PROCEEDINGS

1985 National Outdoor Recreation Trends Symposium II

Volume I - General Sessions

Coordinated by:

Department of Parks, Recreation
and Tourism Management
Clemson University

Cosponsored by:

National Sea Grant College Program

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In cooperation with:

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PROCEEDINGS

OF THE NATIONAL
OUTDOOR RECREATION TRENDS SYMPOSIUM II

Held at the Myrtle Beach Hilton
Myrtle Beach, South Carolina
February 24-27, 1985

Coordinated by:

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Clemson University

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National Sea Grant College Program
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FOREWORD

The 1985 Outdoor Recreation Trends Symposium, held February 24-27 in Myrtle Beach, South Carolina, provided managers, planners, researchers and others with an opportunity to share trend data and futuristic insights. The 1985 Symposium was a sequel to the first Outdoor Recreation Trends Symposium, held in Durham, New Hampshire, in 1980.

Papers presented at the 1985 Symposium addressed developing trends in economics, social characteristics, policy, tourism, recreation activities, the private sector, research and other facets of outdoor recreation. The Proceedings will be made available to the Presidential Commission on Outdoor Recreation Resources Review as it undertakes its assignment to reassess the status of outdoor recreation in America.

Most of us would agree that a phenomenal rate of change has occurred in outdoor recreation since the original Outdoor Recreation Resources Review Commission report in 1962. The research that focuses on what is happening in outdoor recreation has changed also. It has moved from the static descriptive and prescriptive research of the ORRRC era to a more dynamic approach that examines trends and shifts, not only in what we are doing in outdoor recreation, but why we do it. It is no longer enough to know that participation in certain activities grew in a given period; we must examine why! We now must know what motivates participation, how policy impacts these changes, what effect economic conditions have, how technology drives participation and so on. And we also seek sound predictions of what the future will bring so that we can plan better, develop better, invest better and manage better for this massive outdoor recreation business.

In 1980, Wilbur LaPage, Program Chairman for the first Outdoor Recreation Trends Symposium noted:

> We attempt to plan the future of the Nation's recreation resources in the absence of facts about the present level and rate of growth of private investment in leisure industries. We define policy on the basis of out-of-date data and ideas about public participation in recreation activities. And we invest scarce research dollars in "problems" which may not exist, or might at least look different if we had adequate statistics with which to view them.

With these problems still facing us, the 1985 Symposium Program Planning Committee spent nearly two years compiling a program which would provide the most up-to-date and comprehensive trend data available. Though this goal was accomplished, we are the first to admit there are still gaps in trends research and still much room for improvement. Our challenge to you is to enthusiastically pursue quality trends research in the future and to convene five years hence to again share results. Outdoor recreation planners and managers want and need accurate trend data. And they deserve our best efforts to provide it.

Gina McLellan
Symposium Coordinator
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VOLUME I - GENERAL SESSIONS

TRENDS IN USE OF PUBLIC RECREATION AREAS

Marion Clawson[1]

ABSTRACT

The persistent upward trend in visitations (use) to public recreation areas is one proof of the very important role that outdoor recreation plays in the modern American society. The rate of annual growth in such visitations seems to be slackening. No growth or slow growth would pose new problems for recreation administrators. The apparent large area of public recreation areas is misleading because so much of the area is remote from where most people live.

Additional keywords: public recreation areas; visitation trends; slackening; misleading.

The rising trend in visitations to public recreation areas, evident over the past 35 years or longer, emphasizes and strengthens many acknowledged aspects of outdoor recreation. Outdoor recreation is clearly a highly important aspect of modern American life, socially, conceptually, economically, and politically. Although we often speak of outdoor recreation as if it were a single entity, in fact the general term encompasses many diverse activities, with their differing costs and demands for natural resources. A great many individuals engage in outdoor recreation on public areas, although we do not know exactly how many persons do so. These individuals differ greatly in several personal characteristics such as age, income, available leisure, location of their homes, and personal tastes. The users of the public recreation areas seem to have a wide variety of objectives from such use, ranging from simple quiet enjoyment of nature to the most active, even dangerous, pursuits.

Although there is merit in speaking of public outdoor recreation areas as if they constituted an entity, in fact there is great diversity among them. Areas differ in physical characteristics, in location with respect to most users, and in governing public agency. There is likewise merit in speaking of outdoor recreation, as contrasted to indoor recreation, but the dividing line is often rather blurred. A swimming pool may be either outdoor or indoor, for instance. Outdoor areas are surely in competition with indoor areas, to a considerable degree. One may go to the football game or one may watch it on TV, to cite one example.

There is also merit in speaking of public outdoor recreation areas as a whole or as a national total, but in fact there are many regional and local divergences from the national relationships or norms.

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USE OF PUBLIC OUTDOOR RECREATION AREAS

Reliable analysis of use trends on public outdoor recreation areas is complicated by rather poor data (Clawson and Van Doren, 1984). The data on all aspects of outdoor recreation on public areas is poor but the data on use are especially so. Available data are based on different data and different concepts and are suspected of serious inaccuracies. There are virtually no data on use of city and county parks and recreation areas, though usage of such areas may well exceed that of all State and federal areas combined. Though data are poor, they may be used, with caution for many purposes. A data series may, for example, be unreasonably high or unreasonably low in the reported level of use and yet the trend in use from one year to the next may be reliable if the discrepancy is a relatively constant one. Perhaps the most important point is that the analyst should be fully aware of the characteristics and weaknesses of the data used and not try to draw conclusions which the data will not support.

The dominant fact in the demand for both public and private outdoor recreation opportunities is the American love of the outdoors. Most people, but by no means all of them, enjoy various forms of outdoor recreation (Waggener and Ceperley, 1978). One hesitates to assert that Americans love the outdoors more than do people of all other countries, for the love of outdoors is apparent in many other countries as well as in our own. However, if one could imagine an America in which only a small minority of the total population had any interest at all in the outdoors, the whole outdoor recreation picture would be drastically different.

Given this underlying and basic demand for outdoor recreation, there are four "fueling factors" which fan that basic demand into high usage rates for all public outdoor recreation areas (Clawson 1959, Clawson and Knetsch 1966):

1) Population factors, especially the growth in total numbers of people, are one set of factors affecting demand for outdoor recreation. But age of the population is also a factor. In particular, the "baby boom" of the 1950s and early 1960s created a bulge in numbers of persons -- a bulge which successively passed through the grade schools, the high schools, and the colleges, and which now presents us with an abnormally high percentage of relatively young adults. The population of the United States is aging and will continue to age for several decades at least, and older people have different recreation interests and demands than do younger ones. Today the United States is receiving unprecedentally large numbers of migrants from southern Asia and from some Latin American countries; these immigrants, at least for some years, have different outdoor recreation patterns than does the native population.

2)Per capita real income, especially for the great middle income classes, is a major factor affecting demand for both public and private outdoor recreation areas. While incomes fluctuate from prosperity to depression, and back again, there has been a persistent and significant upward trend in average per capita real incomes in the United States for the past 35 years or more. People today can simply afford kinds and qualities of outdoor recreation which their parents could not afford.

3) Leisure is another factor affecting the demand for outdoor recreation. Leisure may take the form of shorter work days, or of shorter work weeks, or of longer paid vacations; and lesiure may also arise from retired persons and from young people not yet in the labor force. During the past several decades the amount of leisure in the United States has risen in each of these categories. When the worker of the family worked 10 or 12 hour days, 6 or 7 days a week, with no paid vacation, the ability of the family to engage in outdoor recreation was very low, even if they could have afforded the cash costs. The greatly increased participation of women in the labor force in recent years has somewhat complicated the use of leisure -- increasingly, recreation activities have to be planned to meet the combined availability of time by both husband and wife.

4) The ready availability, the comfort,and the cost of travel is another factor affecting both amount and the location of both public and private outdoor recreation. The vast increase in air travel, supplemented by the ready availability of rental cars, has made weekend outdoor recreation in relatively distant locations a common practice for many Americans. But the quality and comfort of automobiles and the development of a network of fast roads have also been factors. There has been a steady upward trend in the amount of travel in the United States, part of which is for recreation.

The combined effect of these four factors, operating in conjunction with the basic love of the outdoors, has led to a nearly steady and significantly large increase in use of all public outdoor recreation areas for which we have reasonably usable data. For a great many years, recreation use of the national parks and national forests rose by about 10% annually. There was some, but not too much, flattening in growth during the severe depression years of the 1930s and during World War II the rationing of gasoline, tires, and cars cut total attendance at these federal areas by two-thirds. Reservoirs built by the Corps of Engineers for many years showed even faster growth rates, as new reservoirs became available for recreation. Attendance at State parks also grew rapidly for many years. It seems probable that recreation usage of city and county parks and recreation areas also grew under the influence of these same factors, but consistent and long continued data series are not available.

Though the trend in recreation usage of public areas is still upward, there is fairly clear evidence of a flattening in the rate of growth (Table 1)(Clawson, 1985). The numbers of people seeking outdoor recreation in some unit of the national park system is still growing in absolute numbers but is shrinking in terms of percentage growth rate. But this total conceals important differences within the national park system -- attendance at the national parks has been nearly constant for a decade and the increase has mostly been in other kinds of areas in the system, notably in the relatively new urban parks. Recreation usage of the national forests as a whole has increased annually, in absolute terms, in recent years only about as much as it did in a much earlier period; and usage in terms of percentage growth rates has clearly slowed down greatly. Recreation usage of State parks, if the data can be relied upon, has been less annually in recent years, both in absolute numbers and especially in percentage terms.

Table 1. Approximate Annual Increases in Recreation Attendance at the National Park System, National Forests, and State Parks, by Periods of Generally Similar Rates of Change, 1924 to 1981

National park system			National forests			State parks		
Period	Average annual increase		Period	Average annual increase		Period	Average annual increase	
	Visits	Percentage		Visits	Percentage		Visits	Percentage
	(million)			(million)			(million)	
1924-1941	1.1	19	1924-1942	0.3	10			
1948-1956	4.0	9	1947-1964	6.6	13	1946-1958	18.1	8
1958-1970	8.9	10				1958-1970	20.5	6
1971-1981	13.0	6	1967-1980	6.5	4	1970-1980	5.2	4

The data in Table 1 are national totals and national averages. There are, of course, many regional and local differences in trends, arising in large part from local or regional differences in basic factors. The data for national totals may be converted to a per capita base by subtracting one or two percentage points from the growth rate percentages. When this is done, the slowing down in rate of growth becomes more marked. It is not unreasonable to reach a conclusion that the mythical average American is getting about as much outdoor recreation of the kinds of publicly owned recreation areas included in Table 1 as he or she wants. We cannot be sure of this trend, if indeed it is a new trend, until some more years have passed.

The data and the results of Table 1 emphasize that the measurement of trends is far from a simple business. Much depends on when one starts and where one ends the trend measurement. Unusual or abnormal events near the beginning or near the end of a trend may greatly affect the apparent slope of the trend line. The shorter the period included in a trend, the more variable the trend will appear, all else being equal. Longer trends are considered more basic but a longer trend may miss important turning points until well after the turning point has passed.

SUPPLY OF PUBLIC OUTDOOR RECREATION AREAS

The trend in area and number of publicly owned outdoor recreation areas has also been upward during the past 35 years or more. Indeed, the upward trend in areas was basic to the upward trend in usage -- without more and larger areas, usage would have increased less. The trend in area of public recreation areas has been less, on the whole, than the trend in usage, indicating some increase in intensity of use per average acre.

The upward trend in acreage of public recreation areas has been due to several factors. The Land and Water Conservation Fund provided money for federal agencies and the States to acquire additional areas. A number of States passed bond issues, some of the proceeds of which were used by the States or by local governments to acquire more recreation areas. The acreage of the national park system more than doubled in these past 35 years, due primarily to the transfer to it of large acreages of public domain in Alaska, as well as to some purchases of land in the Lower 48 States.

Data on acreage of public recreation areas are poor or absent but the bigger problem is one of concepts. Acreage is a poor measure for at least two reasons: 1) it does not necessarily correlate well with capacity to accommodate recreationists; and 2) many areas are open to outdoor recreation but are not primarily managed for it. The national forest system, with few exceptions, is open to outdoor recreation but relatively few acres are managed primarily for recreation, for instance. Those acres managed for other purposes or for multiple uses do indeed often have valuable recreation potential and use but less so than intensively managed local and city parks.

The data on acreage of land available for outdoor recreation are misleading or incomplete in another respect also. As the Outdoor Recreation Resources Review Commission well said in 1962:"The problem is not one of number of acres but of effective acres ...much of the vast acreage nominally designated for recreation is not now available for general public use." This is especially true of the very large acreages of federal land -- open to outdoor recreation, much not managed primarily for this use, and most of it located at considerable distances from large urban centers. But the problem also exists within States for State parks.

In an effort to measure effective acres from data on total acres, I have devised a methodology which utilizes the familiar distance-use relationships which are the basis of most studies of demand for outdoor recreation (CLawson 1984). By this methodology, the vast acreages in Alaska are shrunk more than one hundred fold, from gross to effective acres; national parks outside of Alaska are shrunk greatly also; so are national forests, especially in Alaska; but State parks in Alaska also are shrunk. In contrast, effective acres in county and city parks are three times their surface or gross acreages. The methodology for converting surface acres to effective acres requires scrutiny and testing and, to be applied effectively, better data than are now available. But it should prove possible to refine and apply this method.

TECHNOLOGICAL CHANGE

Technological change has affected outdoor recreation as well as affecting many other aspects of our lives. There are several kinds of common outdoor recreation activities today which were unknown or relatively unimportant a generation ago. One thinks immediately of snowmobiling, scuba diving, water skiing (which in turn is dependdent on motors unavailable a generation ago), off road vehicles, hang gliding, and many others. But many of the old familiar forms of outdoor recreation have also benefitted from new kinds and qualities of equipment. Older people can recall the kinds of camping equipment available a generation ago and can then marvel at the new kinds of equipment for the same kinds of activities. The great rise in car ownership and the kinds of trailers, motor cruisers, and other equipment that permit a family to take their outdoor recreation in comfort and at long distances from home have surely been a factor also.

One should not, I think, assume that all technological change in outdoor recreation is in the past. Over the next few decades there may well arise new forms of outdoor recreation, perceived only by specialists if at all now, which will lead to vastly more or greatly different outdoor recreation.

New technology in outdoor recreation adds to the total demand; it also adds to the total supply, often by making areas attractive that previously were unusable or only lightly used. Technology in outdoor recreation affects various areas differently, as technological change everywhere has differential effects.

ROLE OF GOVERNMENT

The proper roles of federal, State, and local governments has been a persistent policy issue in outdoor recreation for many years. This is clearly true in the United States and to my personal knowledge is also a problem in Canada and in Great Britain and I suspect in many other countries as well. The policy issues really fall into two general classes:

1. What should be the role of government in the provision of recreation opportunity, as contrasted with the role of private organizations ? The matter of private organizations will be dealt with in detail in another paper, but it may briefly be stated here that one of the most significant trends in outdoor recreation in the past generation has been the great rise in privately provided outdoor recreation opportunities, and this has had a major impact on the public areas.

2. What are the appropriate roles of government at federal, State, and local levels ? The Outdoor Recreation Resources Review Commission proposed what was in effect a division of labor, based in large part on the geographic location and natural characteristics of areas. Its proposals seem sensible even now but the fact is that they have not been followed over the past two decades or more. The federal government has moved into areas and types of outdoor recreation which the Commission thought were more appropriate for the States or local government. The National Park System, for example, has undergone a basic change in these years (Foresta,1984). Whereas once it was operated primarily to preserve the great natural wonders and the nationally important historical areas, it has moved more and more into the provision of outdoor recreation opportunity at the urban or local level. The agency clearly suffers internally from a lack of consensus as to its proper role. One factor in its shift in emphasis has clearly been the desire to win political support from the urban electorate and its elected representatives. But the lack of a clear and logical dividing line between governments also applies to States and local governments. Some States seem clearly to have moved into areas which once might have been considered as more appropriate for local governments.

The policy issue of the appropriate role for governments at different levels may be simplified somewhat when we recognize that government may play any combination of three rather different roles:

1.The government, acting through some agency, may be a direct supplier of outdoor recreation opportunity on land it owns -- land which was always publicly owned or land which has been purchased from private owners. The national parks and national forests have been created to a large extent by the setting aside of tracts of public domain which have always been owned by the federal government. These have been augmented, especially in recent years, by purchases of desirable tracts. The primary purpose of much of this land is provision of outdoor recreation opportunity, and even when some other purpose is paramount or when the area is truly managed for multiple uses, important recreation opportunities exist. Millions of people demand access to and use of these areas. The Forest Service could hardly refuse to make such areas available for outdoor recreation, even were it minded to do so. States and local governments are also direct suppliers of outdoor recreation opportunity on lands they own.

2. Government agencies may serve as sources of technical expertise and operation, for other agencies at the same or other levels of government and for private groups as well. The National Park Service, for instance, has major capability in historic preservation and in archeological exploration and restoration, and this expertise can be and often is made available to other agencies and to private groups. Some agencies may believe they have superior expertise in some areas which other agencies at the same or other levels of government may not agree as being superior. There would thus be a good deal of opposition to making some agencies superior to others or in a position to disallow funds to others because of asserted inadequate expertise, but this would not extend to the voluntary use of whatever expertise existed at any level.

3. Government, acting through some agency, might be a source of funds for outdoor recreation to other agencies at the same or different levels of government. This was the role of the original Bureau of Outdoor Recreation in its responsibilities for the Land and Water Conservation funds. But States have in many cases provided funds for cities and counties. The dispursing agency may have unlimited or great discretion in allocation of funds or it may be guided -- hemmed in, some would say -- by legislative terms and formulas. Certainly political pressures as to total amounts of funds and as to their allocation have not been absent nor can they reasonably be expected to be absent.

NEED FOR RESEARCH

Researchers in every field are frequently made fun of by outsiders because of their invariable call for more research. But the person who has carefully studied some field is often more acutely conscious of the areas where knowledge is lacking or where common beliefs may be wrong, than is anyone who has not made such studies. As far as research on outdoor recreation problems is concerned, the prescription for future research might be overly-summarized in a single phrase: more of everything. All researchers on outdoor recreation are acutely conscious of how limited or how dubiously dependable is the current knowledge of outdoor recreation. This limited knowledge extends to every major aspect of outdoor recreation. However, merely saying "more" provides little guide as to priorities among research needs and thus at least some listing of some of the more pressing problems seems essential.

The economist wants a better knowledge of present and probable future demand for outdoor recreation, disaggregated by regions, States, or localtities, by age groups and other relevant groups within the total population, and as affected by possible economic and other influences. By demand the economist means a combination of volume or numbers of users and of value or price of the recreation opportunity. The more accurate the estimates of present demand, the more accurately can funds available for recreation be apportioned. Future demand is or should be a major factor in deciding where to provide additional rrecreation opportunity or even where cutbacks might be appropriate. The lead time for the development of outdoor recreation opportunity is often long and decisions often must be

made well in advance of clearly evident need. The lead time for the acquisition of additional park or recreation areas is often long, and acquisition at a relatively early date may reduce or eliminate serious administrative and political problems later. Thus, research on recreation demand stands high on the list of priorities for recreation economists.

It is not enough to estimate quantities needed or demanded, now or in the future; recreation specialists need to know much more about the motivations of recreationists and about the satisfactions they get from their experiences. We surely know that there are great differences among the population in these respects. We also know, or suspect, that many people have different standards than do the recreation specialists. If a park manager develops and manages a park to his or her standards and tastes, and then interviews the people who use it, a high degree of satisfaction is usually recorded because the people who come, especially those who come time after time, are those with tastes generally similar to those of the park manager. What about the people who do not come ? If some people seem to get certain satisfactions from certain activities, are there other ways in which their satisfactions might be greater or achieved at less cost to the agency and to the recreationist ? There seems a fertile field for interdisciplinary research here.

The owner or manager of land, forests,and water bodies, whether these are publicly or privately owned, needs to know a great deal more about the management of such natural resources for outdoor recreation than is known now. It has become painfully evident in many areas that too many people can be destructive of physical resources and even more destructive of the satisfactions from recreation use of those resources. Too many people can downgrade a recreation area as certainly as too many cattle can overgraze a range area. But determination of "carrying capacity" is not easy nor is it easy to know what might be done to increase such capacity on a sustained yield basis. Stll more difficult are the means of holding use to safe limits, on highly popular areas. One need only consult managers of popular federal, State, and local areas for graphic examples of these problems. While research here might be difficult, it might also yield highly usable answers.

Provision of outdoor recreation opportunity, whether on publicly owned or on privately owned areas, costs money to the owners and managers of such areas. The fact that use of many areas is free to the users does not, of course, mean that provision of such areas is costless. Costs may be high, as on valuable land close to cities which is used intensively, or may be low as in distant wilderness areas if their use is low, but in every case there are some costs. How these costs should be met on public areas raises important issues of policy. Research cannot resolve all those issues but it can provide conceptual and factual bases on which administrators and legislators can arrive at more informed decisions. The major alternatives for the publicly owned areas are taxes levied on the general public (in some way) and charges assessed (also in some way) on the users of the area.

FUTURE OF OUTDOOR RECREATION ON PUBLIC AREAS

Americans are deeply concerned -- some would say, obsessed -- with the future. Every business magazine has analyses of the future, often the future of the next few months only; educators have developed longer range plans for their institutions; and the average person has scenarios of varying specificity for his or her future. There are professional societies focused on the study of the future. Most professional writing includes, usually as a concluding section, some consideration of the future. It was not always thus. Many societies in the past, and perhaps some today feel that it is immoral or useless to consider the future explicitly; God will bring what he chooses and our role is to accept whatever comes, making such adjustments as we can but not questioning or trying to change the future. And many ordinary people, in our society no less than others, have given little explicit consideration to the future, but rather have lived in the present only.

Any consideration of the future immediately encounters two major paradoxes. On the one hand, the future is unknown and unknowable with accuracy, yet everything we do today involves, at least implicitly, an estimate of the most likely future. When a park administrator urges the expenditure of public funds on some park, he is implicitly saying that there will be a future demand for the recreation opportunities provided by that park; when a professor encourages students to take his courses in park management or in outdoor recreation planning, he is implicitly saying that there will be future employment opportunities in those fields. The second paradox arises because our best guide to the future is the past, yet we all agree that the future will almost surely be different than the past. Whether our projections are simple or sophisticated, implicit or explicit, they all rest, at their base, in past experiences. Indeed, it is impossible to imagine what else could be brought to bear, than the accumulated knowledge and wisdom of the past. Most of us reject simple mechanistic projections of past trends, at least very far into the future, because we know that every trend has built into it some correction factors that will come into play if the results are too unsatisfactory to too many people.

Faced with these paradoxes, the best course for any futurist is to make the best possible estimates of the future, to go ahead, to monitor results, and to change course when change seems necessary. But the analyst should carefully avoid placing too much reliance in any projection of the future and should equally avoid pretending to the public that greater accuracy exists than in fact does exist. In this spirit, a few observations may be made about the likely future of outdoor recreation on publicly-owned areas.

Outdoor recreation on publicly-owned areas is so firmly established in the modern American society that it can never be abolished or even heavily cut back. Outdoor recreation may not have quite the deep emotional commitment that public education has, or even that those

newcomers Social Security and Medicare have, but it is strongly defended by most people. This does not mean that private recreation may not develop to take some of the pressure away from public areas; nor does it mean that expenditures for public areas may not be subject to standstills or even reductions. But outdoor recreation on public areas clearly has a future -- a large one, however that term is defined.

The demand for outdoor recreation on publicly owned areas is likely to continue to rise but at a slower rate than it has risen in the past. More people will visit such areas more times and by higher expenditures, so that the demand will shift as it has shifted in the past. The same basic factor of love of the outdoors and the same fueling factors will be operative in the future. But annual growth rates in attendance are more likely to be in the range of 2 to 4 % in the future than the 8 to 10% that was common a couple of decades ago. The analyst who extends past trends in recreation use on public areas should do so with considerable sophistication. Specifically, if a formula is devised or a statisical regression coefficent is calculated, the analyst would be well advised to include a retarding variable, probably one which would grow in strength as time marched on, in whatever projections of future demand were made.

Tighter budgets at every level of government are a fact of life for the future. The competition for public funds for many activities will be very keen and the public opposition to higher taxes will be great. The recreation community may have to look to alternative sources of funds as well as to general taxes. There will almost surely be increased debate over how much of the costs of public recreation supply should be born by the general taxpayer and how much should be born by the recreation user. The realistic alternatives may be larger user charges or some degree of neglect of the public recreation areas, if the opposition to larger use of general tax revenues should increase. Recreation specialists would be well advised to conduct some research and planning on how best to meet the costs of management of public recreation areas.

Lastly, it seems clear that the role performed by publicly-owned outdoor recreation areas will be more strongly affected in the future than in the past by the kinds and extent of outdoor recreation opportunities on privately owned land and facilities. Of course, the role of privately owned lands and facilities will be affected greatly by what is done on the publicly-owned land and facilities. Since the problems, opportunities, and trends on private lands and facilities are the subject of another paper, this topic will not be pursued further here.

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SOCIAL TRENDS AND SOCIAL INDICATORS
The Private Sector

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Abstract.--Our national lifestyle includes a leisure ethic. The private sector has been very successful in providing goods and services that match the leisure needs of a changing society. Budget cutbacks at all governmental levels have been beneficial to the private provision of many leisure activities and goods. The same budget constraints have forced governments to market benefits and at the same time to be cost effective. As society continues to demand quality leisure goods and experiences whether public or private the entire leisure delivery system gradually changes. An often unrecognized part of leisure in the United States is the travel/tourism industry. The growth of the travel industry necessitates that it be included as a significant part of any analysis of outdoor recreation and leisure activities.

Keywords.--Leisure trends, lifestyles, activities, equipment, travel, government influences.

Change is a byword of our society. Contemporary society is undergoing a steady change in life-style and demographic characteristics which affect buying habits and the selection of new and older leisure activities. We view the increased number of leisure time options and multiple vacations as rights. Leisure lifestyles have become newsworthy. Following John Naisbitt's lead in Megatrends (1982) I have made a rather unscientific effort to monitor articles about leisure and travel in the national news. The new national newspaper U.S.A Today has afforded this opportunity. News editors publish what they think is newsworthy and what we do with our leisure time and how we invest our discretionary income is certainly considered news in U.S.A Today. The number of references used in this paper substantiate my point.

In American society we have been fortunate in having more time, more discretionary income and credit, more mobility and better health than any civilization in history. The growth and acceptance of the concept of leisure in the United States is ingrained in a youthful and aging population that has experienced two income households and families with fewer children than in the past. We have a society accustomed to instant communication, transistor radios, tape decks, cable TV, computers and the finest recreational equipment that modern technology can design and produce. Ironically, amid all of the twentieth century gadgetry we are also swept by waves of nostalgia, refurbishing homes, hotels, historic automobiles, airplanes, and recreating historic events. Added to this is the desire by some to be physically fit and to demonstrate our physical and mental skills through a number of adventure sports. We are time conscious as the value of time seems to increase in proportion to the amount of discretionary income. Simplification and non-complicated solutions are desired even as networking becomes more complex. Much of our daily work and leisure activities have been simplified with our new technology, as long as the computers work.

Any discussion of societal leisure trends and the implications of these trends in the private sector depends upon the individual and collective whims, needs and wants of people. The leisure industry, public or private, is selling people benefits, including socialization. This means that we all must become adept at "reading" people's leisure motivations and tracking their decisions and actions, the marketing of leisure services. In some ways this is easier to do in the private sector because the consumer is purchasing a leisure product or service at market value. Each year more private leisure sales data becomes available for a variety of products and services as interest groups and associations become more active and proprietary information is released. Nevertheless, it is a full time job to keep current with the many different leisure pursuits and the associations that offer information.

How we invest ourselves and our money in leisure pursuits is frequently governed by institutional decisions of a political or economic making that are beyond our control. Economic history dictates that our economy operates in cycles and any number of factors may trigger a downturn or upturn. Currently Americans seem to feel good about our country, the economy, and individual short term economic and social outlook. We are in a period of consumer recovery. Our idealism of the 1960's and 1970's with concern for social improvements has given way to economic pragmatism in the 1980's.

The private sector stands to gain the most in the near future from our feeling of economic "wellness" and as Time Magazine (September, 1984) says our "rare frolicsome mood," as we spend more to purchase leisure goods and services. Only a small proportion of outdoor recreation activities occur on public lands. The current administration in Washington has reduced funding for the acquisition and management of federal land holdings that are important in leisure pursuits. State and local governments have been forced to do the same. Gradually, we have come to accept the fact that many leisure services that were provided as free goods a decade ago, may now have a fee imposed and the private sector has also entered the market place to provide a variety of services. Some of these services were the province of upper income groups a decade ago. An example is the growth of fitness clubs in our communities and the extension of this concept to vacation resorts (Adams, 1984).

Outdoor Activities and Sport Equipment

As Clawson has stated (1985), we in America love the outdoors and can be expected to maintain a healthy interest in outdoor activities in the future. The 1982-83 National Recreation Survey (1984) indicated that our outdoor participation in a variety of activities increased between 1965 and 1982. The fact that we are a nation in which some are highly conscious of physical fitness was reflected in the survey figures. Some of the more active outdoor pursuits increased more than others such as bicycling, tennis, canoeing, camping and skiing. Some outdoor sports may have stagnated as a result of the enthusiasm for fitness. Golf, for example, continued to grow but at a very slow rate. The number of golfers increased 35% between 1972 and 1983, the number of golf courses increased 14% while the sale of golf equipment remained the same and the sale of golf clubs even declined. The average age of a golfer is 42 years (Bowmann, 1984 and Schreiner, 1984) and

over the next 20 years the fastest growing population segment will be in this age group. Golfing may increase. We have also become a nation of spectators. Attendance at sporting events increased as well as the viewers of outdoor concerts and plays. Respondents in the national survey placed top priorities on their desire to enjoy nature and the outdoors and to exercise or keep in shape. Consequently swimming, hiking, walking for pleasure and jogging were rated consistently high in the survey. What the survey did not say was that inspite of the fitness fads many of us are still overweight and one in four of us never exercise (McFeatters, 1985). Practically all of the outdoor recreation fitness activities are undertaken on public land. Finding ways to gauge the impact of these activities on public or private land is difficult. The sale of sporting equipment is one measure of interest and as the private sector becomes more involved, institutions that cater to particular interest groups will be able to provide more information.

The diversity of our outdoor interests is always expanding. The preliminary report of the 1982-83 recreation survey makes no reference to the many risk-taking adventure sports that are new to the outdoor scene. Ballooning, hang gliding, ultra-light aircraft, and snow mountaineering have all gained in importance in the last decade. In addition there are more than 1,000 outfitters that offer white water river tours, backpacking trips and survival and trekking experiences (Rogers, 1983). The desire for these new and old activities is the result of a continually changing lifestyle. Clawson (1985) has briefly decribed four fueling factors that have affected demand for outdoor recreation. Secondary factors are the changing status of women in our society, two income families, later marriages, fewer children, longer life expectancy and earlier retirements. The changing characteristics of our population have resulted in increasing sophistication in efforts of market segmentation as the sporting goods industry competes for the discretionary leisure dollar.

The sale of sporting equipment and larger durable goods such as boats and recreation vehicles have been noticeably vulnerable to social changes and economic conditions. In the cases where sporting equipment can be traced over the last decade, sales steadily increased from 1974 to 1977 or 1978 and then took a significant drop (Clawson and Van Doren, 1984). Examples are equipment for tennis, golf, fishing, skiing and camping. The recovery in sales for these goods was slowed by economic factors influenced by inflation, unemployment and high interest rates. Recreational boat sales have continued a steady increase with retail expenditures doubling between 1974 and 1984 while boat registrations increased 40 percent (Kalette, 1983). The boating industry claims that the average boat owner purchases a new boat every 3 or 4 years (Palmer, 1984). Recreation vehicles did not fare as well over this time frame. After hitting a peak in total shipments in 1972 of 583,000 vehicles, by 1974 shipments had declined to 296,000. The fuel crisis recovery was rapid for this industry with shipments at 526,541,000 in 1976 through 1978. The 1979 fuel upheaval precipitated a decline to 181,000 shipments in 1980, the lowest since 1964 (Clawson and Van Doren, 1984). Since 1980 shipments are once again climbing with a 1983 total of 358,000 (Hamel, 1984). In 1984 a shortage of domestic chassis depressed sales of all recreation vehicle manufacturers except Winnebago, a company that uses the French Renault for chassis (Antilla, 1984). Recreation vehicles are increasing in importance and have made a significant use impact on public land. It is estimated that

27 percent of National Park visitors in 1983 were in a recreation vehicle (TRAVEL VWEEKLY, 1984). The last year that tent camping exceeded recreation vehicle camping in the National Parks was 1969 (Clawson and Van Doren, 1984).

Camping is the fourth most popular outdoor activity after swimming, bicycling and fishing (Clawson and Van Doren, 1984). Gauging the magnitude of the camping industry is difficult. Information about camping seems to be as diverse as the number of surveys that purport to provide statistics. How many public and private campgrounds are in existence? What are the characteristics of the campgrounds and of the campers? Don Ryan of KOA stated in 1983 that private campgrounds exceed public 7,700 to 5,000 (Ryan, 1984). Curtis Fuller of Clark-Woodall Publishing Company at the 1984 National Campground Owner's Association meeting stated that according to an A. C. Nielson study two-thirds of camper nights are spent in public campgrounds. He stated that 73 percent of tent camping was in public parks, 27 percent in private parks and two-third of recreation vehicle camping occurs in publicly operated campgrounds. It is obvious that this activity is a major land use on both public and private land. KOA surveys show that campers are most likely to have incomes of $25,000 or more. Campers are getting younger. In 1983 the average age of the head of the household was 36 years (Ryan, 1984). With the price of lodging a family in a commercial establishment anywhere from $40-$80 or more it is understandable that camping activity remains strong. However, camping activity is justified by many because they truly desire the experience. The KOA survey indicates that campers are "action oriented" and seek activities in the outdoors as they stay longer in the campgrounds. The camping populace seems to cover all age groups. The survey does show that more and more retired campers are leaving their trailers or recreation vehicles in the Sunbelt in the spring when they return north. This takes them out of the summer camping market. The demand for camping should remain high and new land use and management innovations to accommodate camping demand have arrived.

New innovations in land development for camping have come on the scene in the last few years as campers have embraced the concept of purchasing memberships in franchised campgrounds or in some cases purchasing campsites. This latest innovation in real estate programs seems to be gaining in popularity particularly in the Sunbelt. Some of these operations require large capital investment by the developer for golf courses, swimming pools and artificial lakes. Many have full-time recreational program directors in residence. In short we have full-fledged camping resorts with amenities comparable to hotel resorts.

Marion Clawson's point (1985) that the availability, comfort and cost of travel has been an inducement for travel and has an affect on the amount and location of outdoor recreation is extremely important (Kenny, 1984, Levine, 1984 and Liberson, 1984). Recommended Federal policy in 1978 (National Tourism Policy Study) even went as far as to state that there are: "natural and inextricable ties between travel and recreational activities". National Travel Surveys by the U.S. Travel Data Center have shown that the desire for vacation travel may be responsible for as much as 50 or 60 percent of all travel in recent years. This has occurred in spite of a steady increase in the cost of travel as compiled by the Data Center (Figure 1). Recent trends in the mode of transportation hint that highway travel by per-

sonal vehicle is declining and air travel is gaining in importance. The ease and availability of renting automobiles at distant destinations has encouraged air travel along with price wars by air carriers and rental car companies. Travel is considered a necessity of the changing American lifestyle, not just vacation travel in traditional summer months but weekend travel and winter vacations as well. The rapid growth of services, attractions and information interchange in the private travel sector comfirms this observation. On December 31, 1984 the number of travel agencies in the United States totalled 26,037. There were fewer than 4000 agencies in 1960 and only 10,000 in 1974. (TRAVEL WEEKLY, 1/14/85). Travel agents are answering a need for information and access to travel with air travel sales of $29.8 billion in 1984. This is a 15 percent increase over 1983 (Travel Weekly, 1/28/1985).

Keeping abreast of changes in the travel sector has become a necessity for the manager and administrator of public outdoor recreation lands. The survival of public recreational lands, just like private recreation developments depend on a viable travel industry. Providers of outdoor recreation opportunities must know who their visitors are. It is becoming increasingly evident that public facilities charging a fee must undertake marketing and promotional programs. This is a new experience for many bureaucrats at all governmental levels. Hence knowledge of consumers and what attracts them to a private or public resource may be a determinant of the viability and cost effectiveness of a public outdoor recreation facility. Our affluent society now sees the purchase of a leisure good or service as an expression of personal taste, a demonstration of a lifestyle.

The private sector doesn't survive unless it can provide a product or service that a buyer desires. Making a judgement of this type can be painful and expensive. An analysis of the theme park industry provides an example. Obtaining data about this competitive attraction industry is difficult. In 1970 attendance at 30 of the largest theme parks was 30 million. By 1977 it was estimated at 80 million (McMullen, 1984) and by 1984 it was 88 million (Amusement Business, 1984). Attendance in 1983 exceeded visits to major league baseball, basketball, football and hockey games combined. Fuel crises, recessions, and inflation have impacted theme parks to various degrees. Since most parks rely on a population core within a travel market of 250 miles, the economic health of that geographic area directly affects attendance. Theme parks are relatively new, but in a society with rapidly changing characteristics, the theme park is a mature product with a need for new innovations to rejuvenate the product life cycle. Some theme parks have foreseen the shift in demographics. By 1990 young families with young children will constitute more than 55 percent of all families, while the teen population, the major source of visitors to theme parks in the past will decline by 14 percent. Theme parks must become oriented to family activities and actively promote children's events, and entertainment for the entire family. Water parks have hurt theme park attendance if the geographic marketing areas are the same. The popularity of water parks is further testimony to our continuing attraction to water even if channelled artificially. New mini-theme parks if family oriented, appear to be successful if the market area is large enough. Some larger theme parks in northern areas have been experimenting with periods of winter time activities such as the Winterfest at Kings Island in Ohio. Major, successful theme parks recognize that success means innovative marketing, capital-

izing on and improving their assets, cutting costs and continuous attention to consumer price options including tour packages. The public sector should monitor the theme parks carefully and capitalize on their successes and mistakes when possible.

The Government Role

In the private sector the influence of our government can be just as important as in the public sector. Even though our various governments are suppliers of outdoor recreation oportunities, the physical management and funding of these resources influence the private sector in many ways. A poorly managed public golf course, tennis court or a ski area in a national forest will affect the consumer demand for these activities. Demand will either be diminished for the activity or shifted to a private facility if consumer incomes are adequate for such a shift. Unfortunately for some, incomes may not be adequate. The general tenor of the Reagan Administration toward a privately rich and publicly poor nation does not seem to embrace the public provision of recreation opportunity for low income groups, particularly in urban areas. Yet our government has spent $67 million in Miami Beach to reconstruct ten miles of sand beach.

Some government policies and laws have direct and indirect affects, positively and negatively on outdoor recreation activities beyond the actual supply of a recreational opportunity. Federal budget cuts and the abolishment of the Heritage Conservation and Recreation Service is a negative example while a positive example is the federally mandated three day weekend as a result of the Uniform Monday Holidays Act. The federal push for energy conservation and adjustments made in travel habits and the fuel efficiency of our automobiles is another example. No one has really analyzed Amtrak's influence, if any, for leisure travel. The current administration may push to do away with this subsidized mode of transport. For a nation that is tied to the automobile, Amtrak may not be missed. The removal of taxes paid for gasoline and oil as a tax deduction on personal income tax has not seemed to greatly reduce personal travel even as gasoline prices escalated and gasoline taxes for highway maintenance were increased. The deregulation of both the airline and bus industries has had positive and negative influence in travel markets that include major outdoor recreation attractions. Some national parks and ski areas have been made more accessible at a reduced cost while other areas have not benefited. Certainly the entry of hundreds of new bus companies into the charter and tour bus business will have varying influence on the use of outdoor recreation areas. It is doubtful if the affects of deregulation in these two industries has been documented on a nationwide basis particularly at publicly operated outdoor recreation attractions. With the sunset of the Civil Aeronautics Board last year the shakeout in airline deregulation is yet to be completed.

The federal budget deficit and the resulting revision of income tax laws will likewise have some affect in the private sector. At the time of writing new tax plans are still in stages of debate. But some plans do not provide tax writeoffs for purchase of second homes and condominiums and tax breaks that have been traditional for business travel may be reduced. The use of second homes and other types of real estate investments in vacation areas have been treated by some as business expenses and frequently used

for pleasure purposes. New tax laws may alter this type of investment. Time sharing schemes have also been rationalized by some as business related expenses and may be affected in the future. Certainly the abuses in some time sharing schemes will be the subject of further government review as the need for more consumer protection becomes necessary.

A brief review of some of the changes in government policy and law would not be complete without mentioning the growing movement in some states to alter the start of the school year in order to encourage late summer use of recreation and tourism attractions and facilities. The movement to require schools to begin after the Labor Day holiday is a fact in Missouri and has a following in many other states. Changes such as these are recognition that the travel and recreation industry is of significant economic importance in state economies (Brosseaun, 1984, State of California, 1984).

Conclusions-The Present and Future

1) Our national lifestyles embrace a leisure ethic and we have witnessed a democratization of leisure travel. Leisure activity including travel is considered to be a right, and not just for the privileged few. The ease of mobility in our information age has brought us to this threshold. Travel is a migration and can be a symbol of stress. Leisure travel is an attempt to relieve the stress in lives. Assessments of our national well-being vary. Our physical health may be gradually improving with fitness fads but other studies indicate our collective mental health and stability may be declining. These reports thankfully indicate that for many emotional instability may only be temporary. We have chosen active competitive lifestyles, fortunately our leisure ethic may provide the temporary escape and relief that helps to maintain our physical and mental equilibrium.

2) The new Federalism of the current administration in Washington has decreased monetary support for outdoor recreation and has shifted the responsibility to state and local government and to the private sector. Many leisure resource and activity opportunities that have been "free goods" in the past are now a part of market pricing systems. As a result of this shift in responsibility we can expect to see new innovative fiscal agreements between public and private institutions, to finance and manage outdoor resources. More states will turn to lotteries and gambling in order to increase public income. Perhaps some of this income will go for leisure services and resources or free other public monies for expenditure in this area. Trends also indicate that state and local institutions will continue to increase promotion and development of travel and tourism as a means of economic development.

3) The pursuit of leisure should be beneficial to private institutions. The manufacture and selling of recreational equipment will wax and wane with the economy, but we are hooked on a wide variety of leisure activities that require functional articles as well as those that enable us to portray a desired leisure image. We are a society attuned to tolerate built in obsolescence. We desire to trade up for newer boats, recreation vehicles, and the latest ski equipment. Short of the actual purchase of leisure durable goods we can expect to see an increase in

the rental of sport equipment and various recreational type vehicles from trail bikes to hang gliders. Private land resources development is going to expand. Some areas of the nation have become national and international focal points for a multitude of leisure activities. These are areas where a critical mass of both private and private attractions provide the variety of opportunities necessary for economic survival. Look at the gateways to many national parks or Orlando, Florida as examples of this phenomena.

4) There is evidence that the mass market for goods is shrinking (Sternberg, 1984). The upscale market has grown at the expense of the mass market as the proportion of the population in the middle income range declines. It is going to be painful for many as we gradually shift to an economy that is service based. For the leisure industry more employment opportunities will become available, but these opportunities will pay less. For the manager of leisure and travel attractions seeking the right market niche will be paramount. Marketing has become a byword for success with the multiple leisure options that are available. Market segmentation will become very sophisticated as target markets are selected and customized and even individualised for particular lifestyle groups whether senior citizen, singles, extravagant consumers or cautious homebodies.

5) The trend in the last decade toward consumerism and the formation of various interest groups for promotion and lobbying purposes should continue. Leisure goods and services are one of many areas in which the consumer demands quality and has become vocal in support of certain expectations. Americans have learned to become crafty shoppers in pursuit of good prices and quality. There is a growing trend to eliminate the middle man through catalogue shopping. We may be surprised in the near future at what types of leisure goods and experiences will be afforded by this marketing method. Action groups that speak for various aspects of the industry should continue to gain stature. Current groups such as the Recreation Coalition and the Tourism Industry Government Affairs Council are examples of national groups. Look for similar groups to take shape at the state and even local level with the support of political, industry and citizen interest groups. These social action groups may have a significant impact on public and private development policy and on the way some states host out-of-state visitors. It is very disturbing to hear of incidents in which local residents exhibit antagonism toward visitors (Farrell, 1985). This form of parochialism that seems to stop at state borders may increase. Public measures that emphasize the importance of visitor spending in the economy would appear to be the best means to inhibit such parochial views.

6) Interest groups will have to play a significant role in the future in order for recreationalists to preserve and utilize our natural resources for outdoor pursuits. Multiple use pressures on our land and water resources can be expected to increase and depending upon location the controversies will vary. Problems of access, pollution, economic degradation, wildlife and energy use are broad examples. Issues of economic viability, will be pitted against quality of life and social welfare. These problems are not limited to public lands but will extend to

private land as well. More and more of these issues will be settled by our judicial system.

7) The travel and tourism industry has been a stepchild of the leisure and recreation industry. Until the last decade, like a stepchild, it has been out-of rhythm with outdoor recreation suppliers and researchers. This is no longer true. One leisure industry exists. Travel or mobility or tourism, whatever the label, leisure travel is an integral part of any leisure purview. This necessitates a broader focus of our interest as leisure educators, managers, bureaucrats and researchers. We must embrace new knowledge concerning a vibrant industry. Leisure, including travel, is a part of America's heartbeat (Maxey, 1984).

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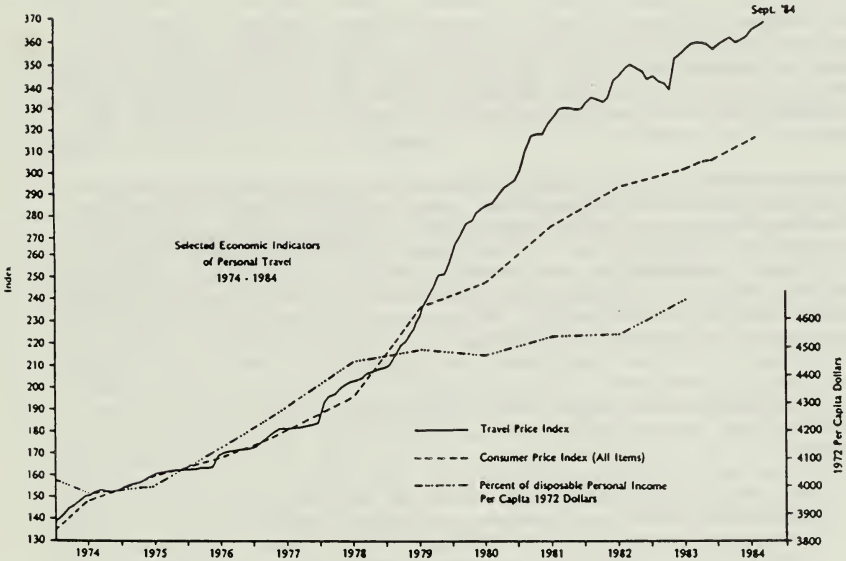
Figure 1



SOURCE: Travel Price Index from U.S. Travel Data Center, Washington, D. C.
Consumer Price Index U.S. Bureau of Labor Statistics
Disposable Personable Income - Survey of Current Business

SOCIAL TRENDS IN OUTDOOR RECREATION

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Abstract. Outdoor recreation in the future will be affected by emerging social trends and changes in the United States. Changes in the structure of the population, constituency support and the political process, technology, experience erosion, depreciative behavior, activity patterns, and displacement and succession of users are all seen as major impacts on the recreation environment of the future.

INTRODUCTION

When Zimmerman wrote "Resources are not, they become," he effectively provided a perspective that challenges our view of outdoor recreation in the future. Many of the physical spaces in which outdoor recreation takes place have gone through decades of change. These changes have caused a transformation in the way in which the environments are used. Some of the images are products of political decisions, while others reflect the changing composition of a neighborhood, region, or the availability of an automobile. In all but a few instances a change in the larger social environment has caused us to rethink the nature of the product being delivered and the consumer that is to be served.

Some of America's most popular best sellers are about the future and major watersheds of change that face each individual, organization and institution (Yankelovich 1981; Toffler 1980; Naisbitt 1982). Each publication portrays several major social changes that are or will soon be taking place. Individually each arena of change is significant. To the extent that they will tend to occur simultaneously, the accumulated significance could be revolutionary. While we are interested in the specific areas in which alteration and innovation are expected to occur, it may be more important to try and anticipate how adaptation to change takes place, and how this is translated to the recreation environment. Catton (1980) provides an interesting example that might help us begin to think how recreation (time, activities and space) might "fit" with social trends in the future:

> Most of us easily took up the habit of assuming that we fly by "getting into" an airplane. But when an airline pilot with thirty-three years of flying experience refers to the familiar act of buckling his cockpit seatbelt as "strapping a DC-8 to my waist," it is clear that even a modern jetliner can be seen as an elaborate prosthetic device. ... From the multi-niche perspective, the airplane is a set of prosthetic wings and lungs that people "put on" when they have occasion to fly into an environment for which they are not genetically prepared. (Catton 1980:150)

Recreation areas and activities become accoutrements that are "strapped on" like skis, bicycles or running shoes to pursue fantasies, get

closer to the family, or to simply escape. They become essential adaptive prosthetic devices used to achieve life experiences and goals that may or may not be consistent with the objectives of the resource manager or organization providing outdoor recreation.

These social definitions about the use of space and activities will certainly be as "interesting" in the future as they have been in the past and will require more sensitivity of the park manager than ever before to be responsive. Managers will have to think more carefully about their visitors and contextual changes in the larger society than has been the custom because the images of the resources they manage will be in transition. How will the visitor "buckle on" a park, activity, piece of equipment, or an experience?

Developing a Frame of Reference

In thinking about social trends and outdoor recreation there is a need to develop a frame of reference within which the dynamics of change are considered.

Lee (1973) suggested that for purposes of managing and planning recreation spaces it would be helpful to consider several perspectives. First, defining objectives for open space and parks should be developed in terms of the function recreation is to provide and the visitor populations to be served. Important to consider are whose expectations are being met in managing the recreation environment.

The issue of expectations is extremely important. In the recreation and natural resource literature there are examples and discussion of professional trained incapacities. The manager with more experience, training or different values than the visitor runs into conflict when the recreation environment conforms to his or her image. In the business community a similar phenomena is referred to as the self-concept, a condition where it is difficult for input to pass through personal and professional filters that screen important information from being considered in the decision process.

Based on years of accumulating cultural baggage that contribute to the filter structure these barriers are not easy to overcome. Perhaps, the most important way for the manager to deal with the issue is to recognize that these differences may exist and that some accommodations may have to be made for the consumer. It also means that one must actively seek information about the visitor. Without this recognition an organization becomes anachromistic and is unable to achieve its objectives.

It is clear from observation that visitors have a wonderful propensity to provide a range of alternative definitions to the use of space than what management might consider appropriate. For example, Burch (1965) describes the building projects that go on in campgrounds once visitors arrive. On-site furniture is moved, new furniture made from "natural" materials is constructed, firewood is stockpiled, etc. The activities appear to be timed to end as the camping party leaves. While these activities often frustrate the manager and cause additional work for the staff, there appears to be a consistency in this visitor phenomena to suggest the mana-

ger might anticipate and provide an opportunity for the behavior to occur.

Etzkorn (1964) has also discussed another role of recreation as an opportunity to achieve status. Camper vehicles become more like the home with air conditioning, television and microwave ovens. In essence, there is little reason to leave the camper while roughing it in the out-of-doors. The visitor demonstrates having made the grade, and perhaps brings a status-based prosthetic device for coping with the wilds of the natural environment. With the proliferation of equipment both modification to the environment and the pursuit of status needs might occur simultaneously.

These are twenty year old examples, but still appropriate as a way to look at the future. It would be useful to anticipate and in some instances facilitate the different expectations in planning how those groups might interact and whether it is appropriate to try to cluster or zone those whose interests do not conflict.

A second important consideration concerning management objectives is trying to create a situation in which visitors learn about the outdoor recreation culture. How should I behave? Where should I go? What should I bring? There is a growing number of people who have little experience or contact with the natural environment. They develop few guidelines about the acceptable ranges of behavior for different kinds of recreation experiences. There is little reason to believe that this will change. Schools will probably not intervene in the learning process. With new emphasis on basic skills and the difficulties many teachers have in identifying appropriate materials for environmental education, it is not reasonable to expect a renaissance in knowledge about the environment. The responsibility then may fall to the resource management organization to provide information about living in and with the natural environment. Environmental education and interpretation programs take on new importance. Without this taking place we can probably anticipate an even more rapid increase in the number of manager-visitor conflicts reflecting a lack of knowledge about appropriate behaviors.

This suggests that social controls may be our third concern. The formulation of control strategies should be oriented to fit specific user groups. The normative order in many recreation areas will vary depending on the nature of the visitor and the expectations brought with them to that space. A sense of what those expectations are will suggest the appropriateness of either formal or informal enforcement of rules and regulations. The choice is extremely important because the pursuit of the recreation experience will often be an attempt to escape or seek change from those conditions experienced in nonrecreation places and behaviors where formal controls are most pronounced.

This provides a significant challenge in the delivery of outdoor recreation to developing mechanisms that balances a quality experience with the range of visitor groups, expectations, and levels of control.

IMPACTS OF POPULATION CHANGE

Concern about the function of recreation, visitor expectations, interpretation and social controls means that the structure of the population

and the manner in which it is changing should be of interest in thinking about the future of outdoor recreation. In the natural environment the structure and distribution of overstory and understory vegetation or wildlife species will often dictate appropriate management practices. Sensitivity to current and potential visitor populations might be thought about in the same way.

Certainly the most discussed issue of population change has been the movement of people to the south and southwest. States in these parts of the country have witnessed rapid population increases throughout the 1970's. However, even in those areas of the country where economic problems have significantly affected employment opportunities there has continued to be some population growth. For the manager it is important to recognize that there will be more people to serve and that this trend will probably continue.

Another factor to be considered in thinking about this trend is population density. Contemporary reports of population movement suggest an image of the nation like a table where everybody is sliding south as the country tips. However, demographic analysis continues to suggest that those portions of the country in which the most dense levels of population have been present will continue to maintain those levels, with only moderate changes occurring in other parts of the nation (Cooke 1984). The impact on recreation should be clear. There will continue to be substantial demand for recreation and pressure on the resource to obtain outdoor leisure opportunities.

Perhaps the more important issue to consider is how the population and social structure is changing. The population is aging; there are more single parent households; there are more women entering professional occupations; there are more households where both the male and female adults are employed full time. Each of these changes are relatively new, but all are occurring at the same time at different intensity levels throughout the country. All will affect how people choose to travel and recreate (see Outdoor Recreation Policy Review Group Report 1983). One of the more interesting changes of interest to the manager will be the relation between rising levels of <u>education and underemployment</u>. For years, stories have been told about the cab driver with the Ph.D. waiting for an opportunity where educational skills could be used. Universities will lobby to maintain their revenue positions by trying to increase the percentage of students from a declining high school base who pursue higher education. Discontinuities between traditional occupational expectations upon graduation and what is available will develop. There will be more "taxi drivers". To the extent that jobs will be routinized, opportunities to live out one's fantasies or to discover substance and meaning will be pursued in recreation and leisure. In some cases this has been described as the rise of the "Walter Mitty" type. It is certainly consistent with Yankelovich's (1981) discussion of the search for self-fulfillment in America.

If recreation spaces become "fantasylands" where meaningfulness in one's life is constantly a goal, then they become some of our most important social arenas. They also become some of the most difficult to manage as expectations change and if degree of difficulty (does everything become

an ultra?) becomes an important ingredient in fulfillment. It is certainly clear that higher levels of education appear to increase the range and the types of activities people pursue. How the "shape" of these activities are developed by the different constituencies in the future will be most interesting.

During many of the years in which we have collected outdoor recreation participation data, the one persistent theme is that involvement has been on the rise. Another observation is that outdoor recreation has been a relatively stable phenomena in terms of the ranking of what's popular and where it stands relative to other leisure opportunities. Since the middle seventies the percentage of disposable income spent on recreation has not changed. Yet we know that home entertainment and gadget technologies have provided new entertainment products for home environments that are selling extraordinarily well. If disposable income (and perhaps time) does not change but alternatives do, how will people respond? In a difficult economy or with energy problems, will interesting home-based opportunities that have developed pull people out of outdoor recreation pursuit. Will it take people out of "half a tank" leisure? Under more normal conditions would people substitute use of these new technologies for outdoor activities or for other leisure activities (e.g. reading a book, magazine or newspaper)?

Some park and recreation departments have increasingly talked about the "California, Arizona, Florida model" as a harbinger of the future. California has been seen as a place where many recreation fads have first emerged and within five years spread to other parts of the country. In Arizona and Florida where many older Americans have taken up residency, the recreation professionals have to provide different kinds of programming and activity opportunities. To the extent that the age structure of the remainder of the country will begin to approximate that of Florida many of the successes from these states might be imitated and the failures avoided. Surely a learning opportunity exists for state and federal resource managers also.

Some other key questions we can pose are (Bultena 1982; Cordella and Hendee 1983):

1. What is the role played by recreation in regional and urban-rural population shifts?

2. How might these shifts affect future recreation demands?

3. What are the recreation preferences and activities of minority groups?

4. What are the recreation activity patterns of older persons?

5. How does the and nature of work plus changes in labor force affect participation?

6. How do shifts in management programs alter future use and enjoyment of recreational sites?

7. What are the motives and benefits associated with participants?

Flies in the Ointment

It is quite possible that population changes and recreation travel that we speculate on for the future will be mediated by resource constraints. There are already indications that states in the South, Southwest and Great Plains could face a major problem with the availability of water. Discussions about pipelines that move water from the Great Lakes south have been looked on with disdain by Great Lake states governors. As energy and utility bills made movement to the south attractive for many, the availability of water may act to stem the flow and even turn the flow in a different direction.

Almost every publication that discusses the future anticipates the recurrence of energy problems in this country. For purposes of understanding what impact this could have on recreation, our experience gives us two collection points - 1973-74 and 1979-80 - with limited data. Ninety percent of the visitation to outdoor recreation areas is done by automobiles. If gasoline quotas were imposed again as they were in the early seventies in some states, there would be changes in the profile of visitors at many areas. Those places that draw clients from far away would probably find that this group would decline. However, recreation areas and parks would also find shifts in visitor destinations with a greater interest in staying closer to home. In the 1979-80 period, some data suggested that a dual phenomena of staying closer to home and for a longer period of time took place.

There are three key reasons for considering these kinds of changes. First, the manager must consider our earlier comments about visitor expectations and the potential importance of recreation to provide meaning and fulfillment. If the visitor population changes then the manner in which persons come to use the space might also change. Anticipating that these differences will occur may facilitate a smoother transition in what will already be a difficult situation.

A second concern here will be that some parks will experience sharp increases in visitation. Some reservoirs close to urban centers reported 20% increases in use in the 1979-80 period. Perhaps the rule of thumb to be used here will be that those places within an hour's drive of the large population concentrations (especially if there is water based recreation present) will probably find their visitation remaining the same or increasing.

Another issue that recreation managers will have to anticipate when the energy problems reoccur will be the political lobbying that will be done by the tourist industry to maintain quantities of gasoline for travel and recreational equipment like boats. While the tourism industry in the U.S. tends to be highly fragmented, it represents an extremely important economic activity for which energy problems may provide a uniquely focused rallying point. There was evidence of this lobbying during the last two periods of energy problems and since tourism has most recently been viewed by many as an economic panacea, that thrust may add fuel to the lobbying fire. It will be virtually impossible to stay out of the discussions since

many of the important destination points that are interdependent with the private tourism sector are public recreation areas.

CONSTITUENCY SUPPORT AND THE IMPORTANCE OF THE VISITOR

Earlier observations about the movement of people from northern states to the south has important implications for the political process. States in the midwest have lost representation at the federal level to states in the south. If the population movement towards the Sun Belt continues this shift in representation will also become more pronounced. The ability to exercise political clout will become more feasible for those with the largest representation in the legislative bodies.

For many recreation managers the political process has not been an attractive arena to operate in. In a large number of cases it would be difficult to get a manager from an area to name his or her legislative representatives. The reality of the political process appears to follow the squeaky wheel concept, i.e., the loudest and noisiest frequently get the resources and their way. It has been difficult even for the manager to elicit support from those that participate in recreation since this large, amorphous group tends to be fragmented and unable to coalesce around key issues, except in a few very specialized instances.

In the literature on public involvement three groups of participants are noted: gladiators, spectators and apathetics. As the term suggests, "gladiators" represent a group of people who wade into the issue battle aggressively, with a total commitment to achieve their objective. A "spectator" is much less intense, but is willing to make some commitment to achieve a goal. An "apathetic" is content to watch and usually doesn't really care one way or another about an issue outcome.

If recreation does continue to become a focal point in people's lives and if more educated persons are underemployed we might expect more gladiator type advocacy to impact on the resource manager and agency. In addition, it is likely that these persons will seek group membership with others who share similar advocacy positions.

The nature of the advocacy will involve a large number of groups with increasingly specialized interests. Where majority votes may have prevailed in the past, future choices may result from an aggressive, outspoken minority that is willing to go "to the mattresses" for their case.

If we accept the suggestions made in some of the more recent literature (e.g., New Rules, Megatrends) this advocacy will be focused increasingly at those levels of the resource and recreation system that people feel they are able to have control over - local and regional. At this level success in achieving one's objectives has the greatest potential to enhance the quality of life and may contribute most from a self fulfillment perspective to a person's life.

It is possible that with issues like nuclear waste, acid rain, and the nuclear weapons control movement that we are on the verge of another environmental movement. Those who have become involved in the latter issue appear to represent a broad cross section of society. Should this broad

representation be focused on appreciative or symbolic issues of the environment that directly or indirectly affect recreation, it could have significant effects on the manner in which resources can and will be allocated.

Patterns of interest and funding in the past will also affect the commitment parks and recreation will receive. In the contemporary list of important public policy issues inflation, defense spending, interest rates and raw material supplies will all be of higher priority. While the argument posed here suggests that recreation is a very important form of behavior, it has generally been regarded, in the past, as frivolous and was the first item of business eliminated when times got tough. There is no reason to believe that the tendency will change, but in light of other changes taking place that have been noted here, many more conflicts could arise.

IMPACTS OF CHANGE

Discussing the importance of population structure, energy and the political process suggests that parks and recreation systems do not operate in a vacuum. Yet in many cases they have been treated as an island somehow insulated from the storms that develop on the outside. Several years ago Meeker (n.d.) proposed that the national parks are important symbols of the American social fabric. He noted that plastic explosive dropped into Old Faithful at the height of several years of unrest might serve as an ultimate revolutionary statement on social justice. We must hope the storms never reach this level. In the future it will be imperative that the internal/external relationships of organizations and recreation systems be recognized and dealt with. Increasing time will be taken in negotiating relationships. In some instances the linkage between a park and a community (visitor types, issues, special interest groups) or representative groups like the chamber of commerce or the local Sierra Club will have to be negotiated. We do some of that now. There will be even more in the future. In some other situations the manager will worry about negotiating a set of objectives that complement those of other organizations that also manage tangential or overlapping resources and space (Park Service, Forest Service, Fish and Wildlife, etc.).

It is quite possible that some recreation space should be maintained as islands that provide certain kinds of experiences (see Sax's Mountains Without Handrails for a well argued exposition of this idea). Yet if we retreat to an island perspective and allow these resources to be redefined by an external social environment, we will certainly lose our most attractive, interesting and useful recreation spaces.

Evidence of this kind of pressure is apparent both inside and on the peripheries of many parks when land use has changed and development pressures grow. Some towns and communities will no longer allow housing development to take place without some amount of land space or some funds being made available to provide for recreation.

A second type of pressure that will impact the future of parks and recreation is the lack of distinction between places in the minds of

consumers. A national park is viewed the same as a national forest, and what can be done on state properties is certainly similar to that done in a local park. The most important problem here may be that if consumers and managers do not recognize that experience differences can and should exist and that heterogeneity is a reasonable goal, then pressures to develop property to make it easier to gain access, more comfort, or achieve greater economic returns will become a dominant organizational theme. In this instance we are brought back to our earlier discussions regarding the ability to understand the "rules" and the range of appropriate behaviors associated with outdoor recreation places. It may fall to the agency and the manager to emphasize the distinction. It will not be easy.

Certainly the recent emphasis on tourism as a major economic activity will not assist in preventing development pressure. Even in those states where tourism was not viewed as a major industry, it has become a new panacea as other economic activities have slowed or declined. Advertising programs have attempted to raise the consciousness of the consumer about the resources that are available. Packages for tour groups take visitors to new places that are "behind the scenes" and were not as readily known in the past.

The dilemmas for outdoor recreation from this trend are at least threefold. It will place new pressure on places that may already be well used or which were best left hidden because of their special character or fragility. Heightened interest can bring a greater interest in ease of access and developmental opportunities. This shift in interest can lead to the displacement of older, more traditional uses and successional changes of visitor groups to an area (Shreyer and Knopf 1984). This is a broad interesting question that impacts policy, planning and management. The second problem will be that more visitors will require greater staff time to cope with directing, guiding and enforcing. The final concern will probably be the need for the manager to cope with an angry local citizenry that views the new visitors as interlopers in their own private space. While the areas may be in the public domain, intrusions into traditional local space by non-locals can create problems both for the agency (diminished rapport; higher levels of vandalism) and for the non-locals (vandalism; theft) (see MacCannell 1976).

Increases in depreciative behavior (or inappropriate behavior) in recreation settings can also be viewed as a growing problem. In many places, crime in recreation areas has grown at a rate faster than that found in the most difficult urban areas. Part of this problem is related to the nature of the recreation experience - a heightened level of relaxation, a greater willingness to interact with a group close by or a stranger, and a lower concern for leaving both low and high value equipment in and around a site or a car. Managers and staff who patrol recreation areas have also become more sensitive to the different kinds of people they encounter and the need to be cautious whenever the contacts are initiated. Drug use and violence can be found occurring in many recreation places if for no other reason then they tend to provide more secluded opportunities for interaction, and low numbers of visitors at many times of the day and week. In some parts of the country the incidence of violence and vandalism became so pronounced that facilities had to be closed.

Part of the problem for the manager is that many visitors view the recreation environment as "free space" where almost any kind of use or activity is fair game. Since public properties belong to everyone but are interpreted as belonging to no one then it becomes more possible than in almost any other place to "do your thing".

While managers would certainly not view their areas as free space, a larger number of visitors will attempt to carry out their activities and fantasies as if this were the case. There also is every reason to believe that the crime problems of the larger society will permeate the recreation island. For this reason depreciative behavior and tools or strategies to cope with the phenomena will become of greater interest in the future.

More visitors and the need for additional staff will move organizations to introduce more fee systems and arrangements for those who wish to recreate on public lands. The last several years have found many agencies either having budgets reduced or legislative decisions made about the priorities of an organization. In a few instances, some managers have not had sufficient funds to put gasoline into their vehicles. Federal and state agencies will become more like their city and county park and recreation brethren and charge for virtually all opportunities. Although there will be philosophical dragging of feet both voluntary and mandatory fee systems will be in place.

One of the key spinoffs the fee system will bring about will be demands the public will make for quality. When an opportunity is paid for and becomes more like that encountered in the private sector, there will be greater interest in the attributes that define the experience being well done. Factors like safety, cleanliness, and information all become more important considerations. Evaluation of how things are going will also have to become a common management tool.

The demand for quality will also force fees to be collected to act as a fund for renovation of facilities. Many areas in the U.S. were put in place as part of the 1930's C.C.C. or WPA programs and the more recent Youth Conservation Corps, Job Corps, or Young Adult Conservation Corps programs. The fifty year old sites are in many instances requiring significant rehabilitation (total redesign in some cases) and the more recent developments will be in need of maintenance soon. Money and personnel will have to be available for this activity.

To the extent that certain recreation places or opportunities can support the collection of fees, there will be more emphasis on the use of concessionaires and privatization of services. For the manager there will be increased responsibility to assure contract provisions are in compliance and in many cases it will require new training to be certain the manager is able to recognize compliance. From a recreation point of view, the development of a privatization pattern will probably mean more interest to develop recreation areas and increase the profitability of the contract permit or agreement. These changes will not be easy and will certainly mean more time in contract discussions, public meetings, and in developing impact analyses than ever before.

Technology will also affect recreation management in the future. Computers are already on the scene and will be as important (if not more so) in the future than a pickup truck was to the manager in the past. Organizing management information, doing spatial analysis with maps, inventories and sattelite information, word processing, and communication will all be essential day to day activities. But technology will also mean the evolution of new and different kinds of equipment for recreation use then we've ever seen. In some cases the equipment will make participation in an activity safer. In other instances it will tax the regulatory ability of the manager. Small, ultra-light planes capable of being carried by one individual and needing only limited space for landing and take-off make almost all remote and wilderness areas fair game for the thrill seeker.

Hiking and backpacking equipment have been called "new wave" because of the incorporation of new technology and materials to make things lighter and smaller. Recreational vehicles, now selling again at extremely high levels, have become smaller and lighter with changes in fuel economy, size, and aerodynamics. Part of these shifts are to capture the "yuppies," and possibly entice their interest to become tomorrow's market. Mountain bikes are sturdy non-gasoline powered vehicles that allow one to go off the road. They are also great for bumpy urban situations with curbs, holes and grates in the road. In each case the evolution of technology provides more specialized equipment to address the evolution and specializations that go on within complex activity changes.

Enhancing the profitability of new technology plus the emergence of recreation as an area for the "Walter Mitty" types to live out fantasies could contribute to an exponential growth of new equipment in the private sector that will have to be carefully monitored by resource agencies.

