contiguous 48 states of the United Stated is forested. Exceptions are southern Florida and portions of Wisconsin, Minnesota, Nebraska, Illinois, Iowa, and Ohio (Figure 2). Pines often dominate in the southern and the most northern portions of the East. In the highlands (except for the highest elevations) and in stream corridors of the South, hardwoods are the dominant tree cover. Just west of the Mississippi, the vastness of the dry prairies and plains stretch

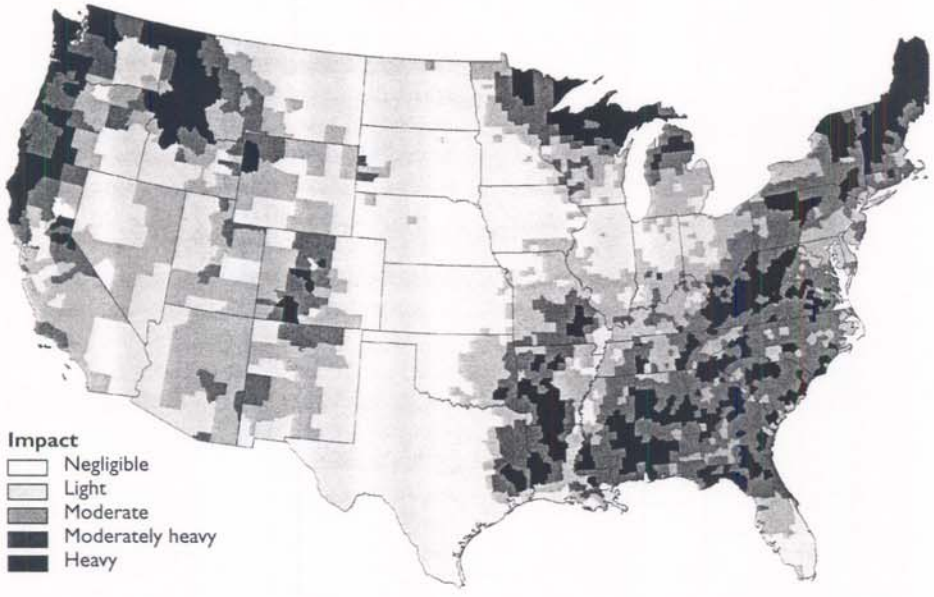


Figure 2: Counties with different amounts of forest cover, 2000
(USDA Forest Service and 1992 National Resources Inventory, USDA [Betz et al. 1999])

into areas with too little moisture to support trees. Much of the Rocky Mountains is forested, but the distribution of tree cover depends on the local adiabatic effects in mountain ranges. As prevailing winds rise over these mountains, moisture-laden air cools and deposits much of its moisture as precipitation. On the other side of these mountain stretches, it is typically dry because the air spilling down again has lost its moisture. Especially forested in the West as a result of the precipitation patterns are the northern Rocky Mountains and the Pacific Coast, from the northern half of California to northern Washington. Much of the temperate portions of Alaska are also forested as ocean currents provide warmth and moisture. In most of the West, conifers (spruce, fir, cedars and pine) far outnumber hardwoods (deciduous species).

Recreation Demand Pressures on Forests

Human demands on the forests of the United States, especially recreation demands, are a major factor that will shape forest management in the 21st century. To examine the spatial distribution of recreation pressures throughout the United States, an index examining the relationship between recreation demand and forest abundance was developed and mapped at county scale for all counties in the United States. In its simplest terms, the value of this index is highest where recreation demands in each county and its surrounding counties are highest and where, in these same counties, the amount of forest cover is also highest (Cordell and Overdevest forthcoming). We looked at current recreation demand pressures (year 2000) and likely future pressures (2020). We call counties or clusters of counties where index values are highest, "hot spots". These hot spots are the places in the United States where forests are and probably will be under the greatest pressure for conversion and development for recreation.

