



PROCEEDINGS

1980 National Outdoor Recreation Trends Symposium

Volume I

U.S. Department of Agriculture, Forest Service
Northeastern Forest Experiment Station
370 Reed Road, Broomall, PA 19008

Sponsored by:

Northeast Agricultural
Experiment Stations, NE-100

USDA Forest Service

USDI Heritage Conservation
and Recreation Service

Recreation Working Group,
Society of American Foresters

University of New Hampshire,
Recreation and Parks Program

In cooperation with:

Clemson University

Journal of Leisure Research

Purdue University

USDA, Forest Service General Technical Report NE-57

FOREWORD

Most of us would probably endorse a one-year moratorium on meetings, conferences, conventions, workshops, and symposia. In fact, this planning committee was so reluctant to assemble another conference that it spent nearly 2 years identifying the needs and developing the program. When the rate of change is as great as it has been in outdoor recreation, conferences such as this one become essential. This is an exceptional conference because it focuses on that change, documents it, and attempts to determine what its future implications may be.

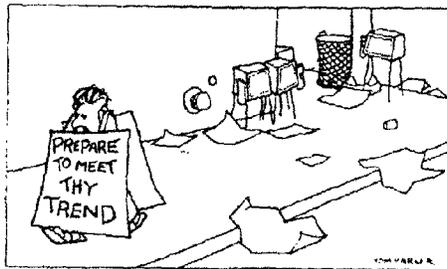
Ten years ago, a Forest Recreation Symposium was held at Syracuse, N.Y., for the purpose of "consolidating and synthesizing past research efforts in outdoor recreation." Even a hasty comparison of these proceedings with those from Syracuse suggests the enormous volume of research that has occurred over these 10 years. Equally apparent is the change in the kinds of research information that are available today; from the static descriptive and prescriptive studies of the late 1960's to examinations of trends, shifts, and changes in the outdoor recreation economy. Effective planning requires this dynamic view of outdoor recreation. Because planning, whether for corporate investment or public development, is a long-range activity, it needs information that goes beyond simple statements of "what is" into the realm of "what has been" and "what will be."

Statistical reporting is a critical function of government. Without this essential service, it would be difficult, if not impossible, to assess the state of the economy, the

quality of health care, or the adequacy of public education. Price indexes, business slumps, new construction, pollution levels, production facts, and employment figures pop out of Washington bureaus onto boardroom conference tables with almost biologic regularity. Agriculture, mining, housing, manufacturing, wholesale and retail trade, doctors, dentists, educators, butchers, bakers, and even high school guidance counselors have more federally-sponsored statistics to plan with than do the providers of America's outdoor recreation opportunities. 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. This symposium will not correct the situation. It can only serve to heighten your present uneasiness over the quantity and quality of available trend data. But we hope it will instill an urgency within you to demand better, more current, and more comprehensive statistics on outdoor recreation in America.

Good planning has been described as a two-step process. "First you figure out what is inevitable. Then you find a way to take advantage of it." In assembling this collection of speakers and topics, we have provided you with the best available information on, if not the inevitable, at least that which is highly probable and highly improbable. Step 2 -- how you take advantage of that information -- is what recreation researchers will be monitoring in the years ahead.

WILBUR F. LaPAGE, Chairman
Program Committee



American Demographics, September 1979.
Used by permission.

THE 1980 NATIONAL
OUTDOOR RECREATION TRENDS SYMPOSIUM

Held at the New England Center for Continuing Education
University of New Hampshire
Durham, New Hampshire
April 20-23, 1980

SPONSORED BY

Northeast Agricultural Experiment Stations, Project NE-100
USDA Forest Service, Northeastern Forest Experiment Station
USDI, Heritage Conservation and Recreation Service
Society of American Foresters, Recreation Working Group
University of New Hampshire, Recreation and Parks Program

PROGRAM COMMITTEE --

Wilbur F. LaPage
Malcolm I. Bevins
Robert D. Greenleaf
Floyd L. Newby
Gerald L. Cole
A. Robert Koch
Herbert E. Echelberger
Douglas M. Knudson

CONCURRENT SESSIONS --

Floyd L. Newby
Herbert E. Echelberger
Douglas M. Knudson
Kenneth J. Hock
Marvin W. Kottke
Mahmood Seyala

ADVISORS --

R. Duane Lloyd
Earl Patric
Basil J. F. Mott
Roland Robinson
Meg Maguire
Robert McLellan
Barry Tindall
Hugo John
Fred Knight

LOCAL ARRANGEMENTS --

Robert D. Greenleaf
Herbert E. Echelberger
Gus C. Zaso
Lawrence A. Rondeau
Patricia C. Merrill

COOPERATORS

Clemson University, Department of Recreation and Park Administration
Journal of Leisure Research, NRPA
Purdue University, Department of Forestry and Natural Resources

CONTENTS

DATA-DEFICIENT PLANNING: AN OVERVIEW

Social indicators and outdoor recreation:
the forgotten sector
John D. Peine, Robert W. Marans, and
Charles C. Harris 1

The role of futures forecasts in recreation:
some applications in the third nation-
wide outdoor recreation plan
Meg Maguire and Dana R. Younger19

Trend indicators needed for effective
recreation planning--a statistical
blueprint for the 80's
H. Fred Kaiser, and George H. Moeller ...27

TRENDS IN THE LEISURE ECONOMY

The growth of selected leisure industries
Elizabeth R. Owen33

Trends in financing and availability of
capital
Donald G. Schink41

Trends in private and commercial recreation
Arlin Epperson47

FACILITATING TRENDS

Travel Trends and energy
Thomas M. Corsi and Milton E. Harvey ...59

Trends in state outdoor recreation from
periodic to process planning: the
Minnesota example
William H. Becker and George W. Orning ..71

Trends in land and water available for
outdoor recreation
Lloyd C. Irland and Thomas Rumpf77

TRENDS IN POLICY AND INFLUENCE

Trends in outdoor recreation legislation
George H. Siehl (Vol. II)
Trends in organizational memberships and
lobbying
William R. Burch89

Trends in public policies and programs
Gerald Purvis and Darrell Lewis (Vol. II)

TRENDS IN RECREATION ACTIVITIES/MARKETS

Skiing trends
Charles R. Goeldner and Stacy Standley..105

Hunting and fishing trends in the U.S.
J. John Charbonneau and James R. Lyons..121

Off-road vehicle trends
Garrell E. Nicholes.....127

National boating trends
Albert J. Marmo135

Trends in river recreation
Earl C. Leatherberry, David W. Lime and
Jerrilyn LaVarre Thompson147

Camping and RV travel trends
Gerald L. Cole and Wilbur F. LaPage165

Trends in the market for privately owned
seasonal recreational housing
Richard L. Ragatz.....179

Trends in hiking and backcountry use
Edward L. Spencer, Herbert E. Echelberger,
Raymond E. Leonard and Craig Evans195

Trends in emerging and high risk activities
Robert C. White, Richard Schreyer, and
Kent Downing199

Trends in day uses of parks and forests
Joseph T. O'Leary, John Peine, and
Dale Blahna205

Trends in outdoor recreation activity
conflicts
John J. Lindsay215

TREND MEASUREMENT PROBLEMS

Trends or methodological differences?
Daniel J. Stynes, Malcolm I. Bevins, and
Tommy L. Brown223

The trend of measuring public use of the
national parks
Kenneth E. Hornback233

Data banks for recreation supply and
participation
E. M. Avedon and S. L. J. Smith243

TRAVEL TRENDS AND ENERGY

Paper presented at the National Outdoor Recreation Trends Symposium,
Durham NH, April 20-23, 1980

Thomas M. Corsi, Assistant Professor of Transportation, University of Maryland, College Park, MD
Milton E. Harvey, Professor of Geography, Kent State University, Kent, Ohio

Abstract.--This paper utilizes available data sources to construct a picture of adjustment patterns in vacation/recreation travel with respect to both past and prospective fuel price/availability developments. The increases in fuel prices coupled with supply uncertainties that have occurred during the 1970's have strained the traditional vacation patterns of many American households. Changes in the location of outdoor recreation centers will follow as a consequence of the new travel patterns.