The difficult part of the job for the manager given the nature of the changes described to this point is that there will be an experience erosion. Fewer people will have had opportunities to do certain activities or to have experienced the dispersed opportunities often provided on public lands. We know that people are socialized into activities as children through their parents' tutelage. If the parents have little or no experience in natural surroundings, how will the children learn. It will certainly be difficult. The problem is that many people will continue to try and pursue even the most difficult and risky opportunity if for no other reason than television suggests it as part of the good life. They will get into trouble and the manager will be called upon more often to intervene requiring time and well trained people to be available.

The other side of the issue of experience erosion is to anticipate that involvement in some activities will decline. The skills necessary to participate will not be passed on and fewer people will be available in the pool of possible participants. If an activity requires access to certain kinds of land resources that are difficult to obtain, people may choose to substitute other activities. These concerns are important since they will affect the participation projections we use for future planning and they will also act to affect fads that arise for a short time but create large headaches.

CONCLUSION

If there is one thing we can all be certain of it's that there will be no final solutions in the management of resources that enhance opportunities provided for visitors. New and old information that we are able to better interpret will cause restating of goals and objectives that lead to a reorientation in course. While it will always be difficult to get ahead of all problems and questions that are raised, it is imperative that our visions of outdoor recreation are not allowed to fall so far behind that we are viewed anachronistically. In the worst situation, the ability to manage would be taken away and subsumed by another group. The challenge will be to recall that wisely encouraged, parks and recreation have the capacity to sustain and improve the quality of life for a large number of our citizens. To confront this challenge, managers will have to become as adept at reading and feeling the pulse of the social environment as they have been to the physical/biological sphere.

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SOCIAL TRENDS AND LEISURE BEHAVIOR

Kenneth E. Hornback

Abstract.--Since 1978 visitation at National Park Service units located in urban areas has doubled while rural area park visitation is down 2%. Changing socioeconomic conditions shed light on these trends. Family formation is a deterrent to long distance driving and will increase in the years ahead. The population of people with grown children and the trend toward early retirement will not offset the growing ranks of those with new babies. Two income households have skyrocketed in recent years, but the majority of new employment is in low paying service sector jobs. The result is that the pyramidal shape of income distribution is changing to look more like a snowman. There are markets for upscale leisure goods and services but also a need for budget goods and services. Tour brokers and resort managers will take care of the upscale market. The remaining mass market continues to need and benefit from the public sector spending on parks and recreation. Parks that are distant from the populations they serve will have slow growth. The 1982-83 Nationwide Recreation Survey shows that 36% of those interviewed spent less time in outdoor recreation compared to two years ago.

Additional keywords: leisure trends, social trends, national parks, travel and tourism.

Leisure industries are believed to be in for a boom in the second half of this decade. The baby boom is entering early middle age, dual incomes are high, childbirth has been delayed, and discretionary income is expected to be greater than ever (Lazer, 1984:17; Russell, 1983). Discretionary income is the source of leisure and vacation spending. Many cities and states that have been reeling under the stress of dwindling manufacturing, agricultural, and mining industries are taking aim at tourism as a source of viability in the future. Would-be entrepreneurs are sizing up the market for commercial campgrounds, recreation vehicle outlets, restaurants, accommodations, tour bus operations, etc.

The emerging markets for travel and leisure goods and services are not as simple as they may first appear. That may be difficult to imagine given the flood of socioeconomic data about today's markets for discretionary products. At the same time there are conflicting interpretations of these data. With so many retail outlets announcing the intention to go after the "upscale" market,

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it would be surprising if someone wasn't wrong.

But why do we seem to have stumbled into an era of marketing data bases, social forecasters, trendy newsletters, and proprietary surveys, not to mention a growing business press to tell all about it? There are at least four reasons for the information boom:

1. The demographic data from the 1980 census are more accessible to people in business, marketing professions, and the public at large than ever before.

2. Census data can be manipulated by microcomputers by a larger number of professionals. Organizations that do not have computers can purchase locally specific marketing data from secondary data processing, market management, and research companies.

3. The 1980 census brings valuable data about one of the largest population groups in history (the post WWII baby boom of people born between 1946 and 1964) at a point when they are about to enter a stage of their lives that is of special interest to business planners: early middle age.

4. The mass market of the 1960s has been replaced by a segmented market of the 1980s. Business people are subdividing markets, campaigns, and products into smaller pieces: teenage girls, young/upwardly mobile/professionals, the active retired, etc.

The reasons for the proliferation of information are also sources of confusion. As researchers have subdivided the consumer market it gets more and more difficult to understand what part of it analysts are talking or writing about. Add to that the differences from one region of the country to another and the changes from one year to the next and the picture gets dim indeed.

SOCIOECONOMIC TREND: BABY BOOM VOLUME

The post war baby boom is entering early middle age in the near future. Between now and 1995 people in the 35-44 year old age bracket will increase 48% from 14.5 to 21.6 million people. By 1995 people aged 45-54 are projected to increase 47% from 12.7 to 18.6 million people (Flanagan 1984).

These age ranges are important elements in understanding consumer economics because these people are entering their peak earning years. The main spending patterns of this age group have been 25% above average spending for recreation, 35% more for dining out, and 55% more for expensive durable goods like cars, boats, and RVs (for current material see The Conference Board, 1984). The 35-44 age range has been the third highest group for vacation and pleasure trip spending (ages 45-54 is the highest followed by 55-64). These spending characteristics, however, are changing due to other aspects of the demographic picture (Bureau of Labor Statistics 1982).

SOCIOECONOMIC TREND: DELAYED CHILD BIRTH

Baby boomers have been delaying marriage and children. Indeed, many women who eagerly entered the labor force have long passed the prime childbearing ages (20-24). With some catching up to do the marriage rate is rising and the number of couples becoming first-time parents is increasing quickly, more quickly than normal because the aspiring parents are facing a closer fertility horizon (a baby "boomlet" from the baby boomers). The number of families with first born children is expected to increase 16 million by 1990. People with infant children have a unique life-style. They are pressed for time. They are making purchases for many items that were not in the budget before (baby clothes, toys, food, medical care, day care, etc). An additional problem for baby boom parents is that the family formation decision has been delayed into the years when the first house is normally purchased. There will be unusually high competition for funds in these budgets. In short, this is not a traveling market segment (Bloom 1984).

At the other end of the age spectrum are those people whose children have left or will soon leave home. There will be 10 million new "empty nesters" this decade as the population ages. They will become likely park visitors. However, when compared with the 16 million couples who will have new first borns which tie them to home and hearth, there is a net deficit in the travel market of about 6,000,000 travelers by 1990.

SOCIOECONOMIC TREND: REAL DISPOSABLE INCOME

Every decade has its own relatively unique socioeconomic character that sets the stage for living in that time. In the 60s, for example, dad worked while mom raised the kids and everybody took annual vacations in the rarely more than three-year-old station wagon. In the 70s dad and mom worked while the day-care company raised the kids and everybody took biannual vacation in the less rarely more than five-year-old midsized sedan.

So where are we heading in the 80s and 90s. The answer to this depends on what one believes about why so many people who used to stay at home have now entered the work force and what is going to happen with the money they are making.

SOCIOECONOMIC TREND: DUAL INCOME HOUSEHOLDS

One of the more widespread findings of the recent census was the growth in the number of women who have entered the work force. The labor force participation rate has peaked for men at about the 77% level. In the next 10 years, however, we will see the labor force participation rate for women rise from 54% to nearly 60%. Within the force of working women there are some generational differences. Younger women are growing up in a world where it is conventional for women to work. To the extent that they expect that, they will consider careers and the training careers require.

Older women are less well prepared to be thrust into the work force and will be accepting less rewarding positions.

There are two schools of thought behind any discussion of dual employment. From one point of view couples "choose to pursue a career" (Spain and Nock 1984:25). Women "have decided" to be in the labor force to fulfill a variety of personal goals (Robey 1984:13). Such a step is the result of professional interests among the ranks of a new breed of goal oriented worker. This highly motivated wage earner will serve to boost household earnings, create more disposable income, and create markets for high-end, upscale consumer products. This "toast of the town" scenario both involves and contributes to a strong economic recovery.

The other school of thought focuses on the changing cost of living during the last few years. Growing numbers of second wage earners joined the labor force during a period of rapidly inflating prices and correspondingly inflated wages. Rising energy costs caused the price of money (interest rates) to soar. High interest rates punished every credit-arranged purchase from cars to housing. Inflation shelters like the fixed rate mortgages were replaced by Adjustable Rate Mortgages (ARMs). Under these circumstances some portion of the work force is not there for heroic reasons but because their means became inadequate to their needs. To the extent going to work is driven by deteriorating purchasing power of the primary wage earner, the second income is not totally available for the discretionary pool. While discretionary personal income has shown a steady increase over the years, another measure, spendable weekly earnings, flattened out in the late 60s and began to decline in the late 70s until it was terminated as a measure of economic health in 1981 (Robey, 1982). If businesses have geared up to serve a larger upscale market than exists, excess inventory or capacity will result, which will contribute to a weak economic metabolism.

So which scenario is right? The Wall Street Journal says economists are of mixed opinion (6/20/84: p.1). However, this is not an issue that needs to take up sides. In an economy as big as the U.S. economy many trends and markets can and do coexist. The real question is a matter of size, how big will the upscale market be compared to the mass market and the market for factory outlets. Shifts have already been identified and pointed out as a change in the distribution of income which is related to a change in the kinds of jobs characterizing the labor force.

SOCIOECONOMIC TREND: INCOME DISTRIBUTION

Picture the distribution of household income as a pyramid, broad at the bottom and tapering off toward the top. That has been a fairly good picture from the end of WWII through the early 70s. The last few years of economic contractions, however, have changed the shape of things. The pyramid is changing into a snowman. Service sector jobs fill the lower half, and new employment in a

few growth industries are bringing some into the upper half. The middle class is providing the difference (Shaber 1984; also Businessweek 1984:17, Blackburn and Bloom 1985:19).

The shift away from the middle class is most often attributed to the loss of jobs in heavy industries, notably agriculture, manufacturing, and mining. While that is going on there is considerable growth in service sector jobs (of which travel and tourism related businesses account for many). Service sector jobs tend to be the kind of jobs that require little training or apprenticeship, are not associated with career ladders, are poorly paid, have high turnover, and include little in the way of fringe benefits.

SOCIOECONOMIC TREND: WORK LIFE AND ATTITUDES

Workers in the service sector exceeded those in manufacturing for the first time in 1982 and now amount to over 33% of the GNP. Microchip technology is relieving many people of the heavy labor of the old economy and of their middle class wages in the process.

High technology economists argue that job displacement is evenly matched by new job creation. Their critics, however, answer that a job lost on the line at GM is not the same as a job created by a new McDonald's - - those jobs being separated by the wages and skills they entail as well as the people who occupy them. The transition is likely to penetrate very deep into everyday life. Today you can purchase a car, welded and painted by robots, from a computer rather than a car salesman in Warren, Michigan, and then charge it to an ATM (automated teller machine). Apple makes MacIntosh computers in an entire factory of robots but only a few human onlookers. The neighborhood gas station is a lonely place in Sweden because most stations are entirely automated. Microchip displacements initially deal with work that is simple drudgery, but as artificial intelligence and expert systems become available, the range of impact on the labor force will encompass many fields. One estimate puts the displacement:replacement ratio at 3:1 (Hunt and Hunt 1984).

How are people reacting to the changes? Labor force participation rates for men in their 50s and 60s has been declining in recent years. Early retirement is a possible reaction to the changes attributed to the microchip and, as such, can be expected to reduce labor force participation even further (Keyfitz 1984:23). Early retirement has been found especially likely among higher income workers (Aaron and Burtless 1984). The market of persons retired due to changes in the labor force is also at the crest of a wave of baby boomers which will reach their 50s in mid 1990s.

Microchip displacement and control of inflation with wage ceilings have created a very difficult situation for organized labor. In England there have already been arguments for job sharing and split workweeks to ease unemployment. The largest German metalworking union has succeeded in breaking the current 40-

hour workweek standard. In Sweden, where 80% of the population is in the work force compared to 66% in the U.S., the average workweek is 28.8 hours (Wall Street Journal, 1/7/85, p.20). Time on the job is a main area open for improvement in the quality of working life. Work life may be expected to drift in the direction of a shorter workweek, more holidays, and time off for other reasons. In the long run the productivity gains brought by the microchip will be distributed as dividends for investors, bonuses for managers, and more free time for labor.

SOCIOECONOMIC TRENDS: HOUSING CHOICE

Important socioeconomic trends are also developing in major areas of consumer spending like housing and personal transportation. Changes here are important because increases or decreases in their relative share of the household budget has massive impacts elsewhere.

Prior to the 1980s the fixed rate home mortgage was the average person's best hedge against inflation. With variable rate mortgages the home is less likely to be regarded as an investment and more likely to be regarded as simply shelter. As shelter, the dwelling may be rescaled to a level better suited to its new role. If the cost of shelter can be driven down, additional discretionary income will result. Builders, however, will certainly try to convince consumers to accept less for the same big cut of consumer income. Nevertheless, there is a chance that some people will be unwilling to let as much of their budget go for shelter than in the past because their value of it has changed. To the extent that people have more time off work and to the extent that less is paid for a smaller residence, it is possible that some will get the idea to get away more often.

If present indicators are what they seem, the house of the future will cause tourism. Early 80s home buyers have already turned toward "villas," "duets," "patio homes," "townhomes," and other euphemisms for a bungalow in order to cut housing costs. Square footage of new homes has dropped from the 1,700 square foot average of the 1970s to less than 1,000 square feet. Builders now point out that kitchen cabinets more than three cans deep cause food to be forgotten and spoil, that Murphy beds are a really fun way to sleep, that you can get more into a closet with two rods in it, and that walls with built-in bookcases do not need insulation because books are great insulators. One builder went so far as to name a new model "The Traveler" because it was designed for people on the go (not at home)(see Sternlieb and Hughes 1984:22).

These changes in expected demand in housing should be compared to the change in housing from the 1970 to the 1980 census findings. During that period there was close to a 29% increase in housing units during a period when the population grew only 11%. The median value of homes in 1970 was about $17,000, up to $47,200 in 1980, and close to $90,000 by 1984. The severity of the housing bite is an increase on the order of 100% from 1970-80 and another

100% from 1980-85. Nevertheless, there was panic buying of housing through 1980.

Downsizing may be one of the most important long-term impacts of the boost of energy cost on American society. Downsizing has not been limited to housing.

SOCIOECONOMIC TREND: PERSONAL TRANSPORT

The US Travel Data Center once reported that over 81% of vacation travel was by personal car. There is reason to believe that is changing.

Gone are the days of the westward push of the great interstate highway system, the days of cheap gasoline, the days of station wagons brimming with luggage, and the days of heading west with the idea of putting 600 miles on the odometer before sunset; 1979 may have been a decisive turning point for the role of the car as the main means to take a vacation.

Next to housing, the cost of personal transportation is one of the major items in the household budget. Automakers succeeded in bringing the cycle of auto replacement to a tri-annual pace by 1978. However, after the gas and money rate crises abated in 1984, it was clear that the auto had fallen from its high position in the inventory of consumer needs that mushroomed for decades (Migliaro, 1984).

The change was actually gradual, starting early in the 70s. During a period of shrinking wheel bases the automotive industry was also steadily losing market shares to imports, over 10% in as many years. The average size of car owned slipped from intermediate to midsize and then to compact. In 1984 Chevrolet introduced the smallest car it has ever marketed. Its maker is not Chevrolet, it is Suzuki.

The cost of buying is a small cost relative to the total cost of owning a car, which includes financing, depreciation, repair, and maintenance costs. In 1984 it cost over 34 weeks of earnings to pay for a car compared to about 27 weeks in 1973. Detroit's economic statisticians used to delight in showing what a swell deal cars are by comparing the cost per pound to earlier years. That stopped a few years ago when the figures took a beeline for the caviar barrier.

As costs have changed there has been a corresponding change in the way people use their cars, driving them about 1,500 miles less each year and keeping them longer. Hertz reports that the average age of cars on the road is up to 7.2 years by 1983 compared to 5.7 years in 1972. Time between trade-ins used to be about 3.6 years but by 1983 reached 5.1 years. The Travel Price Index (TPI) measures the cost of being on the road. It is up 68% since 1978. Service stations in business are a measure of the ease of travel in rural areas. Here there has been a loss of over 61% of the

operations in business since 1972. Rural road conditions show the wear of the bygone days of peak summer vacation use, but their surface condition is a mean test of today's lightweight vehicles and gruesome challenge to the older cars that have yet to be replaced.

To the extent that self-transport by private car becomes less practical than before, a demand is created for alternative forms of access to destinations far away from large population centers. It is a problem, however, for the travel brokerage industry to correctly size up the New York market demand for travel to Yellowstone and package air/ground/accommodations services for that market. National parks have not been packaged for the same degree of business promotion that other destinations have been packaged for, e.g. Disneyland, Mazatlan. Traditional destination's marketing departments advertise themselves for travel agents and make it easy for agents to see the profits in selling (a city, state, or commercial park) to travelers. Although the demand for better access to remote public parks appears to exist, the informational network to enable business interests to follow through on that demand is largely incomplete. To the extent that the burden is normally on the destination to provide information to travel agents, any increase in demand for access to public parks will go unmet because public agencies are not equipped to promote themselves. . .or even antagonistic toward the very idea for reasons such as the higher value of resource preservation.

SOCIOECONOMIC TREND: LEISURE AND LIFE-STYLE IN THE 90s

The trends covered to this point indicate that there will be a great diversity of responses to life in the 1990s. The emerging picture is anything but one of central tendencies. Generalizations like the ones about the 60s and 70s are less appropriate for the 80s and may be impossible to make for the 90s.

Before more recent times American life was pretty regular, most people were middle class and they lived lives that were pretty much the same. The notion of different "styles" of living, life-styles, really didn't mean much. Today, however, patterns of living have emerged that make social forecasting much more difficult (Sobel 1981).

How will people react to a world that is pricey to live in unless everyone is working, and in which there is little time for leisure? For those who "go for the gold" there will be part-time jobs or cottage industry sidelines to finance designer sweatsuits, etc. Others, older people, those with limited stamina, or those who prefer their peace of mind, will be able to afford bait, sunglasses, and hiking boots.

The Department of Commerce report on personal expenditures for recreational goods and services includes 15 categories ranging from books and maps to commercial participant amusements. As a portion of total consumer spending, recreational expenditures have fallen

slightly in recent years from a level of 6.68% in 1976 to 6.36% in 1982 and back up to 6.55 in 1983.

The reports of expenditures for recreational goods and services can be divided into those consumed at home and those consumed away from home. The slight decline in overall consumer spending for recreation appears to have concentrated in the recreational spending at home. Considering this to include the categories for reading matter, nondurable toys and sports supplies, TV/stereo, and gardening material, home recreation amounted to 63.2% of spending on recreation in 1976 but fell to 61.9% by 1983. The trend toward away-from-home recreation developed during the period of weakened consumer spending for recreation but also persisted as recreational spending turned up. The "other" category was excluded from the base of the following table. "Other" recreational expenditures used to hover around 13% before 1979. In 1980, however, "other" went to 15%, then 17% in 1981, and nearly 19% in 1982. If any meaning can be attached to this it might be associated with new products which are gaining consumer interest (cable TV, legalized gambling) or do not fit elsewhere (home computers, VCR movie rental).

Personal Consumption Expenditures for Recreation

Year	% of Total Consumption Expenditures for Recreation	Portion Home Centered	Portion Away-from-Home	$$ (Bil.)
1983	6.55	61.88	38.12	30.6
1982	6.36	62.50	37.50	28.2
1981	6.51	63.16	36.84	26.7
1980	6.42	63.66	36.34	24.4
1979	6.56	62.67	37.33	22.3
1978	6.62	62.78	37.22	22.2
1977	6.62	62.48	37.52	20.9
1976	6.68	63.24	36.76	19.6

Source: US Dept of Commerce, Survey of Current Business and Chase Econometrics, Bala Cynwyd, Pa. for billions of 1972 dollars spent for recreation since 1976 in 4th quarter.

Understanding leisure behavior involves having some idea about how leisure and work life fit together. This brings the discussion back to today's predominantly dual income household. Most treatments of this trend quickly skip to the magic upscale life-styles that appear to result. However, the logistics of dual-income living may not always leave people in such an upscale mood. While the role of the homemaker may be greatly changed by dual career households, the job of homemaking is as problematic as ever, maybe more so. The dual income household is not free of the laundry, mending, fixing, shopping, cleaning, cooking, and ironing jobs of everyday life. Not all of this work can be farmed out nor are all of the second wage earners fortunate enough to spend their new income on such relief. One result is some loss of free time in

the evenings, weekends, and holidays. Assuming the work of domestic maintenance is shared equally, in many cases more money results in even less time in which to spend it.

At one time it was fashionable for leisure researchers to refer to "blue-collar" and "white-collar" leisure styles to capture the differences between supposedly inexpensive, active, unsophisticated activities and expensive, passive, sophisticated activities of the respective classes of workers. That characterization gave way to a more generalized notion of social group to capture more of the actual diversity of activity of leisure behavior (Dottavio, O'Leary, and Koth 1980).

With dual income becoming the norm and with the distribution of income separating workers into new clusters, it may be time to consider a contemporary version of the old blue-collar/white-collar leisure model. What might such a model look like if it were composed of various levels of income, free time, and encumberments (mortgage, children, large house, etc)?

Income	Hi	Med	Med	Hi	Hi	Lo	Lo
Time	Much	Much	Some	Some	None	None	Much
Encumberments	None	None	Few	Many	Many	Many	None
Leisure group	(A)	(B)	(C)	(D)	(E)	(F)	(G)

There is always a group of bona fide wealthy people who have plenty of time, money, and freedom from encumberments at the same time (A). Among them are the semiaffluent who are on the leading edge of the baby boom: the young/upwardly mobile/single professionals (YUPPYs) (B) who are into jogging and health foods but not into spouses, kids, or mortgages. Add a group of YUPPYs who are into spouses and mortgages (C). There is a new element of dual income families where both spouses are making relatively good wages that allow them to farm out some of the chores of living and still have time to relax (D). But then there are those making good money but at the cost of their free time (E). Next are those (F) with no money, no time, but plenty of bills. Here are people who were trapped into the labor force by the inflation of the 70s. The main wage earner makes what used to be middle-income but now needs help from a spouse with a job in the service sector. The weekend's last chore is never done although there is a transition when chores become DIY (do it yourself) projects, the "home centered" hobby. The model would not be complete without the last group (G). People who have no money to spend but plenty of time and few encumberments (parttime workers, frequently unemployed, seasonally employed, and those who work the itinerant or street corner economy).

When it comes to leisure activities, greater numbers of people are placing a higher premium on time invested in leisure than ever before. Certain changes are visible. Travel agent services are in demand by busy people and the business for programmed fun is up. However, the DIY vacation trip in the family car to a rural

national park did not occur to 13 million potential visitors in the year of the Iranian oil cutoff. As of 1984 visits are still 2 million a year below what they were in 1978. Busy people with cash on hand find it is about as cheap to fly to Disneylands, the Bahamas, or some other commercial destination chosen by the travel agent.

CONCLUSIONS

Leisure behavior is sure to consume serious attention from policy makers and professionals alike as more leisure time falls into the hands of people who are in varying degrees of readiness to handle it. The business community is leading the way in helping people select rewarding options in an amazing array of alternatives. Keeping public parks and outdoor recreation in the inventory of increasing public alternatives will be steady and demanding work in the years just ahead.

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BENEFITS OF RECREATION: PAST, PRESENT, AND FUTURE

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Abstract:

In the past, efforts to place a dollar value on nonmarket recreation have been dominated by the requirements of federal agencies to measure the contribution to national accounts. However, a number of questions have been raised about limitations. Economic premises, measurement inconsistencies, and strategic biases have been made issues for debate. Also, noneconomic benefits have been added to the possibilities for inclusion. Based on a summary analysis of the past and present, a proposal for a future strategy is offered that is thoroughly interdisciplinary, multi-centered, and inclusive. Both on-site and household-based data would be incorporated in a program that includes economic measures of actual expenditures and willingness-to-pay, social-psychological and sociological indicators of personal and social benefits, and "behavioral economics" expectation theory. Further, a model of "investment theory" is added to include longer-term benefits for those engaging in recreation.

Keywords: nonmarket valuation, recreation benefits, social benefits, behavioral economics

Outdoor recreation resources were used over one billion times last year in the United States. For a day or longer, individuals used lakes and rivers, forests and mountains, deserts and beaches for a variety of recreational activities (Kelly, 1980). There is no lack of evidence that people use such resources when they are available.

However, public resources are provided in a condition of relative scarcity. There is always competition for financial expenditures by public agencies for a seemingly endless spectrum of goods and services. As a consequence, some measurement of the relative value of such provisions and possibilities becomes part of the political decision process. In the case of recreation, a measurement of benefits is complicated by the extra-market nature of public provisions. There is no price established by the market that can be compared to other market prices. As a substitute, the concept of "willingness-to-pay" has been developed for goods and services without a market-established price. The benefits to the society of public recreation are said to be at least indicated by measures of what users would be willing to pay.

Two kinds of objections have been raised to efforts to measure public goods from this perspective. The first is methodological: measurement is inaccurate and inconsistent. The second is substantive: the approach is incomplete in what is measured. In this summary analysis, the methodological issue will be introduced in a discussion of the past and the substantive issue in a brief analysis of present programs.

Nonmarket Benefit Measurement: the Past

There have been a number of methods proposed for approximating the values

for public recreation resources. Most have been based on the concept of "willingness-to-pay" - what users would pay were the opportunities provided in a price-elastic market. Since there is no such market for national parks, scenic rivers, or summer softball leagues, the valuation should include not only what is actually paid but also the "consumer's surplus" or worth of the opportunity above the cost (Dwyer, Kelly, and Bowes, 1977).

Such willingness-to-pay has been measured by several methods or combinations of methods. The total cost of travel is one proxy of such value, but undervalues proximate resources and does not incorporate what is often the greatest investment in the experience, the scarce resource of time. Various survey approaches directly and indirectly measure what participants believe they would be willing to pay for use or not to lose the opportunity. Survey results have been found to vary according to the methodology - direct questions, bidding, etc. - and in relation to preceived alternatives and their costs. Further, neither method seems likely to assess either long-term values that might be lost were the resource turned to other uses or the secondary benefits beyond the experience and enjoyment of use. A brief summary of economic approaches and premises follows:

Benefit-cost analysis: Benefits represent the value of goods and services derived from the provision, while costs represent the values that could have been produced had the resources not been withdrawn from other uses. This "opportunity cost" includes direct costs of development and operation along with some accounting of what is lost by withdrawal from alternative uses. The difference between benefit and cost is the "net benefit."

The national economic development account: This account includes changes in the value of goods and services evaluated in monetary terms. Public recreation adds to this account in terms of willingness-to-pay by users and subtracts the direct and opportunity costs. When benefit analysis is restricted to this economic account, then a whole sequence of premises and measurement requirements are activated.

Other accounts: However, all public value is not encompassed in the national economic development account. The environmental quality account includes physical, biological, and ecological measures of impact. The regional development account incorporates multiple impacts within a subregion of the nation, but may reflect shifts between regions that do not add to the national account. A social well-being or quality-of-life account includes economic variables such as income distribution as well as a variety of personal and social factors.

Value concepts:

Willingness-to-pay includes what is actually expended for a unit of the good and the additional or "surplus" that the user would have paid were the good price-elastic in a market context. This valuation is limited to users and does not include the value to those who desire that the resource exists as a societal benefit or potential resource for use. Demand curves posit that fewer users will utilize a resource as the price increases and that increased amounts of the good will be desired at lower price levels. The assumption is that monetary price is the primary element in use decisions.

Consumers' surplus is the net benefit to the user beyond what is actually

paid. It is the welfare gain from the use of the nonmarket provision in monetary units.

Willingness-to-sell is an evaluation of the benefits lost by the elimination of existing goods or services. Such a concept places a value on resources that may be valued by those who have no immediate use intentions. They are not part of an effective user demand, but see the resource as a public good unmeasured by user contributions to a national economic account. While there is empirical evidence that willingness-to-sell exceeds willing-to-pay by considerable amounts (Hammack and Brown, 1974), there are both measurement and theoretical problems with the concept (Dwyer, Kelly, and Bowes, 1977:15).

Valuation methods:

The Unit Day Value: The concept is that of average willingness-to-pay divided by the measure or estimate of use. Multiplied by use, it provides a measure of total benefit. However, ranges of values depend on accurate measures of willingness-to-pay for that resource. When based on charges, they do not reflect comparable market prices. Further, they omit consumers' surplus. This convenient proxy has been rendered more resource-based with various criteria of quality, but remains a rough approximation at best.

The Survey Method: Several models have been employed to estimate willingness-to-pay. Data may be user-based and gathered on-site or based on household estimates that sample a population of potential users. Estimates of net willingness-to-pay require an assessment of alternatives and demand as well as of value. Again, a wide range of values have been obtained depending on sampling, how questions are asked, and unmeasured variables. Extrapolation to populations is based on assumptions about the validity of indices of age, sex, and income to predict demand - assumptions that are not well-supported in noneconomic analysis (Kelly,1980).

The Travel Cost Method: This common model has been employed widely by Knetsch, Brown, and Hansen (1976) and others. Entry fees are added to a demand curve estimated in a formula incorporating use units, population estimates, distances, and a measure of travel cost. For example, estimates of demand for populations in distance categories would be multiplied by an xx cents-per-mile figure to obtain total travel cost. Travel cost plus entry is assumed to be an adequate proxy for willingness-to-pay. The obvious biases against opportunities near users, toward higher-income users, and the omission of other kinds of scarce resources such as time seem endemic in the method.

This cursory view of the past is, of course, unfair to the efforts and sophistication of scholars who have attempted to meet the needs of federal agencies for values that can be employed within the parameters set by budgeting and other economics-dominated instrumentalities. Nevertheless, the problems cited are real. Limitations of method are probably less significant than those imposed by the econometric assumptions of the model. Further, even within the premises, methodological problems are not been resolved.

Present Efforts at Improvement and Revision

Few, if any, of those developing the methods sketched in the summary of the past have been uncritical of their own accomplishments. However, each also has virtues that have attracted supporters. Some of the strengths and

weaknesses offer agendas for further endeavor.

Travel cost:

Strengths include relative simplicity, yielding a dollar estimate, consistency, complementarity with demand studies that are needed for planning, avoidance of subjective measures, applicability to resources in which benefit-cost analysis is required by statute, and being based on real data rather than arbitrary values. Weaknesses include the necessity to redo the analysis for each site, singling one cost out of many as a proxy for multiple values, limitation to user benefits, inability to separate other values for a trip from those based on site use, difficulty in dealing with alternatives in predevelopment estimation, selection of significant site and user variables, and bias against proximate resources and consequently toward population segments able to travel for recreation.

Survey:

Strengths include the possibility of multi-dimensionality in evaluation, incorporation of self-correcting and validating measures, direct measurement of user perceptions and behaviors, extension to nonusers, inclusion of multiple resources and activities in household surveys, and the possibility of developing willingness-to-sell measures. Weaknesses are cost, variations found when the form of questions is inconsistent, instrument bias and respondent bias induced by desire to further use objectives, inconsistency of measures of monetary and nonmonetary elements, wide discrepancies in results, confusion of on-site and off-site data, lack of specificity in site designation, sampling errors, and difficulties in separating values associated with a single use and with individual users in a group. Further, the results of survey approaches may have little acceptance from those committed to econometic methods and assumptions.

If unit value measures are arbitrary, travel cost narrow and biased, and surveys unreliable, then what are the alternatives? At the present, there are two lines of response. The first is to improve on those methods. The second is to attempt new approaches that avoid some of the limitations. Again, this is only an introductory outline of some of the efforts.

There is continuing work on travel cost valuation (McConnell, 1975). Comparing results from multiple sites may lead to more precise specification of the site and user characteristics that determine demand. Further, problems related to congestion on site, time differentials not indexed by distance, specification of differential uses and valuation by resource users, and dealing with alternative opportunities may be addressed with more sophisticated data and equations.

Probably much more is being done in the survey method (Driver and Harris, 1981; Brown, 1981). Quite elaborate methods of identifying and partialing the dimensions of resource-based recreation experiences have been developed by B.L. Driver and others working with social-psychological approaches. The development of "value scales" that allow users to place a relative value on several dimensions of resource use has been carried out with considerable success in reliability and validity. What has not been accomplished is to incorporate monetary valuation in ways that are convincing. Further, the value scale method by itself is limited to perceived values with problems of consistency over time, bias introduced by on-site vs. household data sources, lack of a behavioral grounding, and other problems associated with the survey method.

Nevertheless, incorporation of further developments of this method into a strategy addressing limitations is both probable and desirable.

One small pilot attempt to combine economic and value-scale measures in on-site research was begun as a follow-up to the Social Benefits of Outdoor Recreation report for the U.S. Forest Service (Kelly, 1981). The design attempted to incorporate social and personal elements of value, site characteristics and use, and actual costs in 10-to-15 minute interviews. (Travel costs were underwritten with residual funds from the "Social Benefits" grant, USDA NC 81 G01.) Dollar cost items included entry and use fees, travel costs, and foregone income. Omitted was an estimate of equipment costs on a depreciation schedule, a major item for those with $20,000 or more invested in mobil homes and recreation-dedicated vehicles. In two types of campgrounds in the Pacific Northwest, mean valuation was $34.03 per person per day in the ocean campground and $24.85 in the forest campground. Range in the ocean site was $13.42 per day to $81.00 and in the forest site $9.55 to $34.20. Foregone income was a factor in only 15 percent of the cases, partly due to high unemployment in the area and retirees. Three satisfaction factors outweighed the other fourteen: rest and relaxation, change and escape, and family enrichment. Mental health and social dimensions were salient with the environment providing a setting that makes the outcomes possible. Such hybred approaches may be one means of combining economic measures with value-scale surveys. However, demonstrating likely viability is a small start on a program demonstrating reliability and validity, especially in the economic dimensions.

Other Revised Methods:

The pressures of federal, state, and community funding sources to justify recreation expenditures in a time of stability or retrenchment have led to renewed efforts directed toward valuation. Among these are the following:

Simulation models:

Suspicions about bias associated with the survey methods have led to more experimental designs. The aim is to create situations in which value-based decisions are made that approximate real economic decisions. One approach gaining favor is that of "bidding" in which alternative allocation of limited economic resources are offered. The subjects are required to allocate their "dollars" in ways that reflect their relative value. Such methods yield monetary results and are based on decisions rather than scaled perceptions. Further, some of the political bias of users seeking to protect their resources are avoided. However, the translation of bidding games to the multi-dimensioned and shifting alternative structures of recreation decisions appears formidable. The neatness may be deceptive in oversimplifying situational value-based decisions. Nevertheless, the behavioral emphasis is quite attractive.

Real Market methods:

Economists and behavioral scientists share a suspicion that real decisions with real dollars may be rather different from the proxies and measures employed in all such approaches. In Wisconsin, a possibility of checking simulated markets, hypothetical markets, and travel costs in a real-dollar decision quasi-experiment was negotiated with a state agency allocating hunting permits for an area (Bishop and Heberlein, 1980). Results of the simulated real-dollar decisions were different from both other methods. Further work of this kind may contribute to valuation accuracy. However, how this method can be applied to multi-resource and multi-activity recreation in a region is

uncertain. Nevertheless, such research at least raises important questions about the results obtained from any simple models.

"Social Benefits":

A persistent objection to all the methods that concentrate on economic dimensions of recreation is that they are too narrow. Recreation is a complex and multivalent phenomenon, not a monothematic experience or simple behavior. Recreation participants bring to a site or event a variety of intentions and personal resources. Further, anticipated benefits are usually multiple rather than simple. To extend the complexity of the issue, anticipated outcomes are not all limited to the time and space of the recreation episode (Kelly,1983). There are many long-term outcomes, both personal and social, that bear on decisions to allocate time, effort, and economic resources to a specific use. Also, commitment to an activity or site may have a history in which a particular use fits into a pattern of "investment." Uneasiness with purely economic valuation of such complex outcome patterns has led many to assert that some of the central meanings of recreation cannot be measured in economic terms at all.

One response to this issue was commissioned by the U.S. Forest Service and resulted in a report on Social Benefits of Outdoor Recreation (Kelly, 1981). This report is as noted for what it does not contain as what is included. The "common wisdom" about recreation benefits was not always found to be supported by convincing data. Rather, inferential analysis was required to support some of those benefits that seem most self-evident to many convinced of the value of recreation resources and experiences. In the report, ten leisure-recreation scholars were commissioned to summarize general areas of likely recreation benefits. Response to the report and requests for copies (even at a price after subsidized supplies were exhausted) indicate that the topic is of considerable concern in the field.

"Benefits" associated with resource-based outdoor recreation were divided into two general categories: Personal benefits referring to those accruing primarily to individuals who participate in the activities and societal benefits seeming to have impacts on institutional structures of the social system. A very brief summary of elements in the analysis follows:

Personal Benefits:

Psychological benefits including perceived outcomes related to the environment, social contexts, developmental gains, and health have been measured by value scales in a variety of settings. Such outcomes are highly valued by resources users. Experiential outcomes are environment-based, but are varied and multiple for different kinds of settings.

Mental health benefits are based on a psychosomatic model of physical and mental health. Stress associated with urbanization is one health problem for which there is indirect evidence of amelioration in outdoor recreation.

Community programs have perceived outcomes of physical health and social gain with significant differences found between indoor and outdoor settings. Outdoor environments are different in anticipations and outcomes.

Developmental outcomes have been documented more for children than adults despite life-span models of human development. Central developmental tasks may be enhanced by the opportunities afforded by the requirements and activity contexts of recreation resources. These outcomes are both individual and social.

Societal Benefits:

Family interaction in recreation settings is a central focus of much resource use. Both disengagement from point-of-origin routines and engagement with the site-related activities is reported to foster expression and cohesion among primary groups.

Social cohesion is a layered phenomenon beginning with intimate communities and extending to wider circles. Outdoor recreation with selected others provides contexts for elements of security, affective expression, and activity-grounded integration of action and communication.

Rural communities may find not only opportunities for personal and group engagement, but also symbols and environments to express the meaning and solidarity of persistent associations. Other social as well as economic benefits have been measured, but may be mitigated by impacts that disrupt traditional community organization and life styles.

Environmental gains of enhanced ecological awareness and concern have been found in some studies comparing recreation users and nonusers.

The report, more fully summarized in Recreation Planning and Management (Lieber and Fesenmaier, 1983), is more of a sensatizing tool than a summary of established knowledge. However, it does suggest some of the dimensions of immediate and long-term benefits that may result from the public provision of recreation resources. The extent to which some of these dimensions can be measured in a quantitative mode remains moot. How the "accounts" structure must be altered to accommodate some factors is also subject to analysis. Political realities appear to dictate that a blithe neglect of economic measurement is not in the best interest of those who would support public recreation on any level. On the other hand, trimming the model to fit the methods may also truncate significant meanings of resource use to the extent that the game is lost before it is begun.

Is it possible to present and gain credibility for the indicated elements of recreation outcomes in any revised or novel approaches? Are there premises of old models that must be attacked and possibly abandoned? Is it possible to develop new agendas that may cope with problems - both methodological and substantive - endemic in the established models? These are questions to be addressed in the future.

Recreation Valuation: Future Agendas

The foregoing summary has raised a number of issues. None are new to the literature. However, the most common response has been to narrow rather than broaden research efforts. Scientists in general tend to try to do better what they have learned rather than essay different theoretical metaphors and methodological models. Without denigrating the value of doing things better, I would like to propose something different. It seems to me that what we need in the immediate future is a research program that is:

interdisciplinary as well as multidisciplinary,

multi-centered as well as cooperative, and

innovative as well as grounded in solid disciplinary theory and methods.

The agenda to be proposed is quite general and incomplete at this time. It is intended as a framework for discussion, critical revision, and

development rather than any final set of propositions. In fact, I would suggest that it be one element in a sponsored workshop in which 10-15 key scholars engage in the task of producing a practical agenda and organizational structure for cooperation, securing funding, and incorporating the work of a spectrum of research personnel and centers. What follows will contain a number of terms and concepts that are meagerly-defined or with meanings left open. The intent is to suggest dimensions and possibilities rather than offer a closed system. My premise is that no one person or model will be adequate to the task at hand.

A Research Agenda:

Organizational Framework:

The summary of past and present efforts has indicated that efforts have broadened from a small group of resource economists, most of whom have been associated with Resources for the Future, to economists scattered around the world and social psychologists and sociologists. While economic issues and methods remain critical, they no longer encompass the field. Rather, wider dimensions of benefit, more varied methods of gathering and analysing data, and possibilities of complementary strategies suggest that separation of programs by discipline should be ended. Further, in a time of restricted research resources, efforts should be cooperative rather than competitive.

A general organizational framework might be developed along these lines:

- An initial workshop would be held soon to identify scholars, research centers, and ongoing work that should be incorporated in an overall strategy.
- Issues and strategies would be divided between those that are peculiarly disciplinary and those that require multi- and interdisciplinary approaches.
- Current programs addressing these issues and problems would be identified.
- Scholars and centers with the proven competence to address the problems but not now giving them major attention would also be identified.
- Issues and problems omitted from known programs would be added to the framework.
- Possiblities for cooperative effort would be located and given priority in an overall strategy.
- Means of recruiting new scholars and programs would be discussed.
- Sources of funding - present and potential - would be reported and alligned with the programs identified as critical to a cooperative effort.
- An agenda for proceeding and a minimal organizational structure would be adopted for implementation.

This organizational framework would include both government and university research centers as well as individuals located in other research settings. The aim would be to be inclusive and catalytic rather than exclusive and turf-protecting. For example, I would recommend that the problem be addressed for public recreation provisions other than those requiring outdoor resources as well as those land and water based. The advances made in the past for recreation sites could provide a base for developing valuation techniques for other kinds of recreation.

A Research Strategy:

There are many ways to structure such a complex research program. One that is relatively simple begins by recognizing that there are two main sources of data that lead to somewhat different analysis programs.

(1) On-site data

On-site data includes both economic measures of willingness-to-pay and psychometric data identifying and measuring dimensions of site use contributing to the benefit and cost estimates. Further, the two kinds of data may be combined in a more inclusive strategy.

Economic measures would include the usual data on travel costs, schedule of site use, and salient demographic characteristics of users. In addition, quite specific items of actual costs can be obtained that measure other direct expenditures for using the site as well as getting to it. Trips may be divided if there are multiple resources visited. Also, measures can be obtained of indirect costs such as equipment investment and depreciation, foregone income as an opportunity cost, and frequency of employment of resource-dependent equipment. The possibility of addressing issues of alternative resources and regional models of resources could be explored using models that have been developed for a variety of regional analyses.

The value scales that have been developed for on-site use may well be the most proven methodology now available. However, the variables do not mesh well at present with the economic measures. Cooperative efforts should not only include both approaches, but develop comparisons aimed at securing relatively simple indices of both participation dimensions and valuation. A classification system such as the ROS may be employed as one variable for resource quality and combined with population-distance measures in the same designs that incorporate value scales. The key is to design the analysis techniques along with the instruments so that there is no major block to an ongoing analysis-revision-refinement sequence. The aim is to produce credible data and analysis in which the dimensions of outcomes/benefits are related to the characteristics of the resource and of the users. To accomplish this aim, no one aspect of the program can be allowed to bring it to a standstill because some element is less than perfected.

Is it possible to encompass the major dimensions of recreation meaning, both long and short-term, into one such design? Can the questioned premises of the economic models be revised and the models strengthened with the addition of analyses based on sociological and social-psychological data? I would argue that such an advance is possible provided that no one discipline is given a prior dominant position in developing the program and that the data base and strategies are expanded beyond the familiar models.

(2) Household data

Simply expanding the data base is a waste of resources unless there are clear gains probable. Therefore, what follows incorporates somewhat new ways of thinking about the issues as well as more inclusive kinds of data. The obvious major gain in using household-based data is that nonusers as well as users are included. Therefore, the willingness-to-sell issue, regional resource bases, and alternative resources and allocation may be incorporated. While some of the

cost of obtaining such data may be mitigated by its multi-resource significance, there is no question that the direct costs must be justified by clear goal-based gains.

What would be included in household-based research strategies?

First, there would be a diliberate effort to cross-match items with on-site research. Economic indices of direct and indirect expenditures for recreation could be compared to enhance the reliability of both data sources. Second, a more complete set of background variables from the household data would include some that have been found especially significant in shaping leisure life styles. The life course with its sequences of roles and developmental orientations provides a far richer context for understanding decisions and intentions than any set of orthogonal items (Rapoport and Rapoport, 1976; Kelly, 1983). Resources of time, companions, interests, and skills are indexed by life context and history variables as well as by socio-economic items.

Further, a model of household analysis could be adapted and revised for use in the analysis. The so-called "household production function" economic model has tended to be limited to outputs of the household unit that contribute to the economy or social institutions. Expressive and developmental outcomes have seldom been fit into the model. However, taking the household as the unit of analysis with a comprehensive view of its resources and aims offers a framework for recreation analysis that has advantages over strictly individual levels. If the household is taken as the consumption unit, then allocation of resources would seem to have a more realistic base than when decisions are taken out of any social context. Two advantages can be suggested. The first is that there is considerable evidence that household/primary group factors are central to any resource allocation. When resources include time as well as money, then the schedules of primary others have to mesh in the decision process. Second, the household unit of analysis provides the possibility of incorporating longer-term outcomes in the analysis - what will be called "life investments" in the final section of this proposal. The household receives resources, allocates them, and may also be an appropriate unit for the analysis of benefits. This moves the model off-site and into a more comprehensive context in which the specific resource has a place. The site, however, is moved out of the center of the cognitive or decision map and becomes a salient element in the perceived structure of opportunities.

Second, recreation expenditures would be based on the entire household budget rather than for a single resource or trip only. The "inputs" of allocation of resources - time, money, and perhaps other dimensions - would be measured over a longer time frame than one day. Further, those inputs could be compared with the full range of leisure/recreation inputs and with resources allocated to other domains. This would make possible multiple measures of relative value. Correlation with on-site data could provide a base for the more efficient kind of data to be employed in site-specific research strategies aimed at benefit-cost assessment of specific resource possibilities.

Any design that is built only on economic, attitudinal, or behavioral measures is threatened by the possibility of low or inconsistent interdimensional correlations (Kelly,1973). The household-based data would include all three dimensions - real expenditures, value-scale attitudes related to inputs and outcomes, and behavior reflecting allocation decisions as well as

perceived opportunities. (See "The Recreation Benefits Game", Appendix A) While analysis would be complex, availability through the development of a federally-financed research consortium would provide data for proven and new research groups and individuals.

Third, one aim would be to build a data bank accessible to any who might further the general aims of the program. At present, many of the dimensions of labelled "social benefits" are supported only by inferential analysis. This includes such seemingly basic and self-evident relationships as that of stress reduction to changed environments and health to physical exercise. By identifying a number of critical aspects of recreation benefits that are at present inadequately supported, the overall strategy would bring together data from multiple sources that could be used to increase both reliability and validity - in other words, credibility - for the general aim of assessing the value of public recreation provisions.

An immediate value of this strategy would be to incorporate some critical measures in any future national recreation survey that would be federally funded. The valid methodological desire to standardize items for comparison over time should not be allowed to exclude elements of the design that are responsive to new agendas. The point is that any sample and data-gathering method - national survey to longitudinal household study - has advantages that should not be lost in some either/or debate. Further, the economic-attitudinal-behavioral dimensions are complementary rather than competing. Disproportionate resources should not go to one for political rather than strategic reasons.

Fourth, the most radical element of this proposal will be offered only in an introductory outline at this time. One reason is that considerable further development is required to produce a viable basis for research. It would be premature to present a preliminary sketch as a model and have its deficiences overshadow its merits. A second is that I see it as a basis for interdisciplinary discussion and development rather than as the product of one mind for a single occasion.

In the past few years, the seminal work of George Katona of Michigan has been a key element in the development of "behavioral economics." The catalytic problem was simply the failure of accepted economic models to predict many kinds of economic behavior including consumer spending and stock-market buying and selling. The method has been to incorporate in hybred models elements such as value scales, behavioral indices and intentions, and social context or socialization factors from other behavioral/social sciences. Katona has proven the value of research based on an "expectation theory" of consumer behavior in which consumers assess what is likely to happen to them and to the economy and make decisions in that light. Rather than a rational "utility model" of decision-making, <u>expectation-value theory</u> (Feather,1982) combines personal and economic expectations with the values placed on outcomes. Noneconomic factors are part of the decision process. While "past behavior is the best predictor of future behavior" (a law of behavioral inertia), any model that does not incorporate decision, revised and novel behaviors, and changed commitments is doomed to failure on its own terms. It cannot deal with change and with decisions to do something different. Since no domain of life - recreation, consumption, or love - is just more of the same, something more inclusive than past behavior is required.

One seeming deficiency in most such approaches, however advanced over

utility theory, is their failure to incorporate longer-term factors that are related to the social contexts of the life course. I would offer an addition to expectation theory that may remedy that problem. My colleages and I are calling it "life investment" theory. In brief, it offers a framework for analysing the commitment and allocation of resources to the various domains of life: intimacy (primary relationships including the family), economic roles, other community roles, and leisure. We are currently employing a variety of methods to identify and measure different "styles" or behavior-value patterns. One premise is that there are fundamental investment commitments which, although changing, are a basis for the more immediate decisions of resource allocation. Decisions about vacations, homes, and friendships are more than time-bounded assessments of anticipated enjoyment or maximum utility. While it is true that we hope for some "return" on our investments, that return is not limited to the immediate experience of an episode or event. Rather, life investment returns are the long-term benefits that we anticipate in relation to specific decisions and bounded experiences.

Recreation, to use the focus of concern here, is not just experience or economic expenditure or calculated and weighed outcome from one time and place. To comprehend the values of recreation, we need to develop a model that accomplishes several ends: predict decisions adequately, direct resource allocation efficiently, maximize benefits in relation to resource management and development, and provide a full picture of the dimensions of benefits. It is important to recognize that approaches such as expectation theory and behavioral intention models do predict better than some more rigid approaches. It is just as important to recognize that research strategies should not be trimmed to measurement convenience, disciplinary familiarity, or even our own comfort with what we have done before. Recreation benefit valuation is too central to resource management and to life to postpone or neglect because the more we find out the more we need to discover.

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THE RECREATION BENEFITS GAME

The purpose of the game is to produce your own recreation benefits matrix. The game may be played on a computer or in the pencil-and-paper modality. The current version of the board or format is reproduced below. The coding symbols are above the format. The purpose of the game is to identify as many benefits as possible. Point scoring is as follows:

Each measurable benefit - 1 point
Each valid measure of each benefit - 1 point
Each reliable dollar index for a benefit measure - 2 points
Each benefit or measure claimed but not substantiated to the satisfaction of the judges - loss of double the points claimed
Benefits or measures incorrectly coded - loss of double points

When played competitively, a time limit is set, judges appointed, and each player has the same time to complete the board or format.

Code: Primary benefit = B
Secondary benefit = b

Measures: Direct
economic, market = $
economic, nonmarket = ($)
value scales = VSd
behavioral,direct = Bd

Indirect
economic, market indirect = I$
economic, nonmarket indirect = (I$)
value scales, indirect = VSi
behavioral, indirect = Bi
extrapolated = Ex

Game Format

BENEFIT	LEVEL OF APPLICATION		
	Personal	Societal	Economic
(examples of benefits categories)			
Economic:			
national development account			
regional			
community			
market -			
employment			
productivity			

nonmarket -

tax revenue

Institutional:

education
family
political
religious

Environmental:

resource preservation
awareness

Personal:

physical health
mental health
human development
child
adult
competence
learning
expression

Societal:

symbolic meanings
social solidarity

(A more sophisticated version of the game for advanced players doubles points given for measures specified in on-site or household-based data that are now available in some usable form. Other versions may be developed as the game gains in popularity and support.)

EASTERN WHITEWATER: OPPORTUNITIES FOR THE FUTURE

David L. Brown

Abstract.--A review of the recent history of whitewater recreation in the East reveals remarkable growth in use by the outfitted public and private recreationist. Agencies and the paddling community must direct energies toward increasing the availability of opportunity to relieve use pressures at existing resources and to meet growing demand. Several strategies are suggested along with management concerns of eastern outfitters.

The popularity of whitewater recreation - rafting, kayaking, and canoeing is growing much faster than many of the traditional forms of outdoor recreation (U.S.D.I., 1984). In the East a relatively small number of reliable resources are available to meet this growing public demand. As a result, state and federal agencies are groping with strategies designed to manage use. Oftentimes management focuses on limiting or restricting use as the instrument of choice in developing plans for river management.

By focusing on the "limit use" strategy, agencies are ignoring more positive solutions and may be exacerbating the basic problem - a shortage of opportunities for whitewater recreation. Agencies must put more energy into conserving the "opportunity base" and toward expanding the availability of opportunities wherever possible. This adjustment of focus does not preclude use limits as a management strategy where use is creating problems that are otherwise unmanageable.

Origins of the Eastern Whitewater Rafting Industry

The whitewater outfitting industry in the East found its first firm foothold in 1963 on the Youghiogheny River in Pennsylvania. In 1968 the industry spread to the New River in West Virginia. By 1972 outfitting operations had begun on the Chattooga and Nantahala Rivers in the South.

The growth of the whitewater rafting industry in the East paralleled the public's demand for outdoor, adventure-oriented recreation. Many eastern outfitters actually began their careers as private recreationists during the early boom period of outdoor recreation. Gradually, over the course of 20 years, the industry has spread to virtually every commercially viable whitewater river east of the Mississippi River.

In 1975 a dozen outfitters banded together to form the Eastern Professional River Outfitters Association. The organization's objectives are to encourage river safety, conservation and quality river trips. Today the more than 50 outfitter members provide over 500,000 user days of river recreation to the general public each year.

Features of Eastern Whitewater Rivers

Currently in the East there are approximately 25 stretches of whitewater with flows of sufficient reliability to permit significant commercial whitewater rafting operations (EPRO, 1984). Many of these streams are available for only a few weeks or days each year when heavy rains or reservoir operations permit

reliable whitewater use. The backbone of the eastern whitewater paddling community, both commercial and private, is comprised of thirteen major rivers. These rivers, totaling 174.5 miles, support an estimated 745,379 boating use days each year (Table 1). Table 1 does not represent a complete list of whitewater rivers in the East. It represents those rivers with significant followings that have at least some Class III whitewater and flows of sufficient reliability to support whitewater industries.

MAJOR EASTERN WHITEWATER RIVERS RANKED BY ANNUAL USER DAYS

RIVER	STATE	TOTAL ANNUAL USE	SOURCE
LeHigh	PA	129,350	LeHigh
Youghiogheny	PA	125,000	Ohiopyle State Park (1983)
Nantahala	NC	100,000	USFS, Outfitters
Ocoee	TN	90,000	TVA
New	WV	83,000	NPS
Shenandoah	WV/MD	60,000	Outfitters
Chattooga	GA/SC	55,129	USFS
Cheat	WV	40,000	State
Gauley	WV	25,000	Corps of Engineers
Kennebec	ME	14,400	
Penobscot, (W. Branch)	ME	12,000	
Nolichucky	TN	8,000	Outfitters
Indian-Hudson	NY	3,500	Outfitters
Total 174.5 miles		745, 379	

OTHER RIVERS: S.F. Cumberland, Moose, Upper Yough, Tygart, Potomac, James, French Broad, Hiwassee, Dead, Black.

Recreation on eastern whitewater rivers is characterized by relatively high levels of outfitted and private use. Where rivers are managed, in most cases, outfitted use is restricted by licensing or allocation and private use is unrestricted. The most notable exception to that scheme is on the Youghiogheny River in Pennsylvania where both groups are regulated at relatively high use levels (Adams, 1984). There are indications that the Forest Service is initiating more restrictive management of private use on the Chattooga River, as well (U.S.D.A., 1984).

Even with high use levels, there is minimal conflict between private and outfitted users on eastern rivers. Harmonious relations between these groups is most likely the result of the absence of restrictive use allocations, and the establishment of cooperative relationships in river conservation issues.

Agency management of rivers in the East has been slow in developing. Rivers such as the Penobscot, Kennebec, Gauley, and New run through private

land. Many southern whitewater rivers flow through National Forest land, but until recently use was managed only on the Chattooga. Increasingly, state and federal agencies are assuming management responsibilities on eastern rivers. Tennessee, West Virginia, and Maine are developing management plans for popular rivers in those states. The Forest Service is now applying the new national outfitter and guide permitting policy to the Nolichucky, Nantahala, Hiwassee and Cumberland Rivers in the South.

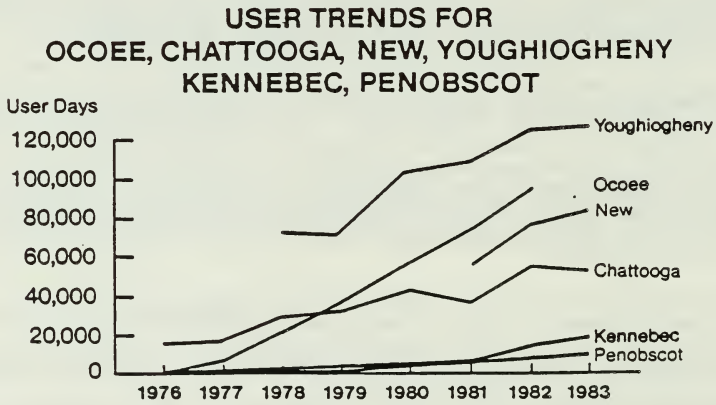
Nine of the 13 stretches of whitewater listed in Table 1 are downstream of dams. Although many rivers are endowed with remarkable beauty, including settings in remote, steep gorges with lush vegetation, some human intrusion is evident.

Despite the scarcity of reliable resources, high use levels, and evidence of significant economic value, prime whitewater resources in the East are often threatened by development for hydroelectric power or changes in dam operations. The Penobscot, James, Gauley, Ocoee and Nantahala have been subject to recreation disrupting threats of this type at one time or the other since 1980. Outfitters have been principals in preserving recreation opportunity in each case. In the case of the Ocoee, Gauley, and Nantahala, the presence of significant outfitting operations was a necessary element in the successful effort to preserve recreation. Threats to river recreation on many eastern rivers are likely to intensify over the next two decades despite the popularity of these resources.

Use Trends and River Management Strategies

One major problem facing river management is a lack of overview data on use trends from which demand projections can be made. However, the recent strength of demand for whitewater recreation is indicated by use data from six eastern rivers. Figure 1 depicts the remarkable growth of use on the Penobscot, Kennebec, Youghiogheny, New, Ocoee, and Chattooga Rivers (Northern Paper Co., 1984; Adams, 1984; National Park Service, 1984; TVA, 1982; U.S.D.A, 1983).

Figure 1.



The most dramatic growth occurred on the Ocoee River in Tennessee after an old hydroelectric diversion project was shut down and water returned to the riverbed. In 1976 there was no recorded use of the Ocoee. By 1982 TVA counted 93,400 annual visits for whitewater recreation (TVA, 1982). While use of the Ocoee skyrocketed, visitation to the nearby Chattooga River more than tripled. The Nantahala, located within two hours of the Ocoee, also experienced growth although no accurate count is available during the period of 1977 to 1982.

The growth of participation for both outfitted and private users is impressive during this period, as indicated by the use data in Figures 2 - 5. Outfitted use is significantly higher than private use on all of these rivers.

Figure 2.

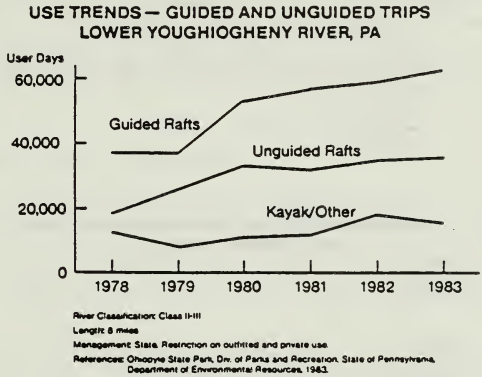


Figure 3.

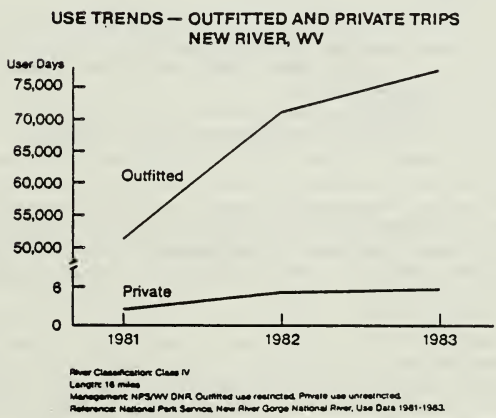


Figure 4.

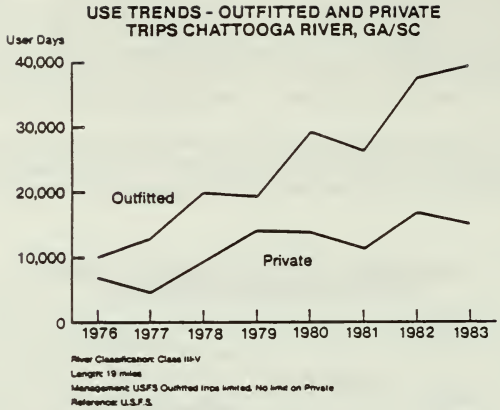
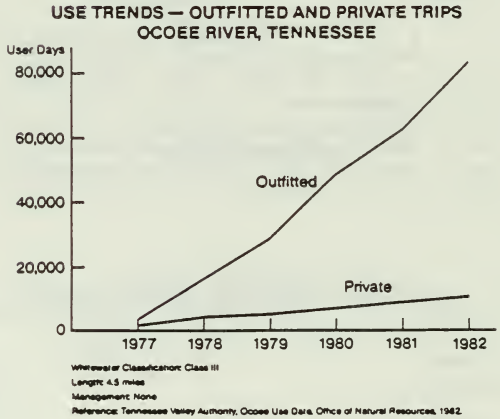


Figure 5.



In terms of the total number of water craft the difference between outfitted and private use is considerably less. In 1982 the ratio of outfitted to private craft on the lower New River Gorge was 2.63 to 1 (National Park Service, 1984). In that same year on the Ocoee River, total use by number of craft was comprised of 55% raft (outfitted) and 45% canoe and kayak or roughly a 1.24 to 1 ratio (TVA, 1982).

The outfitted user differs from the private user in many ways. Outfitted users are less experienced, often novices, who use the resource one or two times each year. Obviously, since most outfitted users visit the river in rafts, there are generally six to eight or more users per craft. Private users have more whitewater experience than outfitted users (Roggenbuck, 1984). As well,

private users tend to have visited the same river on numerous occasions (Roggenbuck, 1984). The majority of private users paddle canoes or kayaks rather than rafts, thus, explaining the prolificacy of craft for private use (Roggenbuck, 1984).

Virtually all major eastern whitewater rivers are within a few hours drive of major metropolitan areas. For example, the New and Gauley Rivers in West Virginia are within a 500 mile radius of 60% of the U.S. population (National Park Service, 1982). This concentration of the population along with the growing public awareness of the value of whitewater recreation will likely sustain the boom that began in the early 1960's with those first few raft trips on the Youghiogheny in Pennsylvania.

Perhaps the foremost conclusion that can be made from this review of eastern whitewater, is that a relatively small number of popular resources are available to accomodate the public's growing demand for whitewater recreation. At least in the short term, over the next ten years, eastern whitewater rivers are likely to be subject to increasing use pressure as the general public's interest expands.

Outfitter Perspectives on River Management

In preparation for the National River Symposium last Fall, eastern outfitters were surveyed about their impressions of management problems facing river recreation over the next ten years. Outfitters were also asked about future demand for outfitted river trips and whether or not river management by government agencies is ultimately necessary to protect quality recreation (see Exhibit 1).

This survey is not scientifically reliable or a conclusive sample of the opinion of eastern outfitters. Only the 53 members of the Eastern Professional River Outfitters were surveyed and, of those 19 responses were recorded. However, the survey does offer some indication of the problems that outfitters see as most important to the future of river recreation in the East in the next decade.

From the perspective of these outfitters, the number one problem facing river recreation is water project development or project operations that favor other user groups. Over-crowding of rivers by paddlers of all types was the second greatest concern of outfitters. The third most prominent concern was a fear that too many outfitters and too much competition would make running a profitable business difficult. Finally among the most prominent concerns of outfitters is that user or licensing fees will reduce demand for river trips (Exhibit 1).

Of least concern to eastern outfitters is that demand for outfitted river trips will be reduced due to the changing recreational values of an aging population. In fact some outfitters commented that this factor may actually maintain demand for outfitted river trips. 94% of the responding outfitters think that demand will continue to grow over the next ten years though some, based on their comments, think not as rapidly as in past years (Exhibit 1).

Outfitters do not seem to think that conflicts between fisherman and paddlers will result in use limits. Reduction in demand for outfitted trips as a

result of the acquisition of whitewater skills by the general public or through their diversion to other recreational pursuits does not concern eastern outfitters (Exhibit 1). Eastern outfitters are ambivalent about the necessity for river management by government agencies to protect quality recreational experiences. 25% thought agency management was ultimately necessary. 55% indicated that management was necessary "sometimes," while 20% thought government management was not ultimately necessary to maintain quality recreation experiences (Exhibit 1).

The Relationship Between Agencies, Outfitters and the Public

The relationship between agencies and outfitters will have a great deal of impact on both the quantity and quality of river recreation opportunity for the general public over the next two decades. It appears that both groups have some of the same concerns about the future of river recreation. Unfortunately, however, there is often a great deal of public/private sector conflict over the specifics of river management that may complicate the future of river recreation.

Example of Types of Management Strategies that Reduce Support for River Management

A recent study commissioned by the National Park Service and the State of West Virginia suggested a management objective that would have drastically altered existing patterns of use on the New River. That study recommended that 41% of users of New River receive a so-called "wilderness experience". In its final form, according to the study, a "wilderness experience" is defined solely on the basis of the percent of time that users are in sight contact with boats from other trips. In this case the researcher suggested that a user received a "wilderness experience" when he or she was in sight of boats from other trips 10% of the time.

While the New River Gorge is indeed beautiful, it simply does not qualify as a wilderness. A heavily used railroad track follows the river through the Gorge and there are several abandoned, as well as populated, communities in the Gorge. Furthermore, the study itself found "very high" trip satisfaction among users at existing use levels. The problems that boaters sought to avoid tend to be related to river levels and other factors and not to social density (Roggenbuck, 1984).

An example of how the implementation of such a policy has alienated both outfitters and private paddlers can be found on the Chattooga River. The Chattooga is managed as a Wild and Scenic River. The Forest Service is attempting to rigorously control sight contact among parties on the river. In the past outfitters have been required to adjust put-in schedules according to river flow and have been issued warnings for being late to designated lunch spots (EPRO, 1983). Now, non-commercial paddling clubs are required to have permits. Because of the requirement for liability insurance many of these clubs think that organized club day trips on the Chattooga may no longer be feasible (Chota, 1984).

In the East paddling clubs have served an important function for the private paddling community by providing instruction and supervision for the entry level paddler. If club use of a regulated river is denied by requirements for liability insurance, then a significant constituency for free flowing rivers may be neutralized or eliminated. Furthermore, agencies will actually be retarding river safety be encouraging use by novices in unsupervised settings.

By citing these instances, it should be noted that there is no indication at this point that the public or outfitters are unhappy with the overall performance of managers at these resources. However, managers should realize that their policies have far ranging effect beyond their immediate area, especially with regard to attitudes about management.

Expanding the Resource Base for Whitewater Recreation

Perhaps we should also consider a new, more positive focus for some of our management energies. The outfitting industry, managing agencies, along with the outfitted public, private boaters and others must join together to preserve remaining river resources. We must also seek ways to increase river recreation opportunities without contributing to peak use pressures on heavily used rivers.

At first the notion of actually increasing the resource base by expanding recreation opportunities may seem implausible. However, in the East there are numerous stretches of whitewater below U.S. Army Corps of Engineer reservoirs and projects licensed by the Federal Energy Regulatory Commission with significant recreation potential. The Russell Fork in Virginia, the North Branch of the Potomac on the border of West Virginia and Maryland, the Lehigh in Pennsylvania, the Gauley in West Virginia, the Moose in New York, and the Kennebec in Maine, to mention a few, are downstream of dams with the potential of producing additional user days. In some cases a few more weekend releases from these projects will lessen pressures during periods of heavy use at other rivers or provide additional opportunities to meet growing demand.

An example of this type of operation can be found on the Gauley River. There the U.S. Army Corps of Engineers provides scheduled releases specifically for the enhancement of whitewater recreation for 20 days in September and October. In the past, releases during this period were unofficial. In dry years the Corps was reluctant to manage the Fall drawdown of the reservoir to maximize recreation use downstream of the dam because whitewater recreation was not a project purpose. However, in 1984 the Corps determined that the operations were within their discretionary authority and whitewater operations at Summersville Dam provided an estimated 24,000 user days (U.S. Army Corps of Engineers, 1984). The Corps is to be congratulated for this very positive step toward creative resource management.

The Ocoee No. 2 project in Tennessee is an example of another project now operated to provide whitewater recreation opportunities. Unfortunately, the Tennessee Valley Authority insisted on an appropriation from Congress to provide water releases for recreation once the Ocoee No. 2 diversion project was completed.

Paddlers and TVA disputed the terms and quantity of water releases for over four years before arriving at a compromise schedule that provides 116 days of recreation opportunity. There are many lessons to be learned from the Ocoee issue. Its loss as a recreation resource would have created far greater pressures on the nearby Chattooga and Nantahala Rivers. At least for now it appears that the Ocoee can be exampled as another successful, if not perfect, effort to expand the resource base for whitewater recreation.

In another way, TVA's Office of Natural Resources has been successful in developing a program with implications for expanding the resource base for whitewater recreation. TVA's Scenic Riverway Program provides access to scenic and

whitewater streams throughout the Tennessee Valley (TVA, 1979). Use of these rivers and streams is obviously enhanced by access. Such a program also encourages some dispersion of use from more heavily used rivers like the Ocoee and is another example of ways to expand the usable resource base.