Hot spots that exist now can be seen in Figure 3. In this map, a large number of counties are highlighted in a swath that stretches from Maine to northern Alabama. This pattern of hot spot counties roughly follows the pattern of the mountains. There are also some scatterings of local hot spot conditions along the coast in South Carolina, Florida, Mississippi and Louisiana, where there have been recent buildups of population and associated recreation demands. In the West, hot spots of recreation demand pressures can be seen in southern Arizona, northwestern New Mexico, the Rocky Mountains of Colorado, northern Utah, southeastern and northwestern Idaho, coastal Washington and Oregon, and in border counties in the Lake Tahoe area of California and Nevada, where there are high levels of forest cover.

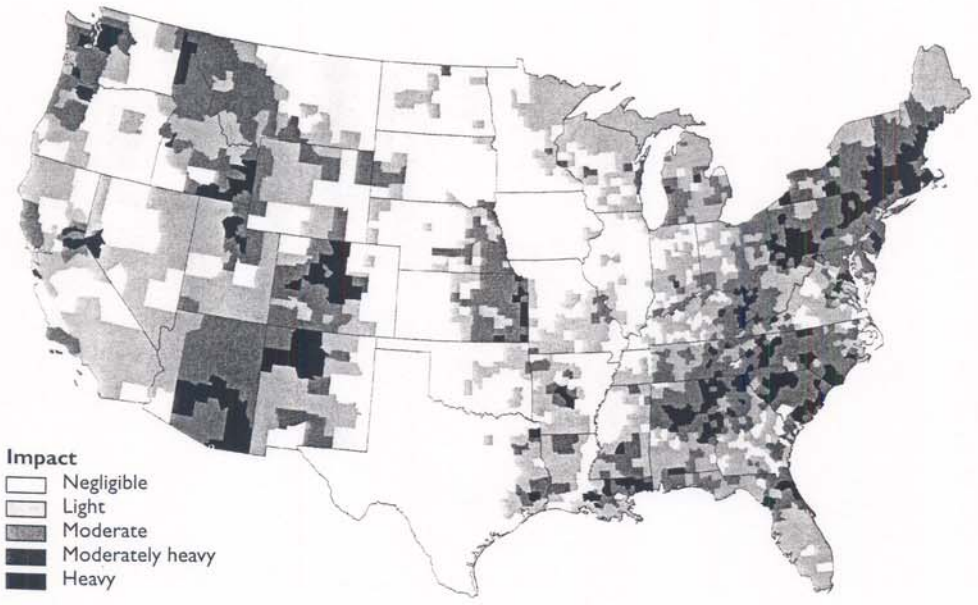


Figure 3: Counties with both heavy recreation demand and forest cover, 2000
(USDA Forest Service and 1992 National Resources Inventory, USDA [Cordell and Overdevest forthcoming])

Future Recreation Demand Pressures

In Figure 4, we find a pattern of hot spot counties that are likely if the recreation demand growth trends we examined earlier continue. This future demand growth will significantly increase the prevalence of hot spots in coastal New England, along the southern Atlantic and Gulf coasts, in the highlands of the Southern Appalachians and Ozarks, and throughout forested portions of the West. Much of the growing recreation pressures of the West will be focused on National Forests and Parks. Notable are hot spots in southern Nevada, across most of Arizona, in north-coastal California, in the Pacific Northwest, and in the Black Hills of South Dakota.

28.6 Discussion and Implications

Outdoor resources in the United States, including forests, are more or less fixed spatially and in quantity. Although there have been gains and losses in forest area over the years, in the net and over the long term, the area remains about the same. Demand for access to forest lands is increasing across a widening variety and number of people. At the same time as demand is increasing, access to private rural lands is increasingly scarce. While demand growth offers profitable opportunities to the private sector, especially the recreation equipment, transportation and service industries, it also ushers in daunting challenges for public land and water managers. It is our prediction that continuation of recreation demand trends, such as those reviewed at the beginning of this paper, will ultimately reach a level where the finiteness of our forest and other natural lands will begin clearly to show the strains of saturation.