INTRODUCTION

A geographer, Prof. Wilbur Zelinsky, incisively suggested that one of the four major attributes of the American ethos was excessive mobility. This mobility consists of many components including the ubiquitous journey to work, the journey for vacation and recreation and residential relocation. It should be noted, however, that when Zelinsky wrote his book, Americans had not experienced the trauma of the 1973 OPEC oil embargo, nor was the nation under the constant spectre of increasing fuel prices, and the ever pervasive gloomy forecasts, by various organizations, of impending shortages. Basically, therefore, the environment within which American mobility patterns are generated has changed from an almost frictionless space to a constrained high-friction space. The resultant spatial patterns have to be different. The aim of this paper is to briefly identify recent changes in recreation travel within the United States and the socio-economic foundations of those changes.

CONCEPTUALIZATION OF CONSTRAINED RECREATION TRAVEL

The present pattern of recreation travel is constrained at two interrelated levels: the national availability of gasoline and the financial reallocations by individual households. The national availability of gasoline has affected travel behavior by intermittent shortages due to supply cut-offs and by more effective control over the quantity available.

While the latter has caused a gradual rise in the price of fuel, the former has occasionally created rapid price increases from which the general trends in fuel prices never completely recover. The impact of fuel price increases over a period of time has led to a change in attitudes. Gradually, more and more Americans now believe that the fuel crisis is real indeed and that technological solutions are many years from fruition. This attitude change has necessitated the search by families for ways of adjusting to these higher financial demands on the family budget.

The income of the average American family has been increasing at a rate that is below that of general inflation as well as fuel price increases. Consequently, since budgetary reallocations have not been sufficient to alleviate the financial burdens incurred by families because of these fuel price increases, many households have had, and will in the future have, to make spatial adjustments in their travel. Basically, the types of adjustments fall into four broad categories: activity space reduction, activity mode change, activity frequency reduction, and activity type change. Naturally, the combinations of these adjustment packages which an individual household adopts vary by the stage in the life cycle, the socio-economic status, the region of residence, and the changes in the price of fuel. In this paper, we will attempt to discuss the changes in vacation/recreation travel behavior using these four types of adjustments as our framework. The specific

research questions that emerge from these discussions constitute our research foci: (a) What are the trends in the changes in the recreation activity space?; (b) What are the trends in mode shifts for recreation?; (c) What are the trends in the frequency of participation?; and (d) What are the shifts in the types of activities? Together these cover the broader topic of travel trends and energy.

THE DATA

One of the most frustrating things for researchers without the funds to collect their own data is the availability of the 'right' data. In such instances, the researcher has to use the best available data and in many instances such data may not be quite adequate for the specific questions under investigation. As a result, conclusions may be tenuous and may lack comparability of scale and geography. In spite of this, the findings may be useful for the identification of basic trends.

In our search for data, the authors investigated many data sources, and finally decided that they would use information from the following sources:

1. Data from the 1975 Southeastern Wisconsin Regional Planning Commission (SEWRPC) Energy Use Travel Survey in which the authors were involved. That questionnaire was developed to determine how shortages and higher prices of gasoline have, in the past, influenced and may, in the future, influence the travel habits and patterns of households. The questionnaire was mailed to a random sample of 9,881 individuals in the Southeastern Wisconsin region during November 1975. Over 1,461 or 14.8 percent usable returns were received (Corsi and Harvey, 1978, 1979).

2. Data from the 1977 Nationwide Outdoor Recreation Survey's General Population Survey on outdoor recreation were also used. These data are based on a national sample of 4,029 households surveyed by telephone in June 1977. For this paper, we are interested in the questions dealing with the impact of present gasoline prices on the number of trips, the length of the trip, the frequency of trips, the mode used for outdoor recreation activities and the effect of possible gasoline price doubling in the next six months on the number of trips. The survey was conducted by Opinion Research Corporation of Princeton, New Jersey under contract with the Heritage Conservation and Recreation Service (formerly

the Bureau of Outdoor Recreation).¹

3. Data from the 1977 Nationwide Outdoor Recreation's Federal Estate Survey were also used. This survey, which focussed on some of the questions in the National General Population Survey, was conducted at selected recreation areas within the Federal Estate (i.e. all federally-owned land managed at least in part for public outdoor recreation activity) during the winter, summer, and fall months of 1977 by the Heritage Conservation and Recreation Service (HCRS). A total of 13,729 interviews were completed.

4. The authors also employed data from the National Travel Survey, one component of the Census of Transportation conducted by the U.S. Bureau of the Census. Its purpose is to provide statistical data on the volume and characteristics of all non-commuting trips totalling 100 miles or more from origin to destination. All surveyed households provided information on the trips taken (such as mode of travel, trip purpose, trip expenditures, etc.) by every member of the household during the relevant year as well as on the general socio-economic characteristics of the household. The results from the three surveys conducted thus far for the years 1967, 1972, and 1977 are now available (U.S. Bureau of the Census, 1977, 1979).

5. Data from a survey of households in six metropolitan centers (Chicago, Dallas-Fort Worth, Los Angeles, New York City, Phoenix, and Salt Lake City) conducted in April and May 1979 was used. Approximately 1500 randomly-selected households received the survey in the mail. After follow-up efforts, the response rate was 23.1 percent. The direct focus of the survey was on actual and potential changes in recreation travel in response to the availability and price of fuel (Burke and Williams, 1979).

6. The authors considered a sampling of 1500 residents in the State of New York during November 1979. The survey assessed

¹ Both the General Population Survey and the Federal Estate Survey are components of the 1977 Nationwide Outdoor Recreation Survey. The 1977 Survey is the sixth in a series of national household surveys conducted by the Heritage Conservation and Recreation Service and its predecessors, the Bureau of Outdoor Recreation and the Outdoor Recreation Resources Review Commission. The primary purpose of the 1977 Survey was to provide background information for the Third Nationwide Outdoor Recreation Plan of which it is an appendix. The Plan's will be published by the HCRS, U.S. Dept. of the Interior in early 1980.

actual travel behavior response to the huge increases in fuel prices and supply interruptions experienced during the summer of 1979 and anticipated changes in response to additional fuel price increases and supply restrictions. Although the survey emphasis was not specifically on recreation travel, it was included as an important travel category.²

THE ANALYSIS - TRENDS IN ACTIVITY SPACE

Although the SEWRPC survey was restricted to Milwaukee, its results concerning activity space reduction recreate a backdrop for analyzing the trends in this process. Elsewhere, and using the SEWRPC data, we observed that the number of households who said they would either cancel vacation plans or take a vacation of a shorter distance increases as they were questioned about their perspective responses to increasingly higher fuel prices.