Federal and state agencies overseeing river recreation resources can also play an important role in preserving or, at least, maintaining recreational use of existing waterways. Whitewater runs on the Kennebec, Nantahala, and Shenandoah are downstream of projects licensed by the Federal Energy Regulatory Commission (FERC). As well, developers have applied for licenses to install hydroelectric plants at existing dams on the Lehigh, Youghiogheny, Gauley and West Branch of the Penobscot. Together these seven popular whitewater runs in the East support 465,750 user days (Table 1).

FERC will be considering original license applications or applications for relicense for many of these projects in future years. Federal and state recreation agencies should be prepared to submit strong comments to FERC on behalf of the preservation or expansion of whitewater use.

SUMMARY AND RECOMMENDATIONS

The demand for whitewater recreation is expected to continue to grow over the next ten years, though some outfitters think not as rapidly as in recent years. To accomodate growing demand and to disperse use at existing resources, agencies and the paddling community must develop advocacy for an expanded resource base. Simply limiting use will not adequately serve the public.

Suggested strategies to expand or maintain the resource base for whitewater recreation.

*In developing river management plans, focus on maintaining quality recreation experiences rather than imposing opportunities for solitude that diminish availability.

*Recognize that use patterns and expectations of eastern rivers users vary greatly from those in the West.

*A U.S. Department of Interior inventory of available whitewater resources, the demand for whitewater recreation and the potential to expand opportunities downstream of Corps of Engineers and other projects is called for. This study and recommendations should be on the agenda of the Presidential Commission on Outdoor Recreation Resources.

*Greater cooperation from the U.S. Army Corps of Engineers and other federal agencies for additional water releases from dams for the enhancement of whitewater recreation.

*The U.S. Department of Interior, the Forest Service, and other state and federal agencies must

submit interventions or comments in strong support of whitewater recreation in the hydropower licensing proceedings of the Federal Energy Regulatory Commission. Amendments to the Federal Power Act may also be necessary to provide additional legitimacy and protection for river recreation and commerce downstream of FERC licensed projects.

Other management considerations.

*Multiple layers of user fees by state, federal, and local governments may make river recreation too expensive for outfitter operations and for the general public. User fees should be closed loop and take into consideration the total fee burden placed on recreationists.

*Even on heavily used rivers a variety of recreation experiences, including opportunities for solitude, is often available. In some cases as an alternative to expensive or fractious plans to alter existing patterns of use, managers should consider educating the public about river conditions and use levels at various times of the year. Dissemination of this information through outfitters or other user groups would allow the user to choose a trip or time that is consistent with his or her expectations or preferences.

Whitewater recreation in the East can have a bright future. However, there is a possibility the future will be fraught with conflict and further erosion of the resource base. The conservation of our remaining whitewater rivers depends to a great degree on maintaining a large, satisfied river recreation constituency. Agency managers, outfitters, and various user groups must be prepared to develop new perspectives and strategies to nurture this constituency and maintain its very sustenance - quality river recreation opportunities.

I. Overall do you think demand for outfitted whitewater trips will continue to grow over the next 10 years?

Responses YES 19 (94%) NO 1 (6%)

II. Below are phenomena that might impact river use and management policies over the next 10 years. Rate each item according to the degree of impact that you foresee on a scale of 7 to 1 with 7 indicating most impact and 1 indicating least or no impact.

5.35 Water project development and operation favor other user groups (electricity consumers, lake users, fishermen).
4.35 Overcrowding (too many paddlers of all types).
4.30 Too many outfitters, too much competition make running profitable businesses difficult.
4.25 Prohibitive user or licensing fees reduce demand for river trips.
3.53 Federal deficits tighten money supply, lead to economic downturn, make borrowing difficult.
3.53 River access problems make operating difficult.
3.50 Conflicts arise between private boaters and outfitted public for allocations, diminish availability of outfitted trips.
3.50 Wild and scenic river designations or other similar river designations limit use.
3.33 Lack of available resources (demand exceeds supply).
3.06 Overall problems will be minor as river use reaches equilibrium without increased government intervention or management.
3.00 Outfitters charges too high.
2.70 Increasing number of river related accidents and fatalities reduce demand for outfitting and increase regulatory pressure.
2.60 Outfitting business get reputation as "tourist traps."
2.58 Global conflicts or gas shortages reduce demand for outfitting services.
2.50 Other outdoor recreational pursuits divert demand away from outfitting.
2.25 Demand for outfitted trips is reduced as general public acquire whitewater skills.
2.20 Conflicts between fishermen and paddlers limit use for rafting.
1.83 Changing recreational values due to aging population reduce demand for outfitting services.

III. Do you think that river management by government agencies is ultimately necessary to protect quality recreational experience?

Responses YES 5 (25%) NO 4 (20%) SOMETIMES 11 (55%)

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THE RECREATIONAL VEHICLE SALES PHENOMENON AND HISTORICAL USE TRENDS

Robert M. Bryant
Recreation Vehicle Industry Association

Recreation Vehicles can mean many things to many people--off road, 4 wheel drive vehicles, motor bikes and an old time friend of Derrick's--snowmobiles--are all examples of vehicles used in recreation. But to those of us in the RV industry, recreation vehicle means, temporary living quarters used for recreational, camping or travel. That is, motor homes, travel trailers, truck campers and camping trailers.

Last year this "limited" definition of recreation vehicle accounted for direct sales of nearly $8 billion, employing an estimated 50,000 people. It has been estimated that more than 30 million Americans enjoy our products today. The RVIA represents more than 200 manufacturers of these vehicles a full 95% of total RV production. Some of these companies have gross sales under 1 million annually and some with gross sales upwards to 1 billion. Truly, a diverse industry.

In a sense we could justifiably change that earlier definition or description from RV to MV. That is, multi-use vehicle, for our consumers find more than one purpose for the products we make.

In an early look at the RV consumer demographics the University of Michigan's Survey Research Center survey by telephone 7,500 scientifically selected households and asked if they owned one of "our" RVs. Nearly 10% said they did! That represents more than 7 1/2 million RVs. And they told us they used them for more than just camping (although that was most assuredly the strongest response). Of all RV owners 51% said they used their RV more than they thought they would when they purchased it. Somewhat higher for motor homes, as would be expected because of their versatility, and somewhat lower for camping trailers, products designed basically for camping.

Also favorable was the number of days used per year--we found all RVs were used on the average 23 days annually--more than 3 weeks on the Average! Again, motorized products were higher than the towable units. 36 days average for motor homes down to 10 days for camping trailers.

Our products are, by and large, viewed as providing "value for the dollar." In fact, most Americans hold positive attitudes towards the recreational activities served by the RV industry and most believe that RV products gave as much or more value for the money spent compared to other forms of recreational expenditures.

To support this belief I offer results of the following statement made in a 1981 poll. "Camping is the BEST type of vacation a family can take." Nearly two-thirds of all respondents agreed.

We worded that statement intentionally strong so as to elicit consumers' underlying beliefs. We didn't ask if it were the BEST vacation THEY could take but rather vacations in general.

Now that's not to say we believe 2 of 3 Americans will camp on their vacation this year, but it does show strong public approval of this activity. And that's good news for an industry that saw its consumers threatened with weekend closure of gasoline stations just five years ago.

Now I'd like to take a few minutes to describe, in some demographic detail, the RV consumer himself.

In a followup to an earlier study the University of Michigan surveyed again in 1984 to determine the total number of RVs in America. We discovered that the total had gown 21.4% since 1979, an increase of 1.7 million RVs. This includes, by the way, a period of time in which there occurred two recessions, and widely flucuating gasoline prices.

We also confirmed that the distribution by region had changed only slightly since 1979 as 6.6% of vehicle owning households in the South owned an RV last year. 8.4% owned RVs in the Northeast, 9.8% ownership rate in the North Central and 16.9% in the West. The West representing nearly two and a half times the rate in the South, but keep in mind the distribution of our population, largest in the South, causing the total number of RVs to be about equal in the two regions.

As for age, 25% of all RVs are owned by households headed by individuals 18-35 years of age. Nearly half or 46% were 35-54, that's an important statistic and I'll have more to say about that later; and over 54 years, 29%

Income distributions were cause for no real surprises—as RV consumers are slightly above average income earners. Of those households with annual incomes of under $20,000, 7% owns an RV. It rises to 11% for those earning between $20,000 and $30,000 and still higher, to 13%, for over $30,000. Nearly twice the rate of the lowest category. It's important to remember median income last year was about $25,000.

Now, how did they buy their RV? Use of credit is extremely important to our industry and we wanted to know how many RV consumers borrowed to purchase their vehicle. Overall, we found 1 out of 2 new RVs were financed. And these "leveraged" owners can be characterized generally as relatively high income, middle-aged (slightly younger than all owners combined) high school graduates, with children still living at home.

Further, we asked what type of financing did they receive and found adjustable rates accounted for 17% of the total. Much lower than had been expected given the recent popularity of this financing technique. The average loan rate, and this includes financing rates for all RVs currently owned not just those purchased in 1984, was 13.8%. Higher for adjustable rate loans 14.1% than for fixed rates which were 13.7%

So far we've only discussed characteristics of the current owner, but in order to understand our Total Potential Market we must also consider those who have an interest in buying as well as those interested in renting an RV. Remember earlier I explained that nearly 10% of vehicle owning households owned an RV and if we add to that respondents who expressed interest in owning, and 4% did, to the 14% who said they thought they'd like to rent one, we expand our potential market to 28% of the U.S. households, nearly tripling our "target market."

It's important to understand the differences between owners and renters if we are to address their specific needs correctly. The renter is typically younger, earns a slightly higher income, is marginally better educated and while still strongly from the West, rates in the urban Northeast hold a greater rental promise than for sales.

When we asked if they preferred one-way rentals, popular in auto rentals--we found only 1 of 8 favored a "drop-off" agreement. Most sited their preference to deal totally with one renting agency. Fixed site rentals were no more popular than one-way as only 12% of respondents favored this form of arrangement. It's clear that the adage "Getting there is half the fun" certainly applies to RV rentals.

Now what about direct sales. What's our track record been in the past and where do we see ourselves heading in the future?

Well, in 1972 industry deliveries to retailers totaled 582,900 units - all All Time High! 1973 was nearly its equal (528,800 units) but in 1974 shipments plunged 44% to under 300,000 units following the tripling of oil prices that year.

As oil prices stabilized at something under $1/gal. and the recession ended, RV sales rose once again to a high water mark of 533,900 units in 1977. But with the Middle East embroiled once more in open conflict, the tap was again turned off and RV sales suffer--dropping more than 30% for two consecutive years to 181,400 units shipped in 1980.

Oil prices had risen to $1.50/gal. and to make matters worse interest rates saw a prime in excess of 20%--simply more than this industry (and most industries suffered right along with us) could bear.

But since that time we've seen shipments rebound - up 32% in 1981
- up 8% in 1982

- up 39% in 1983
- up 8% in 1982
- and up 11.2% this past year 1984 to 398,200 units

Why do we remain so doggedly optimistic in the face of such a wildly cyclical industry? Well, the two major setbacks we experienced recently were caused by situations we do not believe are likely to occur in the near future. Further, we feel strongly that four main factors are now in place that will favorably influence RV sales:

1. We will always be a cyclical industry, but our ability to identify these cycles and predict their course in advance will greatly ease their effect in the future.

2. Replacement demand will remain strong. 70% of all owners plan to replace their current RV with one equal to or of greater value.

3. The number of first time buyers will increase. As I explained in may earlier discussion of the Rv owners and potential renters--they are middle-aged 35-54--with the baby boom generation just now beginning to influence our market in the years ahead, we will see the number of people who will reach the statistically proven "Right Age" for RV ownership grow tremendously.

4. We see the development of a new and eager "strategic" consumer dominating the market place of the 80's.

In a study prepared by the market research firm of Yankelovich, Skelly and White they wrote:

"Strategic thinking does not always mean buying essentials; rather, strategic thinkers find the best, most cost-effective way to achieve the goals and lifestyles that they consider most important. This trend is favorable to the recreational vehicle, with its flexibility, its many uses, and its perceived value for the dollar."

CONVENTIONAL WISDOM & QUALITATIVE ASSESSMENT

by
R.H. Becker, F.D. Dottavio and T.M. Bonnicksen

Abstract. --Perhaps we place too great an importance on numbers and ignore the value of experience. Could it be that we simply don't trust ourselves and the judgement of our peers? Or is it just easier to rely on `scientific' evidence to resolve our management dilemma's and side step difficult questions?

> Many - perhaps most of the great issues of science are qualitative, not quantitative. Equations and measurement are useful when related to proof; but proof or disproof comes first and is in fact strongest when it is absolutely convincing without any quantitative measurement.
>
> Or to say it another way, you can catch phenomena in a logical box or in a mathematical box. The logical box is coarse but strong. The mathematical box is fine grained but flimsy. The mathematical box is a beautiful way of wrapping up a problem, but it will not hold the phenomena unless they have been caught in a logical box to begin with. (Platt, 1964)

This paper explores the application of qualitative evaluations, with examples of the Cross-Impact Assessment Process (CAP) and Bio-Social Systems Analysis for their use in understanding future directions of the outdoor recreation field.

Additional keywords: Cross-Impact Assessment, Systems analysis, Threats to Parks.

INTRODUCTION

Because we live in a world of choice and possibilities, no one can predict the future. Therefore, projecting probable futures is a function of assumptions and stochastic scenarios rather than prediction. Yet, the actions taken or differed today form that fabric. So to project some future we should examine our current actions and decisions and evaluate if the foundations upon which those actions are predicated give us comfort or concern.

"Images of the future", Boulding (1961) contends, "must be held with a degree of uncertainty, and as time passes and as the images become closer to the present the messages we receive

inevitably modify them, both as to content and as to certainty." These images are the product of fact and value and the convergence of fact and value is seldom one of clear distinction. And this is the rub, since values are not static - facts do not have a consistent interpretation. "What this means", according to Boulding (1961), "is that for any individual organism or organization, there is no such thing as `facts.' There are only messages filtered through a changeable value system." What this also means is that projection of future demands and trends by an extrapolation of current patterns without context of a future value system is certain to bring surprises. In statistical terms this surprise factor can loosely be translated as `error term' in our regression models.

The search for technical, quantitative solutions for projecting demand is, however, rational. Management based upon science is, on the surface, more appealing than management based upon judgement. The awe affect of an equation often overrides the conventional wisdoms of applying the meaning. Weinberg, (1975) in his Introduction to General Systems Thinking suggests that "by using words, we shall sacrifice the appearance of elegance, but we shall stay closer to the things we want to think about." So why the drive for futures explanations based upon a quantitative dictum rather than a qualitative approach? Perhaps we believe that "The stature of a science is commonly measured by the degree to which it makes use of mathematics." (Stevens, 1962) Or perhaps we were, and possibly still are, obsessed with what Egler (1983) terms "Physics Envy". So we push for the technical solution - the objective answer to the subjective question. For technical solutions to occur, however, we need a high level of concurrence on social values and on scientific facts, a condition rarely met.

Figure 1, (suggested by Bonnicksen, N.D.) offers a paradigm for selecting decision strategies. To understand this paradigm, let's track a decision regarding whether a tract of land is to be used for dispersed recreation or mineral extraction. The initial decision is political and occurs in an arena which considers the arguments of various interest groups who claim the resource, and the social benefits of the competing claims as perceived by decision makers. Once agreement has been reached on values, to recreate or to mine, an assessment of management options can begin. A technical, computational solution is possible only if agreement is reached regarding facts associated with management parameters.

AGREEMENT ON FACTS

		HIGH	LOW
AGREEMENT ON VALUES	HIGH	TECHNICAL/ COMPUTATION	JUDGEMENT
	LOW	POLITICAL	INSPIRATION

Figure 1. Paradigm Of Decision Making Strategies

CONVENTIONAL WISDOM

Intuitively, we may believe that decisions for allocating resources are made in the context of human judgement. While we may use a technical solution to legitimize a specific decision, the final decisions are based upon a wisdom of experience. Yet, as Miller (1956) points out, the capacity of humans to process information is extremely limited. The limits to understanding interactions, according to Miller, are about seven relationships, plus or minus two. In other words, a brilliant manager will be able to understand a system which has a maximum of nine possible interactions. Since the number of possible paired interactions in a system is the number of variables in the system squared, then the brilliant manager will be able to understand the relationships in a system which has three variables. Thus, when faced with complex multidimensional choices, people naturally devise `simplifying strategies' and sacrifice much information as they follow some easy road to a decision (Shepard, 1964). Most of these adaptations involve the creation of good/bad evaluation criteria and often result in suboptimal choices in difficult situations. The creation of such valuation scales often tend to characterize situations which are uncertain or which introduce change as `bad'. Yet change and uncertainty are among the new realities which managers are facing and will continue to face into the near future.

Change by definition means moving away from the status quo. Whether the change is induced by socio-economic forces, shifting cultural mores, or legislative initiatives, change may cause the manager to focus on a reaction to the effects caused by the change and result in conflict. Often these conflicts put

the manager at odds with their publics and support groups. Also, The anxiety created by change and conflict results in decreased agency morale - a sense of loss of mission. The manager may feel they are perceived as part of a problem and an "US vs THEM" attitude further crystallizes the conflict, polarizes the groups and heightens the anxiety.

The circular relationship of change and conflict is confounded by a growing social complexity. Complexity is defined as the number of parts in a system. As systems become more complex simple truths and conventional wisdoms become difficult to identify and enunciate. A feeling of isolation and a sense of "they don't understand" further separates the resource manager from their publics.

The number of social groups focusing on special narrow issues is growing and these groups place demands on resource agencies that are becoming less negotiable and more specific. Thus, managers find themselves in a role as mediator between special interests and as gatekeepers of resources which are sought for often conflicting uses. Special interests often wax and wane with a specific issue and managers are faced with having to deal with groups and interests that may seemingly appear without notice. Thus, the need to anticipate probable future situations further stresses resource managers. Similarly, the explosive growth of knowledge and the increasing specificity of laws and regulations heighten complexity. Knowledge is cumulative - the more that is learned the more things have to be considered when resolving problems. Laws and regulations are likewise cumulative and further increase complexity. All trends seem to indicate that growth in knowledge, growth in referenda initiatives, and growth in special interest groups will accelerate into the foreseeable future. The result - uncertainty. A reasonable question is, "can the capacity of managers to handle uncertainty keep pace?"

Coping with complexity will require developing ways of managing which are not paralyzed by uncertainty. These new resource management arrangements must build on the premise, indeed, the fact, that we live in a world of choice and possibility rather than determinism and they must provide frameworks for improving decision-making when decisions are ultimately based on judgement.

Qualitative assessment of trends in resource recreation, park management, or environmental planning requires a systems approach which integrates the characteristics of the setting with the expectations and demands of the user. Bonnicksen and Lee (1982) present Biosocial Systems Analysis as "an approach for organizing and tracking interactions between society and its

physical environment." The superiority of Biosocial Systems Analysis is its capacity to require completeness on a manager and to make explicit what a resource decision, policy or study emphasizes or ignores. Bonnicksen and Becker (1983) suggest a technique, the Cross-impact Assessment Process (CAP), which is based on biosocial theory, as an effective approach to integrate the interests of a wide array of publics and enhance the quality of management decisions.

The following brief example illustrates an application of a Biosocial Systems approach, using CAP, for addressing a national park management problem is the Southeast.

A QUALITATIVE APPROACH: A CASE STUDY OF THE SOUTHEAST REGION NATIONAL PARK SERVICE

Managers in the Southeast Region of the National Park Service recognized that mounting demands upon park areas and changing economics required realistic management strategies be developed in order to better protect the natural and cultural resources in the parks, and to enhance Regional Park Service operations. Consequently, in late 1981 a Strategic Planning Task force was formed to develop Strategies and to make recommendations to the Regional Director on significant issues, needs, and problems affecting the management of parks in the Southeast. In search of the concerns and trends the National Park Service was likely to encounter, the Strategic Planning Task Force conducted a series of workshops throughout the Southeast United States. Participants represented many diverse interests from federal, state, and local agencies; conservation groups; industrial interests; and unaffiliated private citizens.

The systematic effort, using a modified nominal group technique, was employed to identify probable trends and events that will likely affect the way the National Park Service will do business in the next decade. The effort resulted in the identification of seven goals and recommendations that specific actions and strategies be developed for addressing those goals. The top priority goal was: The National Park Service should aggressively seek to reduce the external encroachments (threats) to park resources.

The issue of threats or encroachments to the parks is complex. This complexity is demonstrated in a report entitled, "State of the Parks - 1980: A Report to Congress." That report described and listed 4,325 specific threats to national park resources. Approximately 50% of the threats listed were inside the parks -- things such as soil erosion, air and water pollution, encroachments from non-native plants and animals, and

visitor overuse. Outside encroachments were identified as adjacent land development, oil, gas, and mineral exploration, timber harvesting, toxic chemicals, and atmospheric deposition (including acid rain), just to name a few.

"Threats to the National Parks " is a statement which elicits action. The difficulty of handling directives such as "aggressively seek to reduce encroachments" lies in the absence of procedures for implementation.

To address the issue of threats to the parks, the Strategic Planning Task Force employed the CROSS-IMPACT ASSESSMENT PROCESS (CAP), which uses a participatory approach and builds a constituent network necessary for handling complex issues for which a clear consensus or specific direction are not available (Bonnicksen and Becker, 1983).

Cap relies on the judgement of an interdisciplinary group of well-informed individuals. The assumption is that a concise set of variables which adequately define a complex system is not available. This was the case in evaluating and defining encroachments to National Parks. Therefore, five independent and interdisciplinary panels of knowledgeable individuals were assembled in face-to-face meetings to define the characteristics and the effects of encroachments to the National Parks. Four panels, known as foundation panels, identified the components of the model. The fifth panel, known as the capstone panel, refined the model. Panelists selected were considered to have both the depth of understanding necessary to contribute specific knowledge and the breadth of view to integrate that knowledge with the information provided by other panelists.

To insure objectivity, panelists were selected to maintain a balance of expertise, and public and private organizational affiliation. Panel participants included land developers, investment bankers, engineers, planners, ecologists, biologists, sociologists, area managers, foresters, water resource specialists, landscape architects, private citizens, and local and state governmental officials.

How Cap Works

The first step during the foundation panel meeting was a brainstorming session to identify variables relevant to the potential encroachments to national parks. Each variable that was added to the list was given a general name, such as land-use, and was then made more specific by assigning a unit of measure, such as acres-by-type. After the variable

identification was completed, panelists were asked to individually select the twenty variables they believed were the most important. These individual selections where then tallied to provide a list of the twenty variables which that collective panel believed were associated with encroachments to the National Parks.

The four independent foundation panels developed a list of 43 unique variables (out of a possibility of 80 - 20 x 4 panels). (In all, 273 variables were identified and considered by these foundation panels.) The 43 variables identified by the foundation panels were then used by the capstone panel to select the final set of 20 critically important variable which would be used as a core group to define and assess encroachments to the National Parks.

The capstone panel also identified the relationships which linked the final set of 20 variables together to form a system. The system included a listing of impacting variables; an identification of social variables in the system, and an identification of the most important environmental variables in the system. The model draws its strength and credibility from the method used to summarize the concerns and knowledge of panel participants. (For more information regarding procedures and outcomes, the reader is directed to Bonnicksen and Becker, 1983; and Everhardt, et. al., 1984.)

CONCLUSIONS

As we look ahead to the future being shaped by decisions being made today, we should insist those decisions be based upon the collective judgements of all interested parties and explore methodologies to collect those qualitative judgements. As Bridgeman (1959) observes "In my own case, pursuit of operational analysis has resulted in the conviction... that it is better to analyze in terms of doings and happenings than in terms of objects or static abstractions."

Today, too many programs start with a "vaporous wish" phrased in eloquent but elusive language. This penchant for stating policies in vague terms, leaves further definition and clarification to the implementation process. Yet, as Nakamura (1981) stated, as the implementation process gets underway and policies are defined more clearly, conflicts erupt. Those charged with the implement find disagreement over what should be done and how; policy makers intervene to reformulate priorities or to shift direction and the program bogs down in conflict among various interest groups. The breakdown, encountered during implementation, started much earlier and is rooted in a lack of consensus and a lack of agreement.

The Cross-impact Assessment Process is a qualitative method which develops a consensus on values and facts need for effective management. CAP distills the conventional wisdom and collective judgements of a broad-based group of interested, knowledgeable individuals and provides an approach for tracking interactions between society and the physical environment.

Cap provides a framework for improving decision making and policy formulation when decisions and policies are ultimately based on political or judgemental strategies (see figure 1). Cap recognizes the role of compromise for arriving at agreement on the values and facts needed to implement a management plan.

Qualitative approaches to management provide direction. They are the coarse logic box which Platt (1964) referred to. The elegant predictive models enhance management by providing refinement and detail. But without the structure provided by a qualitative systems analysis, even the most sophisticated quantitative predictive models may be wrapping without form.

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ADVANCEMENTS IN METHODOLOGY FOR PROJECTING FUTURE RECREATION PARTICIPATION

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Abstract.--Examination of past national outdoor recreation projection modeling work and of recent forecasting research has revealed advancements in data development, statistical methods, choice theory, and interpretation of recreation participation forecasting models. These advancements provide substantial opportunity to improve the accuracy and application of forecasting models. Improved model specification, more appropriate parameter expression, and more applicable data sets can result from adoption of the identified opportunities. The next round of national projection modeling will incorporate the advancements in recreation forecasting technology described in this paper.

Additional keywords: Trends, population surveys, discrete choice modeling, futures, outdoor recreation, forecasting.

Government outdoor recreation planners and market analysts associated with private industry need reliable estimates of future outdoor recreation participation and demand. A great deal of work over the past several years by social scientists and modelers, especially economists and geographers, has been aimed at improving both the models and the data to yield reliable and reasonably accurate projections. Significant advancements have been made, although improvements are still needed on several fronts. First among these advancements, methodology for population sampling and survey instrument design have improved to a point such that meaningful descriptions of recreation participation, participant characteristics, and participation circumstances and constraints can be provided. Second, national recreation participation data bases are now routinely updated at approximately 5-year intervals providing opportunities for updating participation models and projections. These updated data also permit validation of the accuracy of the resulting projections by comparing estimated actual participation with participation projections previously developed. Third, technological advancements in computer hardware and software have greatly decreased the time and costs of developing comprehensive participation projection models. Fourth, statistical methodology and recreation choice theory have advanced to a point that much better models with greater predictive power and more interpretable results are now possible. Finally, better data and better projections of the participation correlates in structural models, which are used to project participation probabilities and quantities, are more refined and thus can offer more realistic projections.

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In this paper we review the evolution of the state-of-the-art in recreation participation modeling and projection from 1960 to now. We report opportunities for adopting and furthering innovations for the next rounds of national projections which we will develop for the 1990 Resources Planning Act Assessment of Outdoor Recreation and Wilderness. The emphasis of this paper is on the fourth area of advancement noted above--statistical methodology and recreational choice theory. Population models, as opposed to site models, and structural models, as opposed to time series, are the focus of this methodological review.

The paper is organized to present first a history of participation projection modeling research and development and to examine the apparent accuracy of some previous projections. Subsequent sections describe the evolution of regional and national population projection modeling methodology, recent projections and their implications for technology improvements and more recent advancements and issues. Finally, the issues and uses concerning the next round of national and regional participation projection models and the resulting forecasts are discussed.

HISTORY OF NATIONAL PROJECTIONS AND MODELING

With establishment of the 1960 Outdoor Recreation Resources Review Commission (ORRRC) came a need to look toward future growth and trends in outdoor recreation participation. Realizing a need to go beyond speculation or extrapolation from cross-sectional participation data, such as the 1960 National Recreation Survey (NRS), the ORRRC commissioned Charles Proctor at North Carolina State University to undertake a multivariate analysis of the 1960 NRS. His approach was to factor analyze participation in 15 recreational activities. The resulting factor scores were used as dependent variables in regressions on the socioeconomic variables hypothesized to be correlated with the participation levels reflected in the factor scores (Proctor 1962). This was one of the earliest attempts to apply multivariate analysis techniques to attempt development of structural models. A second study by Mueller et al. (1962) used a University of Michigan national participation survey. The analysis used a multiple classification analysis and, while focusing on socioeconomic variables as potential activity correlates, advanced Proctor's analysis by including facility constraints--one of the earliest attempts to model "supply effects."

The next major efforts were undertaken by economists and involved a series of econometric based models (Cicchetti 1972). These modeling studies considered socioeconomic variables and supply variables, including water area per capita, recreation beaches, and swimming pools. The individual activity equations estimated the probability of participation in an activity, based on the values of the significant independent variables. Probabilities could be estimated for specific population cohorts, and as well, numbers of recreationists could be forecast for future years given knowledge of future population distributions and likely recreation supply changes.

Cicchetti et al. (1969) sought to improve these earlier econometric models through an analysis of the 1960 and 1965 NRS data. Twenty-five activities were modeled with the greatest distinction being much improved

measures of the quantity and quality of recreation opportunities (supply variables). Inclusion of supply variables improved the specification of the conditional probability models which were similar to those developed in earlier studies. In essence, inclusion of supply variables more fully specified a model of recreation choice behavior and served to reduce specification bias in the estimated partial coefficients estimating the relationship between probability of participation and the significant independent variables. With the addition of supply variables, models were developed to explain quantity of participation. Previous studies attempting such models had failed to account for a sufficient proportion of the variation in quantity of participiption to produce significant models.

The Cicchetti et al. (1969) study, in building upon several previous modeling studies, produced the following specific results:

1. the effect of age on participation was strongly negative,
2. income was positively related at a decreasing rate as income was varied upward,
3. white and non-white participation rates were different, and
4. supply variables greatly improved models of variation in participation quantity.

The models resulting from the Cicchetti study were used to forecast recreation participation to the years 1980 and 2000. (Cicchetti's projections will be examined in the next section of this paper.) This study also began a more in-depth examination of the identification and aggregation problems in recreation participation modeling (Cicchetti et al. 1969, pp. 42-65) and initiated an exploration of the statistical properties of various forms of estimators, including ordinary least squares (OLS), generalized least squares (GLS), probit, and logit (Cicchetti et al. 1969, p. 77).

Kalter and Gosse (1970) also used the 1965 NRS to develop models of both probability and quantity of participation for 5 activities. These researchers disaggregated participation amounts by type of occasion (short outing, overnight trip, vacation, etc.) which enabled inclusion of cost and distance measures implicit in the supply set available to the participant. Estimates of proportion of variance in the dependent variable explained by these models seemed greatly improved over those of Cicchetti and associates (1969). However, some of this apparent improvement resulted from including total occasion cost and distance as dependent variables. Variation in these variables was partially a function of days of participation, the dependent variable. Also, average participation values were used across income-education cohorts having the effect of reducing initial variation in the dependent variable to which a model was subsequently fitted.

Cicchetti (1972) concluded that better data enabling better measures of respondents' participation, the opportunities available, frequency of repeat participation at specific sites, and previous participation experience were needed to advance the methodology of participation modeling. Cicchetti correctly described recreation choice behavior as a series of "complex interdependent decisions." This choice behavior, exhibited by participation, is obviously more complex than the models being developed in the late 1960s

and early 1970s since most of the variation in participation among population units was yet "unexplained."

In the early 1970s, the U.S. Department of the Interior developed projections of participation for 1978 (USDI Bureau of Outdoor Recreation 1973). Using regression procedures, the USDI analysts (1) estimated the percentage of population participating by activity as a function of population socioeconomic characteristics and (2) estimated per capita participation as a function of price per activity day and socioeconomic characteristics of the participating population. The next step was to project 1978 values of the 1972 population-level socioeconomic characteristics and, using these models, project an estimate of 1978 participation based on the projected changes in these characeristics (USDI Bureau of Outdoor Recreation 1973, p. 14). The unique contribution of this work was the addition of price as a participation determinant, representing another step toward the classical economic demand model. Price elasticities between -0.06 and -0.35 and income elasticities between 0.09 and 0.35 were estimated. Unfortunately, supply variables were not considered in these models.

The most recent set of population projection models was developed in 1977 (Hof and Kaiser 1983) for the Forest Service's Renewable Resources Planning Act (RPA) Assessment (USDA Forest Service 1980). The explicit objective of this work was to provide state-of-the-art projections of growth of recreation participation for the years 1990, 2000, 2010, 2020, and 2030. Hof and Kaiser developed structural models estimating an <u>a priori</u> theoretical specification of the national recreation market structure as follows:

$$Q_c = f(P, X_i, Y_j),$$

$$Q_p = g(P, X_i, Y_j),$$

where:

Q_c = quantity of recreation consumed.

Q_p = quantity of recreation provided by the public sector.

P = price or price surrogate.

X_i = traditional demand shifters.

Y_j = supply shifters, including political and financial variables affecting public sector supply.

The reduced form model used to specify the set of statistical models representing different aggregations of activities was of the form:

$$Q_c = f(P, X_i, Q_p).$$

Data for model estimation included the 1977 NRS, the 1975 National Association of Conservation Districts inventory of private recreation resources, and various public sector recreation supply files. The partial regression

coefficients for each of the significant variables representing the above model arguments were statistically estimated and future values for these variables projected for use with the estimated models parameters to produce participation projections for 26 activities and 3 groups of activities for the nation and for each of 9 regions.

Projections resulting from this work were used in the RPA planning process of the Forest Service, in the Renewable Resources Conservation Act Appraisal of rural lands by the Soil Conservation Service, in the USDI Third Nationwide Outdoor Recreation Plan, and by several states and private groups in their separate planning and market analysis efforts.

Hof and Kaiser concluded that correct specification of a recreation participation function is not totally clear unless explicit assumptions are made about whether the participation variable(s) being projected represents an equilibrium or a disequilibrium result. Secondly, they concluded that observed participation is not independent of public sector supply decisions. Thus, recreation policy-making and planning processes should not use projected participation levels as allocative targets. There are implicit social welfare overtones because agency decisions in part determine current participation levels, and therefore projections of future participation levels as well. In short, projected participation levels are not equivalent to projected future demands.

The projections made by Hof and Kaiser represent the most comprehensive recreation modeling effort yet. As such, they have contributed greatly to improving modeling technology.

PREVIOUS PROJECTIONS

Page limitations prohibit a comprehensive examination and evaluation of previous participation projections. However, it is both useful and interesting to examine examples of previous projections relative to actual participation estimates. The usefulness of this examination is to surface reasons for the degree to which these projections were or were not accurate. Our comparisons of actual and projected participation focuses on 4 activities (swimming, playing outdoor games and sports, boating, and picnicking) and one measure of participation (number of persons participating).

Projections by the ORRRC in 1960, the Bureau of Outdoor Recreation in 1965, Cicchetti in 1969, and Hof in 1977 are presented in Table 1. Also shown are estimated actual number of participants resulting from NRS studies concurrent with the target year of previous projections, as well as Census estimates of population for past years and projected population to 2000 (USDA Forest Service 1985).

In general, all projections preceeding those developed by Hof and Kaiser seem to have grossly overstated future numbers of participants in the 4 example activities. Those developed by BOR in 1965 seem to have overstated participation the most. Some of the apparent methodological weaknesses that probably contributed most to these over projection include:

Table 1.--Estimated current and projected future outdoor recreation participation in 4 activities for selected years.

Activity and source of estimate	Year 1960	1965	1980	2000
	(Millions of people)			
SWIMMING				
ORRRC (1960)	58.7[a]	--	110.6	161.0
BOR (1965)	--	67.8[a]	146.2	260.6
Cicchetti (1969)	--	67.8[a]	119.7	168.2
Hof (1977)	--	--	75.5[a]	91.4
Concurrent NRS	58.7[a]	67.8[a]	75.5[a]	--
PLAYING OUTDOOR GAMES AND SPORTS				
ORRRC (1960)	39.2[a]	--	68.0	107.0
BOR (1965)	--	53.7[a]	92.4	169.7
Cicchetti (1969)	--	53.7[a]	93.9	169.1
Hof (1977)	--	--	47.1[a]	54.8
Concurrent NRS	39.2[a]	53.7[a]	47.1[a]	--
BOATING				
ORRRC (1960)	28.7[a]	--	52.8	97.0
BOR (1965)	--	33.9[a]	59.7	106.8
Cicchetti (1969)	--	33.9[a]	43.9	55.8
Hof (1977)	--	--	32.0[a]	60.2
Concurrent NRS	28.7[a]	33.9[a]	32.0[a]	--
PICNICKING				
ORRRC (1960)	69.2[a]	--	105.2	156.0
BOR (1965)	--	80.5[a]	119.1	182.7
Cicchetti (1969)	--	80.5[a]	131.5	213.1
Hof (1977)	--	--	76.8[a]	91.2
Concurrent NRS	69.2[a]	80.5[a]	76.8[a]	--
POPULATION GROWTH	180.7	194.3	227.7	255.6

[a]Estimated number of participants for each listed year, based on current year's National Recreation Survey (NRS).

SOURCES: ORRRC Study Report 25, 1962, Washington, D.C., Table 10, p. 27; Bureau of Outdoor Recreation, Outdoor Recreation Trends, April 1962, pp. 14-18; C. J. Cicchetti, 1973, Forecasting Recreation in the United States, D. C. Heath and Company, Lexington, Mass., Table 7-2, p. 168; USDA Forest Service, 1980, An Assessment of the Forest and Range Land Situation in the United States, Table 3.2, p. 100; H. Ken Cordell and Lawrence A. Hartmann (1984), Trends in Outdoor Recreation in the Two Decades since ORRRC, in Proceedings of the Southeastern Recreation Research Conference, Asheville, NC, Table 1, p. 4.

1) price variables or surrogates of price were absent or minimally treated,

2) substitute resources and activities, such as indoor activities and new activities, were not adequately accounted for in the models,

3) supply variables were either not considered or were inadequately considered permitting the implicit, and probably unrealistic assumption that future supply would not be constraining.

The work by Hof was much more comprehensive in its treatment of price and supply variables. However, as with previous modeling studies, the proportion of variation in the participation measures explained by the models was quite low with multiple coefficients of determination (R^2s) ranging from 0.05 to 0.26. The apparent model underspecification increased the potential for biased and unstable coefficients, and therefore biased projections.

THE MOST RECENT PROJECTIONS

The most recent projections of future outdoor recreation consumption resulted from Hof's work and were reported in the Forest Service's 1979 RPA Assessment (USDA Forest Service 1980). Single activities and activity groups formed the basis for these projections. Using 1977 as the base year, projections of an index to participation growth were developed and represented percentage change in number of people expected to participate in the future up to the year 2030. In Figure 1 projections for land, water, and snow and ice

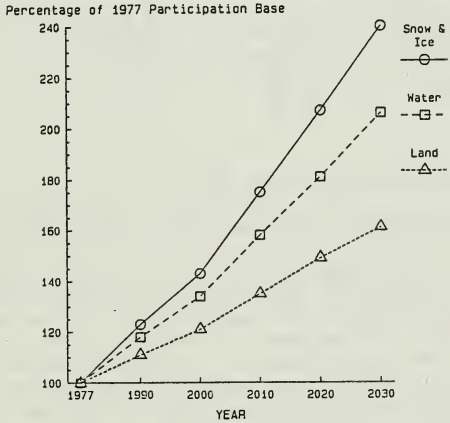

Figure 1.--Projections of indices of participation growth in land, water, and snow and ice groupings of recreational activities, 1977-2030.

SOURCE: Assessment of the Forest and Range Land Situation in the United States, USDA Forest Service, 1980.

based activities are shown. The highest rate of growth was projected first for snow and ice activities, second for water activities, and third for land activities. Growth of numbers of people projected to participate by 2030, however, showed a different ordering because the base population of participants was highest by a large margin for land activities and second highest for water activities.

Table 2 provides a further examination of the Forest Service projections. Shown are past and projected future average annual percentage growth in land and water activity participation and in population, Gross National Product (GNP) and per capita disposable personal income (DPI). GNP and DPI are standardized to base year 1967 to adjust for inflation. The 1960 and 1982 participation estimates resulted from the NRS projects conducted in those years. The projections for 1977-2000 resulted from Hof's projections for the 1979 RPA Assessment. Past and present average annual growth of population, GNP, and DPI reflect the general trends of aggregate determinants of participation growth for the relevant periods.

Table 2.--Past and projected average annual percentage growth in number of participants in land and water based activities, population, Gross National Product and per capita personal income

Characteristic	Average annual percentage growth		
	Past (1960-1982)	Future (1977-2000)	Ratio (Future/Past)
Land Participation	2.46	0.91	0.37
Water Participation	1.42	1.48	1.04
U.S. Population	1.29	0.70	0.54
Gross National Product[a]	4.95	3.11	0.63
Disposable Income[a]	3.18	2.17	0.68

[a]Inflation adjusted dollars, base year 1967.

SOURCES: Cordell and Hartmann 1984, and USDA Forest Service 1985.

In general, past participation growth is greater than the annual rate of growth projected for the future, although participation in water activities is projected to accelerate slightly over past growth. This projected general slackening of the rate of annual growth of participation is consistent with slowing population, GNP, and DPI growth. In Table 2, a value in column 4 that is less than 1.0 indicates a smaller projected future growth rate than the past growth rate. This consistency in growth rate trends in participation, population, and the economy in past years, relative to projected growth in future years, indicates that the models used to develop the 1979 projections may be sensitive to, or at least reflective of, gross population and economic changes. This sensitivity supports of our observation that the state of the art by 1977 had advanced to a stage such that a more realistic future was

being forecast. Still, improvements in modeling and data development technology are needed. Results of recent research point to some of the more promising possible improvements.

RECENT RESEARCH AND METHODOLOGICAL ADVANCES

Structural Models

Perhaps one of the most important issues that has been addressed in recent years relates to the basic assumptions, goals, and limitations of aggregate and disaggregate formating models (Stynes 1983). Aggregate models generally fall into two categories, trip generation and trip distribution. Both models rely upon information gathered at and/or generalized to populations of relatively large geographic areas. Trip generation models estimate the probability or frequency of participation in activities, whereas trip distribution models account for the geographic distribution of activity throughout a study region. Ewing (1983) has reviewed the distinction between trip generation and trip distribution models. Alternative formulations of trip distribution models are discussed by Baxter (1981) and Fotheringham (1983).

Disaggregate choice models, on the other hand, focus on individuals, households, or small areal units as observations for calibration of model parameters. They assume the same type of causality relationships as more aggregate models, but they also assume that investigating the choice behavior of decision makers at the disaggregate level permits more precise identification of the important explanatory variables which can be used to manipulate (alter) behavior. These models (e.g., Peterson et al. 1983) almost always assume that individual differences among behavioral choice mechanisms are slight and can be averaged out and that choice mechanisms can be revealed from behavior. This type of model is usually probabilistic such as logit, multinomial logit, dogit, and probit models (Wrigley 1982). Wrigley includes a categorization for the appropriateness of each model and a description of their current applications.

A third type of structural model can be referred to as a totally disaggregate attitudinal and/or behavioral model (Louviere 1976). This type of model involves experimental designs and attempts to isolate the effects of relevant decision making attributes from the confounding effects of differing environmental situations. Because these models are totally disaggregate and do not depend upon revealed behavior or assumptions about interpersonal communalities, they are best suited for examining behavioral intentions and subjective impressions (Allton and Lieber 1983; Lieber and Fesenmaier 1984).

Although the decade-long debate concerning levels of analysis and the choice of appropriate modeling procedure appears to have been resolved (Daly 1982), another important issue facing forecasters has only recently been fully acknowledged. Many of the models describing processes underlying recreation behavior have been simplistic in that they have incorporated most, if not all, of the conventional assumptions underlying the concept of rational choice (Simon 1957). Recent studies have argued that under many circumstances one might not expect individuals' decision making process to result in an

'optimal' solution. Krumpe and McLaughlin (1982), for example, argue that an individual's choice of place for a particular activity basically follows a sequential process whereby certain constraints enable one to simplify the choice process. In contrast to earlier models which include the possibility of compensation between certain aspects of a place (and which ultimately leads to optimal choice given the respective attributes), the model proposed by Krumpe and McLaughlin embraces much of the theory underlying elimination-by-aspects--EBA (Tversky 1972). EBA theory allows individuals' decisions to result in an apparently suboptimal choice (Park 1978; Fishburn 1974). In addition, the Krumpe and McLaughlin model includes perceived constraints for evaluating alternatives; positive attributes (those attributes that facilitate activity) are evaluated only for alternatives deemed 'acceptable'. As a result of this research by Krumpe and McLaughlin (1982) and others (Tversky 1972; Williams and Ortuzar 1982), it has become clear that individuals may adopt a number of different choice strategies, depending upon the conditions of a particular choice. Thus, under certain circumstances an individual might simplify choice situations using some sort of EBA framework (Tversky 1972). On the other hand, the same individual might adopt two different strategies, one for evaluation and preference formation and another for choice (Einhorn and Hograrth 1981).

The description of the effects of different choice strategies could be among the most significant recent developments in forecasting research. Understanding choice strategies has enabled evaluation of the importance of various inputs into decision processes. For example, Stynes (1982) and Stynes et al. (1985) have begun to investigate the importance of information about recreation opportunities in determining participation choices and patterns. Gitelson and Crompton (1983) have evaluated the importance of alternative sources of information for travel decisions. In other areas, Schreyer et al. (1984) and Fesenmaier and Lieber (1984) considered the influence of past experiences on recreation behavior--including participation in activities associated with a particular site. Others have begun to investigate repetitive and variety seeking behavior in recreational travel (Hanson 1980). Finally, Beaman et al. (1979), Smith and Knopp (1981), Fesenmaier and Lieber (1985), Cordell and English (1985), and Clawson (1984) have begun evaluating how the geographical distribution of recreation facilities effects individual recreation behavior. This offers tremendous potential improvement in accounting for supply effects on participation. In summary, recent research has strongly suggested that variables such as information, past behavior and experiences, and the interaction between opportunity and geography constitute principal dimensions underlying individuals' choice processes.

Statistical Methods and Data Development

Parallel with advancements in modeling of recreation choice processes is the emphasis on discrete choice modeling (Peterson et al. 1982, 1983, 1984; Stynes and Peterson 1984). Prominent is the logit model, including binomial and multinomial versions, which can be used to predict individual choices from a set of alternatives of known characteristics. The dependent variable in discrete choice models is usually reported behavior (the actual choice of destination) and the independent variables are *a priori* defined attributes.

In contrast to other types of models which use similar data, i.e., linear regression and gravity models, logit models are particularly well suited to modeling individual recreation behavior. The results of logit models are inherently restricted to a range of 0 to 1, which in turn allows direct interpretation (Wrigley 1982). In addition, models using the logit transformation can easily be expressed in linear form (Stynes and Peterson 1984). Finally, depending upon the assumptions of choice process, both compensatory and non-compensatory models can be developed (Williams and Ortuzar 1982).

The multinomial logit model requires a number of assumptions that may not be desirable. The most important is the assumption of independence of irrelevant alternatives (called the IIA Assumption). At its best, this assumption enables the evaluation of a variety of different scenarios facing decisionmakers. On the other hand, this assumption often leads to counterintuitive results when alternatives are not sufficiently distinctive (Stynes and Peterson 1984; Tversky 1972). Two recent articles in recreation concerning the IIA Assumption indicate that nested logit models (essentially EBA models) and an accurate identification of the available opportunity set, are ways of meeting this assumption (Lin 1983; Curry et al. 1983).

Concomitant with the introduction of logit models, others have shown that decompositional multiattribute preference models constitute a potentially useful and flexible approach to the analysis of recreation behavior (Lieber and Fesenmaier 1984; Louviere 1978; Propst 1979; Timmermans 1982). Unlike logit-based discrete choice models, preference models typically use individuals' expressed overall preference ordering of a set of hypothetical alternatives. These alternatives are characterized in terms of a combination of attributes (bundles of attributes), where the individual is asked to evaluate each bundle or scenario and then identify preference ordering. A decision rule may then be empirically specified by linking the preference ordering to the respective attributes of the different alternatives.

A recent study where this approach was applied to trail area choice in Chicago found considerable variation in individuals' evaluations of alternative opportunities (Lieber and Fesenmaier 1984). In this study an interactive model best described trail preferences of the urban residents sampled. However, the weights (importance) of the respective attributes describing the trails varied substantially from person-to-person. This study also showed that preference models can be effective tools to evaluate a variety of physical-environmental management strategies and thus, predict how individuals will respond to opportunities not currently available.

Other Methodological and Data Improvements

Hof and Dwyer (1979) have made other suggestions primarily aimed at improving structural participation projection models. 1) They suggest using frequency of participation in addition to probabilistic participation measures to express choice behavior. They also suggest a unit of measure more consistent with advancements in choice theory than number of participants, for example, psychologically based choice evaluations as discussed by Driver and Brown (1975). 2) Because there are many sources of measurement error, a set

of consistent surveys or a "time-diary" approach are needed to increase reliability. 3) Past models have implicitly assumed that relationships identified by regression analysis remain constant throughout the projection period. Consistent cross-sectional surveys at different points in time would provide a basis for better testing this assumption. 4) In some cases it is necessary to use historical trends to project independent variables. Hof and Dyer recommend that more work be aimed at projecting future changes in these variables, especially socio-economic variables. 5) Multicollinearity can be expected with multivariate regression procedures. If significant multicollinearity is indicated, ridge regression and other "collinearity control" techniques should be considered to reduce potential parameter estimation bias. 6) Other demand shifters, such as political whimsy, previously determined public policy, and vote-trading behavior, may be important, and though pragmatically difficult to include, should be incorporated in structural models. 7) Another potentially serious problem is aggregation bias in participation equations. This problem arises when data from a cross-sectional survey describing individual behavior are used to project population participation subject to extrapolations of trends in the explanatory variables. Regression models developed from cross-sectional surveys of individuals and intended to estimate the relationships between hypothesized participation determinants and some given measure of individual recreation consumption should only be used to project population level participation if the heroic assumption that population behavior and characteristics are homogeneous is adopted. 8) Due to problems of heteroskedasticity, generalized least squares, logit, or probit analysis are recommended instead of ordinary least squares, especially when the sample size is small and a probabilistic dependent variable is used.

Other suggested methodological considerations include Mittleider, et al. (1980) who emphasized that cross-sectional data do not take into account temporal changes of patterns of participation. Thus long-run projections based on these data may be subject to considerable error. Napier and Maurer (1981) found that factor analytic techniques helped increase explained variance. Witt and Goodale (1981) reported that non-linear regression models also can increase explained variance. Yu (1981) examined factor analysis to combine several socio-demographic variables into a single composite score for use in modeling participation.

As previously discussed, prediction models using a discrete choice dependent variable for participation in a given activity yield only information on the probability that certain numbers of people will participate, not the extent of their participation. Our preliminary analysis of the 1982-1983 NRS indicates that a relatively small proportion of users account for a relatively large proportion of total participation occasions. Cicchetti (1973) suggested a two-stage model, the first stage predicting probability of participation and the second stage predicting quantity of participation for those who do participate.

Contemporary Issues in Recreation Forecasting

Thus far, our discussion has centered on some of the achievements and suggestions by researchers for developing more interpretable and accurate

forecasting models. It is clear that major advancements have been made, each in turn being a response to the methodological issue(s) of that time. Contemporary issues and problems include individuals' use of information, the role of past experience, and the extent to which established habits effect recreation behavior. But there are a number of other concerns that must be addressed.

Characterizing opportunity sets.--Chief among these other concerns is characterizing opportunity sets (Williams and Ortuzar 1982; Richardson 1982; Ansatt 1977). The relative location of each and every recreation facility is different when viewed from the location of each recreationist. For aggregate gravity model formulations, there is substantial controversy as to the manner in which such effects can be modeled (Baxter 1981; Fortheringham 1983; Ewing 1983). Fesenmaier and Lieber (1985) and Cordell and English (1985) have recently advocated an indexing approach. Because of its simplicity, such an approach is useful for measuring the effects of opportunities upon participation. The indexes are simply counts of facilities within different distance zones outward from the location of the recreationist and differs from the approach originally advocated by Breheny (1978). In order to separate the spatial structure effects relative to the origin from the potentially agglomerative effects of locationally proximate facilities relative to the destination, the authors also suggest that simple counts for the number of facilities within distance zones outward from the location of the facility actually visited also be made. This procedure eliminates the need to a priori discount the effect of distance which is an inherent problem with gravity model formulations.

For disaggregate modeling approaches, incorporating choice sets as part of decision making experiments appears to be an appropriate way to control context or situational effects in uncovering aspatial decision principles. The essential problem for each decision making experiment is to systematically vary the facilities (the combinations of attributes with known levels) in a choice set and to compare the probability of a facility being present in any choice set (the combination of attributes) with both the choice probabilities of the decision maker and his real behavior in the environment (Eagle 1984).

Better knowledge of recreation choice mechanisms.--Both the index approach and the further use of experimental designs in characterizing spatial structures may lead to improvements in precision and accuracy and lessening of specification errors in forecasting models. Nevertheless, any such advances cannot lead to the elimination of all spatial structure effects because we do not currently know how to change the characterization of spatial structures or experimental opportunity choice sets to account for the different levels of knowledge about facilities possessed by decision makers. Two people living in the same place may have different choice sets because of different lengths of residents, preference, or knowledge. How can one incorporate into a forecasting model the constraining effects of information filters?

To overcome this problem, we need to re-examine the current model of man; that is optimizing, rational man. Beyond the algebraic models of man currently in use, others are possible (Anderson 1981). If one were to view man as a more complex being, one might need to consider a model of man in

which the prime directive is to simplify situations (Tversky 1972) or as a framer of decisions (Tversky and Kahneman 1981). Further, we ought to consider how subliminal or subconcious factors affect behavior. Marketing researchers have long ago recognized the effect of packaging and color in evoking responses. Lastly, perhaps we ought to consider the potentially dominating effect that personality can have upon behavior (Slovic et al. 1974).

Without such a re-evaluation, our structural models are likely to remain static. Totally disaggregate experimental analyses may lead to the development of better specified structural models, perhaps even dynamic models. Experimental designs may help us to identify variables which can reflect patterns of repetitive choice behavior. Experimental research in marketing on brand loyalty, for example, may lead to analyses which define variables that can be used to characterize the diversification of behavior (e.g., variety seeking) across facilities as compared to a concentration of activity at a few facilities. These variables as well as a characterization of the way individuals acquire information about the availability and conditions present at facilities (as well as their relative location) may then be incorporated into models to increase predictive power.

Managerial use of forecasting models.--Although a topic of great concern to quantitative specialists and planners, no discussion of forecasting methods would be complete without a consideration of management philosophy. To what degree might forecasting methods be used to control or manipulate supply or to control or manipulate participation choices? Beyond rationing and redistributing use according to efficiency and equity criteria, will managers follow a dedicated use pattern or multiple use pattern of resource use? Both alternatives lead to management problems (Jubenville and Becker 1983; LaPage 1983). All of these questions and many more are prescriptive in nature. We raise them here because they constrain the type of recreation forecasting model which should be used in planning.

Identification of other behavior determining factors.--The early 1980s presented a new wave of research including investigations of motivations and non-participation. Crandall (1980) presented a list of 17 motivational categories for leisure participation. Romsa and Hoffman (1980) investigated reasons for non-participation and found that among the most active social groups, inadequate recreation opportunity was the most important determinant of non-participation; next was lack of time and costs of participation. Boothby et al. (1981) also investigated non-participation and found that the most frequently cited reasons were loss of interest, lack of facilities, lack of physical fitness and physical disabilities, leaving a youth organization, moving away from the area, and lack of time. Jackson's (1983) study of non-participation determined 15 barriers to participation, including time, money, opportunity, knowledge, ability, overcrowding, lack of partners, shyness, and lack of transportation. Napier and Mauer (1981) considered local community factors, spillover-compensatory factors, and opportunity factors.

SUMMARY AND DISCUSSION

Since the ORRRC study in 1960, significant advances in the methodology of modeling and forecasting outdoor recreation participation have been realized.

This achievement is no small wonder in view of the lack of a concerted, centralized program of research aimed specifically at the problem of improving forecasting modeling. Advancements have resulted mostly from the entrepreneuship and work of social scientists who have pursued their individual professional interest in forecasting research. A smaller, although significant, amount of methodological advancement has resulted from mostly federal and some state efforts to develop forecasting capabilities to support comprehensive assessment and planning mandates.

While recent models and their resulting forecasts and interpretations still are obviously in need of much improvement, previous modeling experience and recent research seem to offer some very promising opportunities. These opportunities include:

1) More complete specification of structural models to include price, opportunity set, complementary and substitute opportunities, demand shifters and exogenous constraints.

2) Recognition of the partial dependence of measured and, therefore, forecast participation upon public supply and management where allocative and policy decisions are in question.

3) More accurate projection of the independent variables in forecasting models and accounting for potential aggregation bias where predicted summary values of these independent variables are used.

4) Selection of the appropriate level of analysis and type of model to suit the intended use of the participation forecasts.

5) Better understand and account for choice processes and the elements most important in these choice processes to enable better definition and specification of the factors in number 1 above, as well as specification of other potential participation determining factors.

6) Adopt improved statistical procedures such as advanced applications of discrete choice modeling (e.g., logit) and 2-stage models to build in quantity of participation predictive capability.

7) Better understand and therefore interpret the assumptions underlying alternative forecasting models and choice process formulations. Concommitant with this step is basing model specification, analysis and interpretation on relevant, state-of-the-art theory.

8) Develop data sets which match the data needs of improved model specifications and statistical approaches.

9) Provide flexibility in modeling procedures to enable dynamic capabilities that account for potential changes in behavioral relationships, new factors and value changes, and new participation innovations.

10) Account for personal and background factors, many of which, such as physical fitness, are not currently measured.

Currently the only on-going, comprehensive national assessment of outdoor recreation is incorporated in the Renewable Resources Planning Act (RPA) Assessment developed at 10-year intervals by the USDA Forest Service. The next RPA Assessment will be reported in 1989. Work toward development of the recreation participation forecasts for this Assessment are underway currently at the Forest Service's Athens, Georgia, research location. This work will incorporate to the fullest extent possible the above listed modeling improvement opportunities.

The projection horizons for the 1989 Assessment are the years 2000, 2010, 2020, 2030, 2040--a look into the future more than 50 years from now. This projection horizon is required by the RPA law for the purpose of identifying needs for Forest Service programs that can lead to meeting future societal needs from better management of the Nation's 1.78 billion acres of forest and range land and associated water. Thus the projections developed through the current RPA modeling work will influence policies concerning a very large resource base for many years to come.

The models and forecasts we will develop are typically widely used, beyond meeting Forest Service needs alone. Incorporation of improved methodological and data development technology should greatly enhance the useability of the forecasting results to a somewhat diverse clientele of users.

The principal data sources for the developing and projecting with the RPA models are the recent National Recreation Participation Survey, a county-by-county supply indexing system with flexible data disaggregation capabilities being developed by the Forest Service, future projections of aggregate population and economic factors, a nationwide on-site survey of users of federal and state lands, and Census population enumeration and characteristic files. Improvements in developing and using these data files are undertaken as opportunities to be a part of the primary data collection process are available. The sources for improvements in the methodology employed to structure, estimate, and interpret model factors have been identified and evaluated as advancements in this paper. The trends in the methodology for projection model development that we have described offer substantial opportunities to synthesize these advancements.

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MONITORING RECREATION TRENDS USING SECONDARY DATA

Timothy J. Tyrrell

Abstract. -- Secondary data series and other information can be statistically related to recreation participation levels and used to monitor or forecast trends where data is unavailable or the cost of obtaining it is prohibitive. Missing data, non-linear transformations and multiple prediction equations each present problems in estimating the relationships but each can be solved either by the rules of expected value and variance operators, approximation, stochastic simulation or some combination of these methods.

Additional keywords: recreation participation models, stochastic simulation, mixed estimation

INTRODUCTION

Recreation participation trends are not useful by themselves, but rather in conjunction with trends in social and economic impacts they cause or with policy and control variables which cause them. These same linkages can be used to monitor historical trends, fill gaps in current data series or forecast future trends.

For different time intervals, different types of secondary data are most useful. For example, between decades, changes in population demographics which influence participation rates can be linked to long run regional trends. Between years and quarters, measures of economic activity in recreation-related industries might characterize local trends. Between weeks and months within a year weather variables can be related to the level of outdoor recreation activities which weather conditions permit. Since much secondary data are relatively easy to collect, they can be used as inexpensive complements to available primary data providing the means for filling gaps, backcasting and forecasting, or merely increasing the precision of an existing point estimate.

When each point on a recreation participation trend line is precisely known errors in regressions on secondary data exist solely because of approximations to the correct model specifications. When recreation participation data is itself predicted a second source of error is present. A similar situation holds when observed trend data contains measurement errors. (See Stynes, et al, 1981) In such cases the distribution of these additional errors must be considered along with the point estimates when the trends are analyzed. Wide confidence intervals can harbor a variety of true trend lines.

This paper explores the problems of using secondary data to estimate points on a recreation participation trend line and suggests some statistical solutions to these problems. It is not assumed that the behavioral model for recreation participation is a single equation relating participation to the secondary data nor that the equations are linear in parameters. These two assumptions underly the standard linear regression approach. Instead, the behavioral model is assumed to contain products of random variables (as is implied by Cesario's two-step model, 1978), multiple relationships between participation and other variables (as are contained in system models such as that of Holecek, 1981) and other non linearities such as logistic and logarithmic transformations (see Stynes et al, 1984). In addition, this model is assumed to include non-zero covariances between random variables and certain unknown parameters which will need to be approximated.

Missing Data

The primary interest of this paper is to estimate values for missing recreation participation data. There also may be missing observations in secondary series or missing variance estimates for coefficients from important previous studies. Missing observations in secondary data series simply limit the series' usefulness - statistical procedures can accomodate such gaps (Maddala, p. 201). Variance estimates for computing confidence intervals around predictions can be approximated from a likely range for the coefficient's value. (Snedecor and Cochran, p. 517).

Non linear Relationships

Non linear relationships between random variables cause problems because the general shape of a probability distribution changes when transformed by a non-linear function. When a normally distributed random variable is transformed by a linear function the result is a normally distributed random variable. The mean and variance of the transformed variable can be calculated using simple formulae applied to the mean and variance of the untransformed variable. The means and variances are useful measures of location and scale both before and after the linear transformation.

Non linear transformations tend to skew and otherwise change the shape of a normal or other symmetric distribution. The median may be a better measure of the location of a distribution of a transformed variable than the mean and

the variance may not even exist. (The quotient of two normally distributed random variables follows a Cauchy distribution which has no finite variance). If the variance does exist it may not have the same appeal as it does for normal distributions.

Non-zero Covariances

A major source of bias in multiple-parameter models of behavior is the neglect of covariances between parameters. Prediction variances from linear regression models depend on entire variance-covariance structures. Covariances in non-linear systems where single equations are estimated separately also require attention. Incorrectly assuming that covariances are zero can lead to significant bias. In a non-linear model of tourist behavior this bias reached 40% (Tyrrell, 1984).

Multiple Prediction Equations

It is not difficult to hypothesize more than one relationship between secondary data and recreation participation. Simultaneous equations techniques (Judge et al, 1982) and path analytic techniques (Blalock, 1971) are two approaches to the estimation problem. However, both require complete data sets. An alternative is the mixed (Classical and Bayesian) estimation technique which simply requires estimates of the means and variances of the alternative predictions. This approach is well suited to the models considered here and again emphasizes the importance of variances in prediction.

Alternative Measures of Location and Scale

As Stynes et al (1984) have pointed out, the logarithmic transformation of the mean of a normal random variable gives the median of the transformed distribution which lies below the mean. Other transformations of the mean will also produce values which are different from the means of transformed distributions. Alternative measures of location also have desireable properties. The median of a distribution may represent a more "typical" value than the mean; the mode is by definition the most "typical" value.

The common measure of scale (or dispersion) for the normal distribution is the variance. The symmetry of this distribution is appealing. The mean plus or minus some multiple of the square root of the variance provides a confidence interval which will include the true value of the random variable for any specified probability level.

For non-normal distributions there is no similar rule that will provide a unique interval. Two values are not unique such that the true value of the random variable will lie between them some specified percent of the time. One criterion which can be used in these situations is suggested by Bayesian statistics: to choose the interval with the highest density at the endpoints. (Judge et al, p. 95). For distributions used in simulation experiments the percent of values within subintervals corresponds to the density function. Since the number of repetitions performed limits the width of subinterval an alternative criterion for simulation experiments is sometimes used: to choose the minimum distance interval by dropping the percent of the experimental observations corresponding to the significance level that gives the greatest reduction in the range. As long as the distribution is relatively smooth with a single mode this interval should be close to the Bayesian highest density interval.

AN ILLUSTRATIVE RECREATION PARTICIPATION MODEL

A recreation participation model is currently being developed for Rhode Island. Although that model is not complete at this time, some of its characteristics can be illustrated in a simpler model.

The Model

One approach to modelling recreation participation is to divide behavioral relationships into two categories: causal and (for lack of a better word) consequential. Causal relationships are those which relate local and regional populations to potential participants and to participation levels. Consequential relationships are those which relate recreation participation to the commercial and public sectors which provide necessary recreational goods and services. The first category includes Cesario-type, two-step recreation participation models. The second category is more closely related to social and economic impact models. Secondary data and other information can be assigned to one of the two categories in the construction of two sets of relationships with recreation participation. The possibility that these two categories should be treated in a simultaneous system framework is beyond the scope of the present study.

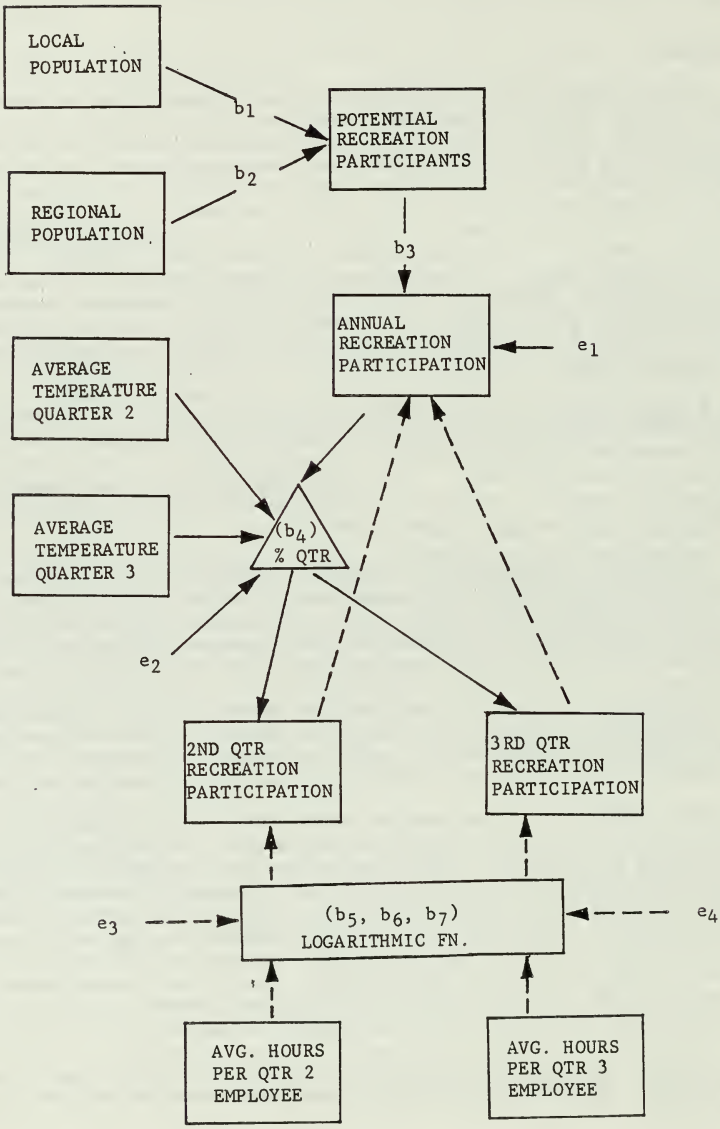
A model with causal and consequential relationships for Rhode Island beach participation is illustrated in Figure 1. The purpose of the model will be to extend the existing trend line of participation (1981-83) backwards to four prior years (1977-1980). The figure indicates some similarities with path analytic models. The major differences are due to problems mentioned previously: missing data and non linearities.

The causal relationships of the model run from local and regional population sizes to potential participants using survey results on participation rates (b_1 and b_2). Total annual participation is estimated by the product of frequency (b_3) and total potential participants plus a random error (e_1). These two parameters were estimated by least squares from the 3 observed values on annual participation. Finally annual participation is divided into quarterly values for the periods April to June and July to September. The division is accomplished using a logistic function of average daily temperature in each quarter. The coefficient of this function (b_4) and the variance of the error (e_2) were estimated from quarterly participation levels for the same three years.

The consequential relationships assume that since recreation participants require services from the local commercial sector, variations in the average hours worked per employee in that sector are likely to reflect variations in quarterly recreation participation. The relationship is assumed to be logarithmic and two constant terms in the equation are intended to capture the differences between quarters. The parameters of this equation (b_5, b_6 and b_7) and the variance of the errors (e_3 and e_4) in the equation were estimated from six quarterly observations from 1981 to 1983. Total annual participants are predicted by the simple sum of the quarterly predictions. Specific details of the model, data and estimated parameters are given in Appendix B.

Although the model is oversimplified it contains three important features of interest. These are missing data, non-linearities and multiple prediction equations.

Figure 1. Illustrative Recreation Participation Model



Simulation Experiment Design

A simulation experiment was designed to accomplish three goals:

1. To evaluate the shape and parameters of the distributions of predicted participation levels for each of the quarters and the annual total,

2. To compare the usefulness of different types of secondary data (in this case population size and average hours worked), and

3. To assess the performance of a mixed predictor of participation.

The model described in Figure 1 includes eleven random variables: seven coefficients and four error terms. A non-stochastic simulation of the model produces the values for each model for each year and quarter as shown in Table 1. The causal sub-model which is driven by population size predicts very similar participation levels for each period. The consequential sub-model which is driven by average hours per employee predicts widely ranging participation levels. For periods when average hours data is well-removed from sample data (second quarter 1978 and third quarter 1979) the consequential model makes very unreasonable predictions judging by actual data for 1981-83. However, this sub-model outperforms the causal sub-model in capturing the V-shaped trend during the sample period.