Across communities and groups within American society, outdoor recreation has maintained enormous popularity over the years. Although new forms of participation are appearing all the time, a persistent, underlying basic motivation for outdoor recreation is to be able to experience nature by viewing it, traveling through it, and for a short time at least, living in it. Almost all people in the United States participate at some level and in some form of outdoor recreation. Traditional land, water, and snow/ice settings are very much in demand to satisfy our growing appetite for both traditional outdoor recreational activities and a growing list of new activities driven by better access as well as rapidly evolving technology and information availability.

As the popularity and benefits of outdoor recreation grow over the next decades, there are likely to be a number of signals that we are approaching saturation of forest land capacity. The more salient of these signals will probably include:

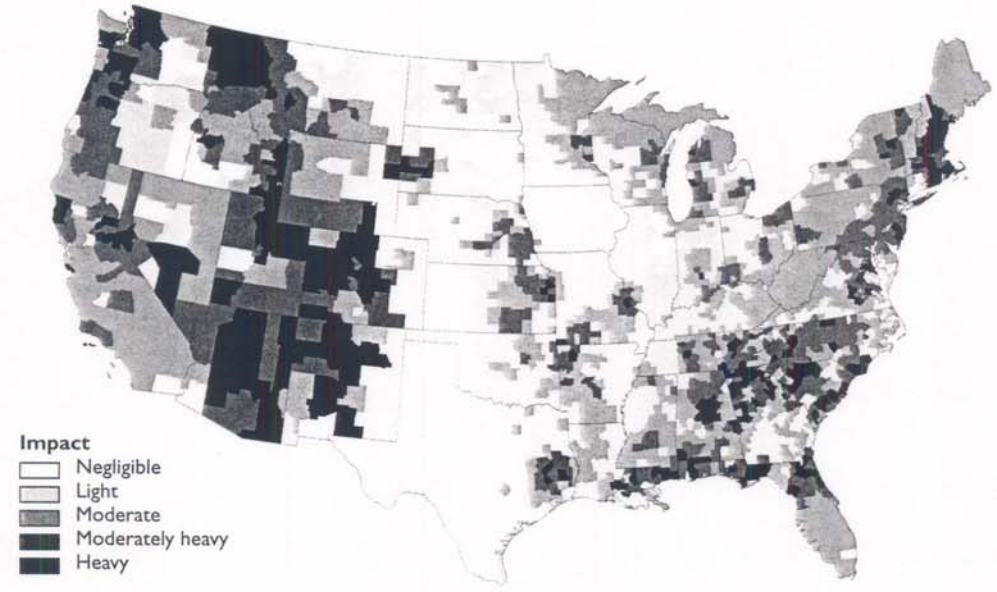


Figure 4: Counties with both heavy future recreation demand and forest cover, 2020
(USDA Forest Service and 1992 National Resources Inventory, USDA [Cordell and Overdevest forthcoming])

- The more popular of forest sites, water sites, parks and special attractions will face more frequent periods of congestion, especially during peak recreation seasons of the year. These anticipated high levels of use and congestion will sometimes present demands and situations beyond the experience and training background of public land managers.
- There will likely be many more conflicts between different recreation user interests arising from incompatible modes of participation and a growing diversity of recreation interests. This growing number and diversity of interests must compete for access to a limited number of areas and sites. Particularly challenging will be accommodation of the different access needs of motorized and non-motorized users and of solitude and the more socially oriented forms of participation.
- New technologies and easier modes of transportation will continue to enable greater penetration of use into remote back-country areas. Highly affected will be the more traditional, passive forms of back-country recreation where quiet settings for reflection and nature appreciation may be disrupted. Also affected will be the traditional forms of active participation where new technologies enable conflicting uses, e.g. whitewater canoeists experiencing personal watercraft use where motor powered watercraft once could not go.
- Non-recreational public and private land uses, such as timber and wildlife management, will increasingly be the subject of interest, and perhaps of contention, across a broader spectrum of society with increasingly diverse interests and cultural backgrounds.
- Scenic quality will increasingly be an issue that managers of recreation areas and of natural lands must address as interest in sightseeing, viewing and learning, and other scenery-dependent activities drive up demand for aesthetically pleasing settings. This will be especially problematic as tourism development accelerates near to and in the view of notable scenic areas such as national parks and national forests.