Since 1975, the price of fuel has continued to rise, and if the intended adjustment patterns reported by Corsi and Harvey hold, the proportion of the population who have effected some modifications in their recreation space should be increasing. The 1977 Nationwide Outdoor Recreation's General Population Survey of 1977, reported that 49 percent of the sample population said that the price of gasoline at that time had caused them to make shorter trips for outdoor recreation activities. In contrast 47 percent said it did not. The 49 percent positive response indicates that a reduction in the activity space for outdoor recreation is increasing. From present data we cannot accurately determine the rate of spatial shrinkage in this activity space. However, we do have information about regional and socio-economic variations in this process. Basically, the data indicate that:

- i. The percent of the sample population, in each of the ten Federal regions, who said they made shorter trips than normal because of the gasoline prices at the time of the survey, was higher than 44 percent. Overall, the high ratios of people who took shorter trips is encouraging indeed; it indicates the consistent reduction in the activity space,

²Mr. Davis T. Hartgen, Director of the Planning Research Unit, New York State Department of Transportation, made the results of the 1500 household survey available to the authors for this analysis. This assistance was greatly appreciated.

- ii. Regarding income, the data revealed that although all income categories exhibit appreciable percentage of people who took shorter distances, lower and lower-middle income families, with incomes of up to \$15,000, showed a greater tendency to take shorter trips than families with higher incomes. For example, while 56 percent of the households with incomes between \$6,000 and \$10,000 said they took shorter outdoor recreation trips as a result of fuel prices at the time of the survey, the corresponding figure among households in the \$25,001 to \$50,000 income range was only 33 percent.

- iii. The above pattern is reinforced by the data for various occupational groups. While under 50 percent of the households in the professional, managerial and clerical (sales) groups took shorter trips for outdoor recreation activities, the proportion was considerably higher for the other occupations.

- iv. Reinforcing the dichotomy between higher and lower status families in activity space modification is the tendency for a higher percentage of those with under 12 years of education to take shorter trips in response to fuel prices than of those with more than 12 years of education. The respective percentages are 57 (among those with between 9 and 11 years of education) and 39 (among those with 17 years or more of education).

- v. Other interesting results from that survey include the greater tendency for people in rural areas, households with larger families and non-whites to take shorter trips because of the price of gasoline.

Although the exact yes/no ratios were consistently lower, the above general tendencies emerged from the Federal Estate Survey conducted in the same year.

Comparison of results from the 1972 and 1977 National Travel Surveys indicate convincingly the increasing importance of shorter-distance trips in the travel patterns of American households as the country moved away from an era of inexpensive fuel and abundant supplies (1972) to an era of higher prices and supply uncertainties (1977).

In 1972 trips (for all purposes, including vacation, recreation, business, etc.) with a round trip distance of between 200 and 399 miles accounted for 39.59 percent of all trips, while the comparable figure

in 1977 was 49.51 percent -- an increase of 9.92 percentage points. Trips in all mileage categories greater than 399 miles accounted for a smaller percentage of total trips in 1977 than in 1972.

The results are even more striking when the focus is outdoor recreation trips exclusively. In 1972 trips between 200 and 399 miles made up 47.8 percent of all outdoor recreation trips, while the comparable percentage in 1977 was 60.4 percent -- an increase of 12.6 percentage points. Trips in the 400 to 599 mile category fell by 3.43 percentage points from 20.99 percent of outdoor recreation trips in 1972 to 17.56 percent in 1977. In all other mileage categories, there were a smaller percentage of the total trips in 1977 than in 1972 (Table 1).

The above patterns are repeated when either vacation trips or weekend trips are analyzed. As opposed to the Milwaukee data or the Outdoor Recreation Survey, the National Travel Survey data gives the only concrete evidence of the actual reduction in mileage driven by Americans for various trip purposes.

In a more general way, the survey of six metropolitan areas during the spring of 1979 indicated that the substantial price increases as well as supply restrictions that occurred in that year further influenced trip distances for vacation/recreation travel. In addition, the results suggested that further adverse changes in price and supply of fuel would exacerbate the trend toward shorter vacation/recreation trips.

Table 2 shows the relationship between varying fuel price levels/supply restriction programs and vacation travel distances. About one half of the respondents who had travel plans at the time of the survey said they would not travel if fuel prices increased dramatically and/or restrictions were placed on supplies. Of those continuing to travel, a higher percentage would take shorter as opposed to longer trips. At currently pricing levels, 8.6 percent of the respondents said that their vacation trips involved less than 100 miles. However, if gasoline prices rose to \$2.00 a gallon or rationing occurred, the corresponding percentages would be 12.1 and 11.2, respectively, including the approximately 50 percent who would stop traveling. Thus, among the travelers, the percentage of all trips accounted for by those under 100 miles would be approximately twice the 12.1 and 11.2 figures cited above. In contrast, at current pricing levels, 21.2 percent of the respondents have vacation plans involving trips of 2000 miles or more. However, that figure drops to 4 percent as gasoline prices rise to \$2.00 a gallon and 4.4 percent under a rationing plan. Again, these

figures would approximately double if non-travelers were excluded.

Finally, the New York State survey, taken in the immediate aftermath of a period in which gasoline prices rose 35 cents per gallon and supply shortfalls reached 13 percent for limited periods, showed a willingness among households to respond by taking shorter vacation trips. Approximately 16 percent of the households said that in response to the 1979 situation of price increases/supply interruptions they had moved their vacation destinations closer to home. Households were then asked what their response would be to gasoline prices of \$1.50 per gallon and a 20 percent supply reduction (but no formal rationing program). In response to the higher price situation and in response to the supply shortfall, 22 percent of the households said they would vacation closer to home.

Although these latter percentages are somewhat lower than responses given to similar questions in the 1977 Nationwide Outdoor Recreation survey, we might make two observations. First, the New York State results may not be representative of the response. Second, between 1977 (the date of the Nationwide Outdoor Recreation survey) and 1979 (the date of the New York State survey) a number of households had already shortened their vacation distances. As a result, the percentage able and willing to make further reductions would be lessened. Unfortunately, the lack of comparability among data sets makes more definitive statements impossible.

From the available evidence, we can tentatively and very cautiously conclude that the rising price in gasoline has resulted in the substitution of nearby places for far away places for outdoor recreation. This reduction in the activity space for vacation/recreation trips reflects, conceptually, the increasing patronization of intervening opportunities and the gradual evolution of a vacation/recreation activity space characterized by extreme distance friction. With continued gasoline price increases, we expect this shrinking to continue, at least, for the next few years. This statement needs clarification. Present trends in technology as manifested in more fuel efficient automobiles and the possibility of more abundant alternative fuels would, to a limited extent, counteract the influence of rising gasoline prices. Consequently, we believe that, over time, the interaction of all these forces would produce 'optimally' compact outdoor recreation activity spaces. However, more concrete research is needed before more concrete

empirically-based conclusions are possible.

ANALYSIS-TRENDS IN ACTIVITY MODE CHANGE

One of the most persistent tendencies in studies of mode change is the general unwillingness by the majority of Americans to give up the family automobile for recreation activities. The flexibility, privacy and comfort of the automobile over other modes explains, in part, this persistency. After the OPEC embargo, all the studies on mode change confirmed this persisting tendency. HCRS's 1977 surveys (the Federal Estate Survey and the General Population Survey) indicate that although the proportions of the population in various geographic and socio-economic groups that increased their use of public transportation for outdoor recreation are high, the shifts are not as dramatic as in the case of activity space reduction.