A mixed model is the result of computing a weighted average of the predictions of the two sub models. The weights are determined by the variances of the respective predictions. (Algebra of non-linear relations between random variables is given in Appendix A and exact computations are given in Appendix B). Since the relative variances change between and within years the weights also change. The first three columns of Table 2 show the weights given to the causal model predictions. The weights given to the consequential model predictions are one minus the weights in the table. The table shows that the consequential model predictions are weighted heavier for quarterly values with two exceptions, the second quarter of 1978 and the third quarter of 1979. These are the same periods when the consequential model produced unreasonably high predictions. The variances of these predictions increased because of the large differences between hours worked in these periods and during 1981 to 1983.

Weights on total annual participation do not consistently favor either sub-model but the causal model never receives less than 38%.

Simulation Results

The stochastic simulation experiment consisted of repeated sampling of each of the eleven parameters from random normal deviates with means and variances as specified in Appendix B. Quarterly and annual participation was computed using each sub-model and the mixed model for each repetition.

The distribution results of 1000 predictions of annual participation in 1983 is illustrated in Figure 2. The chart at the top shows predictions from

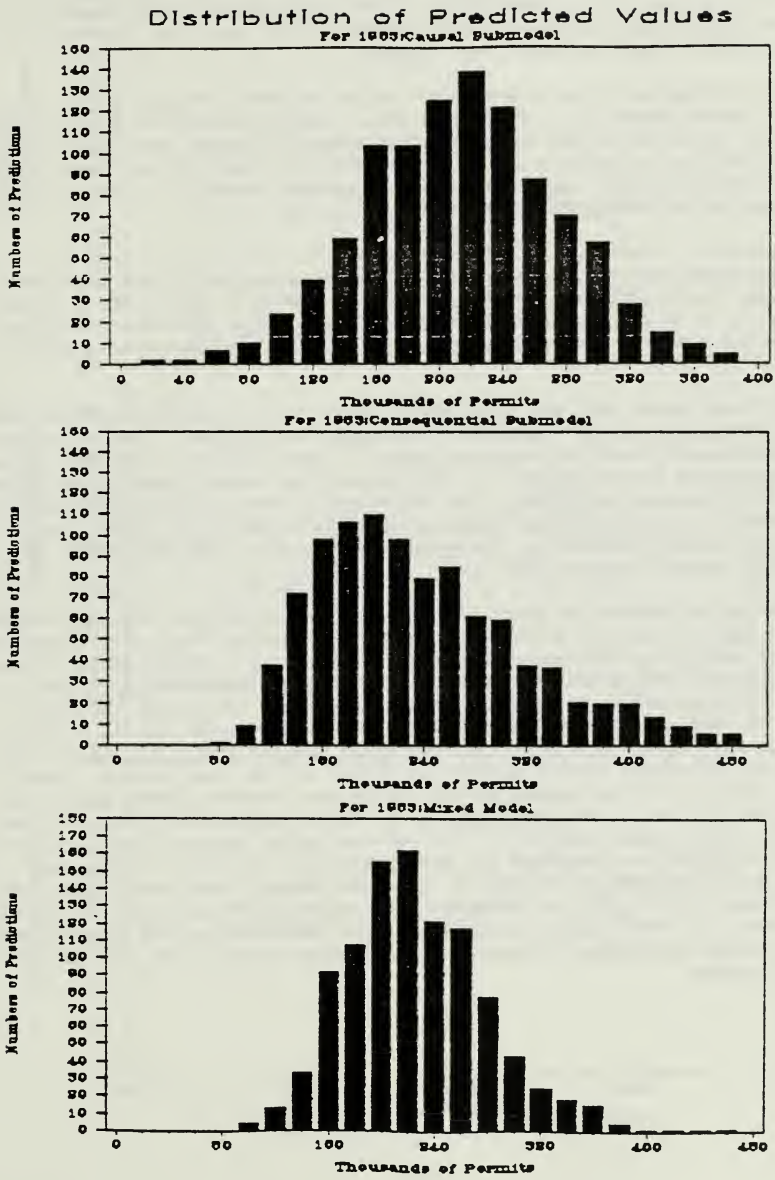
Table 1. Predicted and Actual Rhode Island Beach Participants: Non-Stochastic Results

Year	Predicted Participants (Thousands)						Actual (Thousands)		
	Causal Sub-Model			Consequential Sub-Model					
	2nd Quarter	3rd Quarter	Total	2nd Quarter	3rd Quarter	Total	2nd Quarter	3rd Quarter	Total
1977	39	178	217	43	53	96	.	.	.
1978	42	175	216	175	48	223	.	.	.
1979	37	179	216	34	360	393	.	.	.
1980	33	183	216	20	98	118	.	.	.
1981	45	172	216	38	218	256	53	193	246
1982	35	181	216	29	122	151	21	146	168
1983	31	187	217	42	180	223	42	197	239

Table 2. Weights for Mixed Model and Mixed Model Predictions of Rhode Island Beach Participation: Non-Stochastic Results

Year	Weights on Causal Model Predictions			Mixed Model Predictions		
	2nd Quarter	3rd Quarter	Total	2nd Quarter	3rd Quarter	Total
1977	.035	.284	.504	43	89	157
1978	.959	.329	.972	47	90	216
1979	.017	.847	.938	34	207	227
1980	.010	.135	.403	20	109	157
1981	.004	.464	.621	38	197	231
1982	.012	.157	.379	29	131	176
1983	.012	.128	.475	42	181	220

Figure 2


Distribution of Predicted Values
For 1983:Causal Submodel
Numbers of Predictions
Thousands of Permits
For 1983:Consequential Submodel
Numbers of Predictions
Thousands of Permits
For 1983:Mixed Model
Numbers of Predictions
Thousands of Permits

the causal model, the chart in the middle shows predictions from the consequential model and the chart at the bottom shows predictions from the mixed model. The distribution of predictions from the causal model which is the product of normal distributions is reasonably symmetric about its mean which equals its median in this case. The distribution of the consequential model which is the sum of two logarithmic distributions is skewed to the right and the mean is somewhat greater than the median as expected.

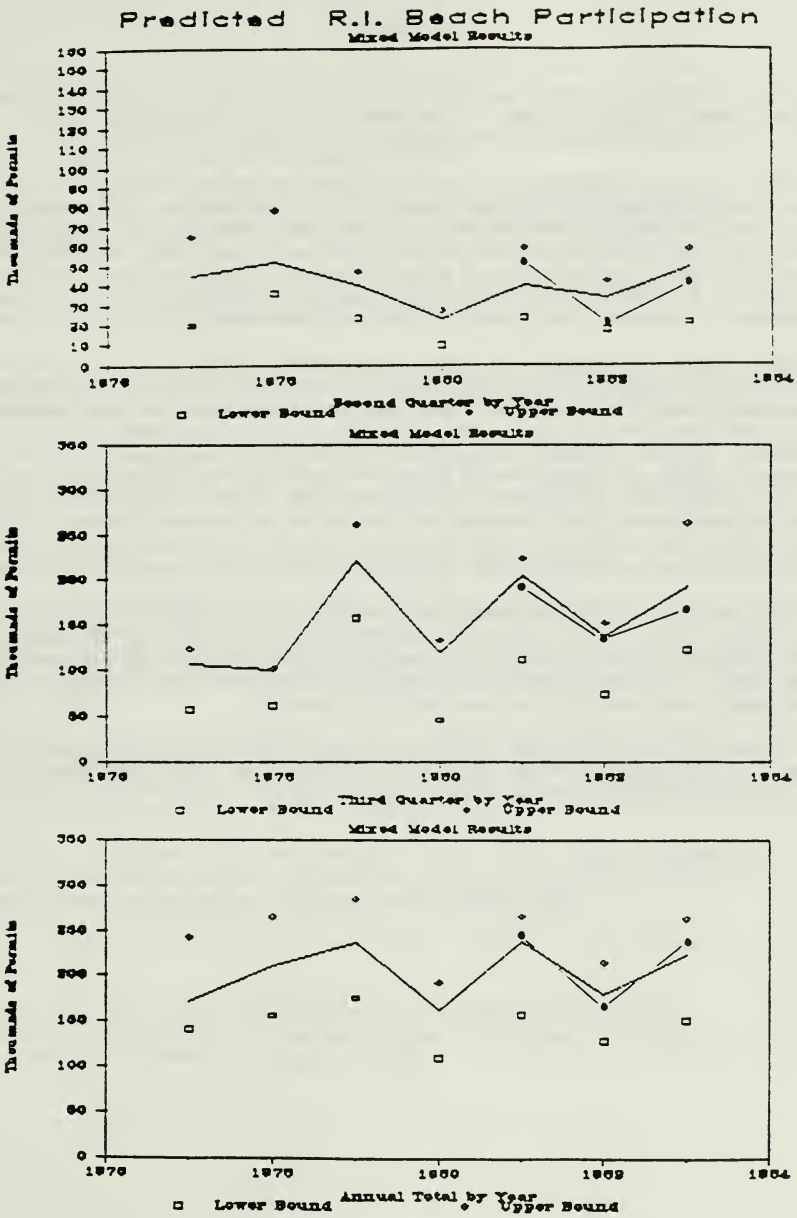
The distribution of the mixed model is the weighted average of the two sub models with almost equal weights on each. This distribution is more compact than either of the other two and relatively symmetric except for a small hint of a long tail on the right. The mean and median of each of the three distributions are quite similar either and would appear to provide a fairly accurate estimate of the true value (indicated by the vertical line).

A stochastic simulation of 100 repetitions for each of the seven years was conducted to examine the usefulness of trends predicted by the mixed model. The mean and confidence interval of predictions for each time period are shown in Figure 3. A 68.3% confidence interval was selected because the mean plus and minus one standard error of a normal distribution includes this percent of values.

Each chart shows that the trend of the means of the distributions performed well in characterizing the V-shaped of the sample period data. Median values of the mixed model distributions were generally very similar to the mean values providing equally good predictions. The maximum deviation of mean from median was 16% (third quarter of 1977). The consequential model prediction distributions, on the other hand exhibited the behavior noted by Stynes et al (1984) for logarithmic travel cost models. Here the mean deviated from the mean by as much as 66% (second quarter 1978).

Based on the pattern of means and endpoints of confidence over the sample period it appears that the mixed model prediction results would give reasonable values for assessing the trends in participation over the entire period. However, one aberration in the predicted series suggests closer examination of the model and predictions is worthwhile. Mean predictions for second and third quarters in 1978 add to 152 while the mean prediction for the entire year was 212. From the figure it appears that the third quarter prediction is too low. It does not follow the trend suggested by either of the other series. More puzzling still is the narrowness of the confidence interval around that value. The difficulty lies in the logarithmic model whose variance declines with the mean value. The second quarter of 1978 had the lowest recorded level of average hours per employee, driving down the mean prediction (to 68), reducing the variance and increasing the weight of the consequential model predictions to .67. Although this result is somewhat discouraging with respect to the usefulness of this specific time series, it highlights the importance of the characteristics of distribution other than the mean. It also suggests ways that the model might be changed.

Figure 3


Predicted R.I. Beach Participation
Mixed Model Results
Thousands of Persons
Second Quarter by Year
Lower Bound
Upper Bound
Mixed Model Results
Thousands of Persons
Third Quarter by Year
Lower Bound
Upper Bound
Mixed Model Results
Thousands of Persons
Annual Total by Year
Lower Bound
Upper Bound

CONCLUSIONS

The potential for using secondary data for monitoring or predicting recreation trends is fair to good. It depends, as do all statistical models, on the quality of the data and the correctness of a model specification.

This paper has emphasized the entire distributions of predicted values rather than their means or medians which is the usual custom. The research effort required the use of stochastic simulations to examine the consequences of non-linear transformations of random variables. Since there are no general rules which can be applied to such models, extensive computer work could not be avoided. Distributional results will change with each modification of an equation or a parameter and results cannot be generalized.

With this last statement in mind consider the results of a stochastic simulation experiment with one very specific (and oversimplified) recreation participation model. First, the trend suggested by the mean of the predicted values from the mixed (weighted average) model is believable with a minor exception. Second, separate categories for causal and consequential relationships to recreation participation levels seemed to be useful for organizing secondary data but these could probably be replaced by other sets of categories. Finally, there are indications that certain data (hours per employee in this case) are more valuable for short term (quarterly) predictions than other data (population) which in turn are relatively more valuable for long term (annual) predictions.

With respect to the simulated distributions it is apparent that mixed model results provide more compact confidence intervals and that the skewedness of the distribution of one sub-model was significantly offset by the symmetry of the other. A side effect of this mixing was that the bias created by the logarithmic transformation was substantially reduced.

Finally, it is satisfying to discover that the mixed model shifted between causal and consequential model predictions depending on which was operating on most familiar ground (with respect to sample data).

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Appendix A. Estimators for the Mean and Variance of Selected Functions of Random Variables and Other Approximations

Product of a scalar (a) and a random variable (Y)

$E(a*Y) = a*\bar{y}$ $\quad Var(a*Y) = a^2 * s_y^2$

where $\bar{y}$ and s_y^2 are the sample mean and variance, respectively.

Sum of two random variables (X+Y)

$E(X+Y) = \bar{x}+\bar{y}$ $\quad Var(X+Y) = s_x^2 + s_y^2 + 2 * s_{xy}$

where s_{xy} is the sample covariance of X and Y

Linear combination of n random variables (Y_i, i=1, . . . , n)

$$E\left(\sum_{i=1}^{n} a_i Y_i\right) = \sum_{i=1}^{n} a_i y_i \qquad Var\left(\sum_{i=1}^{n} a_i Y_i\right) = \sum_{j=1}^{n} \left(\sum_{i=1}^{n} a_i s_{ij}\right) a_j$$

where s_{ii} is the sample variance of Y_i and s_{ij}

is the sample covariance between Y_i and Y_j.

Product of two independent random variables (X+Y)

$E(X+Y) = \bar{x} * \bar{y}$ $\quad Var(X*Y) = s_x^2 + s_y^2 - 2 * s_x^2 * s_y^2$

(an unbiased estimate, see Goodman)

Logarithmic transformation a random variable (log Y=X)

$E(Y) = e^{\bar{x}+s^2/2}$ $\quad Var(Y) = e^{2\bar{x}} * (e^{2s^2} - e^{s^2})$

(asymptotically unbiased, see Hastings and Peacock)

(consistent estimate of asymptotic variance)

Mixed (Classical and Bayesian) estimate from two independently distributed random variables with the same mean $E(Y_1) = E(Y_2) = Y$ and different variances

$$E(Y) = \left\{\frac{\bar{y}_1}{s_1^2} + \frac{\bar{y}_2}{s_2^2}\right\} / \left\{\frac{1}{s_1^2} + \frac{1}{s_2^2}\right\} \qquad Var(Y) = 1/\left\{\frac{1}{s_1^2} + \frac{1}{s_2^2}\right\}$$

(an efficient estimate, see Theil, p. 347)

Approximate end points of a α-level confidence interval around the quotient of two random variables ($Z = X/Y$)

The two roots of the quadratic equation:

$$(\overline{y}^2 - t_o^2\, s_y^2)Z - 2(\overline{xy} - t_o^2\, s_{xy})Z + (\overline{x}^2 - t_o^2\, s_x^2) = 0$$

where t_o is the critical value of the t distribution at the α-level (See Fuller)

Approximate variance of symmetric distribution shaped like an isosceles triangle with most values in the range from a to b.

$$\text{Variance} \approx .24(b-a)$$

(See Snedecor and Cochran, p. 517)

Appendix B. Specification of the Illustrative Beach Participation Model

The following tables and figures give the complete specifications for the illustrative model refered to in the text. The notation is the same as that used in the simulation experiment computer program. Definitions appear in tables B1 and B2.

Figure B1 Rhode Island Beach Participation Model Structure

Causal Relationships (Sub Model 1)

```
PPL  = b(1) * POPL
PPR  = b(2) * POPR
PPT  = PPL + PPR
PT1  = b(3) * PPT + e(1)
LPQ21 = b(4) * (TEMP3 - TEMP2)
PCTQ2 = 1/[exp (LPQ21 + e(2) + 1]
PQ21 = PCTQ2 * PT1
PQ31 = PT1 - PQ21
```

Consequential Relationships (Sub Model 2)

```
PQ22 = exp(b(5) + b(7) * log (HOURS2) + e(3))
PQ32 = exp(b(6) + b(7) * log (HOURS3) + e(4))
PT2  = PQ22 + PQ32
```

Mixed Model

```
PQ2M = WT21 * PQ21 + (1 - WT21) * PQ22
PQ3M = WT31 * PQ31 + (1 - WT31) * PQ32
PTM  = WT1 * PT1 + (1 - WT1) * PT2
```

Figure B2. Rhode Island Beach Participation Model Variance Estimates

Causal Relationships

```
VPPL    = POPL^2 * Vb(1)
VPPR    = POPR^2 * Vb(2)
VPPT    = VPPL + VPPR
VPT1    = PPT^2 * Vb(3) + b(3)^2 * VPPT - Vb(3) * VPPT + Ve(1)
VLPQ21  = (TEMP3 - TEMP2)^2 * Vb(4) + Ve(2)
V321    = exp(2*LPQ21) * [exp(2*VLPQ21) - exp(VLPQ21)]
SD321   = √V321
DEN     = (PQ21 + 1)^2 - V321
SDPLUS  = (PQ21 + 1 + SD321)/DEN
SDMINUS = (PQ21 + 1 - SD321)/DEN
SDDIFF  = SDPLUS - SDMINUS
VPCTQ2  = (SDDIFF/2)^2

VPQ21   = PCTQ2^2 * VPT1 + PT1^2 * VPCTQ2 - VPCTQ2 * VPT1
VPQ31   = (1 - PCTQ2)^2 * VPT1 + PT1^2 * VPCTQ2 - VPCTQ2 * VPT1
```

Consequential Relationships

```
VLPQ22  = [ VC(5,5) + VC(7,5) * Log(HOURS2)]+
          [ VC(5,7) + VC(7,7) * Log(HOURS2)] * Log(HOURS2) + Ve(3)
VLPQ32  = [ VC(6,6) + VC(7,6) * Log(HOURS3)] +
          [ VC(6,7) + VC(7,7) * Log(HOURS3)] * Log(HOURS3) +
           Ve(4)
VPQ22   = exp(2*PQ22) * [exp(2*VLPQ22) - exp(VLPQ22)]
VPQ32   = exp(2*PQ32) * [exp(2*VLPQ32) - exp(VLPQ32)]
VPT2    = VPQ22 + VPQ32
```

Mixed Model

```
VPQ2M   = 1/[(1/VPQ21) + (1/VPQ22)]
VPQ3M   = 1/[(1/VPQ31) + (1/VPQ32)]
VPTM    = 1/[(1/VPT1) + (1/VPT2) ]
WT21    = VPQ2M/VPQ21
WT31    = VPQ3M/VPQ31
WT1     = VPTM/VPT1
```

Table B1. Data For Illustrative Beach Participation Model

Symbol	Description	1977	1978	1979	1980	1981	1982	1983
POPL	Local Population (1000)	950	952	950	947	952	953	955
POPR	Regional Population	30052	29964	29906	29906	29973	29999	30156
PPL	Local Potential Participants	.	.	.	.	.	.	.
PPR	Regional Potential Participants	.	.	.	.	.	.	.
PPT	Total Potential Participants	.	.	.	.	.	.	.
PT	Annual Beach Participation (1000)	.	.	.	.	245.9	167.6	238.5
PQ2	Beach Participation: Q2	.	.	.	.	52.5	21.3	41.5
PQ3	Beach Participation: Q3	.	.	.	.	193.4	146.3	197.0
PCTQ2	PQ2 as percent of PT	.	.	.	.	21.4	12.7	17.4
TEMP2	Average Temperature: Q2	56.9	55.4	56.2	56.5	57.4	54.6	56.3
TEMP3	Average Temperature: Q3	68.5	66.4	68.3	69.7	67.7	67.1	70.1
HOURS2	Average Hours per Employee: Q2	334.0	385.7	326.1	308.7	330.1	321.1	333.9
HOURS3	Average Hours per Employee: Q3	324.6	321.3	394.6	345.5	374.9	353.5	367.7

Sources: U.S. Department of Commerce, Bureau of the Census; Rhode Island Department of Environmental Management; U.S. Weather Bureau.

Table B2. Random Variables of Illustrative Beach Participation Model

Random Variable b(i)	Expected Value Eb(i)	Variances Covariances Vb(i)			Source
b(1)	.67	.24*(.69-.65)			ORRRC/Author
b(2)	.59	.24*(.61-.57)			NE-100 Survey
b(3)	.0118	1.84E-6			RI Data: 1981-83
b(4)	.1306	1.64E-4			RI Data: 1981-83
		Vcb(i, j)			
		j=5	j=6	j=7	
b(5)	-53.16	1099	1119	-190	RI Data: 1981-83
b(6)	-52.66	1119	1140	-193	(R^2 = .94)
b(7)	9.79	-190	-193	33	
		Ve(i)			
e(1)	0.0	1859			RI Data: 1981-83
e(2)	0.0	7.42E-2			
e(3)	0.0	8.47E-2			
e(4)	0.0	8.47E-2			

A COMPARISON OF TIME SERIES AND STRUCTURAL MODELS FOR MONITORING AND FORECASTING TOURISM ACTIVITY

Daniel J. Stynes and Sz-Reng Chen

Abstract.-- Time series and structural linear regression models for forecasting Michigan lodging tax revenues are estimated and compared. Advantages and disadvantages of the two approaches are discussed along with obstacles to wider use of time series techniques in recreation and tourism.

Keywords: forecasting, time series, harmonic analysis, linear regression model, tourism .

INTRODUCTION

Quantitative models for forecasting recreation activity may be divided into three types: (1) time series methods which forecast based upon an historical pattern in a time series; (2) structural models which forecast a dependent variable by identifying a functional or structural relationship with a set of independent variables, and (3) models which use both temporal patterns and structural relationships in forecasting. Summaries of these models with recreation applications are presented in Lieber and Fesenmaier (1983, Section Two)

Selecting an appropriate forecasting model for a given problem requires a good understanding of the problem and a familiarity with the strengths and weaknesses of different approaches (Stynes 1983a). Unfortunately there are many examples within recreation of methods and models being applied to the wrong problems. The National Academy of Sciences(1975,p.2) assessment of demand for outdoor recreation, for example, found that "demand estimation techniques were poorly matched with the decisions being made".

In the monitoring and forecasting area the same problem has occured. In particular, cross sectional, structural methods are often used when time series methods are more appropriate. In this paper we take a recent monitoring study in which a structural approach was used, estimate a corresponding time series model, and then compare the two. The comparison is designed to help clarify the relative assumptions and advantages of the two approaches. Obstacles to greater use of time series techniques are briefly discussed.

SUMMARY OF THE TWO APPROACHES

Time series methods identify a pattern from historical observations of the variable to be projected and then extend this pattern into the future. Time series methods include simple trend extension, exponential

smoothing models, harmonic analysis, spectral analysis, Box-Jenkins techniques (ARIMA models),adaptive filtering methods, distributed lag models, and related techniques. (Wheelwright and Makridakis, 1980)

Of these methods, only simple trend extension has received much attention within recreation. Although examples of more sophisticated time series applications to recreation and tourism do exist (eg: Oliviera et. al,1983; Stynes and Piggozzi,1983; BarOn,1975) few recreation researchers or management agencies are conversant with these methods and hence they are not widely used.

Structural models forecast a dependent variable (normally some measure of recreation use or participation) by relating it to a set of independent variables. The relationship is generally estimated from a recreation survey conducted at a single point in time, although there are a few instances where time series data have been used (eg. Brown and Wilkens, 1975) . The assumption in the structural approach is that the relationship estimated from the observations will remain stable throughout the forecast period. Forecasts of the independent variables are required in order to project the dependent variable. Thus, the independent variables must be easier to forecast than the dependent variable if the structural approach is to be useful for forecasting (Stynes,1983b).

Models which include both time series and structural components are logical extensions of existing models, but will not be widely applied in recreation until time series models themselves are better understood. We therefore use a simple time series method in this paper and suggest some refinements at the end of the paper which lead to hybrid models.

Structural forecasting models have been popular in recreation for several reasons. First, such models are conveniently estimated from cross sectional data, which are widely available in the form of national and state recreation surveys, conducted in conjunction with state and national recreation planning efforts. There are numerous examples of such studies dating back to the ORRRC reports and best described by Cicchetti (1973) in a book on the subject.

Another advantage of structural models is that they can be estimated with well known linear regression techniques. Most recreation researchers are exposed to regression, and estimation of linear models is simplified by widely available statistical packages. Most recreation researchers have not been exposed to time series methods. Also, both the appropriate time series data and estimation routines are not as widely available. Thus, we often see structural methods applied to problems where time series techniques might be more appropriate. An example of such a situation provided the stimulus for this paper.

THE GENERAL PROBLEM

Michigan's Department of Commerce was interested in improving methods for tracking trends in tourism activity in the state. The existing system consisted of an index of travel activity developed by telephoning a judgement sample of tourism firms throughout the state who reported on a monthly basis whether business was "up" or "down" from the previous year and by what percent. Secondary data from state park use, sales tax data, selected highway traffic counters and the like were also available, although generally with at least a three month lag in reporting. Improvements were desired in both short-range and long-range tracking methods.

THE STRUCTURAL LINEAR REGRESSION APPROACH

A colleague took on the task and estimated a variety of linear regression models. Lodging tax revenues were taken as the best objective estimate of travel activity that was readily available on a regular basis. This therefore became the dependent variable. Formally, it was defined as a sum of room use tax collections and lodging sales tax collections. Both components were adjusted for inflation (expressed in 1979 dollars) using a room price index developed by Laventhol and Horwath and the Detroit Consumer Price index, respectively. A host of independent variables were tested from those that were available from secondary sources on a recurring basis. Monthly data for a five year period were assembled to estimate the following linear regression model (t statistics in parentheses, all variables expressed in thousands):

$$Y(t) = 826.5 + \underset{(.804)}{.288\, X_1} + \underset{(1.967)}{.478\, X_2} + \underset{(.112)}{.004\, X_3} + \underset{(1.781)}{1.115\, X_4} + \underset{(.096)}{.012\, X_5} \quad (1)$$

where

- $Y(t)$ = statewide lodging room use and sales tax collections in period t adjusted for inflation (1979 dollars).
- X_1 = Mackinac bridge crossings
- X_2 = aggregate statewide highway traffic count
- X_3 = Michigan State Park day use
- X_4 = visitor counts at Michigan Travel Information Centers
- X_5 = Michigan State Park camping parties
- t = a counter for the month, t=0 is Jan 1979, t=1 is Feb 1979, through t=59 is Dec 1983.

The six parameter model was able to explain 72% of the variation in monthly lodging tax collections over the five year period. However, the independent variables were highly intercorrelated, none of the coefficients were statistically significant (at the .05 level), and there was a positive serial autocorrelation in the residuals.

After reviewing the final report for this project (Holecek, Slana, and Verbyla 1983) and discussing the results, we concluded that a time series approach might be more appropriate. The linear regression model did not appear to capture any meaningful relationships. By putting variables that are highly interrelated on both sides of the equation, a purely statistical relationship had been estimated, not a substantive one. Further, the regression model was of limited use in forecasting since the independent variables were just as difficult to forecast as the dependent variable. The researchers graciously permitted us to use the same data to estimate a time series model.

Before proceeding, we must note that model (1) was not developed primarily as a forecasting tool. It has been used to provide interim estimates of lodging activity 2-3 months ahead of when they are reported. The independent variables are reported in a more timely fashion than the lodging data. A typical application of the model is to take the July reports for the independent variables, which are available in August to predict July lodging tax revenues, which are not available until September or November. The model provides interim estimates, which are then replaced by actual revenues, when these data are received. Nevertheless, for expositional purposes we will use this regression model to compare structural and time series methods, since models like (1) are often advanced as forecasting tools.

A TIME SERIES APPROACH

We began by separating the seasonal and trend components of the lodging data series. Harmonic analysis, a simple time series method particularly suited to seasonal data, was used to identify the seasonal patterns. While linear regression identifies a linear relationship between a dependent variable and a set of independent variables, harmonic analysis (or Fourier analysis) predicts a dependent variable as a linear combination of sine and/or cosine functions. Like linear regression, harmonic analysis uses least squares procedures, but because it uses a set of orthogonal independent variables (trigonometric functions) the technique is actually much simpler (Rayner,1971). Stynes and Pigozzi (1983) present a simple application of this technique to tourism.

Harmonic analysis was applied to the twelve monthly averages of the lodging tax data for the five year period. Taking the monthly averages eliminated the trend component and permitted us to first isolate the very apparent seasonal component of the data series. Harmonic analysis fits the data to a series of sine curves of varying amplitudes and frequencies. With 12 monthly data points six harmonics may be computed. The first harmonic is the annual seasonal component, having one maximum and one minimum over the 12 month period. The second harmonic completes two full sine curves during a one year period; the third harmonic three, etc. The statistics for the six harmonics computed from the 12 monthly averages of lodging tax data are reported in Table 1.

Table 1.--Harmonic analysis of monthly Michigan lodging tax revenues, 1979-1983.

Harmonic i	Amplitude A_i	Phase Angle ϕ_i (degrees)	Relative Amplitude	Variance explained
0	1,117.068			
1	268.351	254	24.0	84.8
2	87.289	34	7.8	9.0
3	10.380	61	.9	.1
4	53.445	214	4.8	3.4
5	42.658	196	3.8	2.1
6	21.879	270	2.0	.6

There are two basic parameters for each harmonic, an amplitude and a phase angle. The amplitude measures the height of the harmonic around the mean. The phase angle describes how far the sine curve must be shifted to make the peaks of the sine curves line up with the observed maxima in the data series. The relative amplitude expresses the amplitude as a percentage of the mean.

The first harmonic explains the majority of the variance in the lodging data series (85%). The second harmonic explains about 9 percent of the variance. Notice that all six harmonics will explain 100% of the variation in the 12 monthly averages. With six harmonics one has as many parameters (two for each harmonic) as data points and a perfect fit will be obtained. The equation with all six harmonics is

$$Y(\theta) = A_0 + A_1 \sin(\theta+\phi_1) + A_2 \sin(2\theta+\phi_2) + \ldots + A_6 \sin(6\theta+\phi_6) \quad (2)$$

where,

A_i = amplitude of the ith harmonic (Column 2 from Table 1)
ϕ_i = phase angle of the ith harmonic (Column 3 from Table 1)
$Y(\theta)$ = predicted lodging tax collections for time period θ, where time is represented as an angle computed so that 360 degrees is equivalent to one year.

In this case we desired some smoothing of the data. Only the first two harmonics were used. These are plotted individually in Figure 1 along with their sum. The first two harmonics explain 94 percent of the variation in the monthly averages. This number is not directly comparable with the 72 percent explanation of the linear model (equation 1) since here we are only explaining variation in the monthly averages (averaged over the five year period), not the variation in individual monthly lodging tax receipts. To obtain a model comparable to equation (1), a trend component must be added to the seasonal part of the data series.

A plot of the data series indicated a quadratic trend would be appropriate. Model (3) was estimated using ordinary least squares techniques on the sixty data points. Again, the only independent variable was time (t statistics in parentheses) .

$$Y(t) = 1{,}283.203 - \underset{(5.085)}{14.814\ t} + \underset{(4.620)}{231.504\ t^2} \qquad (3)$$

where Y and t are defined as in equation (1) above.

The trend model was then combined with the first two harmonics to predict individual monthly lodging tax receipts comparable to model (1). The trend model predicted the long term upward/downward trend in the data, while the harmonics captured the basic seasonal patterns. The final prediction equation is

$$Y(t) = 1{,}283.203 - 14.814\ t + 231.504\ t^2 + 268.351 \sin(30t+254) + 87.289 \sin(60t+34) \qquad (4)$$

where θ from equation (2) has been replaced by 30t by assuming each month has 30 days.

This model explains 87.5 percent of the variation in the sixty monthly lodging tax receipts. The relative contributions of the different components of the model to explaining variation in the series are

Trend	8.2%
First harmonic	71.6%
Second harmonic	7.6%
Unexplained	12.6%

The annual and semi-annual seasonal patterns constitute 79.2 percent of the variation in the data series. The trend explains an additional eight percent of the variation. The correspondence between the observed data and the predictions of model (4) is depicted in Figure 2. The average percentage error using model (4) is 5.7 percent.

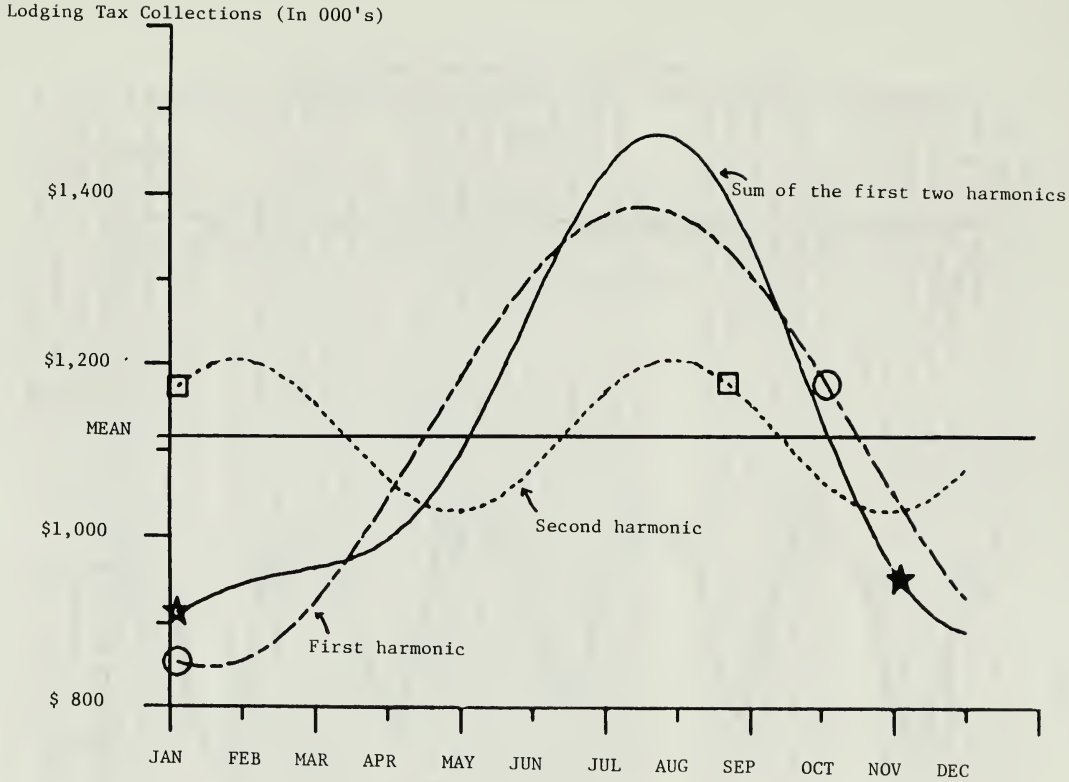

Figure 1.-- HARMONIC ANALYSIS OF MICHIGAN LODGING TAX DATA (1979-1983)

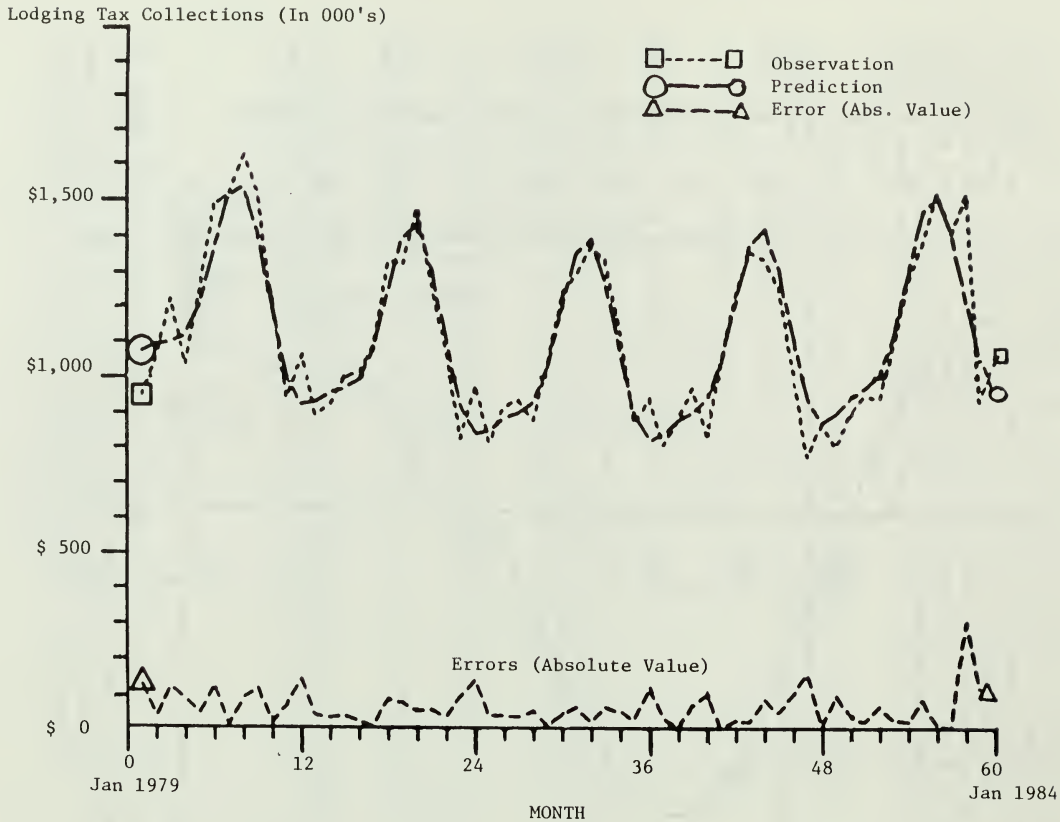

FIGURE 2.-- COMPARISON OF TIME SERIES MODEL PREDICTIONS WITH OBSERVATIONS FOR MICHIGAN LODGING TAX COLLECTIONS, 1979-1983

A COMPARISON OF THE TWO APPROACHES

An evaluation of the relative merits of the linear regression and time series models requires an understanding of the purposes for which the model is to be used. In this case the intended uses of the regression model were not fully described in the report. These purposes became clearer as we explored the relative merits of time series and regression models for different purposes. In the following, we will compare the two models as forecasting tools, recognizing that the regression model was not developed primarily for this purpose.

Time series and structural forecasting models involve fundamentally distinct assumptions. The structural approach works well when the variable of interest can be predicted from other variables that are more easily measured and projected. The assumption in structural models is that the structural relationship remains stable over time. In time series models there must exist a consistent and stable temporal pattern in the variable to be projected.

In this case the existence of a time series and the regular seasonal pattern in the data argues strongly for a time series approach. The structural relationship estimated in the linear regression approach is likely to be more of a statistical relationship than a causal one. All of the variables exhibit similar seasonal patterns, which is why they are highly intercorrelated. The regression equation is simply explaining one seasonal pattern with five others. Independent variables such as San Francisco Bay Bridge crossings or visits to Oregon State Parks would likely perform almost as well, even though they clearly have little relationship to Michigan lodging activity. Any variable with a strong seasonal pattern would "explain" variations in the lodging data.

The underlying structures one would like to identify in order to project tourism activity are the seasonal patterns which underlie these data series and the trend line around which the seasonal patterns fluctuate. Time series methods are most suited to these purposes. Although some of the independent variables from the regression model (1) may be helpful in predicting trends, the linear regression approach does not clearly separate the trend components from the seasonal components.

If the purpose of the model is forecasting, then ease of forecasting and accuracy of forecasts are two key evaluation criteria. One indicator of potential forecast accuracy is the fit between the model's predictions and the observations. The time series model clearly outperforms the regression model based on this criterion. The time series model explains 87 percent of the variation in the data as compared with 72 percent for the regression model. The first harmonic alone explains almost as much variation as the regression model.

A better indicator of forecasting ability is how well the model predicts cases that were not included in the model estimation procedures. Using data for the months of January through August of 1984, the predictive ability of the two models were compared. Time series model prediction errors ranged from one to ten percent with an average percentage error of 4.9. The regression model errors ranged from one to 13 percent with an average percentage error of 5.7. Even though the regression model included more up-to-date information, it was slightly outperformed by the time series model. The regression model consistently underpredicted lodging tax revenues for 1984, while the time series model tended to overpredict. The latter may be attributed to the extension of the upward quadratic trend, which most likely is in part a business cycle.

Although the time series model may look more complex, it is much easier to use as a forecasting tool. One simply plugs a value of t (time) for some future month into equation (4). No additional data collection is needed. The linear regression model requires projections of each of the independent variables.

An examination of the assumptions of the two models provides further insights into which model will likely perform best under what circumstances. A fundamental difference in the two models is that the regression model uses observations (or forecasts) for the period to be forecasted, while the time series model does not. In this respect the regression model will be responsive to some changes that the time series model will not pick up. However, the forecasts will be only as good as the forecasts of the independent variables. If the independent variables could be projected accurately (which is highly unlikely),the regression model could be a better long range forecasting tool since it includes more recent information. The time series model will perform better if lodging tax revenues continue to track the fundamental seasonal patterns observed in the past. The seasonal components are likely to be quite stable (although this should be tested), but the trend component clearly requires further refinement if forecasts are to be made more than two or three years into the future. The time series model will be less responsive to shocks that might be captured in the independent variables in model (1). However, the nature of shocks are that they are unpredictable. It is therefore unlikely they would be part of any forecasts of the independent variables in model (1).

There are a number of ways the time series model can be improved. As noted above, there is an apparent business cycle in the trend that needs to be separated out as further data becomes available. Relating the lodging business cycle to more general business cycles is recommended. Removal of some idiosyncracies in the data would also reduce prediction errors. For example, smaller firms report tax collections quarterly rather than monthly. This pattern is captured in the fourth harmonic (see Table 1) which, if included in the model, would explain another 3-5% of the variation in the monthly data. The

time series model with two harmonics actually smooths out these disturbances in the data. Since interest lies primarily in the trend component, it would be useful to introduce explanatory variables which could predict trends, perhaps like those in the regression model, if they can be projected. If changes in the underlying seasonal pattern of the data occur over time, some of the time series parameters could be estimated as functions of other variables or interaction terms might be introduced.

Even given the more limited uses of the linear regression model, we have seen that time series methods outperform the linear models. An exponential smoothing model is an alternative to the linear regression model that would be easier to use and could be set up to update itself on a regular basis. Another improvement on the linear regression model would be to estimate it with seasonally adjusted data. This would be a more valid test of its ability to predict trends rather than only seasonal patterns in the data.

In summary, the times series approach is clearly preferred over the linear regression approach in the example described above. The time series model provides a basic structure from which to improve and refine forecasting efforts. It yields valuable information on temporal patterns of activity and isolates the distinct components of the data series so they may be studied independently. We conclude with a few observations on why time series techniques are not more widely used.

OBSTACLES TO GREATER USE OF TIME SERIES METHODS

The lack of time series data is the most frequently cited obstacle to greater use of time series methods in recreation and tourism. This was not the obstacle in this case. The lack of knowledge of time series techniques among both researchers and managing agencies is clearly the primary obstacle. A great deal of time series data does exist, but few know what to do with it. More recreation and tourism time series would be collected if uses of this data were clear. Time series techniques and estimation procedures are simply not as well known as linear regression methods for example. Thus, we see linear regression methods applied in many situations where they are less suitable than time series approaches.

Another major problem in trend studies is a failure to clearly define the problem. Many agencies and researchers launch monitoring, tracking, or forecasting studies without first clearly defining what precisely they wish to monitor, track, or forecast.

The lodging analysis grew out of attempts to develop a general indicator of statewide tourism activity. Such a composite measure would normally be developed as a weighted average (or sum) of different tourism indicators, possibly including the independent variables from

model (1). Although such a composite measure might look quite similar to model (1), the regression weights have absolutely nothing to do with the weights that would be appropriate for a composite measure. Both models (1) and (4) predict only lodging activity. The inclusion of independent variables like state park use, traffic counts, etc. in model (1) do not lend any validity to its use as a general travel indicator. There was some reluctance to accept a model based solely on time over one with several variables that seemed to be related to tourism, due in part we believe to confusion over this point.

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Travel in the U.S.: 1972-1983; Trends and Economic Impact

by

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Abstract:--Data from the U.S. Travel Data Center are used to identify changes in the volume of travel during the period 1972-1983. The characteristics of travel flows between regions of the U.S. are discussed and changes in the spatial pattern since 1972 are described. In addition, the economic impact of travel expenditure is assessed at both regional and individual state level on the basis of statistics generated by the USTDC economic impact model.

Keywords: State, Regional, Travel Flow Trends, Travel Expenditure, State Income from Travel.

In an anthology of 200 years of travel in the United States it is suggested that;

> "In starting a war against the motherland by traveling. Revere exemplified what has become the American genius; the itching foot, the willingness to take to the road for whatever reason, be it freedom, exploration, riches or a restless spirit." (Keating, 1975).

In 1985, travel is an indispensable part of the United States; the lifeblood of social and economic America as resources flow between regions, as businessmen provide the link between products in one state and consumers in another and as people move from coast to coast to play and from city to city to visit relatives.

In 1983 1,487,400 million passenger miles were travelled in the United States, and travel expenditures by U. S. residents amounted to $198.5 billion. Travel and tourism was the nation's second largest retail industry: sales of conference-appointed travel agencies reached $43.7 billion, sales revenue of leading car rental firms was $2.5 billion and restaurant sales in lodging places, only one segment of the food service industry related to travel, rose to nearly $8 billion (Beekhuis, 1984). The industry accounted for 6.3 percent of the Gross National Product and directly employed 4.5 million Americans. The U. S. Travel and Tourism Administration estimates that travel and tourism generate more than $20 billion annually in federal, state and local tax revenues and, partly for this reason, the average annual state travel development budget is now more than $2.9 million (Murdaugh, 1984).

Data of this kind is available from a number of sources but the main institution compiling travel statistics during the past ten years has been

the United States Travel Data Center (USTDC). In 1974, the USTDC initiated quarterly surveys (TDC-NTS) to inventory travel patterns on a regional basis. The United States was divided into eight travel regions (Figure 4). Surveys have been conducted in 1975, 1976, 1979, 1980, 1981, 1982 and 1983. The sample size and sampling procedures of the TDC-NTS differed from the 1972 Bureau of Census National Travel Survey (CT-NTS) but the former was designed to enable comparison between the results of the different surveys.

The annual reports provide a synoptic perspective of travel activity, with only limited discussion of its relationship to previous years. Ten years after the appearance of the first TDC-NTS, it is possible to provide a longitudinal analysis by studying data in the various reports. The purpose of this paper is therefore to discuss discernable trends and changes in the scale of travel activity between 1972 and 1983. Information pertaining to vacation travel will be emphasized while examining the characteristics of travel movements during this period.

Basic Travel Characteristics

In 1983, 1058 million person-trips were made in the United States whereas the figure had been only 450 million in 1972 (Table 1 and Figure 1); an increase of 135 percent. The USTDC definition of a trip is travel to a place 100 miles or more away from home. A person-trip is one person on one trip. If three people travel together on one trip it is defined as three person-trips. All data discussed in this paper refer to person-trips, unless stated otherwise. The dramatic increase in the scale of travel activity can also be identified on a per-capita basis. In 1972 each person made an average of 2.2 trips per year and and in 1983 this had risen to 4.5 trips per year (U.S. Bureau of the Census, 1973; 1983 and USTDC, 1974; 1983). The number of person-trips increased continuously during the 1970s and registered a gain of 147 percent between 1972 and 1979 but there was a decline of five percent between 1979 and 1983. The effect of economic conditions appear to be reflected in the fluctuations of recent years. A 16 percent reduction in total travel occurred in 1980 at the time of the economic recession which had followed the 1979 energy crisis. Pent-up demand for travel after the energy shortage and a mild economic recovery from the recession was manifest by a strong travel year in 1981. However in 1982 and 1983, another economic recession reduced travel and this time discretionary travel fell more than total travel. However, the overall pattern of vacation person-trips has mirrored that of total travel (Figure 1).

Vacation travel increased 269 percent from 1972-1983 and its significance as a component of total travel was much greater toward the end of the period. In 1972 vacation travel comprised only 39 percent of all travel reported but it had risen to 60 percent in 1983 (Table 1).

A comparison of other data in Table 1 indicates that whereas the number of nights per trip for all travel exhibits a rising trend (from 3.9 in 1972, to 5.2 in 1983) the reverse is the case for vacation travel. In 1972, on average, 6.2 nights were spent away from home while on vaction, and this figure declined continuously to a figure of 5.3 in 1982. It is too early to say whether the figure of 6.2 recorded in 1983 is the first sign of a reversal in this trend but more detailed analysis of the features of shorter

vacations would be of great value to many tourism enterprises. The importance of understanding the factors causing this trend is clear, is it the result of fewer long vacations; or is it due to an increase in long weekend trips; or the result of mid-week breaks?

Modes of transport have been fairly consistent during the last decade between total trip data and vacation trips (Table 2). In 1980 there was a reduction in vehicular travel and increasing numbers of people turned to air travel. This transition may have been prompted by the energy crisis in 1979 and the Airline Deregulation Act of 1978. The air traffic controllers strike in 1981 caused a temporary drop in air transportation but by 1983 the proportion of travel by air was the highest ever registered and vehicle transport was five percentage points lower than before the 1973-74 energy crisis.

Two other trends which can be readily identified are a decrease in the average distance per vacation trip (from 1056 miles per trip in 1972 to 800 miles per trip in 1983) and a reduction in the average group size (from 2.29 people per trip in 1972 to 2.09 people per trip in 1983). The latter may seem to be a relatively small reduction but if the trend continues managerial practices will need to adapt to the needs of smaller groups. Research, to ascertain information about the composition of such groups, would be of considerable value.

Regional Travel Characteristics

Prior to the discussion related to this section of the paper it is necessary to recognize limitations imposed on this form of analysis by the nature of the data in the TDC-NTS reports. The distance component of the trip definition has the consequence of reducing the amount of travel recorded in areas of greatest urban concentration where many attractions will be located less than 100 miles 'from home'. Certain regions will be under-represented at this scale of analysis. To illustrate this point; in 1982, per-capita travel in the Eastern Gateway was 3.2 trips per person and in the George Washington region it was 4, whereas in the Frontier West and the Mountain West it was 6.5 and 6, respectively (US Bureau of the Census, 1983 and USTDC, 1983).

A second aspect stems from the considerable variation in the number of states that comprise each region as well as the geographic and demographic character of the regions. Some of the Travel Industry Associaiton of American regions are large enough to support substantial internal travel; intra-regional, while smaller regions will inevitably provide more inter-regional travelers (Figure 4). A study to provide suggestions regarding how to minimize these problems would seem very worthwhile and would be welcomed by the USTDC.

The TDC-NTS reports have included a matrix of travel by region of origin and region of destination (with the exceptions of 1979 and 1980). Figures 2 and 3 have been developed using data from matrices for 1976 and 1982. The maps depict total travel flows and, whilst illustrating exchanges between each of the regions, they clearly show the considerable increase in the scale of activity during this period.

The Great Lakes region has maintained its position as the largest producer of travel trips but its rate of growth (100 percent) was not as rapid as that experienced in other regions. In 1982, 217 million person-trips originated in the South compared to only 75 million in 1972; an increase of 191 percent. Travel from the Frontier West increased by 187 percent and from the Mountain West by 144 percent with the Far West experiencing the slowest rate of growth (99.6 percent).

From 1972 to 1983 the number of intra-regional trips as a proportion of total travel decreased in all regions (Table 3). More residents, both in absolute terms and in relation to the ratio with total travel, are traveling outside their home region now than was the case in 1972. Several regions, notably New England, but also the Great Lakes, Mountain West and George Washington, experienced substantial declines in the proportion of intra-regional movements during the latter half of the 1970's whereas the South and Far West regions maintained a high proportion of intra-regional travel in 1983 although at a lower level than in 1972. It is difficult to provide an explanation for the decline in intra-regional travel. It is possible that lower air fares in the last few years have made long-distance travel relatively less expensive.

Another way to analyze regional travel is to study the difference be-between a region's person-trips going out (origins) and trips coming in (destinations), thus excluding all intra-regional travel. The net regional flow for selected years is listed in Table 4. The South has consistently been a region of travel attraction; receiving more visitors than it sends to other regions. The Great Lakes region is a supplier of travelers to other regions with more travelers leaving than entering this region. The Far West Region is the only other region which has shown a net gain of visitors in recent years. In the 1970's the New England Region was an "attraction" region but in recent years it has shown a traveler deficit. The size of traveller deficits have grown in recent years, however, there has no overall repositioning of regions. The South has maintained its position as the primary region of attraction and the Great Lakes and Eastern Gateway regions are the primary regions that produce inter-regional travelers.

The regional origins of vacation person-trips as compared to total net flows do not vary significantly. In Table 5 vacation person-trips by origin region have been ranked by year. In 1974 the Great Lakes and Far West Regions were the top two suppliers of vacation travelers with 61.8 and 47.9 million vacation person trips respectively while the Mountain West and New England Regions were the two lowest ranking regions (28.4 and 12.3 million vacation person-trips). In 1983 almost the same rankings were apparent with the exception that the South had superseded the Far West as the number two region (Great Lakes; 134.9 and South; 128.5 million vacation person-trips). The Mountain West and New England regions were still the lowest in the regional rankings (38.5 and 32.1 million person-trips respetively) but the Frontier West improved its position from sixth to fourth, after having been ranked second in 1980.

Regions as destinations for vacation travelers are ranked on Table 6. In 1972 the top two regions were the Great Lakes and Far West while the lowest ranked regions were the Mountain West and New England. By 1983 the South had supplanted the Great Lakes as the number one attraction region, the

Far West was still number two and the Great Lakes and Frontier West regions were tied for third place. Clearly the Sunbelt regions, consisting of the South, Frontier West and the popular states of California and Hawaii of the Far West Region were dominating as destinations for vacation travelers. The growing dominance of the Sunbelt as a vacation destination has increased in the last decade led by the states of Hawaii, Florida, Texas, Arizona, and Nevada. This dominance is clearly illustrated by comparing the 1976 and 1982 traffic flow maps (Figures 2 and 3). These maps depict total traffic flows and the growth of the regions located in the south is apparent.

Regional Travel Expenditures

The U.S. Travel Data Center has developed a model which provides information about the economic impact of travel, the Travel Economic Impact Model (TEIM) (Figure 5). The USTDC travel expenditure data is for all trips and does not provide a separate analysis of expenditure generated by vacation travel. For this analysis Doering's (1976) article has provided the base for analysis. Between 1972 and 1982 disposable personal income increased by 144 percent in constant dollars (by 18 percent in 1972 dollars) while domestic expenditure on travel increased by 303 percent (Figure 5). These percentage increases highlight the fact that we are a mobile nation. Travel is an accepted part of our lifestyle in spite of several energy crises, inflation and recessions. The energy shortages had very short term affect on affect on our travel expenditures but did influence our personal income when combined with inflation and the recessions, particularly those in 1980 and 1982.

In 1972 the South had the highest total travel receipts of all eight regions. With the South, the Far West and Great lakes regions were well ahead of the other five regions (Table 7). The South did not maintain the top rank in 1982. The Far West surpassed it by a small absolute margin. Between 1972 and 1982 the Frontier West and Eastern Gateway regions had the highest relative increase in total travel expenditures, well above the national increase of 303 percent. Regional per capita receipts from travel expenditures provide an interesting analysis of the importance of the travel industry to the various regions. As shown by Doering (1976), per capita travel expenditures provide a reasonable surrogate to compare regional and state travel economies and provide a 1972 reference point for a time comparison. Royer, et al (1974), along with Doering, attempted some other ratio measures that compared travel expenditures with personal income and gross state product, but "per capita travel expenditues were (found) to be at least as good a measure . . . . . ., and one that (was) certainly more communicable to both professional and lay audiences" (Doering, 1976, p. 15). In 1972, the Mountain West had the highest per capita travel expenditures followed by the other two western regions where population density is low. All western regions measured high travel industry income in 1972 and in 1982. However by 1982, the Far West had a higher per capita measure than the Mountain West. The Eastern Gateway exhibited the highest percentage increase in per capita travel expenditures of any region and moved from last in 1972 to sixth position in 1982 while the Great lakes with the next to lowest percent change in 1972 dropped to last position among the eight regions in 1982. As shown on Figure 7 the populated and industralized northeast and midwestern states are least dependent on travel expenditures.

A state by state analysis provides a more interesting opportunity to explain the growth of the Eastern Gateway region as well as the travel growth in the southwest and western states.

State Income From Travel Expenditures

The Eastern Gateway consists of two states with large populations. Both states have made large investments during the last decade to increase income from leisure travel. In New York State; New York City, Niagara Falls and mountain resorts upstate have benefited from increased promotion effort while in New Jersey gambling in Atlantic City has increased per capita travel expenditures by more than 600 percent in the last decade (Figure 6).

New York State's increase of 375 percent helps to explain the strong gain by this region relative to the rest of the nation. Other states with increases in per capita travel expenditures of 300 percent or more are Connecticut, Nevada, Indiana, Maryland, Louisiana, Georgia, Texas, Oklahoma, and North Carolina (Table 8).

In 1982 the states with the highest travel income per capita were essentially the same as those in 1972 (Figure 7). The leading states were Nevada, Hawaii, Vermont, Florida, Wyoming, Colorado, Alaska, Maine, New Hampshire, and the District of Columbia. California, New Mexico, Arizona, Minnesota, New Jersey, North Dakota, Utah, Texas, Oklahoma, Missouri, Idaho, and Georgia follow in descending order with per capita travel expenditures of between $800 and $1000. A general statement about the regionalization of the travel industry would propose that five major travel dependent areas exist: 1) Northern New England, 2) Florida, 3) the middle Rocky Mountains, 4) Alaska, and 5) the Hawaiian Islands. These are regions or states where the travel industry is most dominant in the economy.

An alternative view of the travel industry relative to the national scene is shown on Figure 8. This Map shows the proportion each state receives in travel expenditure relative to total travel expenditures in the nation in 1982. California had 13 percent of all U.S domestic Travel Expenditures in 1982. Florida had eight percent, Texas and New York State seven percent and New Jersey and Pennsylvania slightly under four percent. Of these states New Jersey experienced the highest percentage increase in traveler expenditures between 1972 and 1982. (In 1972 New Jersey had two percent of total domestic travel income.)

Summary and Conclusion

Evidence presented in this paper has shown that the volume of travel activity has increased dramatically since 1972 and the importance of vacation trips as a component of this activity has steadily grown. The characteristics of these trips is changing with people in smaller groups making more, but shorter, journeys in their leisure time.

The southern part of the U.S. has experienced the greatest increase in travel activity and reflects recent population changes. The sunbelt has grown in importance as a destination for vacation travel but in economic

terms New York and New Jersey can be seen to be reaping the benefits, through receipts from travel expenditures, of recent tourism promotion efforts. It is California, however, which continues to gain the largest proportion of expenditure by travelers across the nation.

This scale of analysis can detect macro-level spatial and economic shifts and is useful to compare the relative performance of travel activity with other indicators of the nation's health. A more detailed assessment of trip characteristics may require a reassessment of definitions to take account of the variations in the scale of travel activity within the different regions.

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Table 1. Characteristics of Total Trips and Vacation Trips - 1972-1983.

	1972	1974	1975	1976	1979	1980	1981	1982	1983
Total									
Person (millions) Trips	450	592	660	706	1110	935	1152	1069	1058
Vacation									
Person (millions) Trips	174	268	286	329	624	578	737	660	642
% Trips Vacation	39	45	43	47	56	62	63	61	60
Total									
Persons per Trip	1.94	2.11	2.01	2.00	NA	2.09	1.96	1.99	1.96
Vacation									
Persons per Trip	2.29	2.35	2.26	2.24	NA	2.23	2.14	2.10	2.09
Total									
Nights per Trip	3.88	4.06	3.97	4.06	NA	4.8	4.6	4.5	5.2
Vacation									
Nights per Trip	6.2	6.2	6.1	5.9	NA	5.8	5.6	5.3	6.2
Total									
Miles per[a] Trip	806	791	820	862	NA	790	740	790	800
Vacation									
Miles per Trip	1056	998	1115	1096	NA	880	800	860	900

Source: U. S. Travel Data Center, National Travel Survey, Full Year Report, Various Years.

[a]Round-trip Mileage for Domestic Travel Only.

Table 2. Person Trips by Primary Mode of Transportation
1972-1983
(Percent)

	1972	1974	1975	1976	1979	1980	1981	1982	1983
Total Trips									
Auto/Truck/R.V.	85	85	86	84	83	81	83	82	79
Air	12	11	9	11	14	15	13	14	18
Bus					2	2	2	2	3
Train	3	4	5	4	1	1	1	a	1
Other					1	1	1	2	1
Vacation Trips									
Auto/Truck/R.V.	84	84	84	82	82	81	84	83	79
Air	12	10	11	11	14	15	11	14	17
Bus					3	2	2	2	3
Train	4	5	6	6	1	a	1	1	1
Other					1	a	1	1	a

Source: U. S. Travel Data Center, National Travel Survey, Full Year Report, Various Years.

a= Less than 5 percent

Table 3. Intra-Regional Movements. Percent of Total Travel Within the Region. Selected Years.

Region	1974	1975	1976	1981	1982	1983
New England	58	70	63	34	39	39
Eastern Gateway	46	39	37	33	32	29
George Washington	54	56	54	45	46	38
South	80	76	76	74	67	71
Great Lakes	70	69	68	58	51	56
Mountain West	69	68	59	46	47	54
Frontier West	74	79	68	65	69	64
Far West	84	80	81	76	76	75

Source: U. S. Travel Data Center, National Travel Survey, Full Year Report, Various Years.

Table 4. Destination Net Inflow. Total Inter-Regional Person Trips (Millions)

Region	1974	1975	1976	1981	1982	1983
New England	+a	+1	+2	-23	-11	- 9
Eastern Gateway	-15	-14	-13	-23	- 4	-25
George Washington	- 6	- 5	- 6	-0-	- 3	-11
South	+15	+14	+18	+47	+30	+39
Great Lakes	-13	-24	-26	-58	-70	-55
Mountain West	-a	+ 6	+ 1	-0-	-a	- 7
Frontier West	- 2	+a	- 1	-23	-0-	- 8
Far West	- 1	- 3	- 3	-0-	+ 6	+ 4

Source: U. S. Travel Data Center, National Travel Survey, Full Year Report, Various Years.

a=Less than one million person trips
+=Received more than originated
—Originated more than received

Table 5. Rank of Vacation Person Trips by Origin Region - 1974-1983. (Based on Percent of Person Trips).

Region	1974	1975	1976	1979	1980	1981	1982	1983
New England	8	7	7	3	8	7	7	8
Eastern Gateway	5	6	6	5	5	5	6	6
George Washington	4	4	4	5	5	5	5	5
South	3	2	2	1	2	2	2	2
Great Lakes	1	1	1	2	1	1	1	1
Mountain West	7	8	8	7	7	8	7	7
Frontier West	6	5	5	3	2	3	3	4
Far West	2	3	3	3	4	4	4	3

Source: U. S. Travel Data Center, National Travel Survey, Full Year Report, Various Years.

Table 6. Rank of Vacation Person Trips by Destination Region - 1974-1983. (Based on Percent of Person Trips).

Region	1974	1975	1976	1979	1980	1981	1982	1983
New England	8	7	6	8	8	7	8	8
Eastern Gateway	6	6	7	6	7	6	6	6
Great Lakes	5	5	4	5	5	5	5	5
South	3	1	1	1	1	1	1	1
Great Lakes	1	2	3	2	4	2	4	3
Mountain West	7	8	8	6	6	7	7	7
Frontier West	4	4	5	3	3	2	2	3
Far West	2	3	2	3	2	2	3	2

Source: U. S. Travel Data Center, National Travel Survey, Full Year Report, Various Years.

Table 7. Regional Travel Expenditures and Per Capita Travel Expenditures - 1972 and 1982.

	Travel Expenditures (Millions)			Per Capita Travel Expenditures		
	1972	1982	% Change	1972	1982	% Change
New England	$2738	$10060	267	$226	$ 805	256
Eastern Gateway	3813	20022	425	148	798	437
George Washington	4241	16060	278	178	648	264
Great Lakes	8600	27344	218	181	562	211
South	9815	38028	287	252	813	222
Mountain West	2452	8691	254	331	982	196
Frontier West	5534	26165	372	278	871	283
Far West	8702	38631	344	306	1107	262
Total U.S.	$45897	$185002	303	$220	$ 799	263

Source: 1972 Data from Thomas R. Doering. 1976. "A Reexamination of the Relative Importance of Tourism to State Economics, "Journal of Travel Research, XV 13-17, and 1982 Data from U. S. Travel Data Center, Impact of Travel on State Economics 1982, Washington, D. C.

Table 8. States With High PerCapita Travel Expenditure Increase between 1972 and 1982.

Region	State	PerCapita Percentage Change
New England	Connecticut	431
	Massachusetts	268
	Vermont	238
Eastern Gateway	New Jersey	606
	New York	375
George Washington	Maryland	330
	Pennsylvania	296
	West Virginia	256
	Delaware	232
South	Louisiana	328
	Georgia	328
	North Carolina	302
	Tennessee	276
	Arkansas	236
	Mississippi	217
	Kentucky	204
	South Carolina	201
Great Lakes	Indiana	334
	Iowa	270
	Ohio	265
	Wisconsin	206
Mountain West	North Dakota	253
	Nebraska	229
	Colorado	222
Frontier West	Texas	320
	Oklahoma	303
	Missouri	296
	Kansas	267
	New Mexico	200
Far West	Nevada	416
	California	273

Source: 1972 Data from Thomas R. Doering. 1976. "A Reexamination of the Relative Importance of Tourism to State Economics, "Journal of Travel Research, XV 13-17, and 1982 Data from U. S. Travel Data Center, Impact of Travel on State Economics 1982, Washington, D. C.

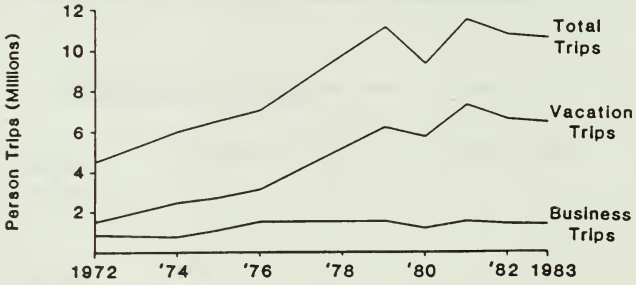


FIGURE 1 - Total Trips, Vacation Trips, and Business Trips 1972-1983

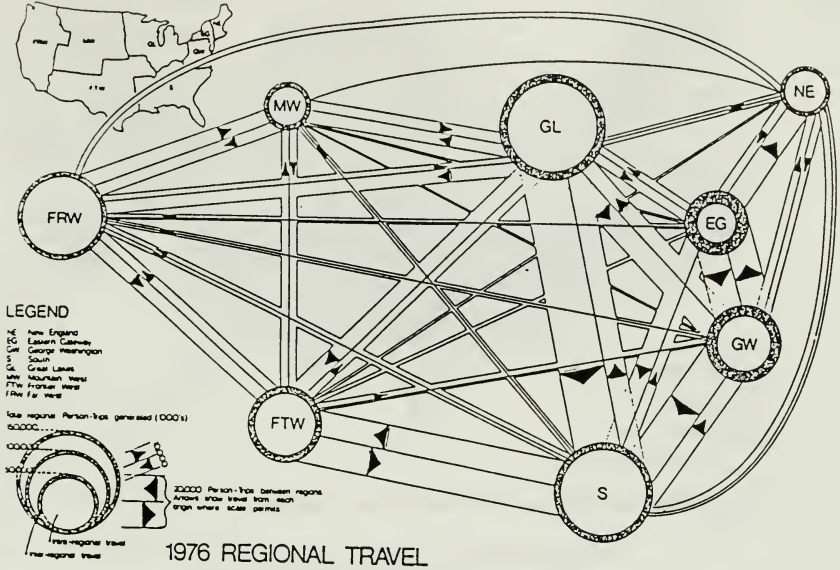


FIGURE 2

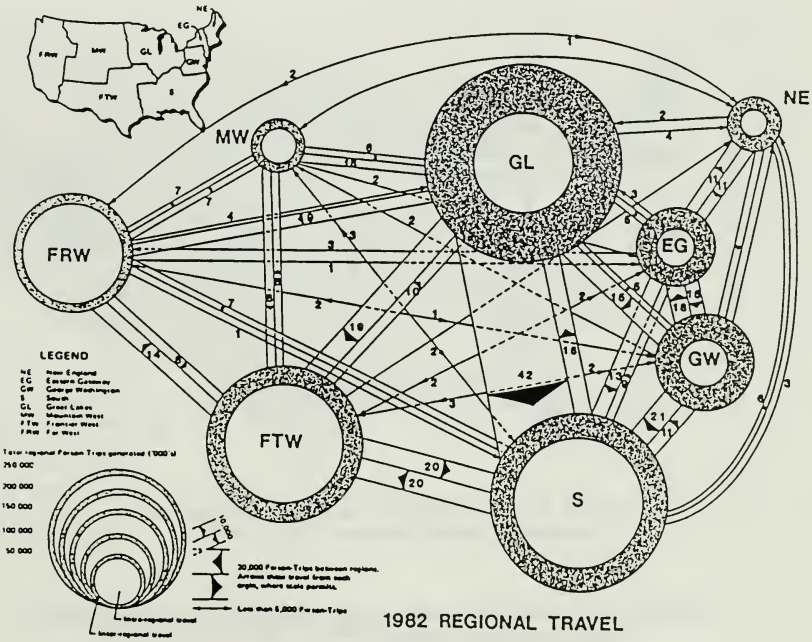


FIGURE 3

SOURCE: U.S. Travel Data Center

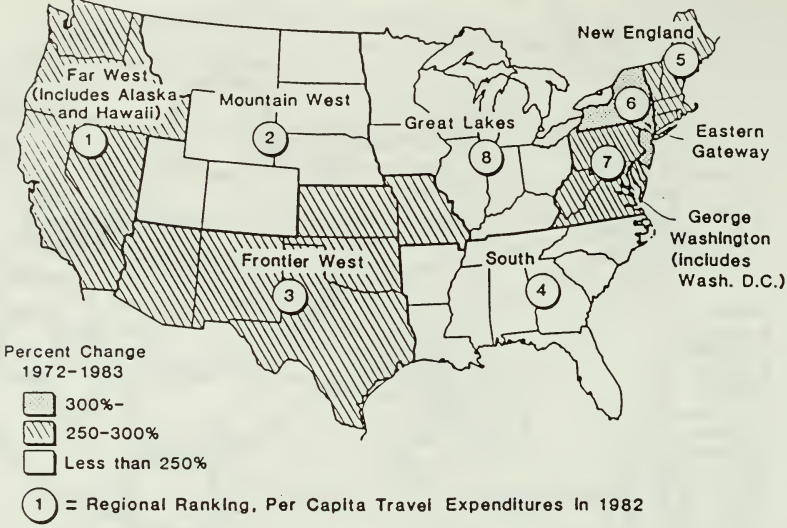


FIGURE 4 - Regional Per Capita Travel Expenditures Percent Changes 1972-1982.