The key word in forest management for the 21st century is sustainability. We, the authors, believe a very simple definition of sustainability is adequate. That definition is, "let us manage to keep from losing any more of our forests and other natural resources". Perhaps this is a naive definition; perhaps it is not. We acknowledge, it does not account for the need to restore forest ecosystems. But how much restoration of forests is realistic anyway?

If our definition of sustainability is generally acceptable, then the mandate is clear. Maps in Figures 3 and 4 show places in the United States where hot spots of heavy recreation demands on forests exist and will intensify by 2020, unless we take collective action to better accommodate these demands. Make no mistake about it, we view outdoor recreation as a very positive use of forests and other natural lands in the United States. But, as our National Parks have experienced for decades, we can love our forests to the point of their demise.

The hot spots in Figure 4 show us places throughout the country where heavy future demand pressures overlay forested areas. These hot spots are the places that need serious and prompt collaborative attention by public land managers, recreation users, state and local officials, tribal and other cultural interests, commercial and community interests, and industry and environmental interests. Examining and crafting together plans for the conservation, use and development of our forests and other lands is the only lasting strategy that will assure both recreation demand and forest sustainability objectives can be met. Such collective approaches are not easy, but they are achievable. This achievability has been demonstrated on smaller scales many times over. The catch is, such collaborative planning cannot wait until crisis conditions emerge and capacity saturation has been reached. Action to sustain the health and flow of benefits of the forests of the United States has to occur now.

On the international scale, there are many lessons to be shared. Lessons not only from the United States experience, but also lessons from other parts of the world. Forests globally are under heavy pressures from multiple demands. In much of South America and Africa, forests are often cleared for the immediate profit from timber. Not replanted to trees, these areas are typically next converted to grazing and other agricultural uses. Over time and without forests to mediate climate change, some of these areas, once flourishing forests, become deserts. In Europe, long established etiquette for residing within, managing and using forests provides a working model of how to sustain forests in the face of ongoing, heavy demand pressures. The United States has an opportunity to learn from both of the above experiences before we lose any more of our forest lands.

In the 19th century, the forests of the United States were almost decimated before a social awakening occurred and an era of conservation was ushered in. The heavy recreation and other demand pressures building could once again lead to overuse of forests, including those on public lands. We have a choice and, hopefully, can learn how to sustain the health and productivity of both public and

private forests even in the face of unprecedented growth pressures.

Perhaps, too, other parts of the world can learn from the United States' experience. Our forests have recovered fairly well from the 19th century "cut out and get out" approach. While we have lost – and will never recover – many millions of hectares of prime forest land to roads, agriculture, urban development and reservoirs, we have a re-established forest land base making up almost one-third of the total land area of the country. While we have gained a few hundred thousand hectares of forest area over the last two decades, continuing population, economic and recreation demand growth over the next 100 years is sure to once again exert pressures to clear, plow and develop some of these forested areas. Perhaps we in the United States now are witnessing this country's pinnacle of forest recovery. It is thus our societal choice to either sustain what we have recovered, or to once again see our forests whittled away.

The recreational and aesthetic draw of forests is likely to be a dominating factor fueling pressures to convert forest lands to other uses. Identifying now where these pressures are greatest and taking collective, shared action to mediate these pressures is the only lasting solution. For other parts of the world where there is hope that forests may recover once again as they did in the United States, observing our struggle between contemporary wants and the need to sustain forests for the future may be helpful. We know the struggle will take place and lessons will be learned – from mistakes as well as successes.

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