The results of the General Population survey showed that only 15 percent of those surveyed said that the price of gasoline at the time of the survey had caused them to use public transportation for outdoor recreation in contrast to the 47 percent who made shorter trips. However, such variables as income, family, and race seem to influence the propensity to utilize public transportation more frequently. Individuals in the lowest income brackets were more likely than those in the higher income brackets to utilize public transportation for outdoor recreation travel. While 22 percent of individuals with family incomes under \$6,000 said they used public transportation more frequently as a result of higher prices, the matching figure among those with income between \$25,001 and \$50,000 was only 9 percent. In addition, while only 12 percent of those in family units of two members said they used public transportation more frequently, the comparable figure among those in family units of seven or more members was 27 percent. Finally, while only 12 percent of the white respondents said they used public transportation, the matching figure for blacks was 33 percent.

Results from the 1972 and 1977 National Travel surveys reinforce the argument that fuel price increases/supply uncertainties have not separated Americans from their automobiles. In 1972, 94 percent of all outdoor recreation trips were by the auto-truck mode. By 1977, this percentage had shown only a slight decline to 91 percent. This change was accounted for by slight gains by the bus, train, and airplane modes. In 1972 these modes were involved in 1.8, 0.1, and 3.2 percent, respectively, of the outdoor recreation trips. By 1977, these percentages increased to 3.6, 0.2, and 3.9 percent,

respectively. The doubling in the percentage of outdoor recreation trips accounted for by the bus and train modes, while of importance, are small in magnitude compared to total travel. The unmistakable overall conclusion from the two surveys is that through 1977 Americans preference for the automobile for vacation/recreation travel remained firm.

Results from the survey of households in six metropolitan areas during 1979 supports the proposition that the automobile/recreation vehicle is the dominant mode for vacation/recreation travel. Table 3 clearly shows that additional fuel price increases above the current levels at the time of the survey would bring about major changes in the decision of households to travel and only modest increases in the use of public transportation. Thus, the use of airplanes increases from 19.9 percent of the respondents with the level of gasoline prices at the time of the survey to 23.9 percent with gasoline at \$2.00 per gallon. At current gasoline price levels, 2 percent of the respondents use trains for vacation travel, according to survey results. This figure increases to 3.3 percent as the price of gasoline increases to \$2.00 per gallon. Somewhat surprisingly, data in Table 3 shows no increase in the percentage of respondents utilizing the bus for vacation travel as the fuel prices increase to the \$2.00 per gallon level. These results confirm the contention that public transportation modes will receive only modest increases in use as fuel prices increase with respondents preferring to cancel plans rather than to adopt alternative modes.

The questionnaire for those in the six metropolitan areas also examined the influence of higher fuel prices accompanied by a general rationing program limiting each vehicle to 40 gallons per month. The effects on mode choice for vacation travel reinforce the patterns observed in response to the price increases without a rationing program. The major differences are that the decision to cancel vacation plans is selected by a higher percentage of the respondents and that the decline in the rise of recreation vehicles is even more pronounced than the decline in automobile use. Indeed, with a rationing program and \$2.00 per gallon gasoline prices the percentage of respondents using pickup campers, motor homes, and travel trailers declines to 0.0, 0.3, and 0.7 percent, respectively. These findings have special significance to the recreational vehicle industry.

Finally, the New York State study showed that a moderate percentage of respondents

would utilize public transportation modes for vacations in view of recent and prospective fuel price increases and supply uncertainties. Thus, 15 percent of the respondents indicated that they used public transportation for vacations under current conditions at the time of the survey. It is important to note that the question did not indicate what percentage of these respondents would have utilized public transportation modes for vacation regardless of the energy picture. Nevertheless, the percentage suggesting they would use public transportation for vacations increased to 22 percent under a situation of \$1.50 gasoline prices and the separate situation of a 20 percent shortfall. These percentages seem to be in line with results obtained in the 1977 Nationwide Outdoor Recreation survey.

In summary, the evidence indicates that while many households may be willing to change from a large to a small compact car, or to reduce the use of recreation vehicles, the majority are not willing to sacrifice the flexibility, privacy and comfort of the individual automobile. It appears that they prefer the alternative of cancelling the trip. This trend should continue in the foreseeable future.

ANALYSIS - ACTIVITY FREQUENCY REDUCTION

In 1975, the study by Peskin and his co-workers in the upper income suburbs of Chicago observed that the gasoline shortage during the OPEC embargo caused trips to be reduced in frequency. They also observed a tendency for trips to be linked into multi-stop journeys. Expectedly, the rising price of fuel since the embargo has continued to cause many households to institute such trip modifications. This conclusion is supported by the General Population Survey which indicates that in 1977, about 47 percent of those interviewed reduced the number of their outdoor recreation trips. The geographic and socio-economic variations in the patterns of activity frequency reduction is similar to that discussed for activity space reduction. Briefly, people with higher than average reduced participation rates tend to be males, generally between 25-44 years of age, with a family income of \$15,000 or less, and with less than 13 years of education. Furthermore, they tend to be craftsmen (operatives), farmers, service-laborers and housewives. Geographically, they reside in rural areas, and tend to be non-white.

Some idea of intended reductions in the frequency of outdoor recreation activity can be interpolated from the responses given by the sample population in the General Population

Survey to the following question: "If the price of gasoline doubled within the next six months, would this be likely to limit or curtail the number of trips you might take by automobile for outdoor recreation activities?" Overall, 80 percent said they would. For all regions and socio-economic groups, at least 65 percent said they would either limit or curtail the frequency of trips; an increase of 32 percent over the situation in 1977. These changes are also evident from the Federal Estate Survey.

The survey of individuals in the six major metropolitan areas also establishes the rather dramatic effects that additional, substantial fuel price increases by themselves or combined with an overall rationing program will have on the frequency of vacation/recreation travel. Table 3 revealed that among respondents who had vacation plans, if fuel prices remained at the existing levels (Spring 1979), approximately 15 percent said they would not cancel those plans if fuel prices rose to \$1.00 per gallon. The matching percentages in the face of fuel prices at \$1.25 per gallon and \$2.00 per gallon were 32.7 and 48.4, respectively.

The combination of higher fuel prices and a rationing program would produce even more dramatic effects on travel decisions. Indeed, with the introduction of a rationing program and no change in fuel price levels, 20 percent of the respondents would cancel their vacation plans. As fuel prices increase to a level of \$1.25 per gallon and \$2.00 per gallon, the corresponding percentages increase to 44.4 and 55.5, respectively. Indeed, under a general rationing program, individuals noted a preference for using their fuel supplies for work travel rather than saving them for vacations. Over 63 percent of the respondents said they would utilize their supplies for work travel rather than for recreation travel, while only 28 percent said they would not use their limited supply in that fashion. Unfortunately, the survey did not question respondents about the existence of alternatives for using their limited supplies for the journey to work. We might hypothesize that a higher percentage of those with alternatives would save fuel for recreation travels than of those with no alternatives.

The New York State survey revealed that 16 percent of the respondents said that cancellations of vacation plans was one change they had made in response to the fuel price increases during 1979. The percentage indicating that they would cancel vacation plans remained at 16 percent

in the event of fuel prices at \$1.50 per gallon and increased to only 18 percent in the event of a 20 percent supply reduction.