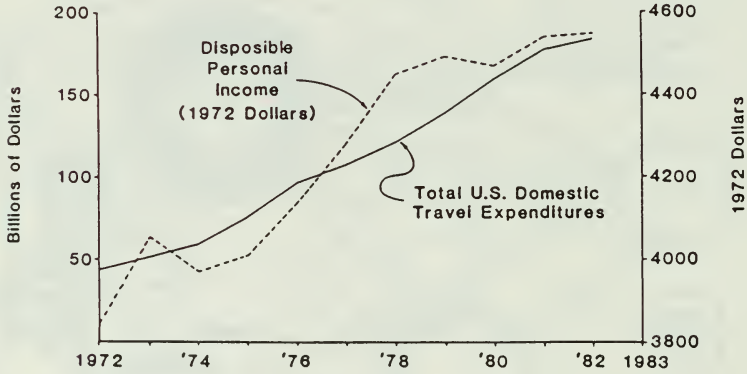


FIGURE 5 - U.S. domestic travel expenditures and disposible personal income 1972 to 1982.

SOURCE: U.S. Travel Data Center, Travel Economic Impact Model (TEIM) and Survey of Current Business Various Years, U.S. Department of Commerce, Washington D.C.

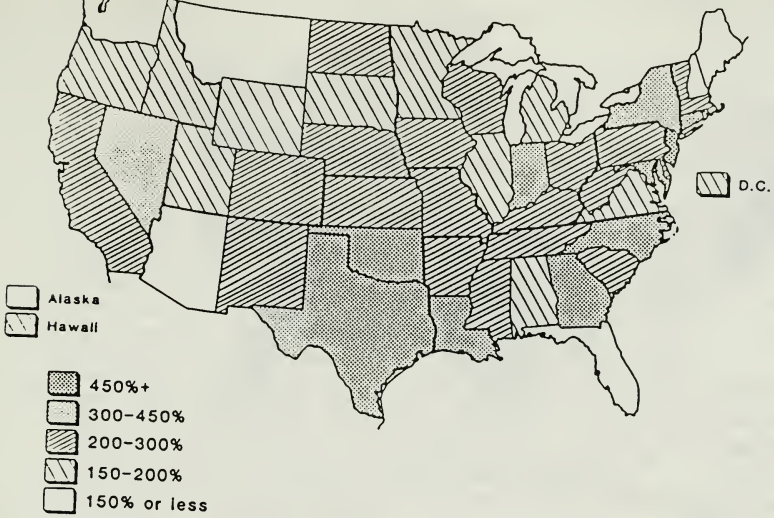


FIGURE 6 - Percent Change in State Per Capita Domestic Travel Expenditures 1972-1982

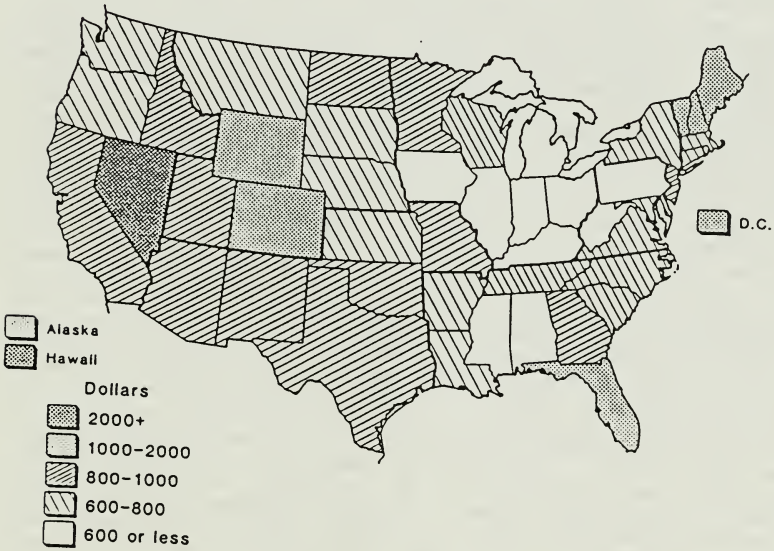


FIGURE 7 - Per Capita Travel Expeditures 1982

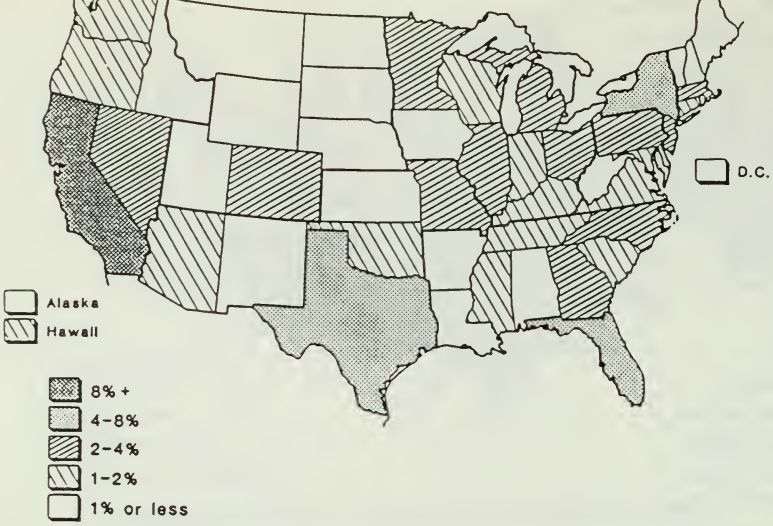


FIGURE 8 - 1982 U.S. Domestic Travel Expenditures for All Trips
Share of U.S. Total (Percent)

SOURCE: U.S. Travel Data Center, Impact of Travel on State Economies, 1982, July, 1984.

A COMPARISON OF TOURISM TRANSPORTATION MODES FROM 1976-1984

Jeff Winterbottom and William C. Gartner

Abstract.--Four transportation modes; Private Auto, Commercial Air, Motoroach, and Rail were analyzed over an eight year period (1976-77 Travel Year through 1983-84 Travel Year). A Travel Year for the purpose of this paper is considered from June through May. Results reveal that private motor vehicle traffic is now capturing a smaller percentage of total market share than eight years ago. Commercial air and motorcoach traffic have experienced large percentage gains over their level of activies eight years ago and have garnered a greater percentage of total market share. Analysis was also performed for each mode on a seasonal basis. Results revealed that seasonally, commercial air is the most stable transportation mode and motorcoach the most volatile.

INTRODUCTION

I would like to cap this session on tourism trends by examining recent changes that have taken place in preferred transportation modes. Before examining these changes, however, I would like to compare the evolution of tourism travel with Stanley Plog's model of tourism demand. It has generally been accepted that travel for pleasure probably coincided with a level of societal development that satisfied all basic survival needs with some discretionary time available. In terms of Maslow's Hierarchy, once physiological and safety needs are met then individuals can pursue their social needs. An example of a social need in a prehistoric setting may be some of the boys getting together in the family four-wheeler and setting off on a Sabre Tooth Tiger hunt. Predictably when the boys return, they smell strongly of jungle juice and a Sabre Tooth Tiger is noticeable by its absence. Although this example is absurd, the point is, that sometime in our history we reached a stage where basic needs were realized and time could be devoted to achieving higher level needs. At what point this happened has not been clearly identified. However, we have many examples through historical accounts of the type of people who did travel for pleasure. Cleopatra's trips on her beautifully adorned barge are legendary as are Dickens' accounts in "A Tale of Two Cities" of French nobility who often visited their seasonal chateaus. Travelers, up until the industrial age and the expansion of the railroad system (1900's) can generally be characterized by Dr. Plog's model as Allocentrics. That is, they exhibited certain traits, i.e., a high level of discretionary income, leisure time and a quest for adventure. However, it wasn't until Henry Ford perfected the assembly line and mass produced the Model T that travel opportunities became available to a much wider range of people (Midcontrics). As our transportation system expanded and more discretionary time became available, people embraced the family buggy and our tourism industry began to expand.

At the same time that Henry Ford's production line was being perfected, man learned how to fly. On December 17, 1903, Orville and Wilber Wright took off at Kitty Hawk and flew a distance of about forty yards. Many refinements later regularly scheduled passenger services started with a London-Paris route in 1919. This service lasted only 19 months and was discontinued because of low demand, averaging only 1.5 passengers per trip (van Harssell, 1981). However, major manufactures realized the potential for air travel and continued the development of commercial airplanes. Of course, two world wars and subsequent cold wars greatly helped in development of technology which makes commercial air travel popular today - - - at some airports too popular.

As previously mentioned, one of the first transportation modes to open up travel for more than just the wealthy, was the railroad. Initially, railroad cars were pulled by horses but with the development of the steam engine in the 1830's, relatively (for the early 1800's) cheap and fast land transportation was now available (van Harssel, 1981). As our country expanded westward, it did so with the establishment of new rail lines providing goods to its Western frontier. The first U.S. transcontinental railroad was completed on May 10, 1869, by the ceremonial driving-in of a golden spike at Promontory, Utah. For many years the railroads prospered but with the coming of automobiles and development of an airline system, the railroads lost their place as a major mover of people.

The final transportation mode which must be introduced before proceeding into the analysis section of this paper is, the motorcoach carrier - lovingly referred to as "the bus." Buses have been around almost as long as the private automobile but only recently has this industry begun to grow again. The bus industry is this nations' largest form of mass transit in terms of number of people transported (van Harssel, 1981). A major growth area for the bus industry is the charter/tour segment. In a recent study conducted by the Institute of Outdoor Recreaction and Tourism, Utah State University, charter tours coming into Utah contributed approximately 33 million dollars in direct expenditures to the state's economy with a per capita expenditure of $178.00 per day.

ANALYSIS

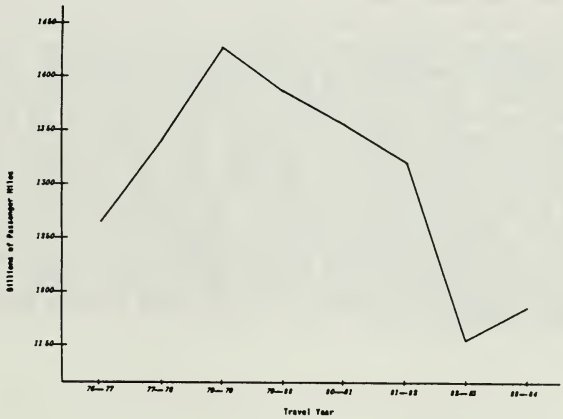
Today, there are four main tourism transportation modes, Motor Vehicle, Commercial Air, Railroad and Motorcoach as discussed above. The analysis that follows will concentrate on how the four modes have evolved during the last eight years. As I have described briefly how the modes have developed over a great deal of time, I would now like to concentrate on changes taking place during the last eight years. Analysis of this data may lead us to some conclusions about the evolving nature of tourism transportation modes. Data for this study was primarily taken from U.S. Travel Data Center Reports in which output for each mode are in billions of passenger miles. To our knowledge all figures include travel for pleasure as well as business but excludes commuter miles.

Table 1. All Traffic in Billions of Passenger Miles and Percent Change from Previous Year - Travel Years 1976-77 to 1983-84.

Year	Passenger Miles	Percent Change
76-77	1,264.3	Base Year
77-78	1,341.3	+6.1
78-79	1,427.2	+6.4
79-80	1,382.6	-3.1
80-81	1,354.0	-2.1
81-82	1,319.6	-2.5
82-83	1,152.9	-12.6
83-84	1,185.7	+2.8
Total	10,427.6	-6.2

In the 1983-84 Travel Year, there were 1,185.7 billion passenger miles accounted for by all four modes of transportation. This amounts to a 11.9 percent drop* from our base year of analysis 1976-77 Travel Year in which 1,264.3 billion passenger miles were recorded (Table 1). Figure 1 reveals that total passenger miles peaked in 1978-79 and then dropped off through the 1982-83 Travel Year and started to rebound in Travel Year 1983-84. Referring to Table 1, it is apparent that the 1978-79 Travel Year was a heavy travel year and in fact this was a year characterized by record orders for automobiles, high consumer spending and also high inflation. When the economy faltered in Travel Year 1979-80, total passenger miles dropped and continued downward until the latter half of 1983 when they

Figure 1. All Traffic in Billions of Passenger Miles and Percent Change from Previous Year - Travel Years 1976-77 to 1983-84.



*A drop of 0.1 percent translates into approximately 1.2 billion passenger miles.

started to increase. Of interest in this table, is the large drop in passenger miles in the 1982-83 Travel Year a 12.6 percent decline from the previous year. Most of this drop occurred in motor vehicle passenger miles as both commercial air and bus traffic experienced an increase that year.

Almost everyone remembers that the auto industry experienced some record loss years after 1978. What happened as people held onto their cars longer was that the median age of the family automobile exceeded seven years. This, in turn, translated into a lack of confidence in the ability of an individual's automobile to travel long distances. In a nationwide survey conducted by the Institute of Outdoor Recreation and Tourism it was revealed that the third most common barrier to pleasure travel was the age or condition of the family automobile. The number one and two barriers remained the same as before, time and money (Gartner, et al, 1983).

Table 2. Percentage of Total Passenger Miles for All Modes of Transportation - Travel Years 1976-77 to 1983-84.

Year	Motor	Air	Bus	Rail
76-77	86.7	11.5	1.4	0.4
77-78	86.3	12.2	1.2	0.3
78-79	85.2	13.4	1.1	0.3
79-80	84.1	14.4	1.2	0.3
80-81	84.6	13.5	1.6	0.3
81-82	84.5	13.1	2.1	0.3
82-83	81.2	16.1	2.4	0.3
83-84	81.5	15.9	2.2	0.4

I have been jumping ahead somewhat and it is necessary to back up a little and compare the four modes of transportation (Figure 2). From this graph, it is obvious that private motor vehicles account for the majority of passenger miles. For each of the last eight years, over 80.0 percent of total passenger miles are logged in private autos with commercial air travel accounting for between 11.0 and 16.0 percent. Although Figure 2 provides very little detail for trend analysis, compilation of data in tabular form helps clear up the picture. As revealed in Table 2, motor vehicle passenger miles have registered a steady decline in terms of yearly percentage. As mentioned earlier, the recession had a major impact on travel by car but there are likely many other factors which impact preference for transportation modes (i.e. relative cost of substitutes, personal income growth, etc.).

Modes showing increases in total passenger miles for the period of analysis include commercial airlines capturing almost 4.4 percent of total passenger miles since 1976-77 and intercity bus travel which gained almost 1.0 percent since our base year.*

Figure 2. Percentage of Total Passenger Miles for All Modes of Transportation - Travel Years 1976-77 to 1983-84.

The intercity bus traffic is quite interesting because it seems to pick up during recessionary periods but there may be another important causal factor - namely the growth of the charter/tour segment. Between 1976-77 and 1980-81, only about 12.0 percent of intercity bus operating revenues could be attributed to the charter/tour segment. This changed by 1981-82, where it was expected that 5^.0 percent of operating revenues for intercity bus traffic came from the charter/tour segment (van Harssel, 1981). There is reason to suspect that this figure may be low because in a recent study of charter/tour operations in Utah, conducted by the Institute of Outdoor Recreation and Tourism, it was found that due to deregulation of the industry there were numerous small time tour operators. Although individually these small timers may have little impact, in the aggregate there may be enough companies to consider the charter/tour segment of intercity bus traffic as the largest contributors in terms of net operating revenue.

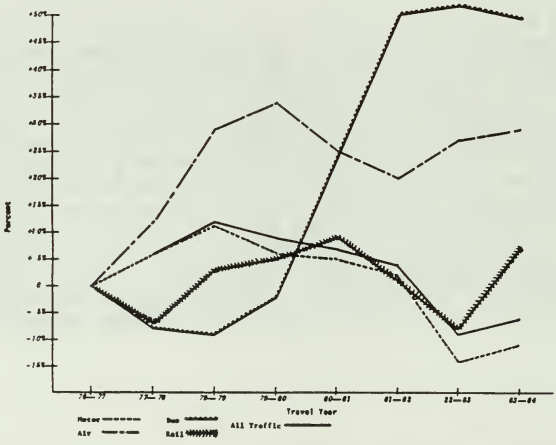
*These gains are not entirely due to captured additional market shares as total passenger miles declined 5.0 percent over the period of analysis. More of this later in the report.

Table 3. Percentage Change of Passenger Miles from Previous Year for All Modes of Transportation - Travel Years 1976-77 to 1983-84.

Year	Motor	Air	Bus	Rail	All Traffic
76-77	Base Year	Base Year	Base Year	Base Year	Base Year
77-78	+5.6	+11.8	-8.0	-6.8	+6.1
78-79	+5.0	+16.8	-1.2	+9.8	+6.4
79-80	-4.5	-4.6	+6.9	+2.2	-3.1
80-81	-1.3	-8.7	+27.1	+4.4	-2.1
81-82	-2.6	-5.0	+25.0	-8.3	-2.5
82-83	-16.1	+7.2	+1.5	-9.1	-12.6
83-84	+3.2	+1.8	-3.3	+15.0	+2.8
Percent Change from Base Year	-11.9	+29.2	+51.4	+4.6	-6.2

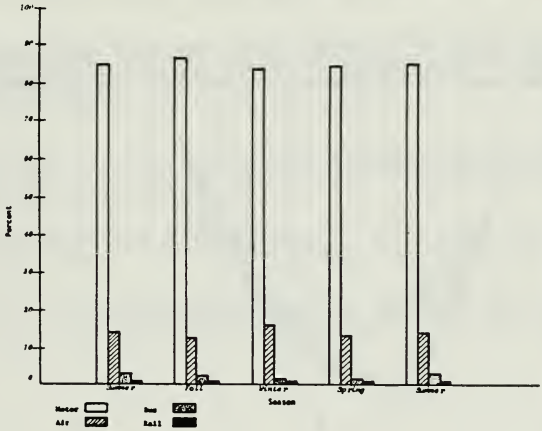
Further analysis reveals the magnitude of the changes that have taken place for each transportation mode during the last eight years. Figure 3, reveals percentage changes from the previous year in terms of all passenger miles for each mode over the eight year period. As shown, commercial air, intercity bus and rail have grown during the eight year period. The actual percentage changes are be shown more clearly in Table 3. If percentage

Figure 3. Percentage Change of Passenger Miles from Previous Year for All Modes of Transportation - Travel Years 1976-77 to 1983-84.



changes from the base year (1976-77) to the 1983-84 travel year are calculated, the growth or contraction of each transportation mode becomes more evident. Intercity bus travel was up 51.4 percent, commercial air up 29.2 percent, and rail up 4.6 percent. By contrast, private motor vehicle was down 11.9 percent for the same period and because this mode still accounts for the majority of passenger miles total volume was down 5.0 percent from the base year. Once again, the impact of the recession shows up on the yearly percentage changes for motor vehicle. It is apparent from this table that although motor vehicle will remain the largest mover of people, there is some evidence to suggest that commercial air and intercity bus travel will carve out still greater market shares. This conjecture is made in light of the facts presented in Table 2.

Figure 4. Percentage of Total Passenger Miles for All Modes of Transportation by Season - Travel Years 1976-77 to 1983-84.



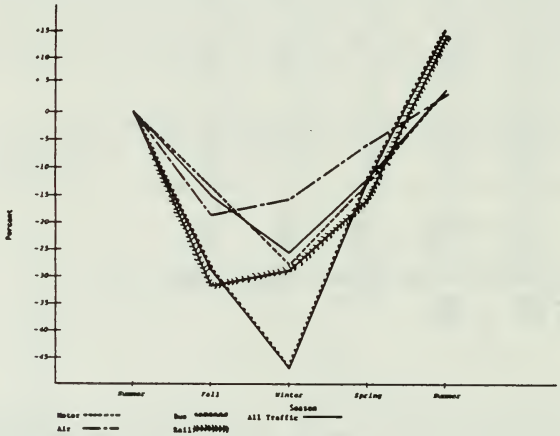
Prior to concluding the paper, there is one more trend analysis that was performed. Examining preferred modes of transportation during each season revealed some interesting but not totally unexpected results (Figure 4). As before, the importance of motor vehicle travel is clearly revealed by analyzing the percentage change by season. Figure 5, indicates that of all the transportation modes, the most stable is air with the most volatile being intercity bus travel. Obviously, for companies engaged in intercity bus travel, this seasonal fluctuation causes economic problems. Table 4, displays this information a little more clearly. As expected, each travel mode drops off appreciably in terms of passenger miles from summer to fall and continues to drop from fall to winter except for commercial air and rail. All modes increase from winter to spring as the travel season picks up and increase again from spring to summer. Of interest is the large percentage jump in bus travel from winter to spring to summer. This

percentage jump in bus travel from winter to spring to summer. This probably reflects the growing importance of the charter/tour segment of the industry and this statement is supported by research conducted at the Institute of Outdoor Recreation and Tourism.

Table 4. Percentage Change of Passenger Miles from Previous Season for All Modes of Transportation - Travel Years 1976-77 to 1983-84.

Season	Motor	Air	Bus	Rail	All Traffic
Summer	+16.8	+8.8	+27.7	+29.8	+15.9
Fall	-13.6	-18.4	-29.0	-32.1	-14.5
Winter	-14.2	+2.7	-18.4	+2.6	-12.1
Spring	+15.5	+9.6	+35.0	+12.8	+14.9

Figure 5. Percentage Change of Passenger Miles from Previous Season for All Modes of Transportation - Travel Years 1976-77 to 1983-84.



CONCLUSION

The preceeding analyses reveal some apparent but inconclusive trends. It appears that private motor vehicle travel is most affected by severe recessions. This mode of transportation, which accounts for many more passenger miles than any other, has the greatest impact on business within the tourism industry. It is also apparent from the analyses that commercial air travel and bus travel, which rose during the recession, are seizing more of a market share. In the case of bus travel, it is not clear whether during the recession bus travel became a low cost alternative mode

of travel or whether the growth in the charter/tour segment accounted for the greater market share. However, there is some evidence to suggest that the charter/tour segment is responsible for a great deal of the gain. In the case of commercial air travel, competitive prices may have contributed to its increase in market share.

Even though trends can be projected in all situations, further research needs to be conducted before causal factors can be identified. One fact that can be ascertained from the analysis, is that transportation modes are in constant flux in terms of market shares. There are forces operating in the economy which must be addressed by businesses involved in the travel industry to prevent a major loss of income as a result of shifting preferred modes of transportation.

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TRENDS IN RECREATIONAL ACCESS TO PRIVATE RURAL LANDS

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Abstract.--There are 1.35 billion acres of private rural lands in the United States. In the past several years there have been some dramatic changes in the structure and circumstances surrounding ownership and use of these forest, range and farm lands. One effect of these changes seems to be a strong trend toward more restricted recreational access for the public to both nonindustrial and industrial lands. This paper traces the changes in rural land ownership and the associated recreational access trends.

Additional keywords: Recreation, private land, access, forest land, leasing, trends, posting, farm land.

Recent changes in federal and state funding for public land acquisition, development, and management for recreation have heightened interest in private lands as a recreational resource. Government budget reductions, coupled with continued strong growth in most forms of outdoor recreation participation, point to a need to understand the potential role of private rural lands as a recreational resource.

Private individuals and corporations own about 60 percent of the U.S. land--about 1.35 billion acres. Between 7 and 8 million farm, ranch, and forest owners hold 93 to 95 percent of this private land in an estimated 14 to 17 million parcels. Of the remaining land, 2 to 3 percent is used for housing, and 3 to 4 percent is classified as commercial, industrial, urban, and other developed land (Wunderlich 1979).

Forest and range lands.--Some 886 million rural acres are classified as nonfederal forest and range land (about 1/3 of the U.S. land base). Almost all of this land is privately owned. Of the privately owned forest land of the United States, about 3/4 is east of the Mississippi River, where the greatest population concentrations occur (USDA Forest Service 1983). Most of the private rangeland, on the other hand, is west of the Mississippi. The eastern concentration of privately owned forest lands, in particular, will continue to be of interest as potential future sources of outdoor recreation opportunities. If recent population migration patterns continue, the private forest and range lands of the western states may also rise to greater recreational importance. The vast acreages of federal land in the West, however, should continue to provide a major proportion of the needed space and settings for outdoor recreation in that portion of the country.

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Farm lands.--Some 530 million acres of U.S. land are classified as crop and pasture lands. Like forest land, much of this land is in the East. Crop and pasture lands are intensively managed. Frequent cultivation and extensive fencing alter the potentials of these lands for outdoor recreational uses, although they still have value for some forms of recreation.

This paper looks at the available literature and data which indicate trends in public recreational access to private rural lands. Most of the paper focuses on trends in relevant recreational participation patterns; on factors which act to restrict public access--such as posting, leasing, and land conversion; and on owner and ownership circumstances as likely determinants of public access policies. One principal source of information on nonindustrial lands is the 1976 National Private Landowner Survey (NPLOS) conducted by the Forest Service and the Soil Conservation Service.[2/] The next-to-last section of this paper presents a brief discussion of recreational access to industrial or corporate forest lands.

RECREATION PARTICIPATION CHANGES

The 1976 NPLOS identified 6 principal recreational activities permitted by owners of private land. Previous National Recreation Surveys have indicated that growth between 1960 and 1982 in number of participants in these 6 most frequently permitted activities was as follows: hunting 10%, hiking 129%, fishing 15%, picnicking 11%, camping 162%, and horseback riding 10% (Cordell and Hartmann 1984). Because the number of participants in these activities in 1982 ranged from a low of 2.2 million (hunting) to a high of 39.9 million (picnicking), these percentage increases in participation represent an estimated 200 thousand to 4.4 million added participants per activity, since 1960.

The 1982 A. C. Nielsen Company national sports participation survey indicated that fishing and camping are among the 10 most popular U.S. sports. The 1980 U.S. Fish and Wildlife Service survey of wildlife related recreation indicated that number of hunters grew 15 percent and the number of fishermen grew 65 percent between 1960 and 1980.

A significant observation about these time series surveys is that for the 2 most frequently permitted private land activities--fishing and hunting--participation has recently decreased. Estimated number of days of fishing participation fell 5.3 percent from 1975 to 1980; estimated number of days of hunting participation for this same period fell 3.5 percent. Similarly, the rate of growth of fishing and hunting license sales fell between 1975 and 1980. In the northern states snowmobiling registrations also seem to be dropping--in New York for example, from a peak of 155,000 in 1972 to about 87,000 in 1980.[3/] Snowmobiling is a regionally important private lands activity.

[2/] The 1976 National Private Landowner Survey was a joint Forest Service and Soil Conservation Service project conducted cooperatively with Clemson University, Stephen F. Austin State University, and the University of Kentucky.

[3/] Personal communication with Tommy Brown, Senior Research Associate, Department of Natural Resources, Cornell University, February 12, 1985.

Eighty-five percent of all hunting was done on the approximate 1-1/3 billion acres of private land in 1960 (Grahame 1960). A survey of hunters in Kentucky in 1966 indicated that 92 percent of hunting was on private land. The 1975 National Fishing and Hunting Survey indicated that 58 percent of big game hunters, 71 percent of small game hunters, and 69 percent of migratory bird hunters hunted on private land. The 1980 national survey indicated that 68 percent of all hunters hunted on private lands. Since 1960, the percentage of hunting that was on private lands has decreased, shifting pressure to public lands. This shift may be caused by decreased access to private lands. A decrease in the number of hunting licenses sold between 1957 and 1966 was partly attributed to decreasing access to Kentucky's private land (Durell 1967). These surveys provide evidence that recent hunting and fishing participation decreases, as well as the shift to public lands, may be linked to decreases in public access to private lands (Wildlife Management Institute 1984).

Under the questionable assumption that opportunities to hunt will steadily increase, a 1977 study projected hunting participation to continue to rise to the year 2000--a 13 percent rise was projected for small game and a 33 percent rise was projected for waterfowl hunting. For fishing, projected participation growth was 39 percent for freshwater and 62 percent for saltwater fishing (USDA Forest Service 1980). These projections suggest that strong wildlife and fish oriented recreational participation growth would exist, if opportunities to hunt and fish expand each year through 2000. This growth will obviously depend in large part on the availability of hunting and fishing opportunities on private lands. The next section of this paper examines trends in public recreational access to private lands.

PUBLIC ACCESS TO NONINDUSTRIAL PRIVATE LAND

There are 4 principal factors which define the amount of private rural land to which the public at large has access for recreation. These are posting, leasing, land use conversions (from natural and agricultural to developed), and ownership circumstances. The interaction of each of these factors with public access restriction is discussed in this section. We acknowledge that restrictions on public access do not necessarily exclude everyone from recreationally using the affected private lands. Personal use by the owners and their associates, as well as by lessees, seems usually to be practiced. But restrictions on public access, up to and including total exclusion, greatly reduce the number of persons having access to private lands.

Posting

Posting is the most obvious form of land access control. Several different studies have indicated that as much as 25 to 65 percent of private rural lands have access restrictions, including posting, and that in the more populated northeastern states, as much as 80 percent may be closed (Wildlife Management Institute 1984). Landowners may post their land for a number of reasons including fears of liability, property damage, privacy loss, and vandalism.

There seems to be a trend toward more posting of public access to private lands. For example, posting of New York's private rural lands rose from 26 percent in 1963, to 42 percent in 1972, to 48 percent in 1980 (Brown et al. 1984). In east Texas in 1971, 33 percent of landowners had closed their lands to public access (Waters 1972). In 1976 nearly 1/3 of the private commercial forest land in southern New England was posted (Kingsley 1976). In New Jersey in 1975, almost 2/3 of the privately owned commercial forest land was closed to public use (Kingsley 1975). In Kentucky in 1978, 24 percent of landowners posted their lands; an additional 27 percent said their land was closed but not posted because state law requires owner permission for access (Birch and Kingsley 1978). Just under 1/2 the private landowners in Pennsylvania prohibited public recreational use in 1981 (Dennis 1982). In South Carolina in 1983, 83 percent of a sample of landowners closed their acreage to public recreational access (Cordell and Stevens 1984).

A national survey of landowners conducted by Colorado State University in the mid-1960s (USDA Forest Service 1974, p. 80) reported that only 12 percent of ownerships provided no access, while 63 percent of ownerships provide free or fee access. This is quite a contrast to the later 1976 NPLOS which indicated that just over 2/3 of the nonindustrial private forest and range lands in the U.S. were closed to public recreational access (Cordell et al. 1980). The above cited studies point to a trend toward greater closure and posting. This apparent increase in closure and posting continues a trend noted by Barclay and Lindzey (1968) in a 1963 study in Pennsylvania.

Liability concerns are usually among the reasons for closing and posting land (or for not opening land to begin with). Liability concerns can be traced back to early English Common Law which mostly protected the owner. Gradually, though, courts chipped away at the original doctrine of no liability, partly to provide more mechanisms for compensating for accidental injuries. As the law began to shift toward greater responsibility on the landowner, the nature of the relationship between landowners and those using their land came to involve three categories of users: 1) "trespassers", who received the least legal protection, 2) "licensees", persons using the land, with permission and knowledge of the owner and receiving moderate protection, and 3) "invitees", those entering by permission and usually paying a fee to the owner, and having the most protection.

A more recent trend has been toward changes in state liability laws in the landowner's favor. Since 1960, 46 states have altered their liability laws to reduce landowner duties to trespassers and licensees (Kaiser 1984). This has begun to reverse the trend since early English Common Law which almost totally favored the landowner (Stradt 1971). Since 1971, many of the other states have also lessened landowner liability through statute modification. Quarterman (1975) noted, however, that statute modification may not have the impact expected in the courts. Case law continues to demand greater care by the landowner--a fact that could counterbalance the intent of the revised statutes.

Regardless of changes in statutes or in court rulings, liability continues to be a landowner concern. The NPLOS in 1976 indicated that 16 percent of private nonindustrial landowners said that, "as conditions for

opening more lands," they would have to have more protection from potential lawsuits (Cordell et al. 1980). Apparently, landowners are unaware that suits by recreationists against landowners are rare (Brown 1981).

Concern for liability, in all of its variations, is by no means the only reason for posting. The 1976 NPLOS indicated that the principal reasons for land closure were fear of property damage or vandalism (16%), preserve privacy (15%), prevent interference with other land uses (14%), and protect wildlife (12%) (Cordell et al. 1980). A study of access in New Jersey indicated that damage to crops, animals or equipment was a concern. In New Jersey, where property assessment is high anyway, these damages were viewed as creating additional ownership expenses (Barry 1984).

Leasing

Two general forms of leasing affect public access to private lands. First, state and local governments lease private lands explicitly to provide public access. Second, private clubs and organizations lease land for the exclusive use of their members and in effect preclude other people from using the leased lands.

Government leases.--Some states directly purchase access rights, usually with money received from special fees or access stamps purchased by hunters. These receipts are used to compensate landowners for enrolling their land in wildlife or other access programs.

Wisconsin, one state with a public access program, leases close to 56,000 acres at 30-60¢/acre. North Carolina has 3 million acres under lease with private forest landowners and with the U.S. Forest Service. Part of an $8 hunting fee is used to control the number of hunters at one time in the leased areas. The remainder is distributed to cooperating landowners according to their acreage (Wildlife Management Institute 1984).

To provide snowmobilers increased access to private lands, the Michigan Department of Natural Resources (DNR) started a program in the winter of 1972-73 which paid landowners $2 per acre for access (Manning and Holecek 1975). Initially nearly 18,000 acres were leased from 81 different landowners. The DNR financed these leases from snowmobile registration funds. Landowners were given boundary and directional signs and were asked to provide parking areas. Currently, about 90,000 acres are leased under this program.

A followup study in Michigan in 1975, however, indicated that landowners in general were concerned about property damages and liability and did not favor public access programs (Holecek and Westfall 1977). In 1968, Kelley reported that after 10 years of operation, 44 public hunting or fishing areas had been enrolled on 276,441 acres of private land. This public program was mostly aimed at owners of large tracts and only nonmonetary incentives were involved.

Though the programs in the several participating states have seemed to be successful, available information indicates that only limited additional arces are made accessible to the public through government leases. In addition, the

few scattered studies which address these programs indicate that landowners who participate may be those whose land was already open to the public. Feltus and Holecek (1979) found this to be the case with most of the landowners participating in Michigan's Public Access Stamp (PAS) program. Over 3/4 of these landowners had their land open to the public prior to participation in the PAS program.

Private leases.--Far more significant in effects on access to private land are leases by private clubs and organizations. The effects are two-fold--(1) assured access to lessees and (2) closure to public access.

Of the little information existing to describe private leasing, there is strong evidence that this form of recreational access is quite extensive and growing. In Illinois in 1965, hunting clubs, shooting preserves, and general leased hunting areas ranged from 350 to 580 acres each (McCurdy and Echelberger 1968). A study of land leasing in Indiana, Ohio, and Kentucky in 1967 revealed that the median size of hunting/shooting lease was 400 acres (Whittaker 1968). In New York in 1968, 124 surveyed groups reported owning or leasing 313,484 acres--72 percent of this was leased, and of the land that was leased, 84 percent was leased for hunting, fishing, or shooting. Lessees reported they would like to increase their acreage indicating at that time more than 100,000 acres additional land in New York may be leased for recreation in the near future. A 1977 study in Mississippi reported that 6 percent of landowners leased their land while most of the other owners permitted recreational access only to family, friends, and guests (Nabi et al. 1983).

Increasingly, it appears that leasing private land has strong economic appeal to landowners. As early as 1960, Uhlig (1961) reported that leases for waterfowl hunting averaged $5.10 per acre per year in Minnesota. In Texas, leases sometimes run $1,000 to $1,500 per gun per year. Shult (1977) concluded that landowners can make a profit from managing their lands for the lessees.

Growth in the number of persons and acreage leased for recreation is evident by comparing the 1955 and 1980 National Surveys of Fishing and Hunting. In 1955, total membership in hunting and fishing clubs was 1.37 million (acreage was not reported). In the 1980 Survey, 817,000 persons leased and 934,000 owned land primarily for fishing or hunting. Assuming the 1955 estimates included both owners and lessees, the total of 1.75 million persons in 1980 represented a 28 percent growth in members. The 1980 club members had acquired exclusive access to 436.5 million acres of land--89 percent of which was leased. This represents 19 percent of the U.S. land and water base and about 1/3 of all private land in the United States.

Private Land Conversions

Most forms of outdoor recreation require a large amount of land or water space, and many forms of participation depend on a natural or seemingly natural setting. Conversion of natural forest and range land to cultivated agricultural uses, and further conversion of forest, range and agricultural lands to developed uses, such as utilities, transportation, residential,

urban, or industrial, modify the recreational potential of those lands. Thus for most forms of outdoor recreation, conversion of private lands from natural to developed use represents a loss of access to opportunities for outdoor recreation seekers.

To 1970.--The land use mix changed only moderately between 1920 and the early 1970s. Meyer (1977) reported these changes as follows:

	Year	Acres (MM)	Change (MM acres)
Forest and woodland:	1920	721	
	1950	721	0
	1974	718	-3
Grassland, pasture, range:	1920	731	
	1950	701	-30
	1974	681	-20
Cropland (cultivated):	1920	402	
	1950	409	+7
	1974	382	-27
Developed uses:	1920	416	
	1950	442	+26
	1974	482	+40

Though the reported acreage changes appear relatively small among the above categories of land, the emerging trend is clear. Forest, grassland, pasture, range and cropland acreages were falling to the early 1970s while developed uses (incuding impoundments) were increasing. There are some important regional changes not reflected by these national figures--future papers with less space restrictions should deal with these regional trends.

Since 1970.--Land use conversions are accelerating in the United States. Between 1969 and 1978, acreage in farm ownerships (by Bureau of Census definition) changed from 1.14 billion to 1.05 billion acres--a net conversion of 90 million acres from cropland, range, pasture, forest and related uses. The National Resources Inventory of the Soil Conservation Service estimated an annual conversion of private cropland, forest and range of nearly 3 million acres. From a recreation supply standpoint, the impact of these conversions is partly mitigated by the fact that 30 percent of the converted acreage is to manmade reservoirs, lakes and ponds. The Forest Service's Assessment of Renewable Resources in the United States estimated a continuing trend of conversion that would include 1-1/2 million acres of forest and range land per year through the 1980s (USDA Forest Service 1980). Wetlands (important to waterfowl and several other game species) are being lost at an alarming rate of 458,000 acres per year. Forest Service projections predict that the area of forest land will drop by 19 million acres and that the area of rangeland will drop by 56 million acres by 2030 (USDA Forest Service 1983). Much of this change will occur in the South and the gain in water impoundment area will continue, though at a slower rate, as prime impoundment sites are depleted.

Ownership Circumstances

Evolution of individual circumstances surrounding and underlying rural land ownership both determine and describe changes in the degree to which private land is accessible for public use. The ownership circumstances of most interest in this paper include changes in tract size distribution, reasons for owning rural land, and owner characteristics. Changes in the first two of these circumstances are explored in this sub-section; the next section provides more detail about the characteristics of the owners of rural land.

Tract Size.--Binkley (1983) reported that the number of private forestland owners in the U.S. rose from 4.5 million in 1953 to 7.8 million in 1978. Average tract size decreased and percentage of forestland ownerships with less than 100 acres dramatically increased in these 25 years. However, the percentage of land acreage in ownerships with less than 100 acres fell while percentage of land in ownerships of 500 acres or more rose substantially, from 80 million acres in 1953 to 90 million acres in 1978. In other words, there are many more ownerships but less total acreage in smaller tracts, which have more limited recreational potential. More ownerships in large tracts represent more total acreage in this size class of U.S. forestland which typically offer greater recreation potential.

Farmland ownerships (using the Census of Agriculture definition) have fared similarly to forest land in the U.S. Total area for all farms in 1959 was 1.123 billion acres; in 1974 the total area was down to 1.061 billion acres (Meyer 1977). From 1960 to 1977, over 46 percent of America's farm ownerships disappeared. During this same period average farm size increased from 288 to 389 acres (Meyer 1977). At the end of this period, there were the beginnings of a proliferation of small farms. According to the 1982 Census of Agriculture, between 1978 and 1982 the number of small farms (fewer than 50 acres) increased 17 percent. Eighty percent of the owners of these small farms derive most of their income from nonfarm employment.

As noted above, the total number of farms in the U.S. declined--from over 6 million in 1940 to about 2.2 million in 1982. As shown in Table 1, there was a very rapid drop from 1945 to 1974 in the number of small farms, while the number of large farms increased. In the past decade, however, the rise in the number of smaller farms and the rise in the number of larger farms are beginning to produce a bipolar distribution of farm land ownerships. At one pole are the large holdings typical of agribusiness. Very small parcels of less than 50 acres make up the other pole. The growth of small and large ownerships has been at the expense of the middle-sized farm (50-499 acres), that has for decades characterized American agriculture.

The trend toward an increasing number of smaller rural ownerships may affect both public access and the types of recreational experiences that can be obtained on these lands. Several outdoor recreation activities, including big game hunting, horseback riding, hiking, snowmobiling, all-terrain vehicle use and cross-country skiing, are ideally pursued in unconfined settings. But on small acreage ownerships, the amount of area available in any single holding may be insufficient to support the wildlife on which hunting depends, or to provide enough space for safe or satisfying free-ranging recreational use.

Table 1.--Number of farms by acres harvested, 1945-1978[a]

ACRES	1945	1950	1954	1959	1964	1969	1974	1978
	Thousands							
1-49	2,249	1,968	1,697	1,058	820	636	508	690
50-499	3,324	3,117	2,763	2,317	1,982	1,728	1,444	1,411
500-999	174	182	192	200	210	216	207	215
1,000+	113	121	130	136	145	151	155	162

[a] National data on size categories from the 1982 Census of Agriculture for the entire United States were not yet published at the time this paper was written; available state data indicate that the growth in the number of very small farms has accelerated.

SOURCE: U.S. Department of Commerce, Census of Agriculture.

The contrast between deer hunting on public lands in Colorado and on leased private land in parts of Texas is a case in point (Pope 1984). In Colorado, hunters have an opportunity to track deer over vast areas of publicly owned land. But in Texas, deer hunting can be an almost sedentary activity. On smaller leases, prefabricated blinds and automatic feeders are becoming increasingly popular, and are advertised even in such traditional conservation publications as Texas Parks and Wildlife. Restrictions imposed by small ownerships, together with the economic pressure on a lessor to "produce," yield an entirely different hunting experience than that obtained on public lands. Moreover, restrictions on free movement across property boundaries undoubtedly affect the desirability of small ownerships for many other types of outdoor recreation.

Reasons for Ownership.--The absence of comprehensive regional and national longitudinal studies describing primary ownership objectives prohibit conclusive descriptions of trends. However, documented state-by-state studies since 1960 indicate that most private nonindustrial owners of forest land then, as well as now, do not own land primarily to increase their income (e.g., Worley 1960; Babeu, et al. 1965; Larsen and Gansner 1972; Zeichick and O'Keefe 1983). In fact the trend seems to be toward more persons owning forest land for recreational, residential, speculative and other personal reasons. This increasing emphasis on nonincome personal interests in owning rural land seems to be a major factor leading to closure and/or posting to restrict public recreational access on small-acreage ownerships (Cordell and Stevens 1983).

In concert with a general trend toward nonincome ownership objectives is growth in part-time and hobby farming. In the past, the bulk of privately owned land in rural areas of the United States has been utilized principally for farming and ranching (Larson 1981). However, more and more rural property is being purchased by individuals for nonagricultural uses. Although income-producing ranching or agriculture may not be totally excluded from these ownerships, they are not the major objectives of many property owners. One indication of changing property ownership objectives comes from a study by Pope and Goodwin (1983). Rural land brokers in Texas ranked the desire for a place to participate in outdoor recreation activities, live in the country, or own a rural retreat as becoming more important motives for purchasing land than the desire to farm or ranch. The implications of this trend for public recreational use have not been fully examined, but available evidence suggests the effects may be negative.

Pope (1984) suggests that persons who purchase rural property for purposes other than agriculture or ranching are often motivated by a desire for privacy, an escape from urban living, and exclusive recreational use. Other studies have substantiated these purchase motivations (Zeichick and O'Keefe 1983) leading to speculation that public access to hobby farms and rural retreats may become more heavily restricted. Previously unreported data from private forest owners in southern Wisconsin support this conclusion. Tighter restrictions on public access were imposed by rural landowners who worked in white-collar occupations, who described their forestland as being part of property other than a farm, and who earned 10 percent or less of their yearly income from agricultural and forestry operations on their property. Similar findings have been reported in other studies (Brown and Thompson 1976; Lee and Kreutzwiser 1982). Moreover, these nonfarm owners make up a significant proportion of the rural landholders in many eastern states, and their numbers appear to be increasing.

Research in New York (Brown et al., 1984) reported that almost one-half (45 percent) of upstate landowners who lived on their rural property in 1980 and owned 10 or more acres could be classified as "nonfarm" residents. Additional studies have revealed that professional, executive and white-collar workers make up a large portion of the rural forestland owners in Maryland (Kingsley and Birch 1980), Pennsylvania (Birch and Dennis 1980), New Hampshire and Vermont (Kingsley and Birch 1977), and Ohio (Birch 1982). Significantly, in each of these states the total acreage owned by these property holders exceeds that owned by farmers. The 1982 Census of Agriculture indicate that 80 percent of owners of small farms ($<$ 50 acres) earned most of their income in nonfarm occupations.

While the 1945 Census of Agriculture estimated that about 18 percent of all persons classified as farm operators were part-time farmers, Figure 1 shows that this number rose to 44 percent by 1978 (Albrecht and Murdock 1984). This represents a major shift in the social and economic structure of rural America. The increase in part-time farming is partially due to rising land values and agricultural production costs that threaten the financial viability of traditional farms and ranches. These cost rises are forcing operators to take additional nonfarm employment. However, this trend is also fueled by a

desire among a growing number of city-dwellers, many of them professional and white-collar employees, for a home in the country (Fliegel and Sofranko 1984; Fuguitt and Zuiches 1975; Zuiches 1980).

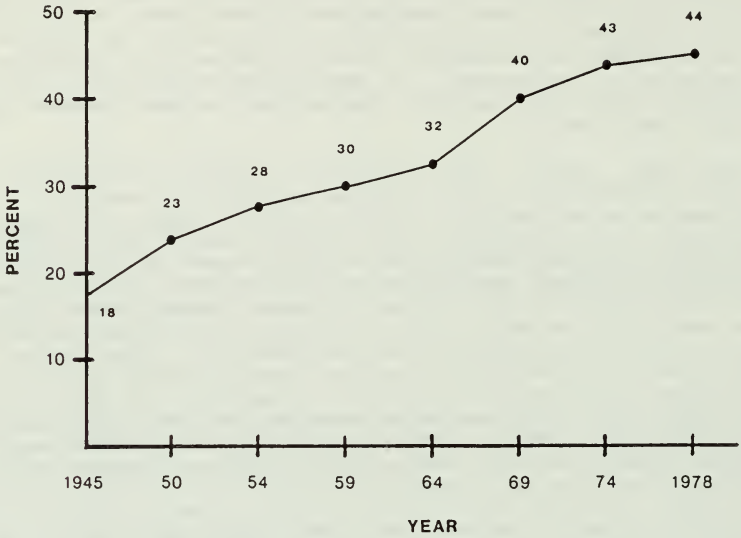

Figure 1. Proportion of farm operators classified as part-time farmers (having 100 or more days of off-farm employment) by year. (Source: U.S. Department of Commerce Census of Agriculture.)

The rate of growth of hobby farms is accelerating, especially on the urban fringe and on land with high aesthetic value. For example, between 1978 and 1982 the number of "minifarms" with gross sales of less than $5,000 per year increased from 391 to 606 in Montgomery County, Texas, a heavily forested region located on the edge of the Houston metroplex. Similarly, in more remote rural areas, such as the Ozark region and the hill country of central Texas, an increasing amount of land is being purchased in small pieces for primarily non-agricultural reasons (McCarthy and Morrison 1979). Although Census of Agriculture data are not detailed enough to demonstrate it conclusively, the survey research described above indicates that many people acquiring this land are the professional and white-collar owners who are more likely to exclude public recreation.

Speculation regarding a desire for exclusive recreational use is supported by research showing that increases in property holders' recreational use of their land leads to stricter limits on public access (Birch 1982; Brown et al. 1984; Gramann et al. 1983; Lee and Kreutzwiser 1982). In the case of activities that consume limited resources, owners may adopt a restrictive public use policy as a way to preserve recreational opportunities for themselves. In some states studies indicate that if landowners carry out formal habitat management activities to increase the amount of game on their property, they also are more likely to limit public use (Brown et al. 1984).

Relationship Between Tract Size and Ownership Objectives.--Numerous studies have indicated that reasons for owning large tracts of land differ substantially from reasons for owning small tracts. The principal difference is that owners of large tracts are more interested in income producing objectives--a relationship that hasn't changed much over time (McClay 1961; Straka et al. 1984). Income producing objectives mostly center on farming, ranching, and timber growing.

The trend toward more U.S. acreage and ownerships in large tracts (500 acres or more) of farm and forest land seems to be leading toward more closure or exclusive leasing of private land. In addition, the proliferation of numbers of owners of small tracts (under 100 acres), whose objectives center on active, personal involvement and use of their land, is seeming also to result in more acreage restricted to public access.

Cropland Leasing of Rural Land

Another significant trend in rural land use patterns is the growing incidence of cropland leasing. As the market value of prime agricultural land increases, leasing becomes a more attractive alternative to fee simple ownership. Research indicates that private individuals who lease agricultural land are more committed as farmers than are hobby farmers (Albrecht and Thomas 1985). Consequently, the leased land is almost exclusively prime cropland. This is also true for corporate leasing. Even though forestland, marshland and wooded pasture are generally considered more desirable for recreation, cultivated areas receive heavy use for some types of activities, particularly hunting in the fall following harvests.

The full implications of the cropland leasing trend for recreational access are unclear. However, for those activities that can make use of croplands, the consequences could be significant. Farmers working leased land may not be responsible for the access policy. Thus, the characteristics of lessors, as well as lessees, should be taken into account when charting access trends or developing access incentive programs. Many lessors live outside the immediate area of their property, or even outside the country. Recreational access research and incentive programs have operated under the assumption that rural land is held primarily in fee simple ownership by private individuals engaged in farming or ranching as their primary occupations. This situation, while perhaps an accurate description of the past, may not apply now. The growth of small ownerships, the increase in hobby farming, and the prevalence of land leasing by both corporations and individuals foreshadow major changes in the structure of rural land ownership in the future.

INDUSTRIAL FOREST LANDS

Approximately 786 million acres of forest, range and associated water area are privately owned in the U.S. An estimated 20 percent of this acreage is owned by corporate (industrial) interests. Little is known about corporate ownerships of rangeland or their public recreational access policies. Thus this section deals mostly with the trends in recreational access to the 69 million acres of industrially owned commercial forest land. In 1963, the area of industrially owned commercial forest land was 66.6 million acres, indicating a 3.6 percent increase in acreage between 1963 and 1984.

Between 1956 and 1960, the percentage of industrial forest land open to public access changed very little and most of it was open. In 1960, 96 percent of the industry's acreage was open for fishing and 92 percent for hunting (New York Times 1960). During this 4-year period, the requirements for public access, such as requiring written permission, were even relaxed somewhat.

Between 1960 and 1967, a trend reversal began to emerge. Forest industries began charging more fees to help cover rising costs associated with public recreation, and the acreage open for public use dropped from an estimated 96 percent open in 1960 to 88 percent open in 1967 (Forest Farmer 1969). By 1977, the estimated percentage of forest industry lands open to public access had dropped to 59 percent, or 40 million acres, down from its high of 64 million acres in 1960 (Cordell et al. 1980).

To our knowledge, the public access policies of agribusinesses have yet to be studied, possibly because cropland is considered less important than forests and range lands for recreational use. But despite intensive efforts in some states to preserve the "family farm," corporate agricultural operations are becoming increasingly common across the United States. More data on public access to such lands are needed. To a certain extent, any future growth in restricted access to noncorporate lands may be counterbalanced by more lenient policies among agribusinesses. Although corporate holdings currently represent a small portion of the privately owned or leased rural land in the United States, individual units tend to be larger, and thus more desirable for some types of outdoor recreation. It is possible that corporate owners may be more receptive to incentive programs promoting public use of their land, particularly if they contribute revenue in the form of tax relief or lease income.

FINDINGS AND IMPLICATIONS

Changes occurring in America may make the 1.35 billion acres of private rural land more important in the future as a public recreational resource. But as public budgets for recreation continue to decrease and apparent demand for recreational opportunities increase, almost all the relevant facts and speculations point to increasingly less future access to private lands for a growing public. A summary of these facts and speculations follows:

1) The estimated decreasing number of people hunting and fishing, the majority of whom practice their wildlife-oriented activities on private lands and waters, may in part be attributed to less access to private lands now than in the past.

2) The percentages of private acreage and ownerships that are posted have increased over time.

3) Changes in state landowner liability statutes have not seemed to lessen landowners'anxieties over potential suits. In fact, case law seems to be running more in favor of the user regardless of the state statute changes.

4) Government leases and access incentive programs seem to have had a limited impact on opening previously closed lands to public access. Their principal potential impact seems to be in providing incentives for landowners not to close lands that are already open.

5) Private club and group leasing of rural land, particularly for hunting, seems to be on the rise. Private leasing may currently encompass as much as 1/3 of all private rural land in the country.

6) The acreage of land in forests, grasslands, range, and farms is decreasing while developed uses that are less suitable for many forms of outdoor recreation are increasing. This trend is projected to accelerate in the future.

7) The number and total acreage of small farm ($<$50 acres) and forest land ($<$ 100 acres) ownerships are growing and the owners of these small tracts seem less inclined to open their land to public access because they have acquired their land to assure some private space for themselves. Smaller tracts are also less well suited for many recreational pursuits.

8) At the other extreme, the total acreage and number of ownerships of large tracts ($>$500 acres) is also growing and these ownerships are much more income-producing oriented. Large tracts are much better suited for recreational leasing, especially hunting, in part leading to speculation that more and more leasing of these larger tracts is occurring at the expense of general public access.

9) The incidence of part-time, hobby, and nonfarm ownerships is rapidly increasing. In concert with greater numbers of small ownerships, more nonfarmer owners could mean less public recreational access.

10) Cropland leasing is becoming more prevalent. The full implications of the cropland leasing trend are unclear, however, lessees are usually more committed to farming and may differ substantially from the landowners from whom they lease in their attitudes toward public recreational access. Cropland leasing and other shifts in ownership circumstances indicate that substantial changes in rural land access may occur in the future.

11) The acreage and percentage of acreage held by industrial forest ownerships which is open for public recreation have dropped substantially since 1960.

As in any other analysis of trends, the complete meaning and importance of the trends we discovered cannot be interpreted with certainty. This uncertainty about the implications of these trends for the future is especially problematic. However, one general implication seems clear. Most of the evidence points toward less public access to privately owned rural lands in the future. The mitigating factors of more private land being converted to water impoundments, of scattered governmental assistance, of lessened landowner liability, and of more acreage in large ownerships seem to be outweighted by greatly increased posting, private leasing, conversion of land to developed uses, and more ownership for personal reasons.

Less private land, particularly for hunting, should mean more recreational use pressures on public lands. More leasing should mean more access to "monied" publics and less access to private lands for "non-monied" publics. Without seeking to make any sort of value judgment regarding these apparent private land trends, one general observation seems warranted. There has been a decrease in political support for providing public recreational opportunities among both governmental and private industry concerns. The apparent shrinkage in public access to private rural lands which we note in this paper is yet another indication that a crisis in outdoor recreation may be emerging.

A notable conclusion from our examination of relevant private rural land research and data bases is that there has been too little systematic research and not enough time-series data base development to enable any precision in predicting the future recreational supply potential of private lands. Needed are better predictive models and better, more geographically representative data with which to apply these models. Some of the more recent studies are beginning to indicate that better predictive models are possible.

For example, a few recent studies have reported steadily increasing posting and other access controls, both among noncorporate landowners (Brown et al. 1984; Brown and Thompson 1976) and certain classes of corporate owners (Cordell et al. 1982). Bettman (1979) argues that one of the better predictors of current behavior is whether a person has engaged in that behavior in the past. This should be true for posting practices--those most likely to post are those who have posted in earlier years (Brown et al. 1984). Similarly, a good predictor of future land management plans is whether or not an activity is presently being carried out (Gramann et al. 1984). From these findings we could conclude that it is unlikely, barring dramatic changes in present conditions or ownership trends, that the overall incidence of property closure will decline. Owners who are familiar with a land management practice develop an inertia that favors continuance of that practice (Gramann et al. 1984). Add to the existing core of posting landowners the growing number of professional and white-collar owners who are likely to adopt posting, and the future closure trend seems clearly upward. These findings of factors related to posting behavior offer the prospect that more comprehensive models could be developed to better predict probabilities of land closure in the future.

In building and interpreting models to predict probabilities of more private land being closed in the future, or more specifically of more land being posted, we must understand the meaning of the resulting predictions.

For example, does increased posting of private lands mean that the public will be excluded more so in the future? At issue here is the variety of legal and popular meanings attached to the term "posting." Many landowners regard posting as an attempt to control access, rather than to exclude the public entirely (Brown et al. 1984; Cordell 1979; Gramann et al. 1983). Even on posted land, public recreation may be allowed if permission is obtained from the owner or a fee is paid. In some states, such as Kentucky and Ohio, written permission is required by law to enter private land, whether or not it is posted. Thus, changes in actual public use restrictions will not necessarily correlate with changes in posting.

An important factor mitigating the impact of land closure is the use of social ties to gain entry to private lands. For example, even though their lands were closed to general public use, 60 percent of noncorporate landowners and 22.5 percent of corporate owners, controlling 60 percent of the private land in the southern U.S., permitted recreational access to family members, friends or employees (Cordell 1979). A survey of white-tail deer hunters in Texas (Thomas et al. 1984) found that one-third had access to private land through friendship or kinship networks. This was one of the most common ways for hunters to obtain access in Texas, surpassing in frequency hunting on one's own land and on publicly owned lands.

Better studies of landowners' management and access control behaviors and motivations and improved models that identify the factors determining these behaviors should better clarify potential programs and actions that might be implemented to enhance the public recreational potential of private rural lands. Public programs and actions should be guided by good information on landowners attitudies toward various incentives if closure trends are to be forestalled. Repeated surveys planned to produce trend data will help in understanding the magnitude of the situation and in identifying problems and opportunities related to public access. From information currently available, the trend is toward greater public access restriction. The magnitude and consequences of this trend seem sufficient to warrant closer study and possibly action programs of mutual benefit to both the landowner and the recreation seeker. It is our hope that the newly created Outdoor Recreation Resources Review Commission, created this February, 1985, will provide a forum for this much needed study.

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NASCENT TRENDS IN THE PRIVATE CAMPGROUND INDUSTRY

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Abstract.--Between 1979 and 1982, commercial campground size increased by 20 acres, 20 sites, charged 20 percent more in fees, and reported a five-fold increase in net income. Rental income contributed more toward total revenues each year, and store sales contributed less. Salaries, utilities, and miscellaneous expenses increased at a faster rate than other expenses. High profit campgrounds were larger than unprofitable campgrounds, charged a higher fee, and had a longer season. Their occupancy was higher, had a much lower cost per camper party hosted, and a somewhat higher income per camper party hosted

Additional keywords: Revenues, expenses, profitability

In 1979, the National Campground Owners Association (NCOA) Economic Committee began an annual survey of commercial campgrounds to provide investors and policy makers with a readily understandable economic description of the industry. The surveys were conducted for four years and data from them became part of the U.S. Department of Interior's annual Federal Recreation Fee Report. The NCOA Economic Analysis portion of the Federal Report has been used by both houses of Congress to supplement their budget hearings and in their deliberations on setting policy for resource managing agencies. The data have also been useful to investors interested in the financial health of the private campground sector.

This paper examines data from those surveys for incipient trends in operating characteristics, in revenues, and in expenses. From 1979 to 1982, an average of 177 campgrounds reported operating characteristics, and about 100 reported revenue and expense data. Unfortunately, year-to-year data for individual campgrounds has not been maintained.

Table 1 summarizes selected operating characteristics at campgrounds represented in each year's survey. The average size of these commercial campgrounds grew by 20 acres and 20 campsites, and the average camping fee went up nearly 20 percent. Average estimated occupancy grew steadily, and the number of camper parties hosted at participating campgrounds nearly doubled between 1979 and 1982.

There seems to be a tendency toward fewer stores, coin-operated games, and equipped playgrounds. The percentage of campgrounds offering the other services and facilities in Table 1 increased slightly over the period, with cable TV showing a three-fold increase. By 1982, cable TV was available at 1 in 7 campgrounds. Twenty-five other services and facilities are monitored each year, but are not represented in Table 1 because the number of campgrounds offering them have fluctuated erratically or not changed since 1979.

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Table 1.--Operating characteristics of commercial campgrounds -- 1979 to 1982

Characteristics	1979	1980	1981	1982
1. No. of campgrounds in survey	137	209	186	177
2. Campground size (acres)	45	60	54	65
3. Average number of developed sites	135	140	145	155
4. Years in operation	11	12	14	14
5. Total employees	9	9	8	11
6. Camping fee charged	$7.79	$8.75	$9.55	$9.33
7. Days operated at maximum capacity	30	25	56	40
8. Average estimated occupancy during the peak season	45%	55%	58%	79%
9. Average number of camper parties hosted	8344	9429	10681	15627
10. Services and facilities offered:	- - Percent Responding "Yes" - - - -			
Store	93	92	83	82
Coin-operated games	82	74	73	69
Equipped playgrounds	87	86	84	82
Dining rooms	5	7	8	9
Cable TV	4	9	12	13
Nurse/doctor	7	10	7	14
Marinas	9	7	10	14
Babysitting	22	22	31	27
Stocked fish ponds	23	25	27	30
Boat launching	20	23	25	33
Beach frontage	27	30	24	37
Hiking/jogging trails	32	38	53	55

Revenues

Table 2 is a summary of the eight sources of campground revenues monitored during the 4-year period. These eight sources of income are not common to all cooperators. Therefore, total reported income does not equal the sum of items 1-8. The four sources of revenue reported by almost all the participating campgrounds are campsite rentals, store sales, vending machines, and other income. As expected, most income is generated from campsite rentals and store sales. Campsite rentals have contributed nearly 60 percent of total reported income, and store sales almost 25 percent. Vending machines include games in the rec room, but contributed less than 5 percent of total reported income every year. Other campground income contributed less than 15 percent of the total each year. Another four sources of income were reported by a small (16-59) number of cooperators each year. Individually, these sources accounted for less than 15 percent of total reported income.

Table 2.--Average revenues derived from campground operations

Source of revenue	1979 (n=98)	1980 (n=124)	1981 (n=101)	1982 (n=84)
1.* Campsite rental income	65,000	82,500	102,000	145,800
2.* Equipment rental income	4,000	7,800	10,900	5,600
3.* Store sales income	34,000	36,100	36,600	42,900
4. Meals	8,000	25,900	10,600	9,400
5. Services	17,000	16,500	18,500	4,400
6.* Concession income	6,000	5,700	12,400	4,200
7.* Vending machines	5,000	4,200	7,500	5,500
8.* Other income	17,000	15,700	27,500	34,500
Average reported total revenue	112,000	141,300	169,100	227,500
Sum of 1, 3, 7, 8	121,000	138,500	173,600	228,700
Income/camper party	$13.42	$14.99	$15.83	$14.56

*Items common to most campgrounds

In the four years for which commonly reported sources of revenue are available, two trends are developing. First, campsite rental income is contributing a greater portion of revenues each year; and, second, store sales are contributing a smaller portion of revenues each year. The other two commonly reported sources of income, vending machines and other income, have not changed over time, averaging 3 and 14 percent, respectively. One important source of income for about a third of the campgrounds between 1979 and 1981 was "services." Services are defined as "personal service items for which the campground operator receives payment, such as babysitting, sports instruction, guide services, entertainment, etc." The contribution that this source of income made to total revenue was significant for the first 3 years but then dropped to $4,400 in 1982.

The sum of the most common items reported (items 1, 3, 7 and 8) progresses from $121,000 in 1979 to $228,700 in 1982. Each year the rate of growth is higher than the previous year. From 1979 to 1980, the increase was 14.5 percent, while the increase in the Consumer Price Index (CPI) was 13.5 percent. In 1981, revenues increased by 25.3 percent while the CPI increase was 10.4 percent; and in 1982, revenues increased by 31.7 percent over 1981 while the increase in the CPI was just 6.1 percent. Campsite rental income has made the greatest contribution every year--increasing 26 percent, 25 percent, and 43 percent, respectively.

While these numbers may sound profitable, a look at their derivation could prove differently. Between 1979 and 1982 the size of campgrounds reporting data increased by 20 sites. The number of cooperators reporting revenue in 1979 was 98, increased to 124 in 1980 and then dropped to 101 and 84 the following two years. As the number of cooperators decreased between 1980 and 1982, the average estimated occupancy (camper parties divided by developed sites times length of season) increased from 55 percent to 79 percent (Table 1). These three conditions (number of cooperators, campground size, and occupancy) suggest a possibility that the more successfully run businesses may tend to report data each year, while the less successfully run businesses tend to drop out of the pool of cooperators. Furthermore, in 1982 the reported income per camper party dropped by $1.27 to $14.56 (Table 2), and all four noncommonly reported sources of revenue decreased from the previous year.

In Table 2 there is a 27 percent increase in revenues from campsite rental between 1979 and 1980, a 24 percent increase from 1980 to 1981, and a 43 percent increase from 1981 to 1982. The large increase in revenue between 1981 and 1982 reflects the increased occupancy during the peak season and the number of camper parties hosted (items 8 and 9 of Table 1) from 1981 to 1982. What is unexplainable is why there is not a corresponding increase in days operated at maximum capacity (item 7 of Table 1) from 1981 to 1982. Without a more consistent panel of cooperators reporting data each year, there may be valid questions raised about whether or not the individual yearly data can be compared.

Expenses

Table 3 summarizes average expenses reported by cooperators over the 4-year period. As in Table 2, there are fewer operators who provided data on expenses than the total number of respondents each year. In addition, the number of cooperators who reported expenses in each category is different. Therefore, average reported total expenses never equal the sum of items 1-10.

There are six major expense categories each year that accounted for 10 percent or more of total expenses. Salaries and the miscellaneous expense category increased from 18 to 20 percent and from 12 to 16 percent, respectively, between 1979 and 1982. Purchased goods and supplies decreased from 24 to 20 percent of total expenses during the period. All the other expense categories have remained fairly stable over the 4 years of reports.

On a per-site basis, salaries, utilities, and miscellaneous expenses have definitely increased. Salaries increased at a rate of 13 percent per year, going from $156 per site in 1979 to $239 in 1982; utilities increased at 15 percent per year going from $74 per site in 1979 to $119 in 1982; and funds allocated to miscellaneous expenses rose from $104 in 1979 to $187 per site in 1982. This is a 20 percent per year increase. Expenses allocated to promotion and insurance have not increased on a per-site basis during the period, and the other five expense categories have increased at a very moderate rate, about 7 percent per year.

Operating expenses on a "per-camper-party-hosted" basis present a different picture. All costs are either holding fairly steady or decreasing slightly. Salaries, utilities, property taxes, and miscellaneous expenses, on a per-camper-party-hosted basis, all rose moderately for the first 3 years and then dropped way off in 1982, probably due to the very healthy 1982 level of business. Promotion and insurance decreased steadily, and the other four categories fluctuated in a small range.

Table 3.--Average expenses associated with campground operations

Expense category	1979 (n=99)	1980 (n=127)	1981 (n=107)	1982 (n=88)
1. Salaries	21,000	26,200	34,700	37,100
2. Advertising	5,000	5,000	4,800	6,100
3. Utilities	10,000	12,100	17,600	18,500
4. Insurance	4,000	4,500	4,700	4,200
5. Property taxes	3,000	3,700	4,700	4,500
6. Interest	11,000	14,600	14,600	16,100
7. Depreciation and amortization	15,000	16,300	19,300	23,100
8. Purchased goods and supplies	28,000	35,000	37,300	35,700
9. Purchased services	5,000	3,800	6,300	8,300
10. Miscellaneous	14,000	17,200	22,400	29,000
Total expenses:				
a. Sum of 1-10	116,000	138,400	166,400	182,700
b. Average reported by cooperators	103,000	115,700	143,700	182,000
Cost/camper party	$12.34	$12.27	$13.45	$11.65

Profitability

Since not all campgrounds have the same sources of income or expenses, the survey asks cooperators to report their gross revenues and total expenses each year. By comparing average reported gross revenue with average reported total expenses, we can see that net income has grown for the average cooperator from $9,000 in 1979 to more than $45,000 in 1982. This five-fold increase makes campground operations look very profitable. However, it should be noted that these averages may not reflect businesses that lost money or had low profits as well as they reflect businesses that made money or had high profits. There may be a natural tendency for campground managers to put aside the Economic Survey after an unsuccessful year, but to send it right in following a good year. A constant panel of cooperators would alleviate this potential problem.

Table 4 compares characteristics of campgrounds that operated at a loss with those that operated at higher than average profits over the 4-year period. It shows that high-profit campgrounds tend to be larger than unprofitable campgrounds. Although unprofitable campgrounds are slightly smaller than the averages reported in Table 1, some are quite large. High-profit campgrounds usually had twice as many days per season in which they operated at maximum capacity. They charged a 20 percent higher fee than unprofitable campgrounds, generally reported a much higher peak-season occupancy rate and stayed open for more days than unprofitable campgrounds. Similarities between the two types of campgrounds

Table 4.--A comparison of unprofitable campgrounds and high profit campgrounds--1979-1982

Characteristics	1979 Loss	1979 High profit	1980 Loss	1980 High profit	1981 Loss	1981 High profit	1982 Loss	1982 High profit
1. No. of developed sites	107	198	121	187	91	182	148	191
2. Average number of days at maximum capacity	12	47	13	33	51	94	20	43
3. Average daily fee	$7.48	$8.41	$8.15	$9.69	$8.68	$10.85	$8.62	$10.74
4. Average occupancy during peak season (120-128 days)	33%	55%	41%	58%	43%	79%	38%	98%
5. Average number of days of operation	230	284	NO DATA		AVAILABLE		241	287
6. Present ownership (years)	< 9	9	5	11	9	9	8	9
7. Average number of competitors	4	8	3	5	6	5	6	6
8. Fee income	$33,000	$115,000	$49,000	$128,600	$43,800	$200,800	$ 62,400	$254,800
9. Average total reported income	$70,000	$191,000	$83,500	$204,300	$73,000	$317,900	$ 99,800	$411,100
10. Average total reported costs	$83,000	$150,000	$97,300	$151,600	$81,600	$244,900	$110,600	$302,800
11. Average pre-tax profit or (loss)	$(13,000)	$ 41,000	$(13,800)	$ 52,700	$(8,600)	$ 73,000	$(10,800)	$108,300
12. No. of camper parties hosted	4,412	13,674	6,000	13,200	5,050	18,510	7,242	23,723
13. Cost per camper party	$18.81	$10.97	$16.22	$11.48	$16.16	$13.23	$15.27	$12.76
14. Income per camper party	$15.87	$13.97	$13.92	$15.48	$14.46	$17.17	$13.78	$17.33
15. Number of campgrounds	32	40	39	53	31	46	19	48

include length of ownership, number of nearby competitors, fee income as a portion of total reported income (about 60 percent), and salaries as a portion of total reported costs (about 15-20 percent). We also found no differences in the percentage of seasonal and repeat customers at the two types of campgrounds.

Total costs per site at the two types of campgrounds were very close in 1979 and 1980. But, in the following 2 years, the high-profit campgrounds had costs per site that were much higher than the costs calculated for the campgrounds operating at a loss. Total income per site at high-profit campgrounds was much higher than at unprofitable campgrounds every year. In 1982, the per-site income at high-profit campgrounds was more than triple the per-site income at campgrounds operating at a loss.

The most important differences between campgrounds operating at a loss and campgrounds operating at high profits are number of camper parties hosted (fee income divided by average daily fee), cost per camper party, and income per camper party. In every year, high-profit campgrounds hosted 2 to 3 times the number of camper parties that unprofitable campgrounds hosted. Costs per camper party hosted averaged $4.51 less than the unprofitable campgrounds over the 4-year period, and income per camper party hosted averaged about $1.50 more than at the unprofitable campgrounds. These differences caused the wide gap each year in item 11 of Table 4. How else do the operations of these businesses differ? High profit campgrounds: tend to be larger, charge higher fees, are more likely to be part of a chain of campgrounds, are open longer, and are more likely to be in the South and West, and tend to have a greater portion of their campsites equipped with electricity, water and sewer hookups.

The Future?

The commercial campground industry has gone through a rapid growth period and is now on the flatter part of its growth curve. Annual dramatic increases in the growth of camping are over. Although some segments of the industry will undoubtedly experience healthier-than-expected growth, generally speaking, occasional good years will be offset by occasional poor years.

As the industry continues to mature, we can look for campgrounds to grow in size and shrink in numbers. This is common as some of the marginal operations of today become the failed businesses of tomorrow. Table 4 supports this trend in that unprofitable campgrounds, as a group, are consistently smaller than highly profitable campgrounds. In 1982, a quarter of the unprofitable campgrounds had less than 50 sites; among the high-profit campgrounds, the lowest quartile of the campgrounds had from 30 to 109 sites. Half of the unprofitable campgrounds had from 30 to 85 sites, while half of the high-profit campgrounds had from 30 to 155 sites. Profitable campgrounds tend to grow in size. This, however, does not preclude from the scene small, efficiently-run campgrounds. Based on projections of data collected so far, trends in the operating characteristics of commercial campgrounds may emerge. Table 5 depicts possible projections of some of the facilities and services identified in Table 1 and is the basis for the following observations.

If the number of campgrounds with dining rooms continues to increase, meals should gain importance as a source of revenue in overall campground income. Dining rooms should be in about 10 to 12 percent of the campgrounds by 1985 and may be in as many as 20 percent by 1990.

More dining rooms in 1990 probably will be accompanied by other evidence of campground evolution. This includes more campgrounds with cable TV hookups (25%), on-site medical aid (20%), babysitting (40%), and hiking trails (70%). A third or more of the campgrounds participating in 1990's economic survey may report the presence of stocked fishing ponds and beach frontage. And, if America's enthusiasm for water-oriented activities continues, the campground industry will probably have more marinas and/or boat launching facilities by 1990.

Table 5.--Percent of campgrounds offering facilities and services

Service/facility	1979	1982	Projected 1985	Projected 1990
Dining rooms	5	9	11	20
Cable TV	4	13	16	25
Nurse/doctor	7	14	17	20
Marinas	9	14	12	15
Babysitting	22	27	35	40
Stocked ponds	23	30	33	35
Boat launch	20	33	35	40
Beach	27	37	30	33
Trails	32	55	60	70

COOPERATIVE APPROACH TO OUTDOOR RECREATION

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Abstract.--Cooperatives have long been the organizational device for helping people meet problems beyond the capabilities of individual action. Today, the need for additional recreation facilities offers another opportunity for the cooperative approach. Resource owners, by uniting in a cooperative, can more effectively sell their services, manage resources, and combine individually owned resources into economic units. This paper examines advantages and disadvantages to developing outdoor recreation on a cooperative basis based on the author's experiences working with recreation cooperatives.

Key Words: Recreation cooperatives, outdoor recreation, vacation farms.

INTRODUCTION

Participation in outdoor recreation in America is extensive and diverse. Both traditional and emerging activities continue to attract new participants. Demand is expected to increase for recreation goods, facilities, and services, but will be tempered by energy costs and other economic factors.

Many feel most growth and development in natural resource-based recreation will occur in rural America, especially areas within weekend commuting distance of large population centers.

In many rural communities, recreation and tourism may become, or continue to be, a viable growth industry and provide opportunities for more jobs for rural residents. The provision of tourist or "hospitality" services and specialized recreational activities will continue to be a primary function of individual entrepreneurs.

One of the greater potentials for meeting future outdoor recreation needs is on the Nation's private rural land. Today, at least three-fourths of the land and water area in the continental United States is privately owned. Most land is in farms, forest, and range. In some instances, the same land is also suitable for public recreation. However, developing and operating rural recreation enterprises are a new and unfamiliar undertaking for most farmers and ranchers. Thus, limited development has taken place on private rural lands. The trend appears to be away from paid use of private lands for public recreation.

Major deterring factors for individuals developing and operating outdoor recreation enterprises are:

- lack of technical assistance in developing the enterprise;
- inability to manage a recreation business so it generates a proper economic return;
- insufficient recreation resources to warrant a feasible enterprise;
- difficulty in obtaining financing to fund adequate physical resources and services; and/or
- concern of legal liability if visitors are injured.

To help overcome these factors, people interested in developing recreation enterprise should seriously consider the advantages of establishing and operating these businesses cooperatively. This is particularly true for recreational activities cutting across property lines, requiring large capital investments, demanding specialized management experience, involving great risks, and/or requiring large-scale promotional programs.

RECREATION COOPERATIVES

Historically, cooperatives have been formed in many diverse segments of the economy so members can pool resources for economic advantages not available to them as individuals. Farmers and many other rural people are familiar with the cooperative approach. They use them to market their products, obtain farm and home supplies, food, and provide themselves with services such as electricity, telephone, credit, and insurance.

Recreation cooperatives development came to the forefront in the 1960's. Compared to other associations of agricultural producers and consumers, outdoor recreation cooperatives are both few in number and comparatively new ventures. USDA's Agricultural Cooperative Service (ACS) has identified over 600 recreation associations in the United States. Some are loosely knit arrangements involving cooperation only in the broadest sense of the word. Most are incorporated business organizations providing for limited liability of members and having a legal existence distinct from their members.

Regardless of their structure or degree of cooperation, the primary purposes of these group efforts are to solve problems, provide services, and gain efficiencies for members not attainable through individual action.

Key Operating Principles

Service at cost. The purpose of a cooperative is to provide a service to its user-owners at the lowest possible cost, rather than generate a profit for investors. However, the cooperative must generate net margins to meet present and future capital needs.

Ownership benefits in proportion to use. The more you use a cooperative, the more you benefit. Benefits are tied to use rather than amount of investment.

Democratic control. A cooperative is controlled on some basis other than the amount of capital contributed. Control in most cooperatives is based on the one-member one-vote principle. However, a few cooperatives apply the concept of proportional voting based on use.

Limited return on equity capital. The overriding value of the cooperative to its owners is in the services provided. Limiting return on equity capital is a mechanism to support distribution of benefits according to use.

Types

Recreation cooperatives can be classified into "user-controlled" and "resource-controlled" types.

The first type is controlled by the users of the resource. They purchase or lease urban or rural land and other facilities to provide members of the cooperative and their families with facilities and services for outdoor recreation at cost. Examples are flying, yacht, skiing, tennis, swimming, golf, fishing, hunting, and trap shooting clubs operated primarily by and for members on a nonprofit basis.

In a resource-controlled cooperative, the owners organize the cooperative to develop and market recreational facilities and services; and to jointly purchase supplies and services used to produce recreation income. This type uses any given combination of land, facilities, and labor of members who seek a monetary return for providing outdoor recreation opportunities and services to others. Examples of resource-controlled cooperatives are game-land, vacation farm, guide-service, and camping associations operated for the economic benefit of the resource contributor. The major objective of these associations is to realize more income for members.

The resource-controlled cooperative has particular application when land and/or water resources belong to more than one owner. Through, it, the enterprise can be developed as a single unit and placed under one management. For example, owners of land bordering on a lake or river might form a cooperative to develop and operate boating, swimming, fishing, and camping facilities. The area becomes a coordinated economic unit. Not only can it provide the public with many services and an attractive recreation facility, but also be planned, developed, managed, and promoted more effectively than if done on an individual basis. Owners can reduce operating costs, and provide larger net returns for members. Another example is a hunting preserve requiring the land and cooperation of a number of landowners.

Advantages

Resource owners have many opportunities to form a cooperative for more effectively planning and developing their enterprise, selling their services, managing their resources, and continuing individually owned operations by combining them into economic units. Major advantages of a cooperative venture are:

Planning assistance. Before an individual resource owner starts a recreation enterprise, its economic feasibility must be studied. An adequate appraisal of such factors as available resources, competition, zoning and health regulations, building codes, liability, and prospective costs and returns is essential if an individual recreation enterprise is to be successful. Appraising these factors usually requires technical skills and abilities beyond the talents of one individual.

Recreation cooperatives have helped members locate public and private agencies that can provide technical assistance. Group assistance has proven more time and cost effective than duplicating efforts with many individuals.

Coordination of resources. Coordinating planning efforts for recreation projects can help identify and develop complementary or supplementary rather than duplicating or overlapping facilities and services. Recreational resources of individuals thus will be used more efficiently and effectively. And the potential increases prospects for developing a recreation complex to meet the needs of the entire family--something individual units often cannot offer or afford.

Combining physical resources permits tracts large enough to warrant a recreation enterprise, i.e., two or more farms combining acreage for hunting. An individual farm owner may lack sufficient capital or land to develop a recreation enterprise, but two or more may combine capital and land for a soundly financed venture.

Joint purchase of equipment, supplies, and services. When certain operating supplies and equipment are purchased by the cooperative, members benefit from the lower cost of volume buying. Cooperative ownership of specialized equipment can reduce individual investment and lower individual operating costs. Obtaining liability or facility insurance coverage through a cooperative can reduce members' cost.

For example, one vacation farm cooperative got a lower insurance rate for members than they could obtain as individuals. Lower rates were a primary motive for many farmers to join the cooperative. Supplies such as bedding, towels, and dishes were available through the cooperative at reduced prices.

Improved management. The cooperative approach can enhance the success of the business by hiring a trained manager and/or helping improve the management skills of owner-members. Members can establish a forum to share problems and tested solutions in their recreation business. Members benefit from the cumulative experiences of all. As a group, operators and their employees are

more likely to have training provided for them by outside agencies. It is more practical to provide training in management, accounting, taxation, and restaurant skills, for example, for a group than for individuals. If a trained manager is required, pooling member resources makes it possible to afford a competent full-time manager.

Developing management on a cooperative basis improves chances for success of the individual operation.

Uniform quality standards. The cooperative can be the vehicle for setting operating guidelines for members to maintain uniform high-quality services. Yet the cooperative preserves individual ownership and operation of resources, facilities, and services. Recreation users, by understanding the standard of service expected from any member of the cooperative, will tend to patronize members of that association. This cooperative approach has been used extensively by vacation farm and camp ground associations.

Improve chances for financial assistance. Sources of loan assistance to a qualified applicant are found in many private, commercial, and Government sources. However, because farm and ranch recreational enterprises are still relatively new in many rural areas, loan applicants have been required to thoroughly document the venture's economic feasibility. Lenders also look at the basic characteristics of the applicant such as technical skills, potential business ability, and the prospects for repaying of the loan. A cooperative can assist resource owners obtain financing. Membership in a recreation cooperative cast the image of being committed to a long-term economic enterprise. In some instances, individuals obtained a loan to develop or expand their recreation facilities because of membership in a cooperative.

Joint promotion. Promoting the recreation business is vital to its future success. Startup promotion is particularly expensive. Usually many prospective customers live outside the area, so a public relations or advertising firm must be retained. Advertising and publicizing outdoor recreation on a cooperative basis offers several advantages.

Few individuals have sufficient resources to conduct an extensive promotional program. Individual activities are generally confined to a local area and not systematically handled. Cooperative promotion can help correct this and spread the cost of preparing brochures and buying advertising space over many contributors and reduce individual cost. It increases the awareness by many more potential users of the facilities.

Cooperative advertising increases chances each member's recreation facilities will be used to the greatest possible extent. This is particularly true where individual facilities are of the same type. With vacation farms, for example, any request for accommodations in a filled facility can be referred to other members.

Group advertising has encouraged other local businesses to share promotional costs, because they also benefit from attracting a large number of vacationers in the area.

Vacation farm cooperatives have found an information booth at travel shows throughout the State is a highly successful method of promotion. Because these farmers used a cooperative approach to promotion, each member had to devote only one weekend a year to staffing the information booth at travel shows. Most major travel shows were covered. A farmer taking the individual approach to the farm vacation business, with free time limited because of time commitments inherent in farming, would be unable to take extensive advantage of this major promotion tool.

A cooperative approach also improves the opportunity for vacation farms and other recreation enterprises to get favorable free publicity. An article about a recreation cooperative in a newspaper or magazine has led to many requests for the article or the cooperative's brochure. A cooperative approach has helped to generate interest in recreation and tourism among travel writers. Recreation owners have found travel writers were not usually interested in individual recreation enterprises. An association, however, which projected the image of a more organized and successful operation, has been able to attract the interest of vacation writers.

Thus, the cooperative approach to outdoor recreation enhances income-producing opportunities of individual operations through greater distribution of promotion materials and more free publicity.

Disadvantages

Cooperative outdoor recreation businesses also have their disadvantages because they restrict some individual decisions and introduce the complexities of working within an organization. It places limits on individual control. Although a cooperative may leave individual members a high degree of freedom in making decisions about the operation of their business, members' freedom will necessarily be limited.

For example, if the cooperative produces a brochure, the content and layout may not totally suit all members. Options and levels of coverage of a group insurance policy may be too limited for some members and too encompassing for others. The more functions the cooperative fulfills, the more control each individual member must yield. Farmers tend to be independent and accustomed to considerable control over their farming operations. Some may see the loss of control as a definite disadvantage.

Group decisionmaking is more complex than by individuals. For example, coordinating a schedule for staffing an information booth will be more complex than for an individual to make those decisions. These disadvantages may discourage some people from trying to work cooperatively.

Starting the Cooperative

A resource-controlled recreation cooperative is affected by the same economic forces and management practices causing success or failure to any other business. Some cooperatives fail because members do not understand this.

It takes only a few leaders to spark formation of a recreation cooperative. Usually, they are friends interested in starting a new farm enterprise or have existing recreation enterprises. They informally discuss their problems, decide others in the locality may have the same desire, and that a cooperative might help them develop a new source of income from existing operations.

Next, they explore what is needed to start such a cooperative. They look for someone familiar with cooperative development to work with them.

Such a person can often be found through the county Cooperative Extension Service office. It may be the county extension agent, an extension economist, or extension recreation specialist. Other sources may include an established local cooperative, a State cooperative council, credit union, county office of Farmers Home Administration, or USDA's Agricultural Cooperative Service.

With the help of the adviser, leaders gather facts and figures needed to present the idea of an outdoor recreation cooperative to other potential members. This group then calls a general meeting of potential members to discuss the idea and determine the extent of interest.

If sufficient interest is shown at the first meeting to justify going further, the next step is appointing a committee to survey potential members for ideas on operating procedures.

The survey committee, with the help of the adviser, has a two-part job. It must determine if the proposed cooperative is likely to succeed and benefit members. If the cooperative has a chance for success, the committee must develop a specific, detailed organizational plan.

Based on its findings, the survey committee offers conclusions and recommendations. All pertinent facts and figures collected by the committee need not be included. But the committee should have them on hand when it presents its report to prospective members. Copies of the report should be given to prospective members.

After the survey committee completes its findings, a second general meeting is called. The report is presented and discussed thoroughly point by point. Committee members should join the discussion to help the group fully understand the possibilities for success and limitations.

After the discussion, the chairman determines if enough people are interested in the cooperative to justify taking further steps. If so, an organizing committee is elected.

The organizing committee has five main jobs: sign up the required number of members, obtain the required equity capital from members and arrange for needed borrowed capital, draft legal organization papers, file articles of incorporation and draft bylaws, and arrange the first meeting of the organizing members. An attorney with the knowledge of cooperative law should be hired to assist the committee in the incorporation process. The attorney

must make certain articles of incorporation and bylaws are sufficiently broad to cover the cooperative's purpose. State and Federal laws covering cooperatives and other applicable laws should be reviewed to assure the association is properly organized and all provisions of the Internal Revenue Codes are met.

The cooperative approach does not guarantee the success of a recreation enterprise. But, the planning preceding its formation enables organizers, especially those unfamiliar with recreation enterprises, to more realistically evaluate their project and its chances for success.

CONCLUSIONS

Like the individual proprietorship, partnership, or corporation, a cooperative requires a businesslike approach to succeed. Cooperatives are affected by the same economic and management practices as any other business. Before organizing a recreation cooperative, it must be determined if its services are needed and chances for economic success are good. This may require a detailed feasibility study.

The human factor must be considered when an association is formed. Members should have similar personal likes and dislikes, and most important, a vigorous attitude toward their common goal.

The organizational structure of a cooperative creates problems not encountered in an individual proprietorship. How economic benefits are distributed to resource contributors, new members allowed to enter, and method and kind of managership must all be spelled out before the cooperative is formed.

Early planning in these areas are essential for success of a recreation cooperative. For more information on recreation cooperatives request "The Cooperative Approach to Outdoor Recreation" by William R. Seymour (CIR. 32) and "Vacation Farm Cooperatives" by A. Pizam, L. Richardson, and W. Seymour (Service Report 5) from Agricultural Cooperative Service, U.S. Department of Agriculture, Washington, D.C. 20250.

TRENDS IN CONSUMER EXPENDITURES AND PUBLIC INVESTMENTS FOR OUTDOOR RECREATION

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Abstract.--In inflation-adjusted dollars, annual consumer spending for outdoor recreation was stable to slightly declining between 1974 and 1981. Recent data reveal that this trend is continuing but may reverse itself as consumers divert more of their post-recession dollars toward vacation travel and outdoor recreation. Expenditures on outdoor recreation-related travel showed a real growth increase of over 100%. Public expenditures, acres of recreation land, employment, and revenues showed substantial growth from 1960 to the mid-1970s. However, since the mid-1970s the rate of growth has been slowing and some actual decreases have been noted.

Additional keywords: leisure and travel industry receipts; public investments, personnel, and revenues; social and economic trends.

INTRODUCTION

The following statements from well-known and respected periodicals illustrate the significance of leisure spending in the U.S.

> "As the summer of 1984 begins, an unusual battle is raging. Political sentiment runs high, and spending is at record levels. Every state, it seems, wants your vacation dollars" (Blyskal 1984, p. 46).

> "In American today, sports is more than fun and games. It's big business...Not only are sales soaring for everything from exercise bikes to running shoes, but manufacturers are hard at work designing new products to excite the sports crowd" (Sanoff 1984, p. 26).

Transition into a post-industrial society has created unprecedented growth in the service industries of the U.S. One of these industries, the leisure industry in both private and public sectors, is the broad focus of

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this paper. The perception of this industry is changing from primarily that of a provider of public services to that of a key to the growth of many states' economies. Significantly, this transition is occurring even in states like Michigan, Ohio, and Pennsylvania, where heavy industry has traditionally dominated.

Our paper focuses on outdoor recreation as a subset of the leisure industry. We will emphasize trends in consumer expenditures and in various indicators of the economic importance of public sector outdoor recreation. Except for comparison purposes, we do not present trends in recreation in general as defined by the Bureau of Labor Statistics in their Survey of Current Business. Instead, we attempt to concentrate on just those sectors impacted by outdoor recreation.

METHODS

We collected and analyzed secondary data from the following sources: U.S. Bureau of the Census; U.S. Bureau of Economic Analysis; U.S. Bureau of Labor Statistics; Department of Interior's National Recreation Surveys; the Outdoor Recreation Resources Review Commission Reports; U.S. Federal Highway Administration; the U.S. Forest Service's Resources Planning Act Assessments; federal agency records; Outdoor Recreation Statistics (Clawson and Van Doren 1984); American Statistics Index; Statistical Reference Index; U.S. Travel Data Center; Forbes Magazine; U.S. News and World Report; Sales and Marketing Management Magazine's annual reports and surveys of buying power; The Council of State Planning Agencies; and industry associations (e.g., Recreation Vehicle Industry Association, National Association of Boat Manufacturers, National Sporting Goods Association, National Snowmobile Institute).

The first criterion for selecting data bases for trend analysis was that the data be comparable across time. Our second criterion was that the data series covered a sufficient time period (i.e., data points) to permit the establishment of trends. Through these criteria, we were able to establish trends in consumer spending on outdoor recreation for the period 1974 to 1981 and trends in public sector involvement for the period 1960 to 1984. Due to missing or unavailable data, we were unable to continue the trend analysis from 1982 to 1984 for all consumer expenditures. However, where possible, we mention gross indicators of the most recent trends in consumer spending for outdoor recreation (e.g., actual and projected sales estimates of all sporting goods combined and travel industry receipts).

RESULTS

Equipment Expenditures

Though seldom systematically tallied, expenditures on outdoor recreation equipment are generally assumed to be: (1) in the billions of dollars annually and (2) increasing over time. There is ample basis for this

assumption, given a growing U.S. population which is increasingly involved in outdoor recreation. Changes have occurred in "required" equipment for most forms of outdoor recreation, and some modern recreation activities have been spawned by equipment development (e.g., the snowmobile). Our purpose is to estimate the dollars spent annually in the U.S. on outdoor recreation equipment, and to describe how this spending has changed in recent years. One specific goal is to estimate recent trends in expenditures for all types for outdoor recreation. Though equipment expenditures represent only a part of total expenditures for outdoor recreation, time series data are accessible for developing equipment expenditure trends. Expenditures for many other categories of expenditures, for example food, are far more difficult to derive for outdoor recreation because secondary data series do not include the information needed to assess the percentage of total sales attributable to outdoor recreation. Hence, to the extent that equipment and other outdoor recreation expenditures have a monotonic relationship, equipment expenditure trends may serve as a useful proxy for the overall trends in outdoor recreation spending.

Personal consumption expenditures by major product types are reported by the U.S. Bureau of Economic Analysis (1977, 1983) and "recreation" is one of the product types included. Unfortunately, the recreation product category is dominated by non-outdoor recreation products, such as radio and television sets, toys, books, and magazines, so that it is not possible to extract outdoor recreation-specific products. The recently published Statistics on Outdoor Recreation (Clawson and Van Doren 1984) contains a wealth of information and was used extensively in this section. These authors apparently had no more success than we in their search for outdoor recreation equipment expenditures. Missing information and inconsistencies in reported data complicate extracting meaningful trend data for outdoor recreation equipment expenditures.

From the data provided by Clawson and Van Doren (1984), it was possible to select a satisfactory set of expenditure types for the period 1974-1981 (Table 1). Hunting and fishing license sales are included. Expenditures for equipment also used indoors (e.g., basketball) and for some other types (e.g., soccer) were not included because data were not available for the full 8-year period. Thus, the totals reported in Table 1 are less than the total expenditures for all types of outdoor recreation equipment.

Interpreting the trends in Table 1 is complicated by two factors. First, recreational vehicle expenditures are large relative to all other expenditure types and are reported as retail value of shipments rather than sales. The annual fluctuations in value of RV shipments masks the overall trend in outdoor recreation equipment sales. This is evident from the "totals-less-RV-shipment" figures in Table 1. The second difficulty lies in accounting for the influence of inflation.

Whether one focuses on the totals with or without RV shipments, it is evident that expenditures have increased significantly. The total, less RV shipments, increased in each of the 8 years, while the total including RV shipments peaked in 1978. The percentage change over the entire period was

Table 1.--Sales of selected outdoor recreation related equipment and licenses

Expenditures	1974	1975	1976	1977	1978	1979	1980	1981
				($ Million)				
Firearms & Hunting Eq.	891	996	1030	1134	1242	1281	1391	1488
Bicycles & Supplies	1090	855	894	996	1006	1290	1233	1418
Fishing Tackle	440	469	476	492	472	516	539	571
Camping Eq.	352	447	529	492	472	434	503	548
Golf Eq.	535	554	601	566	508	488	483	498
Snowskiing Eq.	344	356	404	483	594	606	572	572
Snowmobiles	240	224	200	265	311	254	216	259
Baseball & Softball Eq.	145	137	149	168	169	142	158	177
Archery Eq.	99	122	132	132	127	130	149	163
Water Skis	80[a]	80	87	110	123	123	123	123
Skin Diving	71	60	73	62	65	69	70	70
Football	69	70	72	77	72	50	50	50
Retail Boating Expenditures	4607	4800	5333	5920	6690	7500	7370	8250
RV Shipments (Retail Value)	1392	2320	4283	5327	5683	3582	1950	2775
Hunting Licenses	141[a]	155	164	173	185	199	222	242
Fishing Licenses	130[a]	142	155	156	159	174	196	213
Total	10,626	11,787	14,582	16,553	17,878	16,838	15,225	17,417
Growth Index	100	111	137	156	168	158	143	164
Adjusted CPI	100	111	118	124	133	146	160	173
Total Less RV Shipments	9,234	9,467	10,299	11,226	12,195	13,256	13,275	14,642
Growth Index	100	102	112	122	132	144	144	158

a) Not available in the source document. Estimated by authors.

Source: Statistics on Outdoor Recreation. Resources for the Future Inc., Washington, D.C., 1984, Clawson, Marion and C. S. Van Doren (eds.).

64 percent with RV shipments and 59 percent without. Over this period, the U.S. Bureau of Labor Statistic's monthly consumer price index (CPI) for durable commodities increased by about 74 percent. It appears then that inflation more than accounted for the observed increases in expenditures. Furthermore, U.S. Bureau of Economic Analysis data (1977, 1983) indicate that per capita disposable personal income (in inflation adjusted dollars) and per capita personal consumption expenditures (in inflation adjusted dollars) both increased by about 25 percent over this period. It would appear that constant dollar expenditures for outdoor recreation equipment were stable to slightly declining over the 1974-81 period and that their share of per capita personal consumption expenditures declined significantly.

Since 1981, there is good evidence of strong growth in inflation-unadjusted sales of outdoor recreation equipment. For example, sales of all types of sporting equipment (indoor and outdoor, excluding RV's, bicycles, and snowmobiles, but including athletic clothing) increased 13 percent between 1982 and 1983 (Sanoff 1984) and were projected to increase 10 percent in 1984 over 1983 (Hume 1984). Fleetwood Enterprises (60 percent of sales are from RV's) enjoyed a 31.9 percent return on equity in 1983, yielding an 8.1 percent sales growth from 1979-1983 (Ettorre 1984). We can state with confidence that equipment expenditures amounted to at least $15 billion in 1981 ($17 billion with RV shipments); however, it must be noted that our data do not account for expenditures on a host of other items including: clothing, cameras, binoculars, equipment maintenance and repairs, and insurance.

Transportation Expenses

The outdoor recreation experience can be divided into five phases: anticipation, travel to, on-site experience, travel back, and recollection (Clawson and Knetsch 1966). Given the outdoor recreation preferences of the U.S. population and its geographical distribution relative to outdoor recreation areas, considerable sums are spent during the travel phases. Motorized vehicles are the dominant mode of transport for outdoor recreation travellers. An entire sector of the motor vehicle industry, the recreation vehicle industry, has arisen to service the needs of recreation travellers. Yet, there is no question that multiple purpose vehicles (e.g., the family car) log far more outdoor recreation miles than do vehicles classified as RVs (U.S. Federal Highway Administration 1977). To what extent suitability for outdoor recreation enters into the purchase decisions of multiple purpose vehicles is largely unknown but is likely in part responsible for the growing popularity of pick-up trucks, van conversions, and mini-vans as the auto industry down-sizes the passenger car fleet.

Regional and activity-specific studies (e.g., Stynes et. al. 1982) reporting transportation costs are relatively common in the literature, but most often focus only on variable costs, such as gasoline purchases. We were unable to find any study or secondary data estimating full transportation costs for all forms of outdoor recreation. Yet, an expenditure item of such probable significance deserves some attention, even if only crude estimates can be derived. If nothing else, such estimates will illustrate the possible

extent of the void created when transportation expenditures (fixed and variable) are omitted from estimates of total national spending on outdoor recreation.

Hints of the potential importance of outdoor recreation expenditures were found in several secondary data series described in the previous section. However, one or more obstacles prevented extracting an outdoor recreation travel expenditure estimate from any one data series. Furthermore, merging of data series is impossible due to various inconsistencies in, for example, levels of aggregation. The obstacles to establishing an expenditure trend are even more severe. Various relevant data series differ in time periods covered, often are not continuous, or simply stop in 1977. During the previous National Outdoor Recreation Trends Symposium, Stynes and Brown (1980) showed how outdoor recreation data series often do not display trends but show methodological differences instead. It appears that little has changed since the first National Outdoor Recreation Trends Symposium.

After exploring several data series and approaches, the following appeared to offer the best estimate of a trend in outdoor recreation-related transportation expenditures. All data used were taken from Motor Vehicle Facts and Figures (Motor Vehicle Manufacturers Association of the U.S. 1984). We estimated the percentage of total motor vehicle travel attributable to outdoor recreation and then applied this estimate to total personal consumption expenditures for motor vehicle transportation.

The most recent information on purpose of travel is the U.S. Federal Highway Administration's 1977 National Personal Transportation Study. In 1977, privately owned motor vehicles (i.e., cars, station wagons, vans, pickups, other trucks, motorcycles, and self-contained recreational vehicles) were used on 83.7 percent of all trips. The first four vehicle types accounted for 82.4 percent of all trips. The Highway Administration study also reported how total trips and total miles travelled were distributed by primary purpose of trip. Since average trip length varies widely across different trip types (Cordell and English 1984), percent of total travel attributable to outdoor recreation is a more appropriate statistic for deriving the estimates we are seeking. Total motor vehicle miles travelled in 1977 was distributed among trip purposes as follows:

	Percent
Earning a living	37.7
Family and Personal Reasons	22.9
Civic, Educational, Religious	4.7
Social and Recreational	24.0
Other and Unknown	10.7
TOTAL	100.0

While outdoor recreation is likely present in several of these trip purposes, information to estimate the outdoor recreation share was not available except for the "Social and Recreational" purpose. This general category was broken down into the four subcategories presented below:

	Percent
Visiting Friends and Relatives	11.3
Pleasure Driving	0.8
Vacations	0.5
Other	11.3
SOCIAL AND RECREATIONAL SUBTOTAL	24.0

Clearly, not all of these trips involved outdoor recreation, but certainly they accounted for some portion of the travel credited to these categories. Subjective judgment, combined with some clues form related studies, was used to derive an estimate of the proportion of each which could be credited to outdoor recreation.

We decided not to assign a share of the "Visiting Friends and Relatives" trip type to outdoor recreation. Outdoor recreation is surely a part of many visits to friends and relatives and thus introduces a conservative bias in our estimates. "Pleasure Driving" has traditionally been considered as primarily an outdoor recreation activity (Clawson and Knetsch 1966, Clawson and Van Doren 1984), thus its full 0.8 percent of total travel was credited to outdoor recreation. Outdoor recreation plays a significant role in "vacation" travel, so half of its 0.6 percent share of total travel was credited to outdoor recreation. We decided to allocate 25 percent of the "Other" trip category's 11.3 percent share of total travel to outdoor recreation. Other studies (e.g., U.S. Bureau of the Census 1972, U.S. Travel Data Center 1978) indicated that on round trips of 200 or more miles outdoor recreation accounted for 25-30 percent of miles traveled, as did visiting friends and relatives. In summary, outdoor recreation's share of total motor vehicle travel in 1977 appears to have been about 4 percent (0.8 percent pleasure driving + 0.3 percent vacations + 2.8 percent other). We found no information indicating how this market share may have changed over time. Indeed there is some conflicting evidence as to what is occurring with outdoor recreation travel. Frechtling (1984) indicated that the number of long trips for outdoor recreation is fairly constant; Cordell and English (1985) show that the distribution of outdoor recreation trips is shifting dramatically toward shorter trips. There is also widespread agreement that participation in outdoor recreation is rising steadily, indicating that more people are travelling more outdoor recreation miles. Since the trend in percent of travel expenditures caused by outdoor recreation is unclear, we assume that these conflicting observations have balanced out, and that the 4 percent figure has remained unchanged.

The U.S. Bureau of Economic Analysis, BEA, regularly reports consumer spending for transportation. Their "Expenditures for User-Operated Transportation" category includes the same vehicle types covered in the 1977 personal transportation study discussed above; thus the two data series mesh well. Expenditure categories include: new and used vehicles; tires, tubes, accessories and parts; repair, greasing, washing, parking, storage and rental; gasoline and oil; bridge, tunnel, ferry and road tolls; and insurance premiums less claims paid. Total expenditures for motor vehicle

transportation and the 4 percent share estimated for outdoor recreation are provided below:

Year	Transportation expenditures ($ millions)	Outdoor recreation related expenditures for transportation ($ millions)
1970	74,268	2,971
1972	92,792	3,912
1974	108,762	4,350
1976	144,103	5,764
1978	184,586	7,383
1980	218,504	8,740
1982	249,440	9,978
1983	275,088	11,004

These estimates indicate that outdoor recreation transportation expenditures have increased 270 percent over this 14-year period. Over this time period the CPI increased from 116.3 to 298.4 or 157 percent. Also, the per-mile cost of operating a car (full-sized sedan in 1970 vs. intermediate in 1983) increased from 15 cents per mile to 33.5 cents, or 123 percent. Thus, inflation would appear to have been responsible for 123 to 157 percent of the observed 270 percent growth in outdoor recreation expenditures on motor vehicle transportation, while the remaining 114-147 percent is growth in excess of inflation.

Equipment and Transportation Expenditures for Outdoor Recreation

It is fairly simple to sum equipment and transportation expenditure estimates to arrive at a composite estimate and trend. The only complication involves the presence of RV expenditures in both the equipment and transportation estimates. To avoid double counting, totals for equipment less RV shipments will be used (Table 2).

During the period 1974-81, transportation plus equipment expenditures for outdoor recreation increased from nearly $13.6 billion to $24.0 billion, a growth of about 77 percent. To put this increase in perspective, it is necessary to account for the influence of inflation on the observed change in expenditures. While probably not the best possible index, the CPI (all items) provides a reasonable basis for assessing inflation of the composite outdoor recreation expenditure trend. The CPI (all items) increased from 147.7 (1964=100) to 272.4 between 1974 and 1981, about 84 percent. Thus, the 77 percent observed increase in equipment and transportation expenditures for outdoor recreation lagged somewhat behind inflation, indicating that the composite expenditure trend over the 1974-81 period in constant dollars was slightly declining.

Table 2.--Outdoor recreation expenditures - summary statistics

Expenditure category	1974	1976	1978	1980	1981[a]
			($ million)		
Transportation	4,350	5,764	7,383	8,740	9,359
Equipment (- RV)	9,234	10,299	12,195	13,275	14,642
Total	13,584	16,063	19,578	22,015	24,001
Growth Index	100	118	144	162	177
Shipments Retail RV	1,392	4,283	5,683	3,582	2,775
Growth Index	100	308	408	257	199
CPI (All Items)	148	170	195	247	272
Adjusted CPI	100	115	132	167	184

[a] Average of the 1980 and 1982 estimates.

Government Expenditures and Growth

In this section of the paper, trends in local, state and federal government recreation resources, expenditures and personnel, as indicators of the economic importance of government in recreation, are examined. Comparable data do not exist for all three levels of government; less information is available for local government than is available for state and federal governments.

Local Government.--Municipal and county park and recreation areas increased from 12,101 areas and 417,290 acres in 1930 to 31,235 areas and 644,067 acres by 1950. By 1960, total local government acreage was about 18 million acres, of which 3.5 million were designated for recreational and related purposes, including about 1 million acres of land specifically designated as park and recreation sites (ORRRC 1962). Between 1960 and 1982, local government added about 1.7 million acres of recreational land--an approximate 49 percent increase in 22 years (ORPRG 1983).

Lancaster (1976) reported average developed and total acreages for city parks and recreation land. His data indicate that a roughly proportionate relationship between population size and recreation acres existed in 1976. We infer from these data that there has been a trend in growth of municipal recreation land that has closely paralleled the population growth in cities. It seems that as cities have grown in size, they have continued to invest in recreation land in rough proportion to their population growth.

Table 3 indicates the growth of expenditures and employment by city and county parks and recreation departments. While the population of the United States grew 25 percent between 1962 and 1982, total parks and recreation expenditures by local government during this same period grew 644 percent--an average annual compounded growth rate of 10.5 percent. Number of people employed by parks and recreation departments increased at an average annual compounded rate of 4%, while payroll for these employees rose at an average annual compounded rate of 9.2%.

Since the mid-1970's there have been some important changes. The average annual compounded rate of growth of employees has dropped to just over 2 percent, and most of the growth has been in part-time employees. The average annual compounded rate of increase in payroll has dropped from almost 11% in the period 1972-1977, to under 7% for the period 1977-1982. Much of this drop is due to the dramatic slowing in the growth in number of full-time employees during the latter period. Also, the proportion of local park and recreation expenditures for capital outlay and construction has decreased by over 10%, even though actual construction dollars have doubled since 1972. Apparently more of the city and county park and recreation budgets are going to the operation and maintenance of existing programs, facilities, and parks, rather than to expanding capacity.

Table 3.--Trends in parks and recreation expenditures, employment, and payrolls for local governments in the United States, 1960-1982[a]

Year	Expenditures			Employment			
	Capital and Construction	Portion of Total	Total	Full Time	Part Time	Total	Payroll
	(Millions)	(Percent)	(Millions)	(Thousands)			$ (Millions)
1962	477	50.4	886	84	26	110	34.1
1967	705	54.6	1,291	96	44	140	48.2
1972	1,346	58.1	2,318	111	66	177	85.2
1977	1,879	48.0	3,914	141	76	217	143.1
1982	2,913	44.2	6,588	148	95	243	199.0

[a] Includes parks and recreation expenditures and employment totals, not just outdoor recreation.

SOURCE: Census of Governments, Compendium of Government Finances, U.S. Dept. of Commerce; Census of Government, Compendium of Public Employment, U.S. Dept. of Commerce.

Finally, since about 1978, federal and state financial assistance to local government for parks and recreation has declined. Appropriations for the USDI Land and Water Conservation Fund have been cut by over 50%, from over $800 million in 1978 to $335 million in 1983. Declines in several other federal assistance programs have severely impacted local operations. These decreases in part also explain the slower growth in employment, capital outlays, and construction.

State Government.--By 1941, about 4 million acres of state system park land had been acquired. These acres were being managed by the states with a total budget of about $10 million and were accommodating an estimated 100 million visits per year (USDC 1971). Between 1950 and 1970, state park systems expanded rapidly, rising from 4.7 million acres to 8.6 million acres and from 114 million to 483 million reported visits.

Table 4.--Trends in acreage, expenditures, employees, visitation, and revenues for state park systems in the United States, 1960-1984.

Year	Park, Recreation Historic Areas		Expenditures		Employees		Visitation	Revenues from Operations
	Areas	Acres	Capital	Total	Year Round	Seasonal		
	(Number)	(Thousands)	--(Millions $)--		--(Thousands)--		(Millions)	$ (Millions)
1950	1725[a]	4657[a]	15.0[a]	36.4[a]	4.2[a]	6.4[a]	114.3[a]	6.6[a]
1960	2664[a]	5602[a]	31.1[a]	87.4[a]	7.4[a]	10.1[a]	259.0[a]	22.6[a]
1967	3202[a]	7352[a]	165.3[a]	279.5[a]	11.5[a]	17.8[a]	391.1[a]	50.1[a]
1970	3425[a]	8555[a]	197.5[a]	386.8[a]	13.3[a]	21.0[a]	482.5[a]	71.0[a]
1975	3804[b]	9838[b]	317.5[b]	648.9[b]	12.6[b]	20.0[b]	508.9[b]	131.6[b]
1980	3774[b]	9184[b]	583.7[b]	1099.7[b]	11.9[b]	19.0[b]	535.3[b]	192.1[b]
1982	3454[b]	8919[b]	288.2[b]	887.7[b]	10.6[b]	21.7[b]	605.0[b]	230.3[b]
1983	ND	8989[b]	221.2[b]	837.4[b]	11.6[b]	23.7[b]	631.0[b]	226.3[b]
1984	ND	9053[b]	191.2[b]	723.9[b]	12.8[b]	26.1[b]	644.8[b]	ND

[a] Source: Historical Statistics of the United States--Colonial Times to 1970, USDC, Bureau of the Census.

[b] Source: National Association of State Park Directors Annual Information Exchange. Numbers for 1984 are close approximations reflecting conflicting data.

Between 1970 and 1980, growth in areas, acreage, expenditures, employment and visitation in state park systems continued to expand. Acreage expanded at an average of about 0.7 percent per year while reported visitation expanded an average of 1.1 percent per year. Expenditures during this period almost tripled, in part due to inflation, while number of employees remained almost constant. Revenues from operations, which grew at an annual rate of $3.2 million prior to 1970, grew $12.1 million per year from 1970 to 1980. Capital expenditures (land acquisition plus construction) as a percentage of total expenditures rose from 41 percent in 1950 to 59 percent in 1967 and remained at about 53 percent during the 1970s. This percentage has since dropped to 26 percent in 1983 and 1984. Capital expenditures as a percentage of total expenditures represent the relative emphasis on state park system capacity expansion. Since 1980, the reported total acreage in state park systems has actually decreased in excess of 100,000 acres. As with local government, more dollars have been shifted to operations and personnel salaries since 1980.

Overall, the trends describing state park systems indicate decreasing acreage, budgets (especially capital outlays), and revenues. Only visitation and the park systems' response to increased visitation, more personnel, have been increasing during the 1980s. Visitation has been increasing by about 5 percent per year since 1980. Emphasis seems to be going to more intensive management of the existing acreage and facilities and away from expansion of the system. The number of employees having contact with the public increased 5 percent between 1982 and 1983 and increased 16 percent between 1983 and 1984. A very likely partial explanation for the decreased emphasis on land acquisition and development is the demise of the matching grants to states through the Land and Water Conservation Fund--$113,000 in 1965; $46.8 million in 1970; $160.9 million in 1975; $335.4 million in 1979; down to $206.0 in 1981 and decreasing since then (ORPRG 1983). These monies had been major incentives to states and local governments to expand systems to help meet rising outdoor recreation participation levels.

Federal Government.--Since 1960, the number of acres of federal land open for outdoor recreation use has increased from 32 percent in 1960 to 50 percent of the total acreage in 1983. Although the total federal land base has declined by about 100 million acres since 1960, this increase in percentage of acreage open has resulted in a net increase of approximately 82 million recreation acres (Table 5). Most of the increase in available recreation land has been due to interagency transfers of land, rather than from the investment of Federal monies in land. However, in the years from 1964 to 1983, Federal agencies collectively purchased almost 20 million acres of prime recreation land. Table 5 also indicates that the relative proportion of cumulative land acquisition costs going to the purchase of park and historic sites has increased over time. In 1960, less than 5 percent of the cumulative land acquisition costs was for recreation; in 1980, 17.1 percent of the cumulative costs were for recreation. Virtually all of this increase was due to LWCF monies spent to acquire recreation land.

In 1960, the Federal government spent about $10 million on the construction of new recreation facilities (access roads, trails, campgrounds,

picnic areas, buildings, etc). By 1965 the spending level for construction had increased elevenfold to $110 million, and by 1970 construction spending was $154 million (Table 5). These figures indicate that the Federal government has invested approximately $2.5 billion toward recreation facility construction since 1960. This is a significant amount in view of the fact that these investments are only for construction of new facilities and that none of this includes operation and maintenance costs. Nevertheless, the rate of growth of number of facilities has slowed since 1970 because rapid inflation has devalued the budgeted dollars for construction.

Level of employment by federal agencies is also shown in Table 5. The job titles of interest include Outdoor Recreation Planner, Park Manager, Park Technician, and Recreation Specialist. These titles do not cover all federal workers involved with outdoor recreation. The listing in Table 5, however, provides an insight into the relative change in the level of recreation-related employment in federal government.

In 1970, there were 3800 federal employees in jobs with titles related directly to outdoor recreation. By 1975, the number was 5564. The majority of this increase was in the job categories of Outdoor Recreation Planner and Park Technician. By 1981, the number of employees in these jobs was 7047.

In the 11-year period from 1970 to 1981, the average salary for all of the above job titles had nearly doubled but barely kept pace with the growth in costs, as evidenced by the CPI. We calculated that the annual expenditure for salaries for employees in these jobs had risen from $42.6 million in 1970 to $141.6 million in 1981. The rapid increase in the monthly payroll of federal employees involved with recreation has further impacted already shrinking federal budgets. Even though there were about the same number of employees in 1982 as in 1976, the October payroll for 1982 was over $50 million more than in 1976, largely due to cost of living increases.

Federal budgets for recreation management, acquisition, development, and assistance was $75 million in 1960 and grew to $1400 million by 1978. Inflation has caused a dramatic decrease in the real value of these budgets (in parentheses, last column of Table 5). In inflation-adjusted dollars (base year 1967), the total amount appropriated by Congress for recreation rose from $85 million in 1960 to a high of $718 million in 1978 (Cordell and Hendee 1982). Since 1978, the real value of the budget has fallen almost back to its 1975 level.

Table 5.--Acres of land, percent open, cost, construction, employment, and budget for outdoor recreation by the Federal government, 1960-1983

Year	Land: Total Acres Managed[a]	Land: Acres Purchased L&WCF[b]	Land: Open for Recreation	Cost of Park & Historic Sites Rel. to Total Land Cost[c]	Investment in Construction of Facilities	Outdoor Recreation Employees	Total Federal Budget for Recreation Unadjusted and (adjusted)[d]
	(Million)	(Thousand)	(Percent)	(Percent)	(Million)	(Number)	(Million)
1960	730.0(Est)	0.0	31.8	4.8	10.1	ND	$75(85)
1965	697.8(Est)	0.0	33.7	4.4	110.0(Est)	ND	135(143)
1970	685.1	132.7	34.7	6.8	153.5	3800	372(321)
1975	681.3	108.0	35.2	9.0	164.3	5564	856(501)
1978	ND	339.5	ND	11.9	185.0	7375(Est)	1400(718)
1980	660.7	122.6	45.5	17.1	154.3	7120(Est)	1400(567)
1983	627.1	ND	50.0(Est)	ND	ND	ND	1581(538)

[a] Agencies include National Park Service, Forest Service, Corps of Engineers, Tennessee Valley Authority, Bureau of Land Management, Bureau of Reclamation and Fish and Wildlife Service.

[b] Acres purchased in concurrent year using federal portion of the Land and Water Conservation fund. SOURCE: National Park Service, L&WCF files.

[c] Assumes all National Forest, National Park, Refuge, TVA, COE, and BUREC lands are open without restrictions. SOURCE: Principal sources include 1984 Statistical Abstracts of the U.S. Bureau of the Census; Public Land Statistics, 1960-1984, Bureau of Land Management; and the Federal Budget of the United States for the respective years reported.

[d] Numbers in parentheses represent dollars adjusted for inflation to base year 1967.

Visitation to federal areas has continued to rise to a level 258 percent higher in 1983 than it was in 1960 (Table 6). A significant sidenote is that the average annual rate of visitation growth has decreased--from a high of 14.6 percent in 1970 to 4.0 percent in 1983.

Concurrent with visitation increases, fee revenues have risen almost eightfold since 1960, although these revenues represent less than 3 percent of the total federal recreation budget.

Table 6.--Visitation and fee revenues on federal areas in the United States, 1960-1983.

Year	Visitation[a]		Fee Revenues[b]	
	Index to Base Year	Avg. Annual Rate of Change	Entrance	On-Site Use
	(Base Yr.=1960)	(Percent)	(Millions of Dollars)	
1960	100	----	ND	4.9
1965	148	9.6	2.0	ND
1970	221	14.6	9.3	ND
1975	288	13.4	7.9	12.4
1978	331	14.3	10.3	17.9
1980	346	4.0	7.2	19.6
1983	358	4.0	8.6	32.3

[a] Includes Tennessee Valley Authority, Bureau of Reclamation, National Park Service, Forest Service, Corps of Engineers. SOURCE: Marion Clawson and Carlton Van Doren, 1984, Statistics on Outdoor Recreation, Washington, D.C., Resources for the Future.

[b] Includes all federal agencies. SOURCE: Includes USDI Federal Recreation Fee Reports and Outdoor Recreation Resources Review Commission, Report No. 1, 1962.

Overview of Government

The trend in acres of recreation land; dollar budgets for planning, management, acquisition, development and assistance; and for personnel are shown in Table 7. Since 1960, government-managed recreation acres increased 46 percent to an aggregate of 368 million acres in 1982. Real dollar budgets

rose 202 percent since 1960 to a level of 1.87 billion in 1982. Number of employees rose 140 percent to a total of 282,000 in 1982. Overall, significant increases in these major indicators of the economic importance of government's role in providing outdoor recreation have been realized since 1960. In the case of land area, 81 percent of the 22-year increase has been realized since 1970. Only 22 percent of the real-dollar budget increase and 50 percent of the personnel increase were realized since 1970.

Table 7.--Trends in total land area, budgets, and personnel for recreation opportunity production among all levels of government in the United States, 1960-1982

Year	Type of Resources		
	Acres of Land	Budgeted Dollars[a]	Personnel
	(Millions)	(Millions)	(Thousand)
1960	252.3	620.4	117.4
1970	274.4	1592.7	199.1
1982	367.6	1874.1	282.3

[a] Inflation adjusted real dollars--base year 1964. SOURCE: Listed in Table 3 - 6 of this paper.

Land area open for recreation use is additive, and it is unlikely that large areas of this land will be closed. Budgets and personnel, however, are not viewed as fixed and are more sensitive to the severe budgetary pressures which have characterized the late 1970s and early 1980s. The real dollar level of federal budgets are less now than in 1975 and the number of state park system employees are less now than in 1970.

In terms of relative shares, as of 1982 the federal government managed almost 97 percent of the recreation land. Local government spent 53 percent of total government dollars budgeted for recreation and employed 86 percent of the recreation personnel. This points to much higher importance of local government in spending and employment in the economy, a higher use density per acre, and higher maintenance costs per acre. Federal government recreation land is much more important as an attraction for travellers and for its impacts on the land tax base.

DISCUSSION

Equipment Spending

While expenditures on outdoor recreation equipment were increasing, it appears that inflation more than accounted for the observed growth in gross

sales. Outdoor recreation equipment appeared to be claiming a smaller share of personal consumption expenditures. Frechtling (1984) provided some confirmation of this smaller share during the 1982-1984 period by noting that the pent-up demand unleashed by the recovery from the 1981-82 recession has not yet been felt in the travel industry (airline, hotel/motel, and foodservice sectors). Frechtling concluded that the travel industry has grown in the past three years at a lackluster rate mainly because consumers are still venting their pent-up demand on purchases of automobiles, homes, and home furnishings. Once the propensity for consumers to buy such large and expensive durable goods subsides, the travel industry could rebound. Since much of outdoor recreation involves travel, outdoor recreation may also show real growth in the near future.

However, there are two long-term sets of data that imply a possible dampening effect on large real gains in outdoor recreation. According to U.S. News and World Report (1981), the leisure industry (sports, recreation, and entertainment) grew from $58 billion in 1965 to $244 billion in 1981, a 321 percent increase in actual dollars. After inflation, real growth during this 16 year period was 47 percent. This same leisure industry was projected to grow to $310 billion in 1984, a 27 percent increase over 1981 figures (Sanoff, 1984). According to the U.S. Travel Data Center (1974-1982), spending by Americans on travel in the U.S. rose from $67.7 billion in 1974 to over $185 billion in 1982. In constant (deflated) dollars, real travel growth fell only once during this period, in 1980. Furthermore, adjusted travel receipts for the first 3 quarters of 1984 showed a 4.2 percent growth over the comparable 1983 period (Frechtling 1984).

One might speculate that these results indicate the beginnings of a shift in interest away from outdoor recreation, possibly linked to other emerging social trends such as heightened interest in economic development and fading of the "environmental movement." Yet, there are equally plausible explanations which derive from the nature of the data we used. For example, consumers may be purchasing greater quantities of outdoor recreation equipment which are not accounted for in our data or may have delayed purchasing outdoor recreation equipment because of the generally poor economic conditions which prevailed between 1974 and 1981. There appears to be a growing trend to more "stay-at-home" leisure, indicated by increasing sales of spas, whirlpools, and swimming pools (U.S. News and World Report, 1981), home entertainment centers (Doan and Cole 1982, Frechtling 1983), and home exercise equipment (Sanoff 1984). All of these may be cutting into the amount that Americans normally spend for outdoor recreation equipment as we have defined it in this paper. Also, Cordell and English (1984) noted that there has been a strong shift toward a reduction in miles travelled for outdoor recreation.

Transportation Spending

As noted earlier, secondary data available to develop reliable estimates of outdoor recreation related expenditures on transportation were not available, but those used are, in our opinion, conservative. For example, they do not account for expenditures for non-user operated transportation

(e.g., commercial airlines). In addition, the method employed is particularly sensitive to the assumptions underlying the derivation of outdoor recreation's share of total transportation expenditures. In 1983, 1 percent of total motor vehicle expenditures for all purposes amounted to nearly $3 billion or about what was spent on the combination of all hunting, fishing, camping, and snow skiing equipment purchased in 1981 (see Table 1 and accompanying discussion). The estimated impact of outdoor recreation travel is very important, and better methods for teaching this trend need to be developed.

Government Expenditures

Government spending, land ownership, taxation, market control, and employment have always been important components of the United States economy. Provision and support of outdoor recreation is a relatively small part of governmental activity, and seems miniscule when compared with defense spending, highway construction, or public works projects. Our examination of the acres, dollars, personnel and revenues associated with government involvement with outdoor recreation show that substantial growth has occurred since 1960. In almost all categories, this growth is continuing into the 1980s, although the rate of growth is now barely keeping pace with inflation, and the rate of growth may slow even more in the next few years (Cordell and Hendee 1982).

The economic importance of government's involvement in recreation cannot be judged solely on the basis of the acres, dollars and personnel devoted to providing public consumption opportunities. There is evidence to suggest that the economic importance of government lies more in the fact that the consumer spending discussed in the early parts of this paper is in large part generated because government provides a very large share of the opportunities for recreation participation. For example, we estimate that in 1983 federal and state recreation lands accommodated approximately 2.3 billion separate recreation visits. With the assumption that an average of $10 was spent per recreation visit for equipment, supplies, food, travel, and lodging, the total resulting direct spending into the economy would be $23 billion.

Detailed data on changes in levels of budgets, services, sites and other elements describing government's outdoor recreation role during the 1980s are scarce. Our examination of the available data, however, indicate that the levels of growth experienced in the 1960s and 1970s will not continue in the 1980s. There may even be some reductions in the opportunities provided (Cordell and Hendee 1982, 26 and 74). To the extent that reduced budgets lead to reduced opportunities, recreation visits and therefore the economic importance of government's role in outdoor recreation could decrease. Because of the relationship between recreation participation and consumer spending, the consequences of reduced opportunities extend beyond the direct effects on recreationists. There can be substantial redistributions of income and employment among sectors of the economy which in turn means that some segments of society may lose economically, while others gain.

General Comments

Our categories of consumer expenditures included only selected equipment, RV's and estimated transportation expenditures. The amount spent on food and lodging as a result of outdoor recreation was omitted due to an absence of appropriate information. Yet, from 1974-1977, the U.S. Travel Data Center's National Travel Expenditure Surveys included outdoor recreation as a separate purpose of trip. Food and lodging consistently accounted for 42 to 45 percent of total travel spending during this period. Thus, the data in Table 2 do not fully account for consumer spending on outdoor recreation. Had we been able to include spending on food and lodging, a different trend in outdoor recreation expenditures may have emerged, especially since spending on these items likely equaled or exceeded spending on equipment and transportation. In any case, the significant limitations noted in the data available suggest that the trends they depict should be judiciously employed, augmented by 1982-84 data, and interpreted in light of societal trends.

Since knowledge of expenditures on outdoor recreation in the U.S. is necessary to assess the consequences of government involvement, action is needed to develop quality data bases for accurate trend assessment. A recent technical meeting on assessing the secondary economic impacts of recreation and tourism held at Michigan State University revealed important conceptual and methodological guidelines for establishing such data bases (Propst and Gavrilis 1985). Based on some of the recommendations from this meeting, the principal federal land management agencies, in cooperation with the National Association of State Park Directors, are developing a methodology to estimate income and employment effects of changes in recreation consumption patterns. As part of this methodology, the Public Area Recreation Visitor Survey (PARVS), to be conducted during 1985 and 1986, will provide the necessary data base. This data base will contain the results of thousands of interviews with outdoor recreationists concerning their trip expenditures. It is expected that a much greater understanding and consideration of the economic importance of outdoor recreation will emerge from this work. This effort alone, however, is not enough. The PARVS will provide a snapshot of consumer expenditures at one point in time. New policy is needed at the federal level to assure continuity in the PARVS data base. Such policy could alleviate the data deficiencies noted in this paper. The future seems to promise significant changes in the role of both the public and private sectors in outdoor recreation. Providing quality data that will permit accurate assessment of trends in the economic importance of these changes is an important research role for the future.

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TRENDS IN USER FEES AT FEDERAL OUTDOOR RECREATION AREAS

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Abstract.--Rationale for user fees at public recreation areas have not changed over time. Since about 1980, federal agencies have increased camping fees slightly higher than the rate of inflation. Those agencies have authority to levy fees for only a few types of recreation use. Future trends in fees will depend primarily on the fee-levying authorities granted by Congress.

Additional keywords: User fee trends, recreation user fees, public user fees

Interest in user fees for publicly provided outdoor recreation continues to grow as agency budgets become more constrained (Hoover 1978, Manning and Baker 1981, GAO 1982, Crandall 1984, Driver 1984, Rosenthal et al. 1984, AMC 1985). This paper considers four trends related to user fees at federal recreation areas: (1) trends in rationale for fees, (2) trends in federal agency attempts to obtain broader fee-levying authorities, (3) trends in user fees under existing federal authorities, and (4) possible trends under broader authorities.

The purposes here are to suggest that: the major trend in concern about user fees is one of intensity not of change in rationale for fees; fees have increased in several federal agencies during recent years; agencies now desire to levy a wider array of fees; and existing fee-levying authorities are the major constraint on increasing fees for most federally-provided outdoor recreation opportunities.

The words "recreation user fees" have been used to refer to different types of levies for recreation use. Included have been entrance (admission) fees; use fees for specific recreation services or facilities, such as campsites; charges for special use permits for recreation (e.g., ski areas, commercial outfitting and summer homes); excise taxes on hunting and fishing equipment; special stamps (e.g., "duck stamps"); and charges to concessionnaires. This paper focuses on federal agency entrance and use fees.

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TRENDS IN RATIONALE FOR INCREASING FEES

The six reasons commonly given for expanding recreation user fees have changed little over time.

One rationale is cost recovery, with the idea being to charge fees to cover a reasonable amount of the operating (variable) costs involved in providing the recreation opportunities used. Mackintosh (1983) showed that early proponents of a national system of parks believed at least some of the parks could and should cover their operating costs. He stated, "...Ferdinand V. Hayden and other Yellowstone proponents assured members of Congress that the first national park, established in 1872, would require no appropriated funds," and that "the idea of self-supporting parks... was actually achieved at various times in particular areas. Yosemite made a profit, primarily from concessions, in 1907, for example; and Yellowstone's receipts exceeded expenditures in 1915 and 1916, the first years when automobiles were admitted there [at $10.00 per seasonal auto permit]...." This philosophy of cost-recovery was also expressed in 1916 by Stephen T. Mather, the first director of the National Park Service in his report to the Secretary of the Interior. "It has been your desire that ultimately the revenues of the several parks might be sufficient to cover the costs of their administration and protection and that Congress should only be requested to appropriate funds for their improvement. It appears that at least five parks ... [can now] make their operation on this basis feasible and practical" (GAO 1982, pg. 2). Thus, at the time of its creation in 1916, the National Park Service advocated a policy of cost-recovery via fees and concession operations.

A second rationale is to generate revenue earmarked for return to the collecting agency to increase the quantity and quality of recreation opportunities provided. Mackintosh (1983) pointed out that receipts from National Park Service fees were held, until 1918, in a special Treasury account for use by the Park Service for park development, and that such a system was strongly advocated by Mather. Increasing supply (e.g., purchasing much of the land now in the National Wildlife Refuge System) was also the major reason for passage of the Migratory Bird Hunting Stamp Act (16 USC 718) in early 1934, which required purchase and possession of a "duck stamp" by all persons 16 years of age and older who hunted migratory waterfowl (Hoover 1978). The same rationale backs levying federal excise taxes on certain hunting and fishing equipment under the 1937 Pittman-Robertson Federal Aid in Wildlife Restoration Act (16-USC-669) and the 1950 Dingell-Johnson Federal Aid in Fish Restoration Act (16-USC-777).

A third reason given for user fees is to limit or allocate use over time and space to those who are willing to pay to help prevent resource damage, congestion, and crime. This is not a new rationale either. The Land and Water Conservation Fund Act (LWCFA) of 1965 (PL 88-578), as amended, provides the major current authority for federal agencies to levy fees. The purposes of that act were, among other things, to "... assist in preserving ... the quality and quantity of [the U.S.'s] outdoor recreation resources." Other arguments in favor of this rationale for fees predate the LWCFA. Wing (1951) suggests that reducing pressures on wildlife and regulating hunters and fishermen (along with generating revenue) were important reasons for establishment of hunting and fishing licenses, such as the fee license on hunting imposed by the Virginia Colony in 1691. The Secretary of the Interior's Advisory Board on National Parks, Historic Sites, Buildings, and

Monuments recommended in 1952 that "... the provision of law prohibiting the collection of fees for use of campgrounds in the national parks and national monuments be repealed as an aid to better regulation and protection." This was partially in response to an earlier proposal by National Park Service Assistant Director Allen to charge a camping fee in Yosemite Valley as a regulatory tool to discourage Californians from monopolizing the campsites year after year (Mackintosh 1983).

A fourth bases for fees is tied to the concept of equity. It proposes apportioning operating costs fairly to those who benefit, or alternatively to those whose use causes the costs to be created, to reduce subsidy, via tax dollars, by those who do not use the opportunities.[2] That users should bear a fair share of the costs of providing outdoor recreation opportunities is also not a new argument. Mackintosh (1983) showed how pervasive this argument has been by documenting a 1926 debate on the National Park Service appropriations bill in the U.S. House of Representatives. Louis C. Cramton (Michigan) stated, "It is my idea that when people go to national parks ... they should be allowed to walk in with no charge other than those of regulation." Joseph W. Byrns (Tennessee) replied, "I do not question the priority of providing camps and all the sanitary facilities, but I do insist that when the people of the United States are called upon to provide them ... those who ... [use] them should pay a reasonable fee ...." On the same theme, Secretary of the Interior Stewart L. Udall, in 1963, when testifying in the Senate on the proposed LWCFA, stated, "I firmly believe that it is equitable for recreationists to pay a reasonable fee for recreational use of federal lands and waters...." (Mackintosh 1983).

A fifth reason for user fees is to promote national economic development. The idea here is to help assure economically efficient resource allocations by using fees as signals, much like competitive market prices, to capture users' willingness to pay. This willingness is based on users' perceptions of benefits received and their comparison with benefits perceived as obtainable from alternative uses of their purchasing power. As early as 1776, the idea was expressed that the "wealth of nations" (i.e., national economic development, or nationally economic efficient resource allocations) is best served by letting sovereign consumers pay a price that reflects their perceptions of benefits received (Smith 1904). This means allocating primarily on the assumption that those who are willing and able to pay are those who should have the options for use. One concept of efficient supply related to this argument is marginal-cost pricing. It overlaps somewhat with the first rationale for pricing (cost recovery) and has re-emerged (Rosenthal et al. 1984) as a guide for setting fees for public recreation opportunities. That idea is not new to public finance (Musgrave 1959) or to public recreation finance (Davis 1963, Brazer 1970).

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[2] This distinction in the equity rationale is made to show two distinct cost-allocation criteria, to beneficiaries and to users. The difficult questions are: should off-site appreciative users pay, and are there benefits of use to nonusers such as the type attributed to education?

A sixth argument for fees is that the U.S. Government engages in unfair competition with the private sector by providing recreation opportunities at considerably lower fees than those nearby private enterprises must charge for similar opportunities. This reason is also not of recent vintage. The summary volume of the reports of the Outdoor Recreation Resources Review Commission (ORRRC 1962, pg. 169) stated, "...[fees] will serve to stimulate provision of similar services by private operators, who will not be faced with competition from free government facilities."

This brief summary of arguments for expansion of fees leads to the conclusion that the content of the arguments (i.e., the rationale for fees) has not changed. A second trend is that some reasons, especially economic efficiency and cost recovery, are now given more attention, or relative emphasis, than they were in the past. Third, the frequency and intensity of all arguments for fees have grown as uses of public natural resources have increased greatly, both in type and amount.[3] This increased relative scarcity has caused people to question more seriously whether existing resource allocations, and allocative mechanisms, are the best ones and whether new tools, such as user fees, might be more appropriate. However, from a public policy perspective, the following trend analysis suggests that the U.S. Congress is not now any more disposed to authorize fee expansions than it was in the past, despite the recent trend of increased proposals for such.

TRENDS IN ATTEMPTS TO BROADEN FEE-LEVYING AUTHORITIES FOR FEDERAL AGENCIES

The U.S. Congress establishes the authorities under which federal agencies can levy fees. Trends in agency requests for fee authorities show that federal agencies have recently been much more active in requesting expanded authorities than they were in the past. A second trend is that Congress has been more reluctant than the federal recreation agencies to see fee authorities expanded. Third, arguments for and against broader authorities have been bipartisan.

To help document these trends, the facilitating authorities and fee-related policy directives of the National Park Service are reviewed here briefly. Ever since it was created in 1916, the Park Service was recognized by Congress as a major provider of outdoor recreation opportunities. Also, Mackintosh's (1983) history of fees in the Park Service provides a means for showing how congressional sentiments about user fees have both facilitated and constrained that agency's options to levy fees.

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[3] One reviewer suggested the paper should also consider trends in rationale against fee programs--or "unreasonable" fees. Such an appraisal would probably show that the content of those arguments have not changed over time either. These arguments relate to: concerns about fairness to low income users; difficulties of implementing entrance fees; fears of authoritative rules and regulations that would conflict with the ideal of freedom during leisure; the notion that the public already owns the land and shouldn't have to pay; and the belief that because outdoor recreation is good and wholesome it should be subsidized.

User fees, in the form of auto entry permits, were first collected in 1908 at Mount Ranier National Park. This was followed by General Grant in 1910, Crater Lake in 1911, Glacier in 1912, Yosemite and Sequoia in 1913, Mesa Verde in 1914, and Yellowstone in 1915. Because of sentiments in the Park Service and in Congress that excessive fees should not be charged, the auto fees were reduced in 1917 and again in 1926. Not only were entrance fees reduced at this time, camping fees were prohibited.