Again, these results differ somewhat from those presented in the six metropolitan area survey. Indeed, the percentage noting an intention to cancel vacation plans in New York State is quite a bit lower than the percentage of respondents in the six metropolitan areas giving such an indication. Yet, between the Spring of 1979 (when the six major metropolitan area survey was taken) and October of 1979, \$1.00 per gallon fuel prices became a reality. As a result, in October 1979, \$1.50 gasoline prices did not seem as drastic as they might have in May 1979. Indeed, the differences may reflect the general tendency for households to be more likely to indicate changes in response to hypothetical higher gasoline prices than to actually make those changes when the higher prices become a reality. In addition, the differences may be due to the differences between New York State residents and those in the six metropolitan areas.

The above discussion indicates that we would expect, with future increases in the price of gasoline and/or with the adoption of rationing programs, that activity frequency reduction would continue, although the specific magnitude of the reduction has not been definitively established. In many urban areas, such reductions may necessitate more pressure on urban forest resources and urban neighborhood parks.

ANALYSIS - ACTIVITY TYPE CHANGE

Activity substitution usually occurs either because of changes in the life cycle or because of economic factors such as cost of the equipment, cost of transportation and cost of participation. It can also occur because of changes in occupation or residential relocation. For the topic under study, cost of transportation, which directly impacts on other costs, is the primary consideration. Because of the increasing gasoline prices, we expect an increase in the number of people who have changed their outdoor recreation activity set. However, very little data are available on this very important topic. The following paragraphs summarize some of the facts that have been established.

Table 4 presents data from the National Travel Surveys regarding mode selected for outdoor recreation in 1972 and 1977. The data indicate that a substantially lower percentage of such trips involved an auto/truck with camping equipment in 1977 than in 1972. This mode accounted for 30.09 percent

of the trips in 1972, but only 17.85 in 1977 - a decline of 12.24 percentage points. The decline in significance of the auto/truck mode with camping equipment, largely offset in the growth of the auto/truck mode without camping equipment, might be explained in part by the increasing importance of shorter trips for outdoor recreation in 1977 over 1972. Perhaps, with reduced trip distance there was a lessened tendency to bring camping equipment along. Unfortunately, more definitive statements about the significance of these findings concerning changing types of recreation activities is impossible given the data limitations.

A second fact concerning changing types of recreation activities in response to higher fuel prices/uncertain supplies is the decline in recreation vehicle sales in response to dramatic shifts in the price/availability picture. Thus, in the immediate post-embargo days, the sale of recreation vehicles fell by 40 percent (1972 vs. 1974 sales). Although sales gradually increased in 1974/1975, it was not until 1976 that they reached pre-embargo levels. The same shock waves hit the industry during the early part of 1979 as fuel prices increased sharply and spot shortages developed. Sales plummeted 50 percent in 1979 over the 1978 period.³ Although there are projections of slight sales increases during 1980, it appears that the rebound process will be slow and dependent upon the avoidance of additional shock waves.

Yet, this scant data does not directly address the important question of how individuals have changed their activity patterns in response to recent events. This remains a major research gap as yet unaddressed in the existing literature.

CONCLUSIONS

During the 1970's, the nation faced two traumatic experiences with respect to fuel prices and availability. First, during the Fall of 1973 and Winter of 1974 in the aftermath of the Arab oil embargo, gasoline prices nearly doubled and lines developed as significant supply shortfalls occurred. Then, during the Spring and Summer of 1979,

³Data on recreation vehicle sales and forecasts taken from: "Marketing Report," Recreation Vehicle Industry Association, Chantilly, Va., 1979. Mr. W.R. Garpow provided a copy of the report to the authors. His insights concerning the recreation vehicle industry were also most informative.

after four years of relatively minor price increases and limited supply problems, gasoline prices increased by at least 35 cents per gallon and supply shortfalls of 20 percent occurred in some areas. By utilizing available data sources, we have attempted to construct a picture of adjustment patterns in vacation/recreation travel with respect to both past and prospective fuel price/availability developments.

As summarized in Table 5, the four adjustment packages discussed in this paper have been and would be used in varying degrees. The most significant adjustments would be in the activity space reduction. An important component of these changes would be the gradual emergence of strong regional outdoor recreation centers resulting in the replacement of the present three-tier hierarchy (national, regional, and local recreation centers) by a two-tier hierarchy (regional and local recreation centers). In this process, the forest resources around large metropolitan areas would be in increasing demand.

As noted, data from existing surveys give a clear indication that there has been only a slight to moderate shift to various forms of public transportation for recreation travel. Yet, the data suggest that lower income households as well as younger individuals are willing to utilize public transportation for vacation/recreation travel. Unfortunately, affordable public transportation is generally not available to recreation sites. Thus, growth in public transportation among these population segments may be a function of government programs to provide energy-efficient forms of low-cost public transportation -- primarily bus transportation -- to increasingly more popular recreation sites in proximity to major metropolitan areas.

Also, prospects for recreation vehicles are not bright in the immediate future. Sharp fuel price increases coupled with supply interruptions have severely affected recreation vehicle sales. Long-term prospects for recreation vehicles are dependent upon improvements in their fuel efficiencies or changes in their use by households. For example, households may leave the vehicles in proximity to recreation sites and utilize their more fuel-efficient autos to travel to their recreation vehicles. This contrasts sharply with the current practice of driving the recreation vehicle from origin to destination. Such a practice would also limit the household to a specific recreation site. Other expected changes are summarized in Table 5.

The ability to forecast trends in recreation/vacation travel in response to higher fuel prices and/or supply uncertainties is hampered by limited data sources. Although certain trends emerge, many questions are left unanswered. Thus, survey respondents have been consistently stating that their vacation/recreation trip distances are decreases in response to fuel price increases. Indeed, the Census of Transportation showed that a substantially higher percentage of the recreation trips in 1977 than in 1972 were for shorter distances. Yet, the data give no picture of the specifics of the shorter trips. Are households focusing their recreation/vacation trips on regional/metropolitan sites exclusively? Alternatively, are they eliminating only the yearly trip to a national site, but traveling the same amount during the rest of the year? Do the changes in distance traveled for vacation/recreation travel mean a change in activities engaged in as well?

At present, although data sources have provided us with some basic information on trip distances, trip frequencies, and mode choice they do not enable us to answer the above questions. Yet, effective recreation planning during the 1980's requires answers to such detailed questions. To adequately answer such inquiries, data needs to be gathered about vacation patterns over time from the same households. In the absence of such detailed information, many of the planning assumptions and resource allocations may be inappropriate.

Americans place a high value on outdoor recreation. Results from the 1977 Nationwide Outdoor Recreation Survey showed that 57 percent of the respondents viewed outdoor recreation as very important while an additional 29 percent viewed it as somewhat important. However, the increases in fuel prices coupled with supply uncertainties that have occurred during the 1970's have strained the traditional vacation patterns of many American households. Alleviation or mitigation of such strains requires effective planning based upon data that is currently not available. Until such data gaps are closed, existing sources must be utilized to the extent possible to give indications of likely responses to continued fuel price increases and supply uncertainties.

Mr. Dana Younger, Outdoor Recreation Planner, Division of Nationwide Recreation Planning is greatly appreciated for his assistance.