Congress passed an amendment to the Fiscal Year (FY) 1928 Interior Appropriation Act that stated, "None of the appropriations for the National Park Service shall be available within any park or national monument wherein a charge is made or collected by the Park Service for campground privileges" (Mackintosh 1983). The same provision was included in the FY 1929 and 1930 Interior Appropriations Acts, with the words "whenever made" applied to Park Service appropriations in the 1930 Act. These actions barred the Park Service from charging camping use fees from 1928 until passage of the LWCFA in 1965.

Congressional rulings on fees in the late 1920's reflect the posture of the Park Service at that time. The 1932 Annual Report of the Director of the National Park Service to the Secretary of the Interior stated, "National Park administration should seek primarily the benefit and enjoyment of the people rather than financial gain, and such enjoyment should be free to the people without vexatious admission charges and other fees."

Despite these positions by Congress and the Park Service, President Roosevelt's Bureau of the Budget instructed the Park Service, in 1935, to develop fee structures to make the Service more self-sustaining. In response, by 1937, the Service had developed a proposed program for legislative approval that would both increase and expand fees modestly. That program, with some modification by Congress, was put in effect in 1939. It was delayed because of discussions at that time about possible reorganization of the Departments of the Interior and Agriculture. Opposition to that program of fees came from several sources. Thomas P. Henry, president of the American Automobile Association, denounced any and all federal area fees as " ... indirect taxation in it most vicious form" because "taxpayers are already paying for these attractions." Senator Robert P. Reynolds of North Carolina opposed the fees, because he was concerned that a fee might eventually be charged at Great Smoky Mountains National Park, some of the land for which had been donated by his State with the provision that entrance fees not be charged (Mackintosh, 1983).

With the inauguration of Mission 66 (a 10-year NPS program with major expenditures for facility improvements) in 1956, proposals were offered again by the Park Service to Congress for authority to increase fees. That authority, however, was not granted until passage of the LWCFA in 1965. Nevertheless, during the period 1945-1964, pressures increased from the Executive Office of the President and several commissions for the Park Service and other federal agencies to raise fees to help reduce the rapidly widening gap between agency recreation expenditures and revenues.

Bureau of the Budget Circular A-25 (September 23, 1959) entitled "User Charges" states a policy that covers but goes beyond recreation user fees: " ... a reasonable charge ... should be made to each identifiable recipient for a measurable unit or amount of Government service or property from which

he [sic] derives a special benefit" (GAO 1982). The summary volume, Outdoor Recreation for America, of the congressionally-created Outdoor Recreation Resources Review Commission (ORRRC 1962) also called for greater cost recovery from fees. "Fees should be charged for those activities which involve exclusive use of facilities or which require the construction of specialized facilities by the government. Fee rates should be calculated to recover a reasonable portion of the cost of administering, operating, and maintaining such facilities." This recommendation was influential in causing a bill to be introduced in 1962 to create a Land Conservation Fund for outdoor recreation. It took 2 years before the fund was created by the LWCFA of 1965. Included in the debate was concern by western congressmen that user fees would fall more heavily on their constituents. Objection also was raised about the provision that would have charged fees for use of federal wilderness areas.

The LWCFA, as amended, has been the most significant fee-levying authority for the National Park Service and other federal agencies managing outdoor recreation resources. The 1965 Act authorized federal agencies to designate land and water areas at which entrance, admission, and other forms of recreation user fees shall be charged. This act provided for:

1. An annual fee of $7 which would allow an individual and all automobile occupants to enter all designated areas of all federal agencies.

2. Fees for single visits.

3. Fees for admission to areas not designated for the annual fee.

4. Fees for use of sites, facilities, equipment, or services within a designated area.

All fees were to be "fair and equitable, taking into account direct and indirect costs to the government, benefits to recipient, public policy or interest served, and other pertinent factors." The original 1965 Act also provided for all recreation fee revenues to be deposited into the Land and Water Conservation Fund along with other revenues. Monies from this fund were to be appropriated for federal assistance to states and for federal land acquisition.

Subsequent amendments were made to the Act. Each was accompanied by much congressional debate about the size of fees that could be levied, the areas for which entrance and use fees could be collected, what revenues would go into the Fund and how the Fund would be allocated.

In July 1968, Congress passed PL 90-401 which repealed the authority for recreation fees as of March 1970. The agencies immediately installed their own fee programs. In July 1970, Congress passed PL 91-308 which reinstated the fee program under LWCFA through December 1971. A 1972 amendment again reinstated a LWCFA fee program but limited the authority for entrance or admission fees to units of the National Park System administered by the Secretary of the Interior and national recreation areas administered by the Secretary of Agriculture. The 1972 amendment also established special recreation use fees for the use of sites, facilities, equipment, or services furnished at federal expense. It also provided for the "Golden Age Passport" to be issued free of charge to persons 62 years of age or older.

Because of the 1972 amendment, visitor-fee revenues no longer went into the LWC Fund but were put into a special Treasury account that could be appropriated to the agencies (after some allocations to local units of government) for a wide array of recreation programs. This was changed in 1980 by the Interior Appropriations Act for FY 1981, which required that the fee revenue (except for the Corps of Engineers) be deposited again (as before 1972) in the Fund for federal land acquisition and state planning and development grants. This caused the agencies to lose incentive for fee collection. However, having the special account from which the agencies were appropriated funds was also a mixed blessing. The Office of Management and Budget came to see those appropriations as a justification for reducing regular agency operating budgets.

A 1973 amendment to the LWCFA severely limited the facilities that could be charged for. For example, campgrounds had to have showers and flush toilets. Because most federal campgrounds did not provide these facilities, use fees were dropped in mid-season in 1973. The 1974 amendment established the provisions which federal agencies still abide by today. They are essentially as follows.

1. Admission fees can only be charged at units of the National Park Service and national recreation areas administered by the USDA.

2. Recreation use fees can be levied for certain sites and facilities that meet specific criteria. These criteria are such that highly developed campgrounds and swimming sites are about the only places that qualify for use fees.

3. Recreation permits with fees may be issued for special recreation uses such as group activities, recreation events and motorized recreation vehicles.

In the mid-1970's, the Bureau of Outdoor Recreation commissioned a study of public attitudes toward user charges (USDI 1976), and the National Park Service conducted a fee study (USDI 1977) under pressure from the USDI and the Office of Management and Budget. Because of findings from those studies and the need to close gaps between expenditures and revenues, the Park Service proposed to expand and increase single-visit entrance fees in 1978. Immediately after that proposal was made, the Office of Management and Budget reduced the Park Service's FY 1980 budget request for operations by $12 million and advised the Park Service to make up the loss through fees. This led to greater planned increases in fees above those originally proposed and to strong opposition by Representative Phillip Burton (California). This, along with Park Service Director Whalen's reported lack of commitment to the proposed increases, led to the 1979 Omnibus Park Bill (PL 96-87) provision that the Park Service " ... shall not charge any entrance or admission fee in excess of the amounts which were in effect as of January 1, 1979, or charge said fee at any unit of the National Park System where such fees were not in effect as of such date...." Because this Act is still in effect, the Park Service entry fees are frozen at their 1979 level and cannot be initiated at units not having them on January 1, 1979 (Mackintosh 1983). Partially because of this moratorium and partially because of private in-holdings and multiple points of access, the Forest Service decided it should continue not to impose entrance fees at the national recreation areas it administers, as authorized by the 1972 amendment to the LWCFA.

To remove the constraints imposed on Park Service entry fees by PL 96-87 and those imposed on entry fees and use fees for all federal agencies by the LWCFA (as amended), as well as to retain agency discretion in use of fee revenues, the Park Service, along with the Forest Service and Corps of Engineers, proposed legislation (submitted to Congress by the Secretaries of the Interior, Agriculture, and the Army) in February 1982. It would have expanded considerably all federal agency fee-levying authorities. The proposed bill was never introduced because of strong opposition, especially to a provision that would authorize several agency heads " ... to require an admission permit for the occupancy and use of federal lands for hunting and fishing...." which has long been viewed as a prerogative of the states.

Rather than attempt to resurrect the 1982 interagency proposal for broader authority, the Park Service, Forest Service, and Corps of Engineers in 1983 and 1984 submitted proposals for more modest legislation geared to their respective needs. The bill proposed by the Park Service would have removed the 1979 freeze on entry fees and provided for fee revenues to be deposited in a special Treasury account for use by the Service. The proposal by the Corps of Engineers would have expanded that agency's ability to levy use fees and let it collect entrance fees. When preparing its proposal, the Forest Service obtained input from recreation user groups. Preliminary consideration was given to including the request for authority to levy entrance fees at congressionally designated areas. That proposal was postponed, because the user groups wanted more time to work out some problems they had with that provision. Consequently, the Forest Service proposal would have provided only authority to charge for additional developed sites and facilities. Because the 98th Congress did not take action on any of these proposals, new ones are being considered by the agencies.

The current situation is that each of the federal agencies has limited recreation fee-levying authority. These constraints include the freeze on Park Service entry fees and provisions of the LWCFA, as amended, that prohibit other agencies from charging such fees. Other provisions restrict use charges to specialized services/facilities, which essentially limits use fees to highly developed campgrounds and swimming areas.

Not only is the authority to levy fees constraining, but the incentives for agencies to levy fees have been lessened since 1980, because (except for the Corps of Engineers) the fee revenues are no longer earmarked for appropriation to the collecting agencies

Some trends can be seen in this review of attempts by agencies to obtain broader fee authorities. First, there is a definite recent trend in all agencies of accelerated attempts to gain broader authorities. Second, agency administrators and field-level managers appear to be more favorably disposed toward user fees than they were in the past. Third, Congress continues to be quite cautious in making changes in user-fee authorities. Members and their constituents remain quite concerned about specific types of fees such as federal fees for hunting and fishing and entrance fees to use lands that have been accessible to the general public without a permit or charge. These concerns are bipartisan, as sentiments about recreation user fees have been historically.

TRENDS IN FEES UNDER EXISTING AUTHORITIES

When trends in fees are shown in tables, they are expressed both in unadjusted (actual) and inflation adjusted (1984 = 100) dollars, based on the consumer price index (for all items). Otherwise, the fees generally are expressed in unadjusted dollars for simplicity. To save space, little attention will be given to charges levied for special-use recreation permits, such as for summer cabins and ski areas. Also, the ways fees are set are not discussed, other than to note here that each agency considered makes comparability studies of fees charged in particular market areas by other agencies and private enterprises who provide similar facilities and services. The level of fees charged for a particular recreation opportunity, such as camping, varies from agency to agency, and these differences frequently can be explained by the level of development and amount of services provided.

National Park Service[4]

Unlike the other federal agencies, the National Park Service (NPS) has charged both entrance and use fees. Trends in each will be considered separately. As mentioned earlier, entrance fees were levied in the form of auto permits in at least seven parks before creation of the NPS in 1916. At that time, seasonal auto permits ranged from $2.00 to $10.00, with lower rates for single visits. Revenues from these permits were $14,933, $65,834, and $470,940 in 1914, 1916, and 1926, respectively. The seasonal auto fees were reduced to $0.50 - $7.50 in 1917 and much more again in 1926 -- despite a gap of $2.4 million between NPS revenues and appropriations in 1926. They dropped to below $3.00 by 1935 during the Great Depression and increased to the $1-3.00 range in 1939.

Higher entrance fees were implemented in 1953, with the highest for Yellowstone and Yosemite, which charged $3.00 for a 15-day and $6.00 for an annual auto permit. A toll ($1.00 for 15 days and $2.00 for a year) also was proposed to be implemented in 1953 for the Blue Ridge Parkway. That plan was shelved because of opposition by congressmen from Virginia and North Carolina, because those States had donated land with the understanding that there would be free entry.

Annual entrance fees to all federal fee-collection areas were established at $7.00 under the LWCFA, and were increased to $10.00 with its 1970 amendment. By 1976, entrance or use fees had been levied at 116 NPS units (about one-half of the total), with 66 and 77 charging entrance and use fees, respectively. According to the NPS Recreation Fee Study (USDI 1977), the status of entrance fees in 1976 was:

	Number of units	Rate for single-visit entry per person	per vehicle
	15	$ .50	---
	1	.75	---
	34	.50	$1.00
	14	.50	2.00
	1	.50	3.00
	1	1.00	3.00
TOTAL	66		

[4] This review draws heavily on Mackintosh's (1983) history of visitor fees in the National Park Service.

Thus, most NPS units levying entry fees were charging $1.00 for single visits. The annual entrance fee remained at $10.00 in 1976, as set by the LWCFA amendment of 1972.

These trends for the NPS show that seasonal entrance fees in 1916 started high and dropped quickly by about 1930.[5] Increases were slight until 1965 for some, but not most, of the units. They increased significantly in percentage terms, but still remained modest, at $7.00 for all designated areas in 1965, as set by the LWCFA. They have stayed at the $10.00 level established by the 1972 LWCFA amendment. Proposals for sizable increases (to $4.00) in single-visit automobile and walk-in fees in 1978 led to the freeze on single-unit entry fees; no increases have been made since. In fact, the GAO report (1982) stated that, "Entrance fees have not been raised for over 10 years at 53 of the 64 units charging fees." That report recommended that the annual entrance fee be increased. It supported this proposal by averaging the admission charges for an adult at 12 well-known recreation attractions (Williamsburg, San Diego Zoo, Disneyland, Empire State Building, etc.). That average fee was $6.22 per visit.

Use fees have been restricted primarily to camping. The NPS was prohibited from levying such fees until authorized by the LWCFA in 1965, and no fees were implemented until 1970. In that year, camping fees ranged from $0.25 - $2.00, depending on the type of campsite. At the time campground fees were dropped in midseason in 1973, 7 campgrounds were charging $4.00 per site per night, 38 were charging $3.00, 41 were charging $1.00, and no charge was made at 311.

According to the NPS Fee Study (USDI 1977), the following distributions of camping fees existed in 1976 for NPS family campgrounds and campsites having vehicular access (with cumulative percentages shown in parentheses):

Fee per site per night	Percent of campgrounds (N = 309)	Percent of campsites (N = 29,067)
$0.00	31.1%	6.2%
1.00	8.1 (39.2)	9.1 (15.3)
2.00	26.5 (65.7)	31.6 (46.9)
2.50	0.3 (66.0)	0.4 (47.3)
3.00	26.9 (92.9)	40.2 (87.5)
4.00	7.1 (100.0)	12.4 (99.9)

Thus, fees were not charged at 6 percent of the family campsites in 1976, and 53 percent had fees of at least $3.00. The weighted average fee was $2.44. However, the Fee Study report pointed out that in 1976 " ... most of the use fee revenues were collected from a small number of parks. Ten parks accounted for 59% of total use-fee revenue; 25 parks accounted for 81%."

In 1983, there were 214 NPS fee campgrounds, with 224 others not qualifying for fees. In that year too, there were 24,957 fee campsites and 3,605 campsites that did not qualify. Most campgrounds that did not qualify for fees had few campsites, such as those located in the back-country. Trends in charges at NPS fee campsites from 1980-1985 are shown in table 1. The recent trend toward higher camping fees in the NPS is apparent from these

[5] According to GAO (1982), the fees in effect in 1916 would range from $50 - $83 in inflation adjusted (1982) dollars for specific areas.

data, with 86 percent of the fee campsites charging at least $5.00 in 1985. Also, apparent is the fact that higher fees could be charged at additional sites.

Table 1.--Percentages of NPS fee campsites charging different fees[a]

Fee per campsite per night	1980 and 1981 (N = 24991)	1982 (N = 24991)	1983 (N = 24991)	1985 (N = 25464)
$ 0	0.5 (.5)	0.4 (.4)	0.1	- -
$1.00	8.4 (8.9)	2.1 (2.5)	- -	0.9 (.9)
2.00	28.8 (37.7)	7.9 (10.4)	0.3 (.4)	0.4 (1.3)
3.00	33.4 (61.1)	29.4 (39.8)	8.8 (9.2)	2.5 (3.8)
4.00	28.5 (89.6)	31.6 (71.4)	8.9 (18.1)	10.1 (13.9)
5.00	0.4(100.0)	28.7 (100.1)	37.7 (55.8)	34.3 (48.2)
6.00			36.9 (92.7)	36.3 (84.5)
7.00			6.5 (99.2)	10.9 (95.4)
8.00			0.9 (100.1)	4.5 (99.9)
9.00				- -
10.00				0.1 (100.0)
Weighted averages				
Unadjusted $'s	$2.82	$4.75	$5.25	$5.52
Adjust. (1984) $'s	$3.19	$5.06	$5.42	$5.30 (est.)

[a] Cumulative percentages are shown in parentheses.

Forest Service

Before 1965, the Forest Service (FS) collected few to any recreation use fees other than those charged for special uses, such as leases on cabin sites and for ski areas. Under the 1972 amendment of the LWCFA, entrance fees were allowed for the 6 national recreation areas administered by the FS at that time. The multiple accesses to those areas made such fee collection unfeasible.

Use fees were nominally $1.00 to $2.00 at qualifying developed sites (mostly campgrounds) until about 1975. By 1982, use fees were being charged at all 1,830 FS campgrounds that qualified, with about 3,000 not qualifying. Trends in fees are shown in table 2. These data show a shift from lower to higher use fees for FS camping. For example, in 1977, 99.3 percent of the fee campgrounds had fees of $3.00 or less, and none were at $5.00; in 1984, 14.6 percent were $3.00 or less, and 52.9 percent were at least $5.00. The shift became particularly pronounced in 1982, a year in which a strong endorsement for fees was made by the administration in office and by FS management. The fact that FS camping fees are on the average slightly lower than those of the NPS probably reflects lower levels of facility development in FS campgrounds.

Those sites in the $6-$12 range are approaching the fees charged for private campsites having similar facilities and providing similar services. In fact, fees in the $6-12 range are being reduced by $1.00 in 1985 at 6 campgrounds on one national forest, because about $50,000 less was collected in 1984 than in 1983 (at lower fees) and because of objection of loss of spillover users by private campground operators in that area.

Table 2: Percentages of forest service fee campgrounds charging different fees (cumulative percentages are in parentheses).

Fee per site per night	1977 N=1668	1978 N=1694	1979 N=1685	1980 N=1726	1981 N=1648	1982 N=1830	1983 N=1921	1984 N=1996
$1.00	5.8%	5.3%	3.6%	3.3%	--	--	--	--
2.00	73.9(79.7)	71.0(76.3)	69.0(72.6)	63.5(66.8)	34.3%	4.6%	2.3%	1.3%
3.00	19.6(99.3)	22.8(99.1)	24.9(97.5)	28.7(95.5)	46.2(80.5)	27.5(32.1)	15.3(17.6)	13.3(14.6)
4.00	.7(100.0)	.9(100.0)	2.1(99.6)	3.8(99.3)	13.0(93.5)	38.9(71.0)	34.8(52.4)	32.7(47.3)
5.00	--	--	.4(100.0)	.7(100.0)	5.8(99.3)	25.0(96.0)	38.2(90.6)	39.1(86.4)
6.00	--	--	--	--	.5(99.8)	3.4(99.4)	7.8(98.4)	10.6(97.0)
7.00	--	--	--	--	.2(100.0)	.7(100.1)	1.2(99.6)	1.9(98.9)
8-12.00	--	--	--	--	--	.1(100.2)	.4(100.0)	1.3(100.2)
Weighted averages								
Unadjusted $'s	$2.15	$2.19	$2.27	$2.35	$2.93	$3.97	$4.40	$4.58
Adjust.(1984) $'s	$3.64	$3.44	$3.21	$2.93	$3.31	$4.23	$4.55	$4.58

In addition to the camping fees, use fees that stayed in the $.50 - $2 range were charged at 64 FS swimming sites in 1978 and at 83 sites in 1984, and charges were levied at 179 and 373 group reservation sites in 1977 and 1984, respectively. Total revenues from all recreation use fees in FY 1979, 1980, 1981,and 1983 were $6.041, $6.818, $8.517, and $11.300 million, respectively; they are estimated to be $12.8 million in FY 1985. In inflation adjusted (1984) dollars, these revenues would be $8.5, $8.5, $9.6, $11.7 and $12.3 (est.) million.

Fees have been charged for special-use recreation activities, such as outdoor survival/leadership schools. Fees for those uses remained fairly constant for many years until 1984, at which time a three-fold increase for some uses was started over a 3-year period. Revenues from fees for FS special-use recreation permits since 1976 have been approximately as shown in table 3.

Table 3.--Estimated FS revenue (in millions) from special-use recreation permits[a]

Type of special use	1976	1980	1983	1985(est.)
Ski areas	$2.1	$5.5	$9.0	$11.0
Summer homes	3.7	3.2	5.0	6.5
Resorts, marinas, etc.	.5	1.0	1.1	1.3
Outfitters/guides	.3	.5	1.4	4.6
Totals				
Unadjusted $'s	$6.6	$10.2	$16.5	$23.4
Adjust. (1984) $'s	$11.9	$12.7	$17.1	$22.5 (est.)

[a] Because records do not exist to break the revenues down between individual types of special use as indicated, these estimates are based on Bossi's judgement.

Corps of Engineers

The original law (the Flood Control Act of 1944, PL 78-534) which authorized recreational use on project lands of the Civil Works Division of the U.S. Army Corps of Engineers (COE) stated, "The water areas of all such reservoirs shall be open to public use generally, without charge, for fishing and other recreational purposes .... " This limitation was removed by the LWCFA. The amended LWCFA included one provision unique to the COE. It was that each COE project at which camping is permitted must provide at least one primitive campground (containing designated campsites, sanitary facilities and vehicular access) free of charge. Most COE use fees are for camping at qualifying sites; and the LWCFA, as amended, does not permit the COE to levy entrance fees.

Use fees for camping were first collected by the COE in 1970, with fees ranging from $1-3.00. In 1973, four classes (A-D) of qualifying campsites were defined in terms of levels of facilities/services made available. In that year, and again in 1981 and 1984, fees were established for each class as follows, with the 1984 fee schedules indicating minimum fees to be charged (excluding $1-2.00 for electrical hookups):

Year	Class A	Class B	Class C	Class D
1973	$3-4.50	$2-3.00	$1-2.00	$1.00
1981	$3.00 (+)	$2-4.00	$2-3.00	$1-2.00
1984(min.)	$5.00	$4.00	$3.00	$1.00

Table 4 shows the percentages of COE fee campsites at which different fees were collected (for all four classes, A-D) from 1980 to 1984 (with cumulative frequencies shown in parentheses).

Table 4.--Percentages of COE fee campsites charging different fees

Fee/site/ night (W/O electricity)	1980 (N=36,069)	1981 (N=37,907)	1982 (N=38,353)	1983 (N=38,752)	1984 (N=35,552)
$0.00	1.3%	1.9%	1.5%	0.7%	1.4%
1.00	1.8(3.1)	0.1(2.0)	0.6(2.1)	--	--
2.00	11.2(14.3)	8.4(10.4)	9.0(11.1)	0.5(1.2)	0.6(2.0)
3.00	51.3(65.6)	31.3(41.7)	33.8(44.9)	6.1(7.3)	5.0(7.0)
4.00	34.3(99.9)	57.9(99.6)	39.3(84.2	20.2(27.5	11.7(18.7)
5.00	--	0.3(99.9)	15.7(99.9)	44.5(72.0)	39.1(57.8)
6.00	0.1(100.0)	--	0.1(100.0)	27.4(99.4)	28.1(85.9)
7.00	--	--	--	0.4(99.8)	10.7(96.6)
8.00	--	--	--	--	3.4(100.)
Weighted aver.					
Unadjusted $'s	$3.16	$3.44	$4.54	$4.90	$5.29
Adjust.(1984)$'s	$3.93	$3.89	$4.84	$5.07	$5.29

The shifts toward higher fees are even greater than those shown previously for the Forest Service, which in part reflects highly level development in COE campgrounds. In 1984, for example, 81.3 percent of the COE fee campsites had fees of $5.00 or more, and 42.2 percent were at least $6.00. This trend will continue in 1985, when 52.6 percent of all 656 COE Class A-D fee camping areas will have fees of at least $6.00 per site. The shifts are even more pronounced when the more highly developed Class A campsites are separated out (which represent higher percentages of sites than do Class B-D sites) as indicated below for 1980 and 1984:

		Percent of Class A COE campsites by fee								
Year	No. Sites	$0.00	$1.00	$2.00	$3.00	$4.00	$5.00	$6.00	$7.00	$8.00
1980	24,145	1.7%	--	--	47.2%	51.0%	--	0.1%	--	--
1984	28,296	1.6%	--	0.2%	0.3%	1.4%	44.5%	34.3%	13.4%	4.3%

Thus, 96.5 percent of the Class A campsites had fees of at least $5.00 in 1984, and 52.0 percent had fees of at least $6.00.

Bureau of Land Management

The Bureau of Land Management (BLM) was created in 1946 by consolidation of the General Land Office and the Grazing Service. Until passage of the Federal Land Policy and Management Act (90 Stat. 2743) in 1976, BLM had no organic authority for land management. The agency manages the unreserved/unappropriated public domain that lies primarily in the 11 westernmost states.

The agency is prohibited by the 1972 amendments of the LWCFA from levying entrance fees; and use fees cannot be levied for most of the recreation opportunities because of lack of qualifying specialized services. Recreation planners with BLM's Washington Office, and four state offices stated that recreation use fees were nonexistent until passage of the LWCFA in 1965.

Information from what is judged to be representative data from three states show trends in fees for qualifying BLM campgrounds since about 1980. Fees at a 22-site, developed campground in Colorado went from zero to $5.00 in 1983, and remained at that level in 1984. Fees for one tent and three vehicle campgrounds (with 12-35 sites) in Nevada were $2.00 in 1978 and 1979. They stayed at that level through 1984 for the tent campground. They increased to $3.00 for one vehicle campground in 1983, and to $4 the same year for another and remained at those $3 and $4 levels in 1984. The fee for the third vehicle campground increased to $3 in 1980 and to $4 in 1983 through 1984. At a developed, vehicular campground in California, the 1980-82 fee of $2.50 per site per night was increased to $5.00 in 1983 through 1984.

An experimental program was started on BLM land in the southern California desert in the winter 1983/84 season by designating large areas on which seasonal visitors ("snowbirds") could locate their mobile homes. In the 1984/85 season, the program was implemented more fully at $25.00 for a permit allowing an eight-month period of occupancy. The future of that program is uncertain, because privately operated campgrounds in the area argue that this government-operated program is taking their business away.

To summarize trends in fees in BLM, few areas qualify for fees under provisions of the LWCFA. Use fees for areas that qualify remained relatively constant until about 1982, at which time they frequently doubled to an average fee of about $4 for camping. This is below the average for most other federal agencies; but BLM campsites tend to have lower levels of facility development and associated services.

Tennessee Valley Authority

The Tennessee Valley Authority (TVA) began charging a camping fee in 1979; all other recreation uses are available to the public free of charge. These camping fees are levied under provisions of the 1974 amendment to the LWCFA that calls for user fees to be charged for the designated campground facilities provided by TVA. TVA is prohibited by the 1972 amendment from charging entrance fees.

Two types of fee structures exist -- one for reservoir campgrounds and one for campgrounds in the Land Between the Lakes (LBL) national recreation demonstration area. The fees are based on an annual comparability study of rates levied in the TVA region by the Corps of Engineers, the Forest Service,

Great Smoky Mountain National Park, and comparable private campgrounds.

Since 1979 the fees have been:

Base rate per site per night	1980	1981	1982	1983	1984	Proposed 1985
Reservoir campgrounds	$4	4	5	5	5	6
LBL campgrounds	--	5	5	5	6	6
LBL w/elec. hookup	--	+50¢	+50¢	+50¢	+1	1

These rates show a gradual inflation unadjusted increase over time.

Other Federal Agencies

Other federal agencies provide outdoor recreation opportunities; but, space does not permit separate consideration.

The U. S. Fish and Wildlife Service (FWS) can impose use fees as provided by the LWCFA as amended. However, it has few qualifying sites that provide the necessary specialized facilities. Revenue collected by the FWS under LWCFA in FY 1974 amounted to only $7,000, and increased to $101,000 in FY 1983. Most of the revenue generated from FWS resources goes to states from sales of hunting and fishing licenses or via cooperative wildlife management agreements between federal agencies and the states. Revenue from Pittman-Robertson and Dingell-Johnson funds are allocated to the states, by formula, on a matching-fund basis using receipts from sales of hunting and fishing licenses. Prices of "duck stamps" increased from $1.00 in 1935 to the present $7.50.

Other federal agencies that do or could collect some recreation fee revenues include the Bureau of Reclamation, the Department of Defense on military reservations, and the Federal Power Commission.

Several patterns and trends can be noted in the data presented on actual user fees charged. First, the agencies did not start levying use fees until after 1966 and passage of the LWCFA. Second, that Act, as amended in 1972, prevented most agencies from levying entrance fees. Third, use fees could not be charged for most types of use, because provisions of the LWCFA required specialized facilities or services. Thus, camping fees (with some charges for boat launching and swimming areas) represent the focus of most agency use-fee programs. Fourth, from 1966 to about 1978, use fees were nominally low for most federal agencies. About 1978, they started to make modest increases which have continued and usually at a rate that slightly exceeded inflation. Fifth, considerable latitude still exists for most agencies to increase specialized area use fees based on comparisons of fees charged by comparable private recreation enterprises. For example, a nationwide survey by the National Campground Owner's Association (of 177 campgrounds in 35 states) reported (USDI 1983) average 1982 fees charged as $8.15, $9.33, and $10.54 for tent sites, for vehicle sites with electricity, and for vehicle sites with all

utilities, respectively. Comparisons between private campground fees and what public agencies can charge are speculative, however, because of the difficulty of comparing the similarity of facilities and services provided and contrasting the demands of the users for facilities or for more rustic campsites.

These trends reflect the prevailing sentiments about fees that have been expressed in the U.S. Congress over time, with the exception that during the past 4-5 years, authorized fees have increased faster than Congress has been willing to act to broaden fee authorities.

POSSIBLE TRENDS UNDER BROADER AUTHORITIES

If broader authorities are established to remove the existing constraints on entrance fees and on types of facilities that qualify for use fees, and if fee revenues are earmarked for return to the collecting agencies, considerable changes in fee structure probably would be made quickly. The first would be initiation of use fees for a wider variety of facilities and services and of single-visit entry fees for particular types of areas. The National Park Service probably would initiate annual entry fees for additional units as it planned to do in 1978 before the moratorium. Other agencies also probably would adopt a passport system (or general use fee) for visitors to lands they administer. These fee programs would generate considerable public debate as well as sizable net, or after-cost, revenues. The remainder of this paper considers some possible trends in those revenues.

Estimates of costs and revenues accompanying different fee structures have been made for some of the agencies. An example is the GAO (1982) study of Park Service entrance fees. The conclusion of that report was:

> Using as a guideline the six legislative criteria for setting fees, we estimated that entrance fees could be raised at 25 parks and initiated at 23 of 45 nonfee parks reviewed. We also determined that it would be cost effective to extend collection hours at 14 parks and that the price of the Golden Eagle Passport could be raised from $10 to $25 to reflect increases in entrance fees at individual parks. These changes would result in net additional Park Service revenues of $20.7 million. The Park Service said that our estimates of increased entrance fee levels and revenue appeared reasonable and that new or increased fees may be warranted at many of the 262 parks not included in our review.

To provide additional insight into what trends might exist in fee-related revenues and costs, under expanded fee authorities, some alternative scenarios for the Forest Service are presented. It is emphasized that the assumptions made and the data/estimates presented do not reflect actual Forest Service plans or positions. Instead, the following estimates are the authors' rough approximations of alternative possibilities. The estimates are made based on recent trends in recreation use and fees on the national forests, with consideration given to existing facilities and their level of development, and to the cost-effectiveness of fee collection at particular types of sites/facilities.

Scenario 1 assumes that restrictions on use fees (for highly developed facilities only) have been removed and that use fees can be made for all facilities or services where cost effective. Table 5 shows changes that might occur in estimated revenues for FY 1985.

Table 5.--Comparison of possible FY 1985 FS revenues from developed-site fees under expanded authority

	Revenue (in millions)		
	Under existing authority		Under new authority
Type of Site	1983	1985(est.)	1985(est.)
Camping	$10.5	$11.9	$19.2
Picnicking	0	0	2.0
Swimming	0.2	0.2	1.2
Boat launching	0	0	1.7
Other (interpretive, playground, caves, (etc.)	0.6	0.7	4.4
Total			
Unadjusted $'s	$11.3	$12.8	$28.5
Adjust. (1984)$'s	$11.7	$12.3	$27.4 (est.)

The added annual costs of such a fee structure would be relatively small (about $4.0 million in 1985), with a one-time start-up cost of about $5.8 million. The revenue that could be generated under this scenario would be higher in future years, if recent past trends of increases in use fees continued and if these fees are charged at additional areas/sites that qualify under the expanded authority assumed for this scenario.

Scenario 2 assumes authority was available in 1985 to charge special admission fees for congressionally designated Forest Service areas (wilderness, national recreation areas, national wild and scenic rivers, and national scenic trails). Assuming a $10.00 fee per party per visit and no drop off in estimated 1985 use at these areas with that fee, and admission fees would be charged only at heavily used designated areas, the added revenue generated the first year would be about $3.9 million with a one-time start-up and added fee collection costs of about $2.8 and $1.6 million, respectively. Some unknown reduction in use would probably accompany such a fee at least for the first several years, which would reduce revenues but not lower costs much.

Scenario 3 assumes that a $10.00 admission fee will be charged at all congressionally designated areas (not just those with heavy use) managed by the Forest Service and that likely 1985 use rates will prevail. The added revenue would be about $8.0 million, with one-time start-up and added fee collection costs of about $2.1 and $3.0 million.

Scenario 4 assumes that an annual pass will be required for individuals ($15.00) or for families ($25.00) to use the national forests for recreation purposes. Additional use fees will be charged for only highly developed high-cost facilities and services. The net revenues from this scenario is estimated at $150 million annually.

Because of much uncertainty about many factors, there is error in these estimates. Nevertheless, they help illustrate several points.

Recent past trends of fairly sizable increases in fees could increase even more the additional revenues that would be produced under Scenario 1. Additional entrance fees seem to generate the most net revenue; but that is somewhat misleading, because considerable latitude still exists to increase use fees at many areas. Under new authorities use fees could be expanded to new areas.

When the net revenue of Scenario 1 is added to that of Scenarios 2 or 3, the total additional net revenue from Forest Service recreation use fees in 1985 would fall in the range of about $22-25 million (excluding the one-time start-up costs). In addition, about $23 million of revenue is estimated for FY 1985 from Forest Service recreation special-use permit fees. These revenues would help cover the estimated FY 1985 Forest Service recreation costs of about $155 million. Thus, the gap between costs and revenues can be narrowed by fee programs such as those proposed by Scenarios 1-3. Some additional closure would accompany any cost reductions that could be made. Also, some added revenue could be obtained by levying use fees higher than those that were estimated (using recent past trends) for FY 1985 in Scenario 1; but there is a limit, set partly by the private sector, to how high public use fees for camping, swimming, and picnicking can go before use and revenues drop off. Many federal campground fees seem to be approaching that limit.

It seems then, that if the objective were to close the gap between costs and revenues, an admission fee (or a general-use fee) would have to be implemented (as in Scenario 4) for all recreation users of national forests. The U.S. Congress, however, has been notably reluctant to grant authority to levy such fees. Given the problems of collecting entrance fees, and given that some recreation costs are borne to sustain productivity of the basic resources and to preserve other recreation-related resources in perpetuity, it seems unlikely that total cost recovery by charging current users is feasible as an agency objective.

CONCLUSIONS

Although federal agencies have been reluctant, at times, to raise fees they have done so (especially user fees) within existing authorities. Increased fees for camping have been levied by most agencies the past 2-3 years, with up to one-half of qualifying campgrounds having nightly use fees of at least $6.00 per site. Although further increases in use fees probably will cause reduced use and revenue at some areas, there still seems to be considerable latitude for increases in use fees at many federal areas and for initiation of use fees at additional areas under any expanded authorities granted.

The U.S. Congress has granted only limited recreation fee authority to federal agencies, especially authority to levy entrance or admission charges. Historically, this legislative stance on fees has been bipartisan, and appears to reflect strong public sentiment about the public lands. This legislative process provides time for the public, including those with competing interests and values, to decide what fee programs are and are not acceptable.

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TRENDS IN THE VALUE OF OUTDOOR RECREATION

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Abstract.--Changes in the value of money, recreation supply and demand, and methods, concepts, and definitions influence trends in outdoor recreation value. The paper discusses concepts and problems, reviews methodological evolution, and illustrates numerical results adjusted from past studies. An agenda for needed research also is included.

Additional keywords: Trends in outdoor recreation value, concepts and definition, methods and measures, research needs.

The success of outdoor recreation planning and management is becoming increasingly dependent on efficient investment of scarce resources. Planners and managers thus need to know the net present value of alternative ways of investing land, labor, and capital in recreation. This, in turn, requires an ability to measure current and future economic benefits. Measurement of future recreation values spans two difficult challenges: (1) economic valuation of outdoor recreation benefits that are often non-priced in nature, and (2) prediction of those values into the future.

The need for future estimates of real economic values is common to all aspects of personal, commercial, and public decisionmaking. A decision is an effort to act now in ways that will cause the future to be more benevolent. It is therefore necessary to compare the relative merits of the alternative futures contingent on present actions. For example, development alternatives such as major hydro-power facilities which are essentially irreversible may be "now or never" if we believe that wilderness recreation values will rise over time relative to development values (Porter 1984, Krutilla and Fisher 1975). The USDA Forest Service Resource Planning Act (RPA), which has a 50-year planning horizon, has attempted to incorporate expected changes in real values over time.

To date, nearly all of the research in recreation economics has focused on measuring the current value of recreation (Davis 1963, Clawson 1959, Cesario and Knetsch 1970, Brown and Nawas 1973, Gum and Martin 1975, Brown et al. 1983) or how that value changes when resource quality changes (Randall et al. 1974, Brookshire et al. 1980, McConnell 1977, Walsh et al. 1983, Walsh and Gilliam 1982).

The effectiveness of recreation demand forecasting models based on cross-sectional data is questionable (Brown and Hustin 1980), and forecasting models based on temporal observations are rare (e.g., Peterson and Stynes 1984). This situation makes it difficult to predict the future economic benefits of current recreation planning decisions.

The purpose of this paper is to provide information about trends in the economic value of recreation. First, the question of how and why economic values change over time is discussed. This is followed by a discussion of historical trends and events in the evolution of valuation methods. In a third section, some tentative empirical results are presented. The paper ends with a brief summary and recommendations for research.

Throughout the paper, emphasis is on measurement of value in the context of economic efficiency. Net contribution to national wealth or net economic surplus is the primary concern, as opposed to measurement of gross expenditures, local economic impacts, etc.

How and Why Economic Values Change Over Time

Trends in the apparent economic value of recreation are the product of a complex interplay of dynamic factors. The trends are best understood through explanation of the processes and circumstances that cause estimates of value to change. Several important kinds of change are discussed briefly in this section: (1) changes in the real value of money, (2) changes in the real value of recreation due to demand and supply changes, (3) changes in methods and measurements, and (4) confusion about concepts and definitions.

Changes in the Real Value of Money.--Depending on many complex factors such as monetary supply, balance of payments, deficit spending, national debt, and the international money market, the real value of money may change over time. Apparent trends in the measured value of recreation may simply reflect trends in the real value of money. Trends should thus be described in terms of real changes in recreation value relative to other goods and services. This can be accomplished by converting measured values into real dollars as adjusted for changes in the value of money.

Changes in the Real Value of Recreation Due to Supply and Demand Changes.--In the context of market exchanges, the prices of private goods are established by equilibrium between demand and supply. Shifts in either the demand function or the supply function will cause prices and surpluses to change. This logic also applies to valuation of those types of recreation which are not traded in private markets. The economic value of such recreation can be estimated if the consumers' demand and supply curves can be estimated. For example, in travel cost analysis (Rosenthal, Loomis and Peterson 1984), the supply curve for a non-priced recreation site is the expenditure that must be incurred to visit that site. The net benefit of having the site available (as opposed to closing it) is the area under a correctly estimated demand curve above the expenditure curve. As shown by the hypothetical demand curve (D_1) in Figure 1, a consumer facing a price of $100 would make five visits to the site. The net economic value of these trips to the consumer is $125--in consumers' suplus as measured by the area of the triangle bounded by the price axis, the expenditure curve(S), and the demand curve (D_1) (i.e., $150-$100 times 5 trips divided by 2). Assuming the analysis is in terms of real dollars, trends in the value of recreation can be explained in terms of factors that cause the demand and supply curves to shift.

Many factors will cause the demand for recreation to change over time. Krutilla and Fisher (1975) note that increases in population and income will shift the demand curve for recreation outward, implying increased aggregate benefits. A related factor is change in the demographic composition of the population. Changes in the age profile, for example, will shift demand among different activities. Tastes and preferences for outdoor recreation may change due to such factors as increased emphasis on physical fitness and the "learning by doing" process (Munley and Smith 1976). Increases in the availability of leisure time due to shorter work weeks or longer paid vacations will also cause the demand curve to shift outward. The quality and types of

recreation experience provided by natural resources are important demand shifters that often can be influenced by management. As shown in Figure 1, when such factors cause an outward shift in the aggregate demand function without changing the cost, benefits will increase by the amount of the shaded area.

Supply changes can affect recreation value in several ways. A simple price change or shift in the supply curve will move demand along the demand function, thereby changing benefits as shown by the shift from S_1 to S_2 in Figure 2. For example, imposing fees at previously free recreation sites is such a supply shift. Increasing transportation costs due to an increase in the relative price of gasoline or of automobiles will have a similar effect.

In the context of a specific site, raising the price at only that site will shift demand to substitute sites. Likewise, raising or lowering prices of substitute sites will shift demand at the site in question. The introduction of new sites or new opportunities will tend to shift demand away from existing sites and opportunities, either because the new sites present higher quality or because they are available at a lower price. For example, construction of a new reservoir in a region with several similar impoundments will lower the travel cost to water-based recreation for many people in the region. This will stimulate new recreation activity at the new site, while also shifting demand at other sites. The net effect is likely to be an overall increase in the value (net benefit) of this type of recreation in the region, though the value at some of the old sites may actually decline. However, if the new site relieves congestion which reduced the quality of existing sites, the value of all sites may actually increase (Cesario 1980, Walsh and Gilliam 1982).

From this brief discussion it is apparent that the value of recreation in general, of specific activities, or of specific sites can be a volatile phenomenon, subject to significant changes over time. It is a product of supply and demand, which are, in turn, dependent on complex and dynamic variables. Some of these variables may be under the control of managers, while others are not.

Methods and Measurements.--Accumulation of value estimates over time provides evidence needed to evaluate reliability as well as trends. However, reported estimates will change as methods of measurement and analysis improve. There has been substantial methodological evolution in recent years, which makes comparisons over time difficult. Later in this paper we attempt to make inferences about trends by reconstructing comparable estimates from methodologically disparate studies. To demonstrate the problems with this approach, a section is also included summarizing the evolution of value measurement methodology.

Concepts and Definitions.--Methodological evolution makes temporal comparison difficult, but still more perplexing is the fact that different studies may report the "value" of recreation from different conceptual perspectives. From the point of view of applied economic theory and benefit cost analysis there is a long-standing and consistent definition of value as net willingness-to-pay or to accept compensation (Randall 1984, Freeman 1979, Mishan 1976, Mäler 1974, McKean 1958). The problem of valuation of recreation is nonetheless not without controversy and confusion.

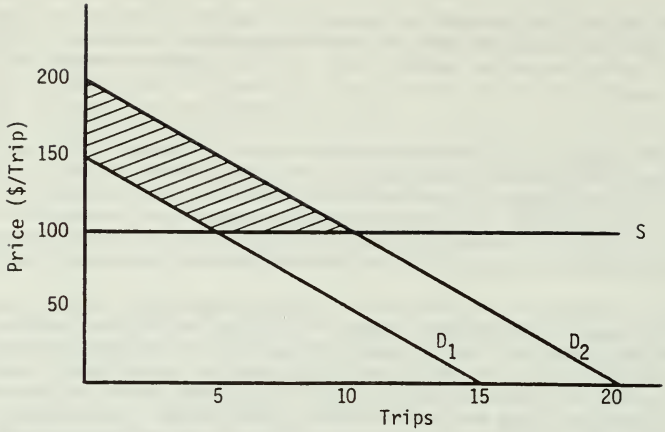

Figure 1
Benefit Change Due to Demand Shift

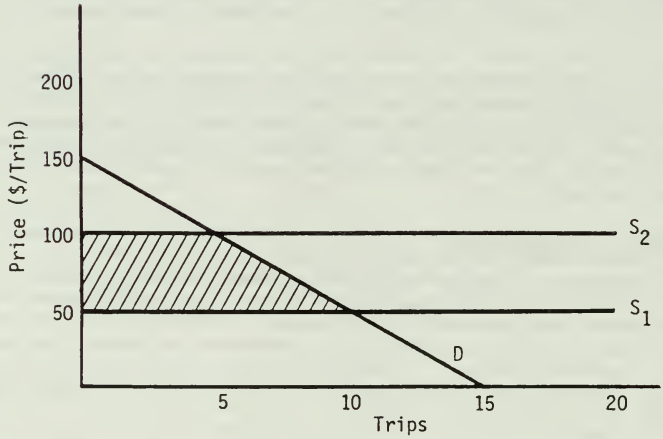

Figure 2
Benefit Change Due to Price Change

The "chamber of commerce" approach measures the "value" of recreation in terms of gross expenditures and economic activity. Concern is for local income and employment. The legitimate issue is one of economic impact motivated by political interests in equity and/or local advantage. However, this is very different from the efficiency concern for net contribution to national wealth (Knetsch and Davis 1966, Clawson and Knetsch 1966). Managed as separate information systems, both approaches are important to decisionmakers for different reasons. Confusion is manifest when expenditures are reported as economic benefits, thereby mixing the two concepts.

Another perspective, the "accountant's view" measures willingness to pay strictly in terms of revenue captured by the managing agency. This approach ignores such things as externalities and public goods which, by policy or market failure, do not appear in the cash flow accounts. "Benefits" thus defined are too narrow from the point of view of economic theory, but a given political perspective might view this as the correct definition. It is the approach used by most private firms.

Still another approach to recreation value can be characterized as the "nutritional" perspective, which is essentially outside of economics. The economist's definition of economic value of recreation is based on observed behavior under the assumption of consumer sovereignty. Value is measured by willingness-to-pay as implied by the choices people are observed to make. However, the recreational "nutritionist" sees the benefits of recreation as the desirable consequences of participation. He is concerned with exposing the consequences so that public policies can be directed toward those with social merit, and individual choices can be based on better understanding. Is the value of food the price people are willing to pay for it, or the nutritional functions it performs? The "nutritionist" approach sees the value of recreation in terms of its beneficial consequences.

Once the analyst's frame of reference has been established through clear thinking and explicit definitions, the appropriate measure of recreation value can be selected. For purposes of benefit-cost analysis aimed at evaluating economic efficiency, the principal of potential Pareto improvement (Randall 1984) in terms of Hicksian measures of welfare change (Just, Hueth and Schmitz 1982) are almost universally accepted among economists. Because it has been difficult to obtain income-compensated measures of willingness-to-pay in applied studies, empirical approximations such as "consumer surplus," "producer surplus," and market prices are generally used. In recreation applications the approximations are generally good. For example, the consumer surplus associated with a recreation management action is likely to be very small relative to income, and Willig (1976) has shown the approximation to be a good one in such cases (Freeman 1979). However, recent development by Hausman (1981) and Vartia (1983) have made the calculation of the Hicksian measures more accessible. In any case, net willingness-to-pay (or to accept compensation) is the correct measure of value for benefit cost analysis, because it relates directly to the underlying criterion of potential Pareto improvement (also known as the Kalder-Hicks compensation test, Just, Hueth and Schmitz 1982).

Unfortunately, many early studies of recreation value are not based on the economic concept of net willingness to pay, but rather equate value with consumers' gross expenditures on goods and services purchased in connection

with the recreation activity. While this approach still is occasionally used by persons who are either not familiar with the relevant economic concepts or who have mixed their objectives, virtually all efficiency studies by qualified economists are now based on net willingness-to-pay (WTP).

Value defined as net WTP in the context of benefit-cost analysis is difficult enough to estimate in cross-section without worrying about how it changes over time. To be correct, it should include off-site as well as on-site value. For example, wildlife recreation value includes on-site consumptive use (hunting and fishing), on-site non-consumptive use (viewing), and off-site WTP in the form of option, existence, and bequest value. The current state of the applied art focuses almost exclusively on recreation at a recreation site, although theory recognizes these other components of value, and research is expanding in their direction.

Estimation of trends in the value of on-site recreation has two important components: forecasting participation over time and estimating the willingness of visitors to pay for the opportunity. As evidenced by the proceedings of the 1980 recreation trends symposium (Brown and Hustin 1980), forecasting capability is far from perfect. Valuation methods that depend on participation forecasts thus stand on weak legs as far as trends are concerned. The direct questioning method of contingent valuation is unable to provide the needed support because people cannot respond effectively to direct questions about their future WTP. We must wait for the future before we can question them.

An added complication is that information about the economic value of recreation is of practical use only as an answer to specific questions such as are raised by the need to make decisions about allocation of public land parcels to alternative uses. The question, "What is the value of a house?" can only be answered by another question, "Which house?"

Much of the attention to recreation value in applied research has been aimed at aggregate analysis and average or "per capita" surplus. Is this what is needed in a specific decision context? We can measure the average visitor's WTP for <u>this</u> site, or we can measure <u>this</u> visitor's WTP for the average site, and the answers are not likely to be the same. Still different is the average visitor's WTP for the average site, the marginal visitor's WTP for this site, the average visitor's WTP for the marginal site, etc. And, many management decisions are not concerned with opening or closing whole sites. They are concerned with small changes in capacity, facilities, etc., so the value calculated relative to closure of a recreation site is generally not appropriate for evaluating decisions about changes in specific site characteristics.

Analysis and prediction of trends in recreation value require first a specific definition of what is to be valued. Is it a number to be used for specific decisionmaking situations? If so, it must be defined in terms of those variables which change from one situation to another. Or, is it simply a gross indicator of economic trends that is wanted, analogous to a consumer price index? If so, an average or composite index will be sufficient.

The first step in searching through past studies or in designing new ones to discover trends in recreation value is to be sure the question is ade-

quately and consistently defined. What is meant by "value," and what is the "thing" to be valued? To compare studies over time in search of trends, the economist must first achieve consistency of definitions and measures. Unfortunately, efforts to reveal trends must sort through a conglomeration of concepts, problems with semantics, and differences in objectives and contexts as well as an evolving collection of methods and results.

Evolution of Methodology

As shown in Figure 3, two primary techniques emerged in the late 1950's and early 1960's that have influenced the direction of recreation valuation. The first can be thought of as the revealed preference or actual market data approach to estimating demand curves. Clawson (1959) is often credited with developing the first operationally valid demand estimating technique, called the Travel Cost Method. Clawson used observations of travel costs as the price variable, and trips per capita from zones or counties of recreationist origin as the quantity variable, to statistically estimate a demand for recreation. From this demand curve, consumer surplus could be calculated either directly or from a "second stage" demand curve derived from the original curve by successively adding travel costs until visits fall to zero. This approach of aggregating visitation data into zones is now identified as the "zonal" Travel Cost Method.

The major improvements since Clawson include the incorporation of travel time into the price variable (Cesario and Knetsch, 1970), a system of demand equations to better account for substitutes (Burt and Brewer 1971), incorporation of site quality through use of Regional Travel Cost Models (Cesario and Knetsch 1976), and the disaggregation of visitation down to the individual recreationist level (Brown and Nawas 1973, Gum and Martin 1975). This later innovation resulted in what has become known as the "individual observations" Travel Cost Method. Recently, Brown et al. (1983) have suggested a merging of individual observations and the zonal methods to provide more accurate estimation of benefits when using the basic Travel Cost Method.

Also using individual observations, the Household Production Approach (Bockstael and McConnell 1981, McConnell 1979) and Hedonic Travel Cost Method (Mendelsohn and Brown 1983) adopted Becker's (1965) and Lancaster's (1966) revision of demand theory that allowed valuation of the separate characteristics of a recreation experience. These revisions of demand theory viewed households as producing goods and services that provide characteristics sought after by the household. These characteristics could include nutrition, taste, excitement, safety, relaxation, etc. The Household Production Approach and Hedonic Travel Cost Method each try to estimate the economic value of a recreation experience by estimating the demand for and benefits of the recreation characteristics provided by a recreation site. Bockstael and McConnell (1981) show that when the level of quality at a site can be modified by recreationist skill and equipment, the Household Production Approach provides more accurate estimates of benefits than would the Travel Cost Method. The Travel Cost Method is shown to be accurate when site quality cannot be modified by recreationists via their skill or purchase of additional equipment.

While this evaluation of the travel cost method was occurring in the recreation economics literature, methods for analyzing and forecasting travel demand were evolving on parallel tracks in geography and transportation. The

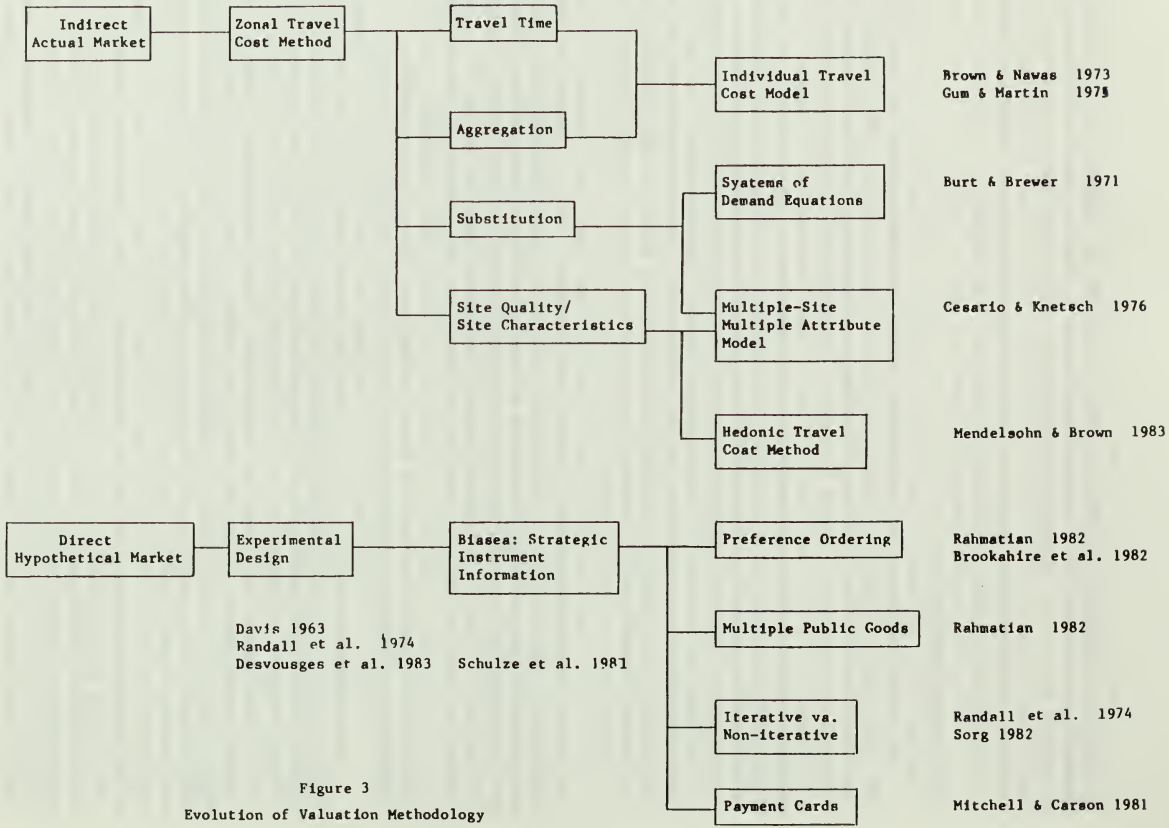

Figure 3
Evolution of Valuation Methodology

elaborate gravity model of Cesario and Knetsch (1976) represents an intersection of the development of gravity models in transportation demand modeling (Ewing 1980) with recreation economics. Recent developments in disaggregate (individual) transportation demand modeling have produced multiple site, multiple attribute demand models derived by utility maximization (Domencich and McFadden 1975). These approaches are beginning to find their way into the recreation demand literature (Peterson et al. 1983, Stynes and Peterson 1984).

The other main branch of recreation valuation shown in Figure 3 involves the use of simulated markets to directly estimate net willingness to pay. Davis (1963) pioneered the initial use of surveys for valuing recreation sites and public goods. Early development of the Contingent Value Method (CVM) involved designing a credible questionnaire. All individuals have to be responding to the same situation and must be fully aware of all ramifications of any proposed change. Improvements in questionnaire design have included use of photographs (Randall et al. 1974, Schulze et al. 1981), quality ladders (Mitchell and Carson 1981, Desvousges et al. 1983), and maps (Walsh et al. 1984). A major stumbling block in the credibility of CVM has been the issue of biases that can result from presenting an individual with a hypothetical situation. Possible biases include strategic behavior bias, instrument bias, and information bias. A review by Schulze et al. (1981) suggests that the preponderance of evidence is against biases being a serious problem.

Most recent CVM research is considering the following issues: methodological cross checks (Bishop and Heberlein 1979, Brookshire et al. 1982), preference ordering using budget constraints (Rahmatian 1982, Brookshire et al. 1982), effect of multiple public goods within a single survey (Rahmatian 1982, Brookshire et al. 1982), iterative vs non-iterative bid formats (Randall et al. 1974, Sorg 1982), payment cards (Mitchell and Carson 1981), and close-ended take it or leave it formats (Desvousges et al. 1983).

This brief survey of methodological evolution of the Travel Cost and Contingent Value Methods shows that trying to detect the pattern of change in recreation value estimates over time will often be difficult since the measuring instruments have been evolving over time.

Comparisons of Recreation Values Over Time

In this section, we attempt to evaluate the trend in benefit estimates after adjustment for the effect of differences in methodology. To minimize the effect of different methodologies we compared studies within methods. That is, CVM studies are compared to CVM studies, and TCM studies compared to TCM studies. Where possible, we compare State averages so that differences in site characteristics will be controlled.

In Table 1 the numbers in the column labeled Reported Dollars reflect the value reported or derived from estimates in the author's original report. The column labeled 1982 Dollars reflects both an updating to 1982 dollars (using the GNP Implicit Price Deflator) and a "standardizing" of values for methodology. For example, the Gordon (1970) study in Idaho did not account for travel time. While accounting for travel time was not part of the "state of the art" in 1968, it has become accepted practice since 1979. Therefore, to compare values derived in different time periods, we have corrected Gordon's value to include travel time so it will be methodologically consistent with

the later studies. Sorg and Loomis (1984) provide a discussion of the methodological correction factors and have applied them to several of the studies listed in Table 1.

There seem to be several patterns emerging from the data in Table 1. The nominal value of recreation appears to have increased substantially over time. Adjusting for inflation allows us to compare values in current dollars. This shows whether the real value of recreation has increased relative to the increase in price of all other goods. It appears that recreation values have increased in real terms since the late 1960's or early 1970's. The real values do not appear to have increased much since the early 1980's and possibly could have fallen, although with only two or three studies it is difficult to make any statements with much confidence. Given the likely confidence intervals around the estimates, differences of less than $2-$4 are not statistically significant. We can only speculate about the reasons for these apparent changes, but according to a recent study by Peterson and Stynes (1984), they may be caused in part by shifts in the travel cost of recreation due to changes in the relative price of motor fuel. The same pattern of change reported in Table 1 for coldwater fishing in Idaho appeared in the travel cost coefficient of a travel demand model for paddle-canoe-camping in the Boundary Waters Canoe Area Wilderness.

The numbers reported in Table 1 should be regarded as only illustrative as far as trends are concerned. While we have applied adjustments and controls in an effort to make them comparable, the differences in values may not solely reflect real trends since several factors affecting demand have not been accounted for.

A Research Agenda for Explaining and Forecasting Trends in the Relative Economic Value of Recreation

This paper has presented a few illustrative figures on short-term trends in the economic value of several types of recreation. In trying to come up with sources of information about trends, the authors were stymied by a sparseness of relevant studies and by noncomparability of concepts and methods. Therefore, the principal emphasis has had to be on a review of the concepts and methods that need to be understood and standardized before trends in the economic value of recreation can be studied effectively.

There are several necessary ingredients that will allow researchers to describe and explain trends in the economic value of recreation. The most important is consistently measured data, collected at regular time intervals. Such data should include not only information on participation, travel cost, willingness to pay, etc., but also information on other variables to which recreation value is sensitive. It is more useful and generalizable for forecasting purposes if trends can be explained in terms of the processes and variables that cause change, rather than simply described and projected. It is also important to separate different kinds of changes. A change in apparent value due to inflation is different from a change in relative value due, for example, to a relative change in the price of gasoline. Likewise, a change in recreation value due to shifts in the composition or location of population is different from trends caused by changing tastes and preferences. And, changes in the quantity, quality, or location of the supply of recreation

Table 1.--Comparison of adjusted values over time

COLDWATER FISHING

		IDAHO	
	Year of Study	Reported Dollars	1982 Dollars
TCM			
(Gordon)	1968	$3.65	$11.57
(USFWS)	1980	$24.00	$27.36
(Sorg et al.)	1982	$25.55	$25.55
CVM			
(USFWS)	1980	$12.93	$14.72
(Sorg et al.)	1982	$14.25	$14.25

		ARIZONA	
	Year of Study	Reported Dollars	1982 Dollars
TCM			
(Martin et al.)	1970	$10.15	$25.75
(Miller & Hay)	1980	$35.00	$39.90

DEER HUNTING

		COLORADO	
	Year of Study	Reported Dollars	1982 Dollars
CVM			
(Miller)	1974	$9.11	$18.40
(USFWS)	1980	$23.49	$26.78

opportunities will cause value changes that are still different in meaning and management implication. It is useful to know that change has occurred, but it is more useful to know why.

The two primary recreation surveys done regularly (the National Outdoor Recreation Survey and the National Survey of Hunting, Fishing, and Wildlife Associated Recreation) are just beginning to include data that can be used to estimate the economic value of recreation. Improvements in questionnaire design and regular collection of data will permit analysis of future trends in recreation value.

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TRENDS IN THE COSTS OF PROVIDING PUBLIC OUTDOOR RECREATIONAL OPPORTUNITIES

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Abstract.--Cost of provision data are analyzed for four public agencies that provide outdoor recreational opportunities: the U.S. Forest Service, the Corps of Engineers, the National Park Service and the Maine Bureau of Parks and Recreation. The cost categories studied include overhead, operation and maintenance, construction and development, and total costs. Real O&M and overhead costs per unit of use were relatively stable for the three federal agencies during the time period studied; construction and development expenses were more variable. Real expenses per unit of use by the Maine Bureau increased more than expenditures made by the federal agencies. Additional work is required before definitive conclusions regarding cost trends can be drawn.

Additional keywords: Public outdoor recreation, costs of public recreation, costs of provision, operation and maintenance costs.

INTRODUCTION

Federal, state and local government agencies have historically played a significant role in providing outdoor recreational opportunities for the public. While the role of the various public agencies varies somewhat among the regions of the U.S., these agencies often provide campgrounds, picnic areas, hiking trails, swimming and boating sites, coastal and inland beaches, wilderness areas and numerous other types of recreational opportunities. Prior to 1970, very little attention was devoted to measuring the costs associated with providing these outdoor recreational opportunities. However, since that time, numerous studies have been completed that document the costs associated with providing many of the types of recreational opportunities listed above.

Several factors have contributed to the interest in recreation cost of provision studies. First, federal legislation has mandated that greater emphasis be placed on economic benefits and costs in the planning and policy process. For example, the National Forest Management Act and the Federal Land Policy and Management Act, both passed in 1976, support increased use of economic criteria in the planning process. This legislation stimulated interest in cost studies among federal agencies that provide outdoor recreational opportunities and at least one planning guide was developed to assist agency personnel in estimating and analyzing cost of provision data for recreation (Fight, 1980).

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The change in fiscal philosophy that has occurred at all levels of government in recent years has also created interest in cost of provision studies. Budget cuts have become the rule rather than the exception. Consequently, public funds to construct new and operate existing public outdoor recreational facilities have become more uncertain. As a result, public agencies have had to reassess resource allocation policies and use existing funds more efficiently. Cost of provision studies are helpful in that they can identify cost saving measures and indicate which opportunities are most expensive to provide per unit of use.

Finally, there has also been increased interest in the pricing policies associated with the use of public outdoor recreational facilities. While it is widely recognized that user fees only cover part of the costs of provision, the magnitude of the difference between costs and revenue from user fees could not be estimated until the level of costs were carefully measured. The relationship between user fees and the costs of providing recreational facilities has become an interesting issue for several reasons. For example, some public agencies have become interested in increasing user fees to offset other sources of public funds. In addition, some economists have argued in favor of high user fees to reduce management problems caused by overcrowding and congestion and to improve the economic efficiency associated with the provision and use of the facilities. Finally, increased reliance on user fees to pay the costs of providing government services, including outdoor recreation, has been advocated by some government personnel in recent years (U.S. General Accounting Office, 1980). All of these factors have increased interest in public outdoor recreation cost studies.

Given the heightened interest in cost of provision studies, it is only fitting that cost trends which have occurred in recent years be addressed as part of this recreation trends symposium. However, it should be noted that this is not an easy task. While several cost studies have been completed in the last few years, they are not very useful for identifying trends because they only measured costs at one point in time. Furthermore, those studies analyzed different types of recreational facilities and opportunities and utilized different methodological techniques to measure costs. For example, Guldin (1980) analyzed the costs of wilderness areas in New England while Tyre (1975) measured costs for over 200 U.S. Forest Service facilities in the Southeast. Reiling, et al. (1980) measured costs of provision for 38 developed campgrounds provided by the U.S. Forest Service and the State Park Systems in Oregon and Idaho. Gibbs and van Hees (1980) estimated costs for a sample of U.S. Forest Service campgrounds in the Pacific Northwest, and for campgrounds provided in state forests in Oregon (Gibbs, et al. 1979). Reiling and Anderson (1983) measured the cost of providing a variety of recreational opportunities operated by state and federal agencies in Maine. While most of the studies included estimates of the costs of provision for campgrounds, the level of development of the campgrounds varied substantially so campground costs cannot be compared among studies.

Differences in the types or categories of costs included in the studies also varied considerably. Opportunity costs of land were omitted by Reiling, et al. (1980) and Reiling and Anderson (1983), but included in most other studies. Overhead costs were also omitted in some studies (Gibbs and van

Hees, 1980; Gibbs, et al., 1979; and Reiling, et al., 1980). Capital recovery costs were also treated differently in the various studies. While most researchers used the amortization process to recover capital costs, the interest rate used for amortization varied among studies. Reiling and Anderson (1983) used a sinking fund to recover the capital costs associated with construction.

Clearly, the differences that exist among previous studies with regard to both the facilities studied and the cost accounting procedures used severely limit the usefulness of those studies for our purpose. Since our objective is to illustrate the trends in the costs of provision, we need to utilize data and cost accounting procedures that are consistent for the time period used in the analysis. This could only be accomplished by collecting and analyzing comparable data for several years.

The data sources used in this study are described in the next section and the results of the analysis are presented in the third section. Finally, we present some implications from the study and suggest some areas for additional research in the last section of the paper.

DESCRIPTION OF THE DATA

Given the national scope of the symposium, our intent is to present recreation expenditure data for several federal agencies and one state park system as an example of expenditures at the state level. Expenditures are presented on a "per visit" or "per visitor day" basis, depending on agency policy regarding measures of use. We chose to omit opportunity costs of foregone alternatives since these costs are difficult to measure on an aggregate level. We obtained data from most agencies on their visitation, total costs, operation and maintenance costs, overhead costs and construction and development costs. Data were obtained from the U.S. Forest Service, the Corps of Engineers, the National Park Service, and the Maine Bureau of Parks and Recreation.

The U.S. Forest Service provided data from 1971 to 1983 on visitation and all four cost categories. Visitation is on a per visitor day basis. The U.S. Army Corps of Engineers provided the same information for the period 1975 through 1984. Visitation is on a per visit basis. The National Park Service provided data from 1977 through 1984 on total expenditures, operation and maintenance costs and visitation on a per visit basis. Data from the Maine Bureau of Parks and Recreation covered the period 1977 through 1984 and included total expenditures, operation and maintenance costs, overhead costs and visitation on a per visitor day basis.

Once the actual data were obtained from each agency, it was adjusted in several ways. First, expenditures were adjusted for inflation by deflating actual expenditures by the Gross National Product Price Deflator. The inflation-adjusted data allows one to determine whether the purchasing power of the expenditures made by the various agencies increased or decreased through time. The inflation-adjusted or "real" expenditures were then adjusted to reflect changes in the level of use of each agency's recreational facilities. This was accomplished by dividing the real expenditures for a given year by the number of visits or visitor days that occurred at the agency's facilities in that year.

Finally, an index was calculated by dividing the adjusted data for each year by the adjusted figure obtained for the first year of the data set and multiplying by 100. Therefore, an index number that is greater than 100 for a specific year signifies that the level of real expenditures per unit of use in that year was greater than the level of real expenditures per unit of use made in the first or "base" year. Conversely, an index number that is less than 100 for a particular year indicates that the level of real expenditures per unit of use was less for that year than it was in the first year of the data series. These adjustments allow us to determine whether the expenditures of the various agencies have increased or decreased in recent years after adjusting for the effects of both inflation and increased use of agency facilities.

RESULTS

U.S. Forest Service

As noted above, U.S. Forest Service data were obtained for the period 1971 to 1983. Four categories of cost data were obtained: operation and maintenance costs, construction and development costs, overhead costs, and total costs. During the period for which data were obtained, operation and maintenance costs accounted for an average of 69 percent of total costs, while construction and development costs and overhead costs accounted for an average of 13 and 18 percent, respectively. Construction and development costs varied significantly from year to year, which also caused total costs to vary. Overhead costs and O&M costs were less variable during the period.