LITERATURE CITED

- Burke, James F. and Williams, Peter W. 1979. Gasoline Prices and Availability: What Do They Mean for Tourism? Utah Tourism and Recreation Review. 8: 1-8.
- Corsi, Thomas M. and Harvey, Milton E. 1979. Changes in Vacation Travel in Response to Motor Fuel Shortages in Higher Prices. Journal of Travel Research. 17: 7-11.
- Corsi, Thomas M. and Harvey, Milton E. 1978. Toward a Casual Model to Explain Differing Household Vacation Patterns as a Result of Higher Fuel Prices. Journal of Leisure Research. 10: 298-310.
- Peskin, Robert L. et. al. 1975. The Immediate Impact of Gasoline Shortages on Urban Travel Behavior. Urban Planning Division, Federal Highway Administration, U.S. Department of Transportation, DOT-FH-8500.
- U.S. Bureau of the Census, Census of Transportation, 1972. 1973. National Travel Survey (Volume 1). U.S. Government Printing Office, Washington, D.C.
- U.S. Bureau of the Census, Census of Transportation, 1977. 1979. National Travel Survey (Volume 1). U.S. Government Printing Office, Washington, D.C.
- U.S. Department of the Interior, Heritage Conservation and Recreation Service, 1980. Third Nationwide Outdoor Recreation Plan. An Assessment of Outdoor Recreation (Volume 2) and Appendix I: Nationwide Outdoor Recreation Survey Summary (Volume 3) and Appendix II: Nationwide Outdoor Recreation Survey Technical Reports (Volume 4). U.S. Government Printing Office, Washington, D.C.

Table 1.--Outdoor Recreation Trips, Distance Traveled, 1972 vs. 1977.

Round Trip Distance	% of Trips		Difference 77 vs 72
	1972	1977	
200 to 399 mi.	47.80	60.40	+12.60
400 to 599 mi.	20.99	17.56	-3.43
600 to 799 mi.	10.60	6.23	-4.37
800 to 899 mi.	4.84	2.82	-2.02
1,000 to 1,999 mi.	6.82	5.35	-1.47
2,000 mi. and above	4.31	3.86	-0.45
Outside U.S.	4.64	3.78	-0.86

Source: U.S. Bureau of Census, 1977, 1979.

Table 2.--Relationship Between Fuel Price Levels/Supply Restriction Programs
and Vacation Travel Distances - Major Metropolitan Areas Survey.

Travel Distance*	Current Pricing	Price Levels/Supply Restriction Programs					40 gal./ vehicle/ month	None Available on Weekend
		\$1.00/ gallon	\$1.25/ gallon	\$1.50/ gallon	\$2.00/ gallon			
Less than 100 mi.	8.6**	8.5	7.6	8.5	12.1	11.2	13.4	
100 - 249 mi.	9.5	12.9	8.9	6.7	7.1	9.4	9.4	
250 - 499 mi.	21.3	18.8	16.1	13.4	10.7	13.8	12.5	
500 - 999 mi.	18.1	17.0	14.7	9.4	6.7	8.0	7.2	
1000 - 1499 mi.	12.7	10.7	6.3	4.9	2.7	3.6	4.0	
1500 - 1999 mi.	8.6	7.2	4.0	1.3	1.8	1.8	3.1	
2000 - 2999 mi.	11.3	8.9	3.1	1.3	1.3	2.2	2.7	
3000+ mi.	9.9	8.0	6.0	3.6	2.7	2.2	2.2	
Won't Travel	0.0	8.0	33.3	50.9	54.9	47.8	45.5	

*Only respondents who had travel plans at time of the survey were included.

**Numbers indicate percent of households responding in the given categories.

Source: Burke and Williams, 1979.

Table 3.--Relationship Between Fuel Price Levels and Mode Choice for
Vacation Travel - Major Metropolitan Areas Survey.

Mode Choice*	Current Levels	Fuel Price			
		\$1.00/ Gallon	\$1.25/ Gallon	\$1.50/ Gallon	\$2.00/ Gallon
Automobile	60.5**	48.4	31.4	20.4	16.2
Pickup Camper	4.9	4.6	1.3	1.3	1.0
Motor Home	4.2	3.9	2.9	1.3	1.3
Travel Trailer	5.2	4.6	2.6	1.6	1.3
Motorcycle	1.0	1.9	2.0	2.3	2.3
Plane	19.9	18.3	21.9	23.5	23.9
Bus	2.3	1.3	2.3	2.6	2.3
Train	2.0	2.3	2.9	2.9	3.3
No Travel	0.0	14.7	32.7	44.1	48.4

*Only respondents who had travel plans at time of the survey were included.

**Numbers indicate percent of households responding in the given categories.

Source: Burke and Williams, 1979.

Table 4.--Outdoor Recreation Trips, Mode Selected, 1972 vs. 1977.

Mode of Transportation	% of Trips		Difference 1977 vs. 72
	1972	1977*	
Auto/Truck w/o Camping Equip.	63.96	73.31	+9.35
Auto/Truck w Camping Equip.	30.09	17.85	-12.24
Bus	1.82	3.59	+1.77
Train	0.10	0.21	+0.11
Airplane	3.17	3.93	+0.76
Other	0.86	1.11	+0.25

*In 1977 trips in which different modes were used going and coming were categorized separately. This procedure was not utilized in 1972. As a result, for comparability, such trips were excluded from tabular presentation.

Source: U.S. Bureau of Census, 1977, 1979.

Table 5.--Gasoline Prices/Availability and Outdoor Recreation Activities - The Future.

Type of Adjustment Package	Attribute	Present	Future
1. Activity Space Reduction:	Shape	Shrinking	Optimal Compact Shape
	Tendency	Intervening Opportunities	Distance Decay
	General Pattern	National/Regional Sites	Regional/Local Sites
	Mode Efficiency	Increasing Importance of Fuel-Efficient Cars	Further Increases in Fuel-Efficient Cars/Technological Breakthroughs
2. Activity Mode Change:	Bus	Trace	Moderate Increase, Primarily Among Lower-Income Households
	Carpooling	Slight Increase	Some Appreciable Increase
	Train	Trace	Trace
	Air	Slight Increase	Moderate Increase, Restricted to Higher-Income Households
	Recreation Vehicles	Decline	Further Declines
3. Activity Frequency Reduction:	Periodicity	Decrease	Further Decrease
	Duration of Activity	Slight Change	Increase
	Multi-Stop Trips	Increasing	More Future Increases
4. Activity Type Change:	Rate	Increasing	More Future Increases
	Tendency	Determined by Interest	Partly Determined by Availability Nearby

TRENDS IN STATE OUTDOOR RECREATION FROM PERIODIC

TO PROCESS PLANNING: THE MINNESOTA EXAMPLE¹

William H. Becker and George Orning²

After a decade of trial, a change in federal planning philosophy is forcing many state recreation planning programs to change. Ten years of experience showed that plans produced periodically -- every five years -- grew stale and failed to provide the flexibility necessary to meet changing recreation markets and environmental problems. Recognizing these problems, the Heritage Conservation and Recreation Service redrafted its planning guidelines to encourage ongoing planning processes, rather than static plans. This shift in emphasis, designed to give states the flexibility necessary to coordinate effective expenditures of Land and Water Conservation Fund (LAWCON) dollars, has required changes in the ways many states discharge their comprehensive recreation planning duties.