The level of total expenditures for the Forest Service increased 164 percent between 1971 and 1983. After adjusting for inflation, however, the real increase in expenditures was only 18 percent. As the indices in the first column of Table 1 indicate, real total expenditures per visitor day declined substantially between 1971 and 1976, then increased dramatically in 1977 and remained above the expenditure level of the base period of 1971 for three years. However, total real expenditures per visitor day for the years 1980 through 1983 were again below the level of the base period of 1971.

Operation and maintenance costs per visitor day and overhead costs per visitor day exhibited similar trends during the period of analysis (Table 1). Both declined between 1971 and 1976, but increased in 1977 and remained slightly above the levels of expenditures that occurred in 1971. Unlike total expenditures, O&M costs and overhead costs per visitor day did not decline significantly during the 1980-1983 time period.

As expected, construction and development costs per visitor day fluctuated widely during the period of analysis. Expenditure levels in 1972 through 1976 were well below the level of expenditures in 1971. Large increases in expenditures for construction and development for the years 1977-1979 resulted in levels of real expenditures for construction and development per visitor day that were above the 1971 real expenditure level. However, real construction and development expenditures per recreation visitor day were well below the base year level during the last four years.

In summary, it is evident that variations in construction and development costs is responsible for the variation in total expenditures since the

two categories have the same general trends. Indices for O&M and overhead costs did not vary too much during the period.

Table 1. Index of U.S. Forest Service Real Expenditures per Recreation Visitor Day (1971=100)

	Expenditure Category			
Year	Total Expenditures	Operation & Maintenance Expenditures	Overhead Expenditures	Construction & Development Expenditures
1971	100.0	100.0	100.0	100.0
1972	91.4	100.3	100.0	58.5
1973	92.1	96.7	95.6	75.8
1974	75.8	88.2	91.2	27.5
1975	72.5	84.2	87.4	27.4
1976	73.5	85.2	88.0	27.2
1977	123.7	108.6	113.2	176.9
1978	111.8	113.1	119.0	102.5
1979	111.0	103.3	116.2	101.0
1980	93.9	107.7	115.6	36.5
1981	91.6	107.6	109.4	30.6
1982	86.2	100.8	107.2	27.1
1983	91.9	103.4	111.6	44.0

Corps of Engineers

The cost data for the Corps of Engineers spans the time period of 1975 to 1984. Data were obtained for the same categories of costs as described above for the Forest Service; they are operation and maintenance costs, overhead costs, construction and development costs and total costs. Again, O&M costs was the largest component of total costs, accounting for an average of 79 percent of total costs. Overhead costs and construction and development costs averaged 16 percent and 5 percent, respectively, of total costs between 1975 and 1984. Construction and development costs were much higher in the base year of 1975 than in subsequent years. This, of course, has an impact on the construction and development and total cost indices presented below.

The total (unadjusted) expenditures made by the Corps of Engineers

increased 64 percent between 1975 and 1983 and then decreased substantially in 1984. After adjusting for inflation, the real level of total expenditures made in 1983 was almost identical to the level of real total expenditures made in 1975. Furthermore, real total expenditures per visit declined significantly during the period (Table 2, Column 1).

The reason for the decline in real total expenses per visit can be determined by examining the indices for real construction and development costs per visit in the last column of Table 2. The indices indicate that real expenses per visit for construction and development in 1976-1984 were only 21 to 41 percent of the level made in the base year of 1975. These low levels of real expenses per visit for construction and development cause the real total expenditures per visit for years 1976-1984 to be less than in 1975.

Table 2. Index of Corps of Engineers Real Expenditure Data per Visit (1975=100)

	Expenditure Category			
Year	Total Expenditures	Operation & Maintenance Expenditures	Overhead Expenditures	Construction & Development Expenditures
1975	100.0	100.0	100.0	100.0
1976	69.8	94.3	96.6	25.0
1977	78.9	91.3	101.7	37.6
1978	64.2	81.5	82.8	32.2
1979	86.0	110.5	112.1	41.1
1980	78.4	108.6	108.6	23.3
1981	80.9	110.9	110.3	25.0
1982	71.1	98.0	96.6	21.5
1983	75.2	96.4	96.6	35.8
1984	58.6	77.8	77.6	25.0

Real O&M expenses per visit and real overhead expenses per visit for the Corps of Engineers both remained fairly stable between 1975 and 1984. Real O&M costs per visit ranged from 78 percent of base year expenses in 1984 to 111 percent of base year expenses in 1981. Real overhead expenses per visit display a similar pattern. Hence, we can conclude that O&M expenditures and overhead expenditures increased at approximately the same rate as the combined effect of inflation and higher levels of use. In contrast, real expenditures per visit for construction and development were much lower in all subsequent years than they were during the base year of 1975. Incidently, this illus-

trates how the level of funding in the base year can affect the magnitude of the indices. If 1976 had been used as the base period, the indices for real construction and development costs per visit would have been about 100 in most years.

National Park Service

Only two categories of costs are presented for the National Park Service. They are total expenditures and operation and maintenance costs. It should be noted that the total expenditures reported below do not include construction and development costs because the actual level of expenditures for construction and development in a given year could not be determined. Consistent measures of overhead costs for various years could not be ascertained either. On the other hand, O&M costs are presented for the major subactivities that comprise that category of costs. The O&M costs presented below are equivalent to the "Park Management" account expenditures of the National Park Service. The expenditures in this account represent a close approximation of O&M costs.

The unadjusted total expenditures made by the National Park Service increased 104 percent between 1977 and 1984. However, the increase in expenditures was only about 28 percent after adjusting for inflation. When the increase in the number of visits is included in the analysis, the real total expenditures per visit for the National Park Service actually declined slightly during the period, as shown in the first row of Table 3. Real total expenditures per visit were higher in 1978, 1979 and 1983 than in 1977. However, in all other years, the level of real expenditures per visit were lower than in the base year of 1977. However, since the index for each year is near 100, one can conclude that the level of total expenditures made by the National Park Service increased enough to approximately offset the combined effects of inflation and the increase in visitations that occurred between 1977 and 1984.

The remaining data in Table 3 pertains to operation and maintenance costs and the major subactivities included in that category. Overall, O&M costs account for about 90 percent of the National Park Service total expenditures each year. Total real operation and maintenance expenditures per visit exhibit about the same trend as total expenses discussed above. Real O&M expenses per visit were slightly higher in 1978 and 1979 than in 1977, but were below the 1977 level in subsequent years. The decline in real O&M expenses per visit was slightly greater than the decrease in total National Park Service real expenses per visit.

The data also illustrate that the level of real expenditures per visit varied substantially among the major subactivities. The "Management of Park Areas" and the "Visitor Protection and Safety" subactivities experienced the greatest percentage decline in real expenditures per visit, while "Concessions Management" accounted for the largest percentage increase. Real expenses per visit for "Resource Management" were also higher in 1983 and 1984 than during the base year of 1977.

Maine Bureau of Parks and Recreation

Detailed expenditure data for the years 1977 to 1984 were also obtained

Table 3. Index of National Park Service Real Expenditures per Visit (1977=100)

Expenditure Category	Year							
	1977	1978	1979	1980	1981	1982	1983	1984
Total NPS Expenditures	100.0	105.0	105.0	91.9	88.5	93.7	101.8	94.9
Operation & Maintenance Costs:								
Total	100.0	101.5	102.5	90.3	87.4	86.6	93.6	86.1
Management of Park Areas	100.0	90.5	95.8	89.3	84.8	67.3	62.2	60.9
Concessions Management	100.0	151.9	174.1	148.1	148.1	133.3	140.7	170.4
Interpretation & Visitor Services	100.0	105.0	102.5	94.8	102.1	96.5	96.4	96.6
Visitor Protection & Safety	100.0	107.2	101.3	96.6	86.4	83.6	86.3	81.4
Maintenance	100.0	107.7	108.3	88.6	87.8	89.5	99.6	86.6
Resource Management	100.0	83.9	90.9	83.7	74.5	93.3	111.3	107.7

for the Maine Bureau of Parks and Recreation. The expenditure data include operation and maintenance costs associated with the operation of all the parks and historical sites, and the overhead costs associated with the state headquarters and the six regional headquarters located throughout the state. The overhead costs for the state and regional headquarters are reported separately to illustrate changes in the levels of expenditures that occurred at both levels of the organization. Construction and development costs are not reported for the Maine Bureau of Parks and Recreation. Therefore, the total costs reported below represent the sum of overhead and O&M costs.

Because of the detailed nature of the expenditure data obtained from the Bureau, we had several options regarding the aggregation and the presentation of the data. We have chosen to present labor costs and non-labor or "other" costs separately. Labor costs include wages, salaries, overtime pay, and fringe benefits paid by the Bureau, which includes health insurance, group life insurance, retirement, unemployment compensation, and uniform allowances. The "other" or non-labor category includes vehicle costs, repairs, supplies, utilities, postage, and equipment purchases, including vehicles and office equipment.

The level of expenditures made by the Maine Bureau of Parks and Recreation, before adjusting for inflation and the increase in the number of visitor days, increased 112 percent between 1977 and 1984. Labor expenses increased 124 percent while other expenditures for supplies, equipment, utilities, etc. increased about 59 percent during the same period. It is interesting to note that labor costs, as a percent of total expenditures, increased from about 80 percent to 87 percent during the period 1977 to 1984. This clearly indicates that labor costs account for a very large part of the Bureau's total expenditures. We believe that this is true for other recreation agencies as well.

After adjusting for inflation, the level of expenditures made by the Maine Bureau of Parks and Recreation increased 33 percent between 1977 and 1984. All of the increase in real expenditures is attributable to real increases in labor costs. In real dollars, expenditures for supplies, equipment and other non-labor items were the same in 1984 as in 1977.

Indices of real expenditures per visitor-day are reported in Table 4. The first three rows represent indices for Bureau-wide labor costs, other costs and total costs. The data indicate that, for the Bureau as a whole, real labor costs per visitor day were higher in all subsequent years than in the base year of 1977. The increase over 1977 ranged from nine percent in 1978 to almost 33 percent in 1982. Over the period, real expenditures per visit for personnel averaged about 20 percent more than in the base year of 1977. Real expenditures per visitor day for other (non-labor) items were higher during the period 1978-1980 than in 1977. However, real other expenses were lower in the years 1981-1984 than in 1977, indicating that the expenditures for supplies, equipment, etc. did not increase as rapidly as the combined effect of inflation and increased use during the last four years.

Real total costs per recreation visitor day for the Bureau as a whole were greater in all years between 1978 and 1984 than they were in 1977. The increase ranged from about 11 percent in 1978 to 26 percent in 1982. Hence,

Table 4. Index of Maine Bureau of Parks and Recreation Real Expenditures per Visitor Day (1977=100)

Expenditure Category	Year							
	1977	1978	1979	1980	1981	1982	1983	1984
Total Bureau Expenses								
Labor Costs	100.0	109.0	125.6	120.0	120.0	132.9	119.2	121.9
Other Costs	100.0	119.9	110.2	140.1	95.7	94.4	84.6	86.4
Total Costs	100.0	110.9	122.9	123.5	115.7	126.1	113.1	115.7
State Overhead Expenses								
Labor Costs	100.0	114.7	108.0	91.4	98.4	101.7	94.1	89.6
Other Costs	100.0	93.5	70.4	106.9	40.0	78.1	42.5	51.9
Subtotal	100.0	108.5	97.1	95.9	81.4	94.9	79.0	78.8
District Overhead Expenses								
Labor Costs	100.0	103.7	117.0	106.3	114.1	125.1	117.7	153.5
Other Costs	100.0	312.4	178.9	225.5	170.2	111.2	111.2	164.0
Subtotal	100.0	136.0	126.6	124.7	122.6	122.9	116.7	155.1
Operation and Maintenance Expenses								
Labor Costs	100.0	107.2	135.6	136.1	131.3	149.0	131.3	131.3
Other Costs	100.0	109.5	153.7	168.8	162.0	115.3	142.9	119.1
Subtotal	100.0	107.5	137.6	139.7	134.8	145.3	132.6	129.9

we can conclude that total expenditures by the Maine Bureau of Parks and Recreation increased at a greater rate than the combined effect of inflation and increased use of state park facilities.

The other indices in Table 4 illustrate the changes that have occurred in state and regional overhead and O&M costs after adjusting for inflation and the level of use. At the state headquarters level, real labor costs per visitor day were relatively stable but real non-labor costs per visitor day declined substantially during the period. Total state overhead real costs per visitor day also declined. On the other hand, both labor and non-labor real costs per visitor day increased at the district headquarters level. Real O&M costs per visitor day for both labor and other items also increased during the period.

In summary, the data suggest that the Bureau has decentralized its operations in the last few years. State headquarter expenses accounted for 33 percent of total Bureau expenses in 1977, compared to 22 percent in 1984. In contrast, district headquarters expenses, as a percent of total Bureau expenses, increased from 11 percent in 1977 to 15 percent in 1984. Similarly, O&M costs, as a percent of total Bureau expenses, increased from 56 percent to 63 percent between 1977 and 1984, and reached a high of 65 percent in 1981 and 1983. Hence, the data clearly indicate a trend toward decentralization of personnel and the purchase of supplies and equipment. Of course, the cost trends for other state park agencies are probably not the same as those observed for Maine.

SUMMARY AND DISCUSSION

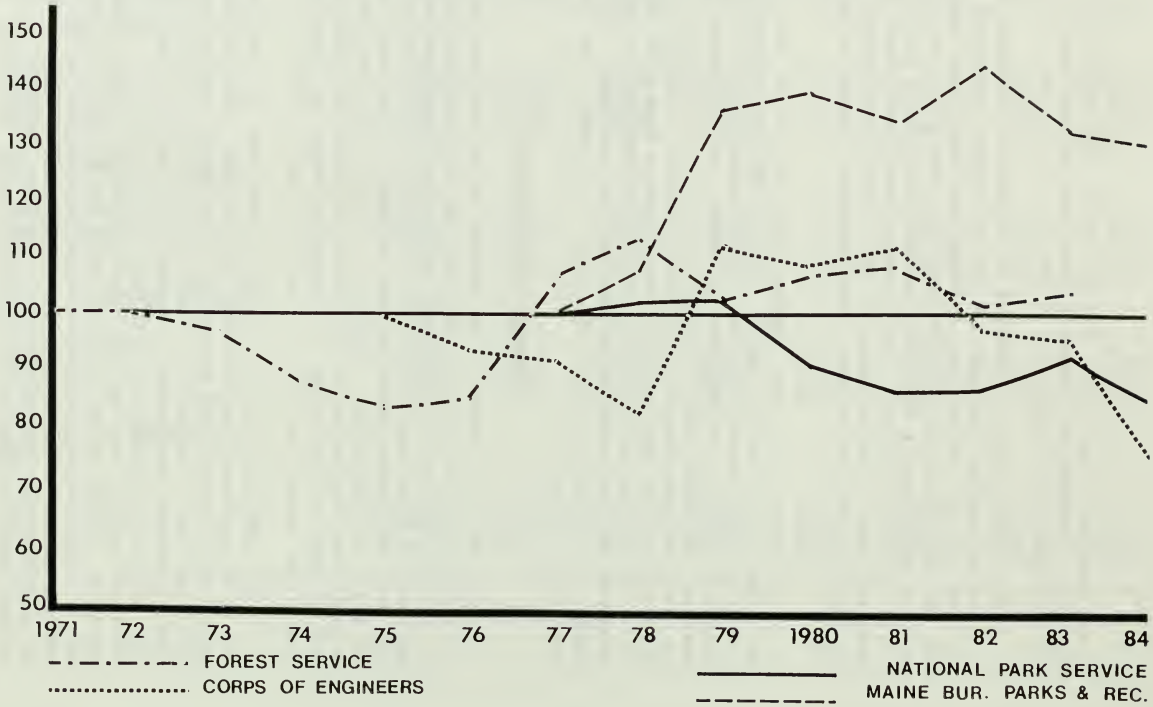
Our ability to sumarize the results of the previous analysis is somewhat limited because the data obtained from the four agencies are not comparable. For example, the total costs reported for the Forest Service and the Corps of Engineers include construction and development costs; in contrast, construction and development costs are not included in the total costs reported for the other two agencies. Similarly, overhead costs are not included in the National Park Service data. Therefore, operation and maintenance costs is the only category of costs that is comparable among the four agencies. We have chosen that category of costs to summarize the analysis.

Real O&M costs per unit of use for the four agencies are shown in Figure 1. It is apparent that the trend in real O&M costs per unit of use for the Maine Bureau of Parks and Recreation is different than the trends exhibited by the three federal agencies. Real O&M costs per unit of use for the state agency increased substantially between 1977 and 1979, and remained 30-40 percent above the expenditure level that existed in 1977. In contrast, real O&M costs per unit of use for the federal agencies did not exhibit the same real increase. In most years, real O&M costs per unit of use were within $\pm$ 20 percent of the level of real expenses in the base year of the analysis for each federal agency. Consequently, we have concluded that no significant positive or negative trend exists for real O&M costs per unit of use for the three federal agencies, based on the data used in our analysis.

However, it should be noted that our analysis may encompass too short a time period to identify trends in cost of provision. Ideally, the time period used in trend analysis should be much longer than the time periods used in

Figure 1.

INDEX OF OPERATING AND MAINTENANCE COSTS
PER VISIT/VISITOR-DAY, CORRECTED FOR INFLATION



this study. Lengthening the time period used in the analysis may significantly modify the results we have reported. Although we attempted to obtain data for a longer period of time, the data were either unavailable or unusable due to changes in accounting procedures.

Based on the knowledge we gained in performing this study, we suggest that additional research be conducted regarding trends in the cost of providing outdoor recreational opportunities. Each study should focus on a single agency and investigate costs in much more detail. For example, the research should reconcile the changes in the data caused by changes in cost accounting procedures. This step is required to lengthen the time period of the analysis. A more detailed analysis would also answer questions we have regarding the data. As an example, the overhead costs for the Corps of Engineers comprise are about five percent of total costs, compared to 18 percent for the Forest Service. What is the cause of this difference among agencies? Are the measures of overhead we used an accurate reflection of those costs or are the differences simply due to differences in accounting procedures used by the two agencies? In addition, both the Corps of Engineers and Forest Service experienced large increases in expenditures during one year in the period of analysis. Forest Service total (unadjusted) expenditures increased from $62 million in 1976 to almost $114 million in 1977. Similarly, the unadjusted total expenditures of the Corps of Engineers increased from $67 million to $100 million between 1978 and 1979. What were the motivating factors behind these increases? Does it reflect increased funding requests by the agencies in these years or were the funds appropriated by Congress in other years less than the level of funds requested? Another possibility is that internal reallocations may have been made by the agencies during these years. Obviously, a more detailed analysis is needed to answer these types of questions. We encourage others to undertake these types of studies.

Another point is worthy of discussion. The data we have presented are expenditure data. However, the obvious connection between funding levels and expenditure levels must be kept in mind. Expenditures are determined largely by funding levels. Therefore, our analysis may indicate trends in funding levels more accurately than the costs needed to adequately provide, operate and maintain recreational opportunities. The actual levels of expenditures may not reflect needs. These issues should be investigated in more detail also.

Obviously, more detailed studies would yield more useful information. However, the interpretation of the results of those studies and the policy implications associated with them may still be difficult to ascertain. For example, assume that a more detailed analysis indicated that a significant negative trend exists in real expenditures per unit of use. What does this mean? What are the policy implications? Should funding levels be increased? The answers to these questions are not obvious. The negative trend in real costs per unit of use may reflect a difference between funding needs and actual funding levels, with its obvious adverse effects on quality and quantity. On the other hand, the negative trend in real expenditures per unit of use may reflect increased efficiency in the provision of recreational opportunities. Economies of size may exist in the provision of the services and the negative trend may be due to these economies. Economies of size may exist for some cost categories, such as overhead, and not for others. Operation and maintenance costs per unit of use may exhibit both economies and diseconomies of size over different ranges of output. Obviously, the policy

perscriptions associated with the negative trend are vastly different under the two scenarios discussed above. Hence, the identification of trends in the cost of provision is of little use for policy analysis. The reasons behind the trends must be identified as well.

The problem described above can be applied to our results for the Maine Bureau of Parks and Recreation. What can be concluded about the increase in real O&M costs per unit of use described above? Does it indicate better maintenance programs and other improvements in services? Or does it reflect higher costs per unit of use due to diseconomies of size? More work is required before we can answer these questions.

In conclusion, our attempt to track the level of costs associated with providing outdoor recreational opportunities represents a beginning and provides some useful information. However, much more work is needed before definitive conclusions can be drawn. We encourage other recreation economists to conduct these types of studies so more meaningful conclusions can be drawn at the next recreation trends symposium in five years.

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A STRATEGIC APPROACH TO RESOURCE MANAGEMENT PLANNING IN THE NATIONAL PARK SERVICE

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Abstract.-- Resource management problems are becoming more difficult to resolve. This difficulty stems from the new realities managers are facing and will continue to face in the latter part of the twentieth century: rapid change, social conflict, complexity, and uncertainty.

A technique developed by the Southeast Region, National Park Service, entitled the Regional Resource Management Plan provides a framework for dealing with these new realities. The information provided by each park will allow decisions to be made with the goals and objectives of the National Park Service as a prime consideration. The framework in this plan provides the parks with clear direction for determining resource management needs. It will also assure park budgets and efforts are efficiently allocated to meet the expectations of the American people. With this framework, the Southeast Region of the National Park Service can effectively meet the challenges to tomorrow.

Keywords: planning, cultural resource, natural resource, recreation resource.

INTRODUCTION

Land managing agencies throughout the country are subjected to tremendous pressures to accommodate competing demands on their limited resources. Even under one general category of demand, e.g., recreation demand, multiple pressures exist. For example, at National Seashores conflicts among off road vehicle users, fisherman, shell collectors, and swimmers are common. In some National Historic Sites, competition among the picnickers, frisbee throwers, and historical buffs occur.

In the Southeast Region of the National Park Service (NPS) mounting demands such as those described above and changes in the social and economic order of the country made park managers recognize the need to develop a realistic management strategy for accommodating change. Recognizing this need, in 1981 the NPS initiated a strategic planning process for developing the management strategies necessary to accommodate changes in how their resources will be used in the 1980's, 1990's, and beyond.

Strategic planning is a systematic effort to see beyond the immediate; to look into the future; to predict trends and events likely to affect the way an organization does business; and to ensure that the decisions, policies, and strategies made today will be applicable to situations that have to be faced in the future. To begin to contend with the future, the NPS conducted a series of strategic planning workshops throughout the Southeast United States. Participants represented many diverse interests from federal, state, and local agencies to conservations groups, industry leaders, and unaffiliated private citizens.

The systematic effort that was employed predicted trends and events that will likely affect the way the National Park Service will do business in the next 5-10 years.

The trends were:

1. Social and Demographic Changes
2. Recreational Demands
3. Environmental Concerns
4. Political Changes
5. Economic Changes
6. Technological Innovation
7. Energy Changes

From a review of these trends and issues associated with them, 20 goals were developed for the Southeast Region. A number of these goals suggested the need for the Service to take a more proactive and systematic approach to the management of its natural, cultural, and recreational resources. For example:

1. The NPS must assume more of a region-wide leadership role in the areas of resource preservation, use, and recreation that will ultimately assist the entire region in sound resource management.
2. The NPS must better protect the natural, cultural, and recreational resources within its jurisdiction.
3. The NPS must better explain its proposed actions in well prepared plans that integrate professional judgments and technical information into a process or document that encourages public participation.
4. The NPS must anticipate new and unknown potential resource "threats" and develop policies to regulate these "threats" until the impacts, if any, are understood.
5. The NPS must work better in coordinating its activities and services with other key land management agencies at the federal, state and local level.
6. The NPS should seek to expand its resource management capabilities and integrate the information in the total planning process.
7. The Southeast Region should examine its major responsibilities mandated by relevant legislation and in light of current political and economic conditions, it should emphasize or deemphasize appropriate programs.
8. The National Park Service should aggressively seek to reduce the external encroachments (threats) to park resources.

These goals suggest there is great interest by the American public in how the NPS manages and plans for natural, cultural, and recreational resources. The National Park Service enjoys to an unusual degree among government bureaus the respect and appreciation of most Americans. The natural, cultural and recreational features of our national parklands are among America's greatest public treasures, shared by successive generations.

But the Service and the NPS system have not been immune from criticism. The Park System reflects many aspects of the nation's natural and human history but ignores others. Consequently the Park Service, caught in a perpetual tug of war between professional judgment and practical politics, manages what is has in unequal fashion.

In an attempt to correct those shortcomings--both perceived and real-- and to address the goals identified in the strategic planning workshops, the Southeast Region of the NPS created a new management tool that has the potential to

assist the Service in carrying out its basic responsibilities in a manner the public expects, and deserves. This new tool is called a Regional Resource Management Plan (RRMP).

PURPOSE AND USE

The purpose of the plan is to serve as a management and decision making tool which can be used to further the goals and objectives of the National Park Service.

The RRMP will be used by the regional director in setting priorities for project statements in park specific resource management plans. The RRMP provides a measure of the overall status of resources in the Southeast Region; it is not a detailed inventory of all park units and their condition. The document establishes the framework for identifying the most pressing resource management needs. The specific objectives of the document are:

1. To provide a means of identifying the significant resources in the region which are in critical need of a research, monitoring, or resource management action.

The RRMP is a useful tool for articulating to Washington and Congress that the NPS has a clear understanding of their problems, where multi-park or new thrusts are needed, and why particular programs are considered critical.

2. To provide information which assists the NPS in establishing the leadership necessary to maintain a national network of cultural, natural, and recreational resources.

A precise inventory of NPS resources assists the NPS in leading other federal, state, and local agencies in efforts to preserve the natural, cultural, and recreational resources of our country. This leadership role is not new to the NPS. The NPS is expected to provide guidance in the development of preservation practices and in the provision of exemplary opportunities for quality park use. The information and approach used in the RRMP is a tool which can help assure the continued protection of a national network of significant natural, cultural, and recreational resources.

3. To provide an efficient, rational, and defensible means of allocating regional resource management dollars.

The Regional Resource Management Plan provides criteria to determine which resources are in critical need of protection or restoration. The criteria can be used for comparing the parks' resource management plans, and subsequently for identifying regional resource management priorities.

4. To provide a summary statement for the general public on NPS resource management programs.

The RRMP can be used to share information with groups interested in how the NPS deals with significant resource issues and establishes priorities for management.

5. To provide an overview of how the Southeast Region is reconciling the new and ever changing demand placed on resources with the direction

provided the NPS by the Organic Act of 1916 and other legislative requirements, executive orders, judicial interpretations, and management policies.

The National Park Service is operating in a vastly different environment from the one which existed when the Service was first created. The direction proposed in the Regional Resource Management Plan is a combination of historical continuity, present-day accountability, and visionary appeal.

THE PLANNING PROCESS

The planning process used to develop the RRMP provides direction for implementing actions and for evaluating the success of resource management programs toward meeting the goals of the National Park Service. The procedure used by the Southeast Region includes the following steps:

1. Establish Objectives: The regional objectives listed in the RRMP are the basis for establishing priority criteria. The priority criteria are the benchmarks against which park resources are evaluated to assure a concentration of time, money, and effort to the most important resources.

2. Inventory the Resource: A thematic approach is used to provide a regional inventory of the natural, cultural, and recreational resources in each park.

3. Analyze the Park Inventory: The information collected in the regional inventory of cultural, natural, and recreational resources is compared against the criteria for priorities. Those resource themes which are fundamental to the goals of the National Park Service should be targeted for action by the parks.

4. Initiate Park Actions: Based on the region wide evaluation, specific resource themes are targeted for action and serve as the basis for project requests.

5. Evaluate Priority Programs: The parks requests are tracked in updates to the resource management plans.

6. Update Regional Priorities: A periodic assessment of regional resource themes is used to monitor the effectiveness of the regional resource management planning process.

The RRMP was prepared with the understanding that the methodology used for the collection and synthesis of data would transcend individual park unit planning and establish a framework from which to identify and address problems and needs on a region-wide basis. The framework helps to monitor progress made in the management and protection of park resources in the Southeast Region. The basis of the method used to prepare the RRMP was to summarize the status of the natural, cultural, and recreational resources of each park. These park summaries were aggregated to information that will be useful for regional resource management decisions. The resources in each park were identified and evaluated using a thematic approach.

Nine broad themes were used to describe the cultural resource of the region: Original Inhabitants, European Exploration, Development of English Colonies, Major American Wars, Political and Military Affairs, Western Expansion, America at Work, Contemplative Society, and Society and Social Conscience. These themes were further divided into 91 subthemes.

On the natural side, each park was classified into one of nine natural regions, (or geographic provinces): Interior Lowland Plateau, Appalachian, Palteau, Appalachian Range, Piedmont, Atlantic Coastal Plain, Gulf Coastal Plain, Florida Peninsula, Puerto Rico, and the Virgin Islands. The natural regions are based largely on Fenneman's physiographic divisions. Within the nine natural regions, there were 48 unique natural history themes developed to characterize the parks.

For recreation resources, three general themes were used: Water-based Recreation, Snow and Ice-based Recreation, and Land-based Recreation. These three general themes were divided into 95 specific subthemes on activities.

For each theme represented in a park, the following descriptive information was collected: the condition of the resource, the significance of the theme as represented by the park, the level of documentation available for a given resource, and the level of internal and external impacts on that resource. Each of these descriptive pieces of information was divided into different levels or rankings, such as good to poor. The descriptive information was provided by knowledgeable resource specialists within and outside the Southeast Region. Table 1 is a general example of the type of information collected on significance for the nine physiographic provinces of the Southeast Region; Table 2 is a general example of the significance of natural features on a park by park basis. Similar information was collected for cultural and recreational resources.

With this type of resource information, park officials can tell at a glance what the most significant natural, cultural, and recreational resources are, what condition they're in, what needs additional research, monitoring or protection, and, most important, where to allocate scarce budget dollars.

Although the Park Service has long used the thematic approach to decide which areas to study for potential addition to the system, this is the first time the method has been used in an effort to improve management of existing parks.

CAUTIONS IN APPLYING A THEMATIC APPROACH

A thematic approach to assessing park resources does have limitations. For example, the historical themes, cast in terms of time periods and topics, vary significantly in the extent to which they are tied to surviving physical resources susceptible of being preserved and interpreted to park visitors. Much of military history is intrinsically site-related and can be appreciated by visiting battlefields and forts; thus there is value in preserving and interpreting those resources within parks. The history of such topics as philosophy and education, on the other hand, is not readily communicated by sites, structures, or objects. The many facets of prehistoric culture in America vary greatly in the prominence of remnants illustrating them; the Indians of the Southwest, for example, left spectacular cliff dwellings and

pueblos, while much less is apparent from many Eastern cultures. As Ronald A. Foresta notes in his recent analysis, America's National Parks and Their Keepers (1984), the National Park Service is not the keeper of the nation's history but of some of its major historic resources: "Only part of the past lends itself to interpretation through physical remains and...this part... is the proper realm of the Park Service." The Park System should not be blamed because it tells more about battles than philosophers or more about the Anasazi than the Algonquins.

The natural themes directly encompass or reflect physical features or phenomena and thus, unlike their historical counterparts, are inherently place-related. In theory, then, they are all capable of being represented by national parks and monuments. To judge them all equally deserving of park representation, however, is to miss or depreciate what Foresta calls the anthropocentric quality of parks. Unlike national wildlife refuges, national forests, and most other such reservations, parks have been set aside primarily for their human appeal. Foresta faulted the thematic approach for falling back on purely scientific criteria and ignoring appeal: "This comes close to abandoning the idea of a park altogether. Perhaps some representative of exposed Silurian rock face should be preserved on a federally owned site (although I cannot see why). There is no reason for such a site to be called a park, however, or for it to be part of the National Park System unless it has more to recommend it than pure representativeness."

Similarly, inventories of recreational resources only identify what is available in the System. The translation to the human experience is an individual process. Parks provide opportunities and settings for visitor experiences but inventories without programs are not recreational offerings.

Table 1. Summary of significant natural resources within the physiographic provinces.*

Physiographic Province	Number of Significant Natural Resources				
	Inter-national	National	Regional	State/local	Total
Florida Pennisula	7	12	22	13	54
Atlantic Coastal Plain	1	7	11	12	31
Piedmont	-	-	6	31	37
Appalachian Range	6	16	12	28	62
Appalachian Plateau	-	3	9	46	58
Interior Low Plateau	3	-	3	13	19
Gulf Coastal Plain	1	4	9	26	40
Puerto Rico/Virgin Islands	5	7	2	-	14
Total	23	49	74	169	315

*This information is for illustrative purposes. The actual numbers are being updated.

Table 2. Summary of significant natural resources by park.*

Park	Number of Significant Natural Resources			
	Inter-national	National	Regional	State/ local
Big Cypress	1	3	5	-
Biscayne	-	3	5	-
Big South Fork	-	2	4	13
Blue Ridge Parkway	2	6	4	6
Buck Island	-	4	1	-
Canaveral	-	1	5	5
Cape Hatteras	-	2	2	-
Cape Lookout	-	3	1	-
Carl Sandburg Home	-	-	-	9
Chattahoochee River	-	-	4	4
Chickamauga and Chattanooga	-	-	1	10
Congaree Swamp	1	-	4	-
Cowpens	-	-	-	3
Cumberland Gap	-	1	4	8
Cumberland Island	-	2	4	1
Everglades	4	3	5	1
Fort Caroline	-	-	-	1
Fort Donelson	-	-	-	5
Fort Frederica	-	-	-	5
Fort Jefferson	2	2	2	1
Fort Matanzas	-	-	-	6
Fort Pulaski	-	-	-	4
Fort Sumter	-	-	-	1
Great Smoky Mountains	4	9	4	5
Gulf Islands	1	4	6	3
Horseshoe Bend	-	-	-	7
Kennesaw Mountain	-	-	-	6
Kings Mountain	-	-	1	5
Mammoth Cave	3	-	3	8
Natchez Trace	-	-	3	13
Ninety Six	-	-	1	-
Obed	-	1	3	11
Ocmulgee	-	-	-	6
Russell Cave	-	-	-	6
Shiloh	-	-	-	7
Stones River	-	-	1	6
Vicksburg	-	-	-	3
Virgin Islands	5	3	1	0
Total	23	49	74	169

*This information is for illustrative purposes. The actual numbers are being updated.

PROMISES OF A THEMATIC APPROACH

The RRMP is the latest and most ambitious management venture employing a thematic approach. This plan responds to the long-felt need for a more rational way of allocating limited dollars to the Service's natural, cultural, and recreational resources.

Until now there has been no effective mechanism for deciding whether restoration of a deteriorating pioneer cabin in the Great Smoky Mountains National Park, for example, should be given priority over stabilization of an eroding Civil War earthwork at Kennesaw Mountain National Battlefield Park. Ideally, both will be cared for; in practice, money, personnel, and time are never adequate to treat simultaneously and optimally all features needing attention. Under the circumstances, the worst thing an agency can do is to try to do a little bit of everything.

What the plan does is classify the Region's parks by the natural, cultural, and recreational themes they represent, then specify the significance, condition, presence or absence of threats and documentation available for each resource associated with a theme. Criteria are then applied in making management decisions. The criteria suggest that first, the NPS should assure the quality of the most significant resources. Internationally and nationally significant resources should generally be accommodated before regionally significant resources; and regionally significant resources should be addressed before state or locally significant resources. Resources that are in good or fair condition and that have the potential of declining in condition should be accommodated before those resources that are in poor condition. The NPS should hold on to the best and then try to recover what can practicably be restored. Within the above criteria, the NPS should address those resources which are internally and/or externally threatened and are likely to deteriorate. Finally, when actions are developed to meet resource management priorities, the NPS should implement actions which are least disruptive to visitors and resources.

At this writing the plan is still in draft form, undergoing review and revision. However it may be refined, no such methodology will be sufficient unto itself, incorporating all factors bearing on decision making and freeing resource managers and professionals from hard choices in specific instances. If the plan cannot guarantee automatic decisions, however, it can enable better decisions: decisions based on a full awareness of what the resources exemplify and their relative importance.

CONCLUSION

At present, then, there is general awareness that although the National Park System should encompass nationally significant natural, cultural, and recreation areas, it need not comprehend most such areas, nor should it strive to depict every facet of cultural, natural, and recreation resources. Some facets lack illustrative extant features; features representing other facets can be well cared for outside the system and given special recognition through other programs.

This new realism about the system's inherent and practical limitations is paralleled by increased appreciation of those resources that do constitute the system. The Park Service cannot assume an all encompassing role in the management of our nations resources, but it can manage those outstanding features entrusted to it in an exemplary fashion--in a manner that recognizes and respects their levels of significance and their topical diversity.

TRENDS IN FEDERAL OUTDOOR RECREATION POLICY

George H. Siehl

Abstract.--Since the trends in Federal outdoor recreation legislation were reviewed at the first Recreation Trends Symposium there has been a slowing of legislative activity on the subject. Policy initiatives of the executive branch have stressed development of natural resources, particularly energy resources, on the public lands. Reagan Administration recreation policy initiatives have been primarily intended to stop growth of the Federal park and recreation landholdings, to reduce the dollars expended for Federal recreation programs, and to eliminate financial support to non-Federal public recreation agencies. The Administration has also proposed new and higher recreation user fees and alternatives to purchase of lands as a means of protecting their aesthetic values. The Congress has not been supportive of these changes and has sought to retain previous policies on protecting land resources and to provide more funding for recreation programs than has been requested. Public interest is seen as shifting away from conservation issues to environmental health and safety problems. This, in turn, may lead the major conservation organizations to spend more time on environmental issues and pay less attention to conservation and recreation issues. Overall, this may lead to a lower level of support for public recreation programs and place increasing reliance upon the private sector to meet the changing demands for leisure opportunities.

During the 1980 Recreation Trends Symposium in Durham, New Hampshire, a review of trends in outdoor recreation legislation at the Federal level was presented. In this, the second trends symposium, a review of both legislative and administrative trends at the Federal level is offered.

There are two principal reasons for combining these two elements in one paper. The first is that the time span being covered, five years, lends itself to such a combination because the volume of activity is not excessive (the 1980 legislative review covered a period of almost 20 years). The second reason, however, is perhaps the most compelling, and that is the inter-relatedness of the two lines of activity in the legislative and executive branches of the Federal Government.

When the previous Recreation Trends Symposium met, the primaries for a national Presidential election were underway. The results of that Presidential election in 1980 included significant changes in the executive branch treatment of outdoor recreation issues. Those changes, in turn, led to initiatives on the part of a Congress with differing perspectives on the Federal role in

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outdoor recreation. The conflict and accommodation between these two viewpoints is much of the story of Federal recreation activity in the past five years, and it is also the reason why it would be difficult to present separate papers on the two elements.

The 1980 legislative trends paper addressed changes in three arenas, those of context, content, and of consequences. For purposes of continuity, these same elements will be used as the basis of organization of this paper.

TRENDS IN CONTEXT

The significant changes which have taken place in America since 1980 encompass the social, economic, technological and political facets of our nation. Individually and cumulatively these changes have altered the context for recreation to such a degree that this is, perhaps, the greatest change that has taken place in the past five years.

Central to this change has been the posture of the Reagan Administration with regard to the role of the Federal Government in providing outdoor recreation opportunities and in funding recreation at other levels of government. The Administration has advocated more rapid development of commodity resources on the public lands, a moratorium on new Federal recreation land acquisition, and termination of Federal funding for the urban parks program, the State portion of the land and water conservation fund and historic preservation grants. Continuation of the strong financial and leadership role of the Federal sector in outdoor recreation, carryovers from the Outdoor Recreation Resources Review Commission of over 20 years ago, has not been the goal of this Administration.

This policy posture becomes more interesting when compared with public attitudes on the environment generally. Despite tightening economic circumstances, the public generally continued to support strong environmental programs, particularly those dealing with health and safety, but largely across the board.

Given this apparent contradiction in values, the 1984 election would seem to have offered an excellent opportunity for the public to choose a President more attuned to their views on these important issues. The election results would indicate that the electorate had other issues of higher priority as the basis for making their choice.

Yet, as has been the case in recent years, the voters hedged their bets, choosing to retain a Congress with the two chambers divided between the two parties, and to narrow the margin of control in both Houses. Obviously, the voter as an individual cannot influence the overall makeup of the Congress, but observers read substantial meaning from the choice of the people not to give their Presidential choice an overwhelming legislative victory.

Apart from the voice of the electorate, in which many conflicting things are heard by different listeners, there have been three other contextual changes in the past five years which may have more than passing influence on the future of recreation policy. These are the changing public interests

in environmental issues, the corollary shifts in the action agenda of environmental organizations, and the increased variety of leisure time pursuits, not all of which are either outdoor or publicly provided.

Earon Davis has recently written on the public's changing perception of "environment," noting that throughout the 1970s "there was a slow shift from almost exclusive concern with bald eagles, etc., to toxic chemicals/hazardous wastes." More recently there has been a redefinition of environment to become more person-centered and focused upon health and safety hazards to the individual rather than to "nature."

Los Angeles Times staff writer Robert Jones has also examined the changing environmental concerns of the public, but in the context of the possible impact on the major environmental organization. He notes that at least six of these major groups will undergo changes in the top staff position in the coming year, and that the primary qualifications being sought are those of a skilled manager, not necessarily a grounding in environmental or conservation issues. Management skills are now required because the organizations have become so large that the casual leadership of the past will no longer suffice. The organizations are also engaged in a continuing effort to retain and expand membership. The groups often engage in public polling to determine which issues are of greatest concern and then set their action agenda to coincide with these interests so as to attract the concerned citizens as members.

As a result of these changes in leadership and in agenda setting, Jones writes, "some traditional concerns of the movement, such as wilderness and national park issues, may fade as the new managers sense a change in the interests of their constituents."

The final change to be mentioned here, the increased diversity of choice for leisure pursuits, is largely dependent upon the advances of technology and the initiatives of the private sector.

Many of the leisure market developments in the years following the Outdoor Recreation Resources Review Commission report in 1962 supported the expanded use of the out-of-doors. These developments ranged from rubber rafts and kayaks to lightweight camping gear or hang gliders. Even condominium development at ski areas has contributed to the enhancement of outdoor recreation opportunities. Some would contend that such building represents more of an intrusion than an enhancement in the recreation scene, but such an attitude is perhaps not fully tolerant of the great diversity that exists in people's recreational preferences.

More recent products coming into the leisure market have been geared to the home in many cases. Some exceptions have been the sailboard, the three wheeled motorized recreation vehicles, and rugged, non-motorized bikes intended for trail use. However, many new developments such as the personal computer, video cassette recorders, improved stereophonic equipment, and large screen televisions are innovations which may have the net effect of reducing time spent outdoors at public recreation areas. Megatrends author John Naisbitt has postulated the high tech/high touch concept, however, in which increasing technology must be counterbalanced by increasing human

contact or other softening of technology's impact. If Naisbitt is correct, the advent of these new leisure products may increase the demand for outdoor recreation opportunities.

Direct recreation opportunities which have been provided by the private sector have responded to the public interest in physical fitness. Thus, health spas, tennis and racquetball courts, and fitness centers have continued to increase in number and distribution. The growth of involvement with fitness programs may be the recreational component of the concern with personal health noted by Davis.

Any review of the contextual changes affecting outdoor recreation must note the dynamics of our national economy over the past five years. A recession, high unemployment, high interest rates and a national mood of concern sometimes bordering on despair have been experienced. A recovery has seen that mood dissipate, with the creation of new jobs and a moderating of interest rates. The dollar is strong, leading Americans to travel abroad while deterring foreign visitors from coming here, and boosting imports while curbing exports, all creating a balance of payments problem.

The more pressing domestic economic problem, however, is the record level of the Federal budget deficit. This problem will create continuing pressures to reduce the Federal activity in a broad range of programs including recreation. While the economic variable will always cause temporary adjustments in outdoor recreation policy and activity, the possibility remains that initiatives occurring as a result of these changes may become permanent policy changes.

CHANGES IN CONTENT

The 1980 discussion of this arena of change related to legislation. Inasmuch as most of the administrative initiatives over the past several years have reached the floors of Congress, the combined treatment of Congressional and Administration policy thrusts may both be addressed in terms of content.

Five content categories were examined in 1980 and now, in 1985, they provide a basis for comparison. The five categories are:

1. Authorization of Federal park and recreation areas;

2. Authorization, planning and management of Federal resource management agencies;

3. Assistance to non-Federal agencies;

4. Financing Federal recreation areas; and

5. Related environmental legislation.

The relatively expansive trends reported in these categories five years ago have been attenuated if not reversed. The reason for this change in trendlines has been the philosophy of the Reagan administration that the role of the Federal government should be reduced in areas such as recreation and that the private sector should be freed to develop the natural resources found on the Federal lands.

The Congress, in particular the House of Representatives, has held as strongly to the opposite point of view on some of these issues and succeeded in reversing some of the Administration initiatives.

The most extensive changes in the Federal recreation estate in the past five years have been in the designation of additional areas as units of the National Wilderness Preservation System which now stands at over 80 million acres. Approximately eight million of those acres were designated by the 98th Congress. That Congress also made the first additions to the National Wild and Scenic Rivers System since 1980 with five new river segments designated for inclusion in the system and another three for study for possible later designation by the Congress.

One of the first acts of Interior Secretary James Watt was the elimination of the former Bureau of Outdoor Recreation, also known briefly as the Heritage Conservation and Recreation Service during the Carter Administration. This was a reversal of the trend noted in the second category reviewed in 1980 which saw an enrichment of organizational and planning elements in natural resource management. Otherwise, as noted earlier, a clear priority of the Reagan Administration was to accelerate the development of natural resources, especially oil, natural gas and coal.

Assistance to non-Federal recreation agencies and programs has been a continuing budget cutting target for the Administration. In its FY86 budget, the Administration proposed a three-year moratorium on acquisition of new Federal recreation areas, elimination of Land and Water Conservation Fund (LWCF) grants to the States and zero funding for the urban parks program and historic preservation grants. This is the same funding suggestion offered when the Administration began its first term. The Congressional response has been to agree on the urban parks program, although funds were made available through the jobs program legislated when the recession was causing widespread unemployment. Congress also agreed to stop funding for the State portion of the LWCF for one year. Otherwise, Congress has voted to keep monies flowing into the Federal land acquisition program, although at a level far below the annual authorized spending level for the LWCF of $900 million.

The fourth category, financing Federal recreation areas, is certainly still topical. The issue is broader than just financing Federal areas and includes financing of outdoor recreation generally, as noted above. The Federal budget/appropriations process has been a battleground for the past four years and there is no indication that that situation will change soon.

The FY86 recreation budget submitted to Congress generally proposes reductions in spending levels from FY85 for all of the recreation managing agencies. These outlays are accompanied by projections of increased revenues, to be gained by new and increased user fees.

Increased user fees for recreation have been a component of earlier Reagan legislative and budget proposals, but they have meet with a chilly to hostile reception from the Congress. The Office of Management and Budget is proposing not to make available to the money authorized under the Wallop-Breaux legislation of the 98th Congress. This money is generated from excise taxes on fishing gear and from a motorboat fuels tax and was

to be recycled for fishery and boating improvement programs. In attempting to divert these revenues to general uses, OMB may be undermining any likelihood of Congress approving new recreation user fees.

Little mention need be made of the fifth category, related environmental legislation, for here the recent history is much the same as for recreation. The executive branch efforts have been to turn back existing environmental regulatory authorities in some cases and to oppose new initiatives by the Congress. The broad issue of acid precipitation control is illustrative of the latter case and is of interest to the recreational community. Congress has considered legislative controls to limit emissions believed to contribute to acid precipitation. This acid precipitation is being identified as the source of damage to forests and lakes through increased acidification, damage which is eventually harmful to recreation and tourism in the affected areas. The Administration has opposed new controls designed to reduce acidic emissions, but has agreed that additional research into the problem may be in order.

The long-term impact of environmental legislation upon recreation interests may be found in the previously noted shift of public concern toward environmental health issues and the movement toward greater involvement in these issues by national organizations formerly active in natural resource issues, including parks and recreation.

Several initiatives which some feel have merit have met with varying degrees of resistance. These are in addition to the question of user fees, which research often finds supported by those who would pay the fees if they were certain that the revenues generated would be returned to the recreation facility or agency collecting the fee. The two proposals are the use of less-than-fee techniques to protect landscapes for public purposes and the creation of a new Outdoor Recreation Resources Review Commission. The fact is that State and local governments have been making effective use of less-than-fee land protection techniques for a number of years, and the President has established an outdoor recreation commission by Executive order as of January 28, 1985, but Congressional acceptance has not been complete for either proposal.

The alternative land protective techniques were examined at length during workshops conducted by Senator Malcolm Wallop, Chairman of the Senate Subcommittee on Public Lands and Reserved Waters. The 1981 and 1982 sessions by his Subcommittee examined a number of land resource issues and helped to stimulate the National Park Service to undertake eight pilot studies of park units to determine what techniques short of outright purchase might be used to preserve the quality of the experience contemplated when the park was authorized. A 1984 report from the House Subcommittee on Public Lands and National Parks, however, noted problems with these alternative techniques.

Legislation to create a new ORRRC was passed by the Senate late in 1983 and was the subject of three days of hearings in the House, but action was not completed before adjournment of the 98th Congress. The concept was initially endorsed by a wide range of resource user, conservation and protection groups when it was brought before an American Forestry Association conference on renewable natural resources in December 1980. A number of environmental groups including the Wilderness Society and the Sierra Club have since come to oppose the idea and have worked to kill the concept.

TRENDS IN CONSEQUENCES

The outlook for recreation policy at the Federal level is uncertain, at best. The philosophical and personal confrontations which have taken place during the past four years have damaged what has for many years been a bipartisan spirit of cooperation on park and recreation issues. Granted, the emphasis was more often on parks than upon recreation, and positions based upon party affiliation were not unknown. Nonetheless, a general spirit of accommodation prevailed.

Further, the level of concern over the size of the budget deficit may be high enough to result in substantial paring of existing budgets for many programs, including recreation, in this and future years until something approaching a balanced budget is achieved.

The Presidential Commission on Outdoor Recreation Resources, which has been created but is still without Commissioners or staff, has already been opposed by environmental organizations with a restricted view of what constitutes acceptable recreation uses on the public lands.

Funds are not being budgeted or appropriated as authorized by law as with the Land and Water Conservation Fund and the Wallop-Breaux Fund. Both Federal and non-Federal beneficiaries of these funds will thus be restricted in what they are able to accomplish.

The Rockefeller-funded Outdoor Recreation Policy Review Group reported in 1983 that the data available from Federal agencies on such basic matter as recreation inventory and demand was poor. Looming budget constraints may lead to a worsening of this situation.

These problems, if not resolved, imply a dismal future for public recreation policy and for continued provision of quality outdoor recreation experiences at all levels.

Private sector efforts seem to be constrained primarily by the marketplace in its everchanging variety. Overall, however, the private sector is providing new recreation opportunities to consumers able and willing to pay the price.

SUMMARY

Economic and political factors do not appear to favor expansion of traditional recreation policies and programs at the Federal level. This could result in constrained or reduced support to non-Federal public providers of outdoor recreation. However, if economists and engineers can be criticized for making straight line projections from current data, observers of the political scene may be taken to task for doing the same thing. Therefore, we must wait until we meet again at Utah State in 1990 to learn the final consequences of today's cloudy recreation policy scene.

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FUTURE IMAGES AND IMPLICATIONS

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Abstract.--Selected future trends in education, medicine, the economy, family structure, the natural environment, and leisure behavior are summarized from recent literature. Some implications of these trends for outdoor recreation education, research, and management are discussed for 2000 and beyond.

Additional keywords: Forecasting, futures

Perceptions of tomorrow--shadows thrown upon a screen labled AD 2000 and beyond--are previewed here, followed by suggestions of how these trends relate to future challenges in outdoor recreation education, research, and management.

Why attempt to reach far into the future and describe what may be in store? Because technology has accelerated the pace of change to the point where the future arrives faster every day, bringing with it the gnawing feeling that some of the problems facing outdoor recreation specialists may be getting out of hand. As a result, we may not be able to rely on trend extrapolations for 5, 10, or even 15 years ahead to deal with future uncertainty. And yet, uncertainty--the gap between what is known and what needs to be known to make correct decisions--is not found only along the byways and side roads of responsible outdoor recreation management; uncertainty is central to it.

The paper is divided into two main sections. First, selected images of future events, gleaned from the literature on long-range forecasting, are described within the following categories: the natural environment, the economy, communications, medicine, education, family structure, and leisure. Categorization of forecasted events, while not done capriciously, is somewhat arbitrary. However, the interrelated effects of these events have obvious consequences upon many aspects of future leisure and outdoor recreation. For example, technological advances in the areas of food production and utilization of natural resources in turn will change industrial processes, thus affecting individual work patterns, and consequently trigger new leisure behavior patterns and activities.

A future that holds more prosperity, social progress, and scientific advances than the world has ever known emerges from our literature review--a

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future where outdoor recreation will play an increasingly important role in future American lifestyles.

Second, we discuss some of the implications of our literature review on the recreation profession. Changes in recreation education and research are proposed in order to prepare and cope successfully with the distant future--a future that may seem far away, but that will probably be here sooner than we expect.

IMAGES

The Environment

The basic building blocks of human society in the future will be the same as they have been for 10,000 years--water, food, and minerals--but experts say that supplies of these resources will depend more than in the past upon recycling and conservation, use of synthetic alternatives, and mining of untapped reserves.

Shortages of water and key resources are a danger, but experts predict that advances in science will save the day (Resources for the Future 1983, Kahn 1976, Blaisdell 1973). If irrigation and pollution cause shortages of clean water, massive desalinization projects could make limitless amounts of seawater drinkable by 2015. After that, weather modification will direct rainfall to specific sites. Some nations may even tow icebergs to obtain fresh water (Helmer 1966, Cetron and O'Toole 1983, Wallia 1970).

Food production capabilities in the future will far outstrip today's capabilities. Genetic engineers will create plants that make their own fertilizer, are impervious to pests and disease, and contain most basic nutrients. Laboratory-inspired food animals will mature in half the normal time and provide a larger supply of protein-rich meat. Farms will be self-contained ecosystems where water and soil nutrients are recycled, and farmers will be more concerned with monitoring computers than watching the weather. Perishable foods, such as milk and meat, will be exposed to high radiation, giving them a non-refrigerated shelf life of several months (Resources for the Future 1984, Kahn and Wiener 1967, Hall 1984).

Mineral extraction or substitution capabilities will boggle today's mind. Vital minerals will be pulled from the ocean bottoms and will eventually be drawn from the surface of the moon. Increasingly, metal and wood will be supplanted by composite materials and silicon-based ceramics that will not corrode, rust, or wear out (Rosen 1976, Michael 1968, Wallia 1970).

Overall, within the environment, oncoming scientific advances in the near future will enhance the productivity of land, water, and raw materials around the world. The emerging technology will immensely improve the quality of our lives, more so in the next fifty years than in previous centuries. Forests will probably be managed less for wood production and more for outdoor recreation, water production, and wildlife values. The resultant increased quality of life will spill over into more innovative leisure activities in streams, lakes, forests, and mountain environments.

The Economy

The most dramatic economic change in the next fifty years will be the renewal of the private sector as it departs its old manufacturing base and advances further into what some call the "Information Age." Forecasters envision new jobs and decentralized job sites (Kahn et al 1976, Kahn and Wiener 1967, Massey 1979).

Tomorrow's economy will be fueled by the developing high technology industries: personal computers, industrial robots, genetic engineering, electronic medical devices, and scores of exotic applications not yet known. About eight out of every 10 workers will be employed in making computers and providing services and information to society. The biggest growth will be in jobs that require people to operate electronic equipment. With so much information stored in computers--rather than in workers' heads--employees will be valued not for possessing information but for their ability to analyze and use data (Cetron and O'Toole 1983, Michael 1968, Kahn et al 1976).

Computer networks linked by satellites will enable workers using remote terminals to communicate with fellow employees and company headquarters, write reports, and have access to records stored in a central computer. Development of these vast computer networks will allow companies to leave crowded urban centers for the more pleasant surroundings of suburbia and smaller communities. Business travel will also be reduced through widespread use of teleconferences (Rosen 1976, Toffler 1971, Wall Street Journal 1966).

In summary, regardless of what jobs they do or where Americans work in the future, their work will be less toilsome, thanks to computers and advanced automation. Tomorrow's factories will be smaller, cleaner, and much more attractive than the teeming industrial complex of the 19th and 20th centuries. The result will be less drudgery and greater levels of productivity in almost every industry. Impact on recreation: more time to enjoy the great outdoors and more people living closer to the outdoor recreational environments they seek. Recreation and tourism travel will more than likely fill the void in travel patterns resulting from reduction in business travel activities.

Communications

Just as the invention of movable type in the 1400's made mass literacy possible and changed Western society from an oral to a written culture, so the electronic technology of the 20th and 21st centuries will revolutionize communication and traditional patterns of information storage and transferal.

New modes of communication will emerge. By the middle of the next century, some forecasters anticipate that language that is primarily visual will become our main communications medium. In this new "computerspeak," pictures, visual images, and mood-altering colors rather than words and sentences will dominate communication. This will come about as computers become more powerful and enable people to convey intricate thoughts in images (Chase 1969, Helmer and Gordon 1965, Kahn et al 1976).

Information storage capabilities will increase tremendously. While today's words will still be in use, books as they are now known may well fade away. Instead of stacks of bound paper, libraries of the future will store information on giant videodiscs, each one containing hundreds of books. No longer will scholars find research a time-consuming endeavor. In the next century, a researcher studying mathematical models of recreation demand/supply relationships will be able to type that phrase into a computer and, within a matter of seconds, pertinent information from hundreds of discs will be retrieved by the library's computer (Chase 1969, Kostelanetz 1971, Toffler 1971).

New information transferal techniques will impact many aspects of our lives. Mail, the telegraph, telephone, and radio as we know it today will be replaced by video telecommunicators the likes of which not even "Dick Tracy" envisioned. Telecommunications, using miniaturized cellular two-way television and satellites, will permit instantaneous world-wide communications and data transferal personal-to-person, computer-to-computer, or person-to-computer. Transfer of information from research to management will be almost instantaneous. Recreation management reservation systems will be revolutionized to the point where an individual could choose from a wide range of accommodations and select a desired destination within a matter of seconds. (Wallia 1970, Shafer et al 1974, Blaisdell 1973).

In total, the coming revolution in communications represents a major change from a verbal to a visual communication mode as well as electronic data storage/retrieval/transferal systems--the impacts of which will greatly enhance the problem-solving and decision-making capabilities of recreation professionals.

Medicine

Medical advances will enable Americans to live longer, healthier lives as scientists discover new treatments for major disorders and even delay the process of aging itself. Space-age techniques to alter inheritance and cure disease will bring a revolution in health care.

Many diseases will be defeated. In coming decades, doctors will be able to prevent and treat most genetic diseases, from hemophilia to muscular dystrophy. By the turn of this century, the basic causes of cancer and heart disease will be understood, laying the groundwork for curative treatments. Superdrugs will also be developed to counteract acute pain, senility, schizophrenia, and depression. Transplant and artificial-implant operations will rise dramatically. After the turn of the century, scientists will know how to make dead cells regenerate in the brain and the spinal cord, bringing hope for paraplegics and brain-damage victims. The revolutions in genetics that began with the discovery of DNA--the basic genetic blueprint of life--promise to transform the treatment of disease (Cetron and O'Toole 1983, Kahn et al 1976, Chase 1969, Helmer 1966, Wallia 1970).

A race is presently underway in the scientific community to create a "living computer." Visionary researchers are pursuing a tantalizing goal: to devise an electronic chip from organic products. The goal is a dramatic

one: to grow computer circuitry in biology labs from living bacteria, producing microprocessors with 10 million times the memory of today's most powerful machines. In theory, such tiny supercomputers would find a virtually endless list of application. They could connect with the human nervous system, serving as artificial eyes, ears, and voice boxes. A desk-top device could hold all the information ever recorded by mankind (Wellborn 1985).

Longevity will increase. The ultimate challenge will be to break the aging process itself and extend normal life spans by programming cells not to die. Medical science may even find a way to regenerate cells indefinitely, so that people could live well past 100 years (Mack 1971, Kostelanetz 1971, Kahn et al 1976, Cetron and O'Toole 1983).

Overall, on the medical scene, Americans in the foreseeable future will be healthier and will have longer lives. People will be physically active both for pleasure and good health throughout a longer period of their life span--even as compared to today's emphasis on physical fitness (Maloney 1984).

Education

From computer lessons in kindergarten to graduate degrees for the elderly, education over the coming decades will become a lifelong pursuit. Educational strategies will be very sophisticated and personalized. Schools and colleges will relinquish their dominate role as educational institutions, as more industry and other proprietary educational opportunities are provided.

In higher education by the turn of this century, educators say there will be a shift from engineering and other applied skills since computers will be able to solve such problems. The focus at the college level will be on reasoning, with emphasis upon the basic subjects of math, chemistry, physics, and English. Computers will be effective in teaching subjects such as math, but in areas such as creative writing, machines will never teach as effectively as people (Kahn et al 1976, Mobley 1984, Keller 1983, Toffler 1974, Kostelanetz 1971).

Almost everyone will be a student. Fifty years from now, a college degree will be only as significant as high school graduation for the generation of Americans who came of age during World War II. More than 60% of American adults will have attended college, compared with less than 30% today. But colleges and universities will provide only a part of a person's never-ending education. In the home and on the job, Americans of all ages will be taking a wide range of subjects (Cetron and O'Toole 1983, Wall Street Journal 1966, Rosen 1976).

Educational systems will change drastically. Use of television, computers, and videotapes will create classrooms in libraries, museums, neighborhood centers, and the home. As a result, forecasters see a surge in "public professors"--national educators and experts appearing electronically across the country. For the next generation of professors, academia's "publish or perish" could well become "perform or perish." Industry will become much more

involved in education and job training. Hundreds of corporations will grant degrees, most often in high technology, science and engineering, where state-of-the-art equipment and research will surpass that on most campuses (Naisbitt 1982, Kahn and Wiener 1967, Toffler 1971, Chase 1969).

In summary, education in the future will be a lifelong process, practically from cradle to coffin. Education will pyramid from a broad general knowledge base to individualized instruction over the greatly expanded life-span of tomorrow's population. Education will be pre-vocational, vocational, re-vocational, as well as avocational. Public interest in learning more about outdoor recreation and environmental interpretation skills will probably be focused on public education institutions. Professional training in the outdoor recreation profession will likely be university-centered rather than emphasized by industry.

Family Structure

The forecasted increased longevity for future Americans will produce more "life phases" and in some cases more family togetherness. This will be affected by the environmental, social, and technological advances described above.

However, a polymarital family is forecasted. The experts predict that family relationships in the future will be in a confusing tangle as a result of people living longer and changing mates to suit the seasons of their lives. Serial marriages, a growing trend even now, will be a normal and planned-for part of adulthood. Many of tomorrow's children will grow up with several sets of parents and an assortment of half- and step-siblings (Massey 1979, Cetron and O'Toole 1983, Kahn and Wiener 1967).

But, at the same time, intrafamily relationships may intensify. New technology will mean that families will spend more time at home together. While robots vacuum floors, mow the lawn, and do the laundry, family members will use computers to get their educations, pursue their careers, shop for clothes, and have medical checkups--without ever leaving home (Kahn and Wiener 1967, Rosen 1976). For all the advantages of this, forecasters also see a potential for additional problems. Extended longevity and improved health--reducing the need for nursing homes for the elderly--will keep families together longer. That togetherness may intensify inter-personal frictions as the different demands of the young and the old create a generation gap the likes of which civilization has never known. Keeping up with the Joneses will be harder too--especially for loners and outcasts lacking family networks with which to pool resources (Massey 1979).

Overall, the family will have a major role in the leisure patterns of the future. Just as it will be a product of the technological changes noted previously, the family will mold much of the leisure patterns of tomorrow.

Leisure

All of the above changes in the environment, the economy, communications, medicine, education, and family structure will influence leisure patterns of

tomorrow. For the indefinite future, the home will remain the focal point of leisure activities. The rec room of tomorrow will become an electronic media center, with today's televisions, stereos, and video recorders precursors to electronic environmental simulators. Paralleling the advances in electronic entertainment will be a need for social and physical recreation, as people seek real, rather than simulated, experiences. As the need for business travel is replaced by telecommunications, recreational travel will increase.

Home electronics entertainment will be commonplace. By the first decade of the next century, new developments in holography using advanced laser techniques will make it possible to create exact three-dimensional images of the ocean, the jungle, even the Grand Canyon, in virtually every household. Holographic projection will put the 3-D image of a favorite singer, a museum exhibit, or a ball game right into the home. The media room could be transformed into a nightclub, a ballfield, or a stage on which the Royal Shakespeare Company performs "Hamlet." Cinema of tomorrow may even be participatory events in which family members could select the direction the plot would take by pressing buttons on their consoles (Helmer and Gordon 1965, Rosen 1976, Toffler 1974).

New and exotic forms of recreation equipment will continue to be developed. Because of the sedentary character of learning and working, people will seek more physical fitness, activity, and sports participation. Despite the opportunities to bring recreational images into the home, a significant number of Americans will find themselves anxious to leave their high-tech environments for natural rather than simulated recreational experiences. Advances in mechanics will benefit outdoor recreators as today's recreational vehicles will be replaced by personal hovercraft, submarines, hydrofoils, and other new "personal transporters." Survival and self-support equipment will be highly refined, encouraging many individuals to venture into wildernesses and jungles throughout the world, as well as to the polar regions (Shafer et al 1974, Shafer 1980, Hawkins et al 1980, Weisbecker et al 1978).

IMPLICATIONS

Management

Because education will be an ongoing activity throughout the future recreation manager's career, conceivably the average middle- and upper-level professional will be recreation manager, forester, scientist, mathematician, landscape architect, cartographer, engineer, poet--all in one and then some. To meet the projected demands for outdoor recreation in the coming decades managers will need additional productivity-enhancing research technologies and improved management and educational systems. Otherwise, inordinate pressure on the nation's natural recreation resource base will induce serious environmental consequences, and substantially increase real costs to recreation consumers and managers. The challenges to provide the training and technology for the outdoor recreation manager of the future will cause major shifts in current educational philosophy and research thrusts.

Education

Educators need to recognize fully what the acceleration of change in technology, medicine, and leisure behavior, means in terms of the swift arrival of a future that is radically different from the present. They will need to comprehend fully what an "Information Age" civilization might look like, and what this means for their students.

To design outdoor recreation education systems for tomorrow, professional educators need to consider probable images of successive and alternative futures, each one tentative and different from the next. The tools presently available for identifying possible and probable futures are still very primitive. Yet, some lines of development are more likely than others. By making explicit assumptions about where the profession seems to be going, educators can formulate goals that are tied to probable futures. In this way, also, they can deduce the kinds of human abilities, skills, and growth patterns that need to be encouraged in the ongoing education of future recreation professionals. Even in today's world, recreation education seems fatally incomplete if it does not include, as an integral part of its discipline, some explicit training on how to think about the kinds of future that may be in store for society.

In the future, university departments of recreation, park, travel, and tourism will evaluate their own capabilities within a region and recommend ways in which federal agencies, state and local governments, and the private sector can contribute to the development of relevant education and research. The system will likely be based on the realization that limitations on people, money, and other resources will make it impossible for every institution in a specific region to emulate a balanced strength across all aspects of recreation-related education.

Consortia of institutions of higher education will effectively utilize telecommunication networks to provide educators and experts to students at many universities. Curricula will be coordinated by representatives of academia, professional associations, and practitioners. Degrees per se will become less significant; demonstrated competencies and skill levels will be more important as higher education becomes an ongoing process, not just a preliminary preparation for a career.

Research

The principal focus of future recreation research will be neither description, explanation, nor prediction exclusively. Rather, it will be aimed at providing the manager with innovation and guidance. Research will have a broader time perspective than today, as leisure science turns its attention more to the future. Future recreation research will involve clarification and evaluation of values and management goals, description of trends, projections of alternative futures, and explanations of existing interdependencies. Moreover, research will promote intervention in social processes through invention, evaluation, and selection of alternative courses of social action.

Research will explore ways to increase the average citizen's understanding of recreation resource management, improve the level of public participation in decision-making, and decrease costs of coordination and control of recreation management systems through the use of robotics. Researchers will be searching for the answers to such questions as: When, where, by whom, how intensely, under what conditions, and with what consequences will different types of future recreation activities and environments be desired? Scientists will determine the social benefits from recreation research and how those benefits shape the future.

Presently, there is a wide dispersion of talents and resources in the recreation research arena. Future research will be aimed at concentrating scientific effort on a fewer number of problems and solving them in shorter periods of time compared to today's efforts. Because of advanced communication techniques, it will not be necessary to concentrate recreation researchers at one geographic location--in fact, that probably would be counterproductive.

In the future, recreation research data will be fed to on-line computers, categories of analysis and interpretation pre-set, both short- and long-range projections made, and decision-making operations informed accordingly for timely action. Self-administered questionnaires will be administered via electronic communications instead of present paper and pencil techniques sent through the mail. Responses will be automatically tabulated and analyzed as soon as they are transmitted. Unobtrusive direct observation techniques from remote sensing to thermal or sonar sensors will provide accurate use records which will project resource impacts and management support needs to maximize efficiency.

SUMMARY

Future recreation managers will need to embrace both the science of prediction and the art of imagining. Educators who have a wide sociocultural background and a vital interest in the forces of our age will be essential to mold managers and researchers of the future. Researchers will need to possess a strong scientific discipline in order to rid themselves of prejudice and be capable of parting with many of their cherished illusions. Recreation-research support teams will need to be dispassionate and objective observers of things future.

This paper will have served its purpose if, in some measure, it helps to underscore the profession's consciousness of the future and to provide some suggestions on how to control, change, and guide the profession's paths toward that future. For, by making imaginative use of future changes to channel change within the profession, we can reach out and chart our distant tomorrows.

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