Under the periodic planning approach, states could receive up to five years' eligibility to use LAWCON funds. As new plans became due, states would reassess the public's rate of participation in outdoor recreation activities, reinventory the existing recreation facilities, seek public input on recreation issues, and determine acquisition and development needs for the next five years of action. Budgets and staff for recreation planning expanded and contracted on a five-year cycle like accordions.

In the ebb of the cycle, little staff power existed for data analysis and direction, channels of public involvement closed, and data and proposed actions grew stale. At the height of the cycle, staff time was occupied by the intense demands of comprehending and communicating the public's perceived needs for the next five years. In short, the periodic approach produced plans, but moved planners away from a role as continuous advisors to decision-makers.

¹Paper presented at the National Outdoor Recreation Trends Symposium, Durham NH, April 20-23, 1980.

²Supervisor, Research Unit, and Manager, Research and Policy Section, Minnesota Department of Natural Resources, St. Paul, Minn.

The process approach seeks to level this cycle. By so doing, the planning staffs should be available to listen to concerned citizens, monitor resource acquisitions and development, give advice on fast-breaking issues, participate trends, maintain current inventories on recreation facility supplies and, most importantly, help decision-makers on a continuous basis.

Unfortunately, unless planners redesign their approach to planning, Process Planning will require a constant amount of budget and staff equivalent to the height of the five-year cycle. Only E. H. Porter's Polyanon could foresee public financial support for a new cadre of permanent planners in state bureaucracies. Therefore, for Process Planning to come to fruition in state outdoor recreation planning, every possible economy must be used.

The primary economy possible is increasing efficiency in data collection and avoiding large-scale data collection for planning purposes that are not part of ongoing agency operations. This will free time for a more active role by planners in day-to-day decision-making.

Though the specific methods of implementation may differ from state to state, the general areas in which to look for economy hold true across all states: these areas are in the collection of resource, facility and user data, and in the collection of public input. Data inventories need to be collected on a continuous basis, must be computerized, and must be tied to the ongoing record keeping functions of state agencies and to the courthouse records of local governments. Public input processes must be designed as part of the ongoing input into more comprehensive decision structures such as state agency long-range plans, legislative committee processes and regional plans. With the shift to process planning, efficiency in data delivery becomes important. A publication format that accommodates continuous revision must be developed. States must develop and implement computerized management information systems that can quickly process planning data for

day-to-day decision-making. But last and most important, states must train, employ and retain qualified staff, who will move toward a data liaison and a consulting role.

EFFICIENCY IN RESOURCE DATA COLLECTION

The essence of economical information gathering is the use of secondary sources and ongoing, in-place data input channels.

Many secondary sources exist for resource data: state as well as U.S. Forest Service inventories of vegetative cover, Soil Conservation Service Soils Surveys and U.S. Geological Survey maps all provide ready data sets for planners. If the recreation planner can locate a central, preferably computerized, clearinghouse for these data, the bulk of resource data collection is complete. In Minnesota, the State Planning Agency operates just such a clearinghouse, the Land Management Information Center (LMIC). LMIC stores resource data on a computerized grid system tied to the land survey and courthouse records, allowing data mapping and the creation of new, more useful variables from the original data set. For example, if we want to produce a map of scenically attractive areas using Minnesota's topography, forest cover and nearness to water as

independent variables, we can. All we must do is decide the data classes, determine proper scale and design map symbols and patterns for automated map production. Figure 1 shows a scenically attractive area map produced in just this way.

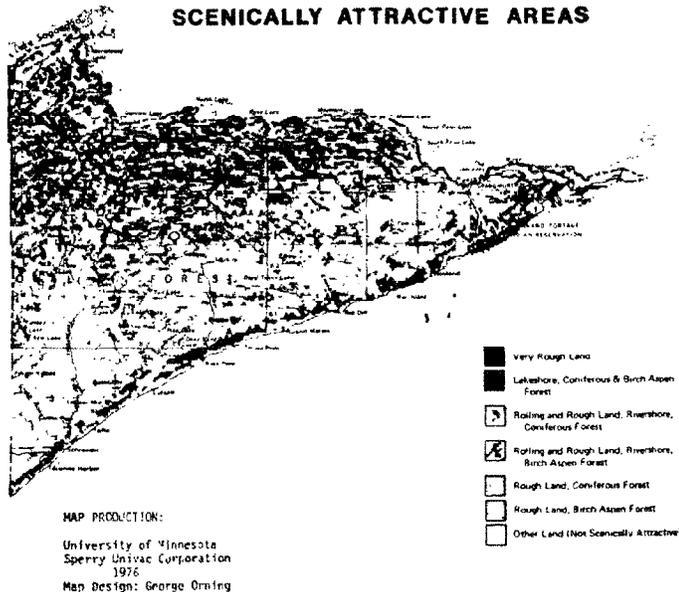
In addition to the more traditional resource data listed above, the Minnesota Department of Natural Resource has created a public land ownership data set that is LMIC system compatible. Unlike physical resource data, this cultural data changes often and must be continuously updated. Here is where ongoing, in-place channels of communication come into play. By redirecting the land ownership paper shuffle to include a key-punching step, land ownership records can be continuously updated. Thus, with minimal extra effort, quality data is maintained on an ongoing basis.

If the situation dictates, other types of data can be added to the system. For example, if mineral leasing in Minnesota accelerates to the point that it might threaten recreation options, mineral leasing records will be added to the system.

The state recreation planner, shifting from periodic to process planning, will be hard pressed to find a good secondary facility data source. In fact, state

Figure One

SCENICALLY ATTRACTIVE AREAS



recreation planning staffs usually keep the primary data set. The key to economy here is making sure the primary data set keeps pace with changes in the facility makeup. Keeping pace eliminates the need for massive, costly reinventories. Again, ongoing, in-place systems provide the efficient mechanism for updating facility data.

By tapping field facility inventories and expenditure records, facility can be kept up to date. In Minnesota, for example, the Division of Parks and Recreation and the Commissioner's special Trails and Waterways Unit have operations sections that administer LAWCON and matching state funds and acquire, develop and manage these facilities. These field people know where the state-owned facilities are located, when a new facility is built and when an old facility is abandoned. Figure two shows a validation form now being developed for the continuous inventory of the public access program.

Local LAWCON recreation funding programs may also be tapped for continuous data input. By plugging into the LAWCON paper work, continuous updating of a major portion of the facility data is achieved. Other recreation funding programs can also provide data. For example, in Minnesota many miles of recreational trail are annually added through the Grant-in-Aid Trail Program. The records of funded Grant-in-Aid trails are now funneled to the SCORP inventory for updating purposes, and are used as the official records of the trails operation unit. In addition, the computer mapping capability will be used to publish trail maps for public information.

Collecting facility data from private and Federal sectors poses more problems because their development and acquisition programs lie outside direct state control. Therefore, facility inventory systems should be designed to expedite updating the private and Federal sectors through mailed questionnaires and interagency agreements. In Minnesota the facility information is programmed to produce custom questionnaires for the administrator/owner of each inventoried facility, showing what we currently record as their facilities. When the private sector's mailing list is updated through public health records, a complete survey is easily produced on a biennial basis. Finally because only changes to the data base are entered, the workload is reduced substantially.

EFFICIENCY IN USER DATA COLLECTION AND PUBLIC INPUT

User data is an area where many record keeping systems exist for the most important recreation activities. By redesigning systems for hunting, fishing and boat licenses and for park camping permits, user populations do not need to be surveyed as often. The flow of licenses becomes a continuous flow of user information. A few simple questions added to each license or permit application yield significant dividends for planning and management. For example, the current SCORP work program in Minnesota includes adding to boat license applications questions on what lakes and lake areas are most often used by boaters. By continuously monitoring the distribution of summer water use we can better predict changes in boating patterns and utilize this information in our planning efforts.

Many recreation activities are free of licenses or permits; but in general these activities each hold only a small share of the recreation market. Where this is not the case, special data collection efforts should be undertaken. By narrowing the objectives of these investigations cost can be held to a minimum.

In the shift from periodic to process planning, public input can increase the workload and attendant expenses. If the process planner is dedicated to addressing fast-breaking issues and problems, personally meeting with the proper public to gain their advice will overburden and threaten the effectiveness of a small staff. However, the democratic process is founded on public input. As a result, many ongoing, in-place public input mechanisms can be tapped. In Minnesota the recreation planning staff does not hold many public meetings to gain public input. Instead, potential actions are reviewed through existing public forums. These include the Regional Development Commissions, each of which is charged with developing a comprehensive regional plan, the Legislative Commission on Minnesota Resources, which is a bi-partisan body made up of key legislators specializing in natural resource issues, and the Outdoor Recreation Advisory Committee, which represents elected local government officials from each development region.

Public input through existing forums is used on the primary yearly component of SCORP - The Annual Action Program. We

deliver a draft to the legislature prior to the appropriations session. It is made available as one of the primary information sources legislators use to understand what public good recreation expenditures are supposed to accomplish. Reviewing the draft with constituents provides public input on upcoming recreation acquisition and development. When the legislators actually appropriate dollars to carry out the action plan, they assure that planned actions will be realized.

During the course of legislative debate, advice and support are provided by Regional Commissions which have reviewed the draft action plan with local units of government and interested citizens in their regions. In addition, the Outdoor Recreation Advisory Committee provides input from the perspective of regional policy makers.

Finally, the state recreation planning staff is available to answer specific questions and give advice on recreation issues to legislators and local government officials.

EFFICIENCY IN DATA DELIVERY

The change from periodic to process planning not only provides for more flexibility but also demands more efficiency. In data delivery flexibility means efficiency. The process approach, with its dynamic data base, makes expensive printed data volumes less important. Meeting requirements of efficient, flexible planning necessitates a change in the format of State Comprehensive Outdoor Recreation Plans from typeset, bound, professionally printed reports to loose leaf data sets. The planning staff then can systematically update the areas of

the plan where change occurs quickly. This approach assures that SCORP is continually current.

Distribution of a SCORP Report Series efficiently provides raw data and maps for state, regional and local planning efforts and for analysis of current issues. SCORP Report Series maps are provided at the state level: one example is a state map of public land ownership. Also, each Regional Development Commission has been supplied with an atlas map series to be used as an aid by them in development of their comprehensive regional plans. The raw data reports provide information such as region-to-region recreation occasion flows and detailed responses from specialized surveys.

Efficient planning must include the development of state recreation planning staff capable of assisting all planners in the state concerned with recreation. This liaison role is vital to carrying the process planning approach to the local levels, where much of the recreation facility provision takes place. Staff must have the ability to clearly explain the process approach. They must be able to sort through ideas provided by recreation planners, understand their objectives and the problems they confront, and propose solutions. Finally, they must be able to direct planners in utilizing the wide-ranging set of computerized data, analyzing it and drawing conclusions. In short, for the process planning approach to succeed, state planning staffs must attain a high level of competence in research and analysis of recreation-related data, and be able to utilize the latest computer modeling and mapping techniques.

VALIDATION REPORT / PUBLIC-ADMINISTERED WATER ACCESS / SCORP INVENTORY SYSTEM/P. 3
 MN DNR/RESEARCH AND POLICY SECTION/TRAILS AND WATERWAYS SECTION-RUN DATE: 01/14/80.

WRITE IN CORRECTIONS OR FILL IN MISSING INFORMATION AS APPROPRIATE:

```

-----
BUSH LAKE PUBLIC ACC : 0 MGMT AREA CODE : DNR REGION- 6
: 077796 -REFERENCE CODE : COUNTY NAME:
: : HENNEPIN
: :
CITY PARKS DIR. : ADMINISTRATOR - CITY : COUNTY NUMBER- 27
2015 W. WINDLOPPE : MINOR CIVIL DIV- 53005 : MAP SHEET- 2
BLOOMINGTON, MN 55431 : : MAP SYMBOL- A369
512-8410011 : ADDRESS :
: :
NUMBER OF VEHICLE/WATER PARKING SPACES - 55 : TRF RIG SEC 40 1234
: 116 214 20 35 B
: 0 0 0
: 0 0 0
: 0 0 0
: NO.OF FORTLES - 1
-----
CLASSIFICATION AND FUNDING SOURCES -
-----
LAKEID/NAME - 270047/ BUSH RIVER NAME -
  
```

LOCATION NARRATIVE:

IN BLOOMINGTON, IN BUSH LK CITY PARK, FROM J494, 2.0 MILES SW
 ON BUSH LK ROAD, ON E SHORE.

Figure 2.--Validation report. Copy for
 comparison to field. This validation report
 is intended to be mailed to the field where
 it is reviewed and, if needed, corrected.
 Corrections are written directly on the

validation form by field personnel. The
 returned form is then used to enter cor-
 rected data into the computer. The entry
 is made directly to the data base through
 an on-line connection or by batch pro-
 cessing.

TRENDS IN LAND AND WATER
AVAILABLE FOR OUTDOOR RECREATION

LLOYD C. IRLAND
Maine Bureau of Public Lands

THOMAS RUMPF
Maine Forest Service

Maine Department of Conservation
State House, Station #22
Augusta, Maine 04333
(207) 289-3061

Abstract.--A data base for assessing the availability of land for outdoor recreation does not exist. Information on related issues such as vandalism, easements, and land posting is scanty. Construction of a data base for assessing land availability should be a high priority for USFS and HCRS, and for SCORP's and the RPA and RCA assessments.

Outdoor recreation is by definition a land-using activity. The intensity of use may vary from a few visitors per acre per year in the far corners of the North Cascades to thousands per acre per year at Coney Island. It is of obvious interest, then, to review the current and likely future trends in land available for outdoor recreation. Completeness requires that land and water be considered together.

In this paper we outline the problems that must be considered in assessing and influencing recreational land availability in local areas.

To define the availability of land for outdoor recreation, we must classify land acreage by the following variables:

1. Physical characteristics (ponds, beaches, rapids, mountains)
2. Ownership (state, federal, private)
3. Management policies of the owners

4. Requirements of the activity
5. Accessibility - boat ramps, rights of way, roads, fencing.

No data base of this sort now exists. Creating such a data base should be one of the principal concerns of HCRS research, the SCORP process, and the U.S. Forest Service and Soil Conservation resource inventory and assessment processes now underway.

In this paper, we summarize bits of existing data to suggest how the problem may more fruitfully be studied. We think that our review leads to important policy implications. In searching for raw material, we queried administrators in state agencies responsible for parks, wildlife, and forestry, and federal land managing agencies. We received many helpful responses. We also reviewed a hefty sampling of recent state SCORPs. The written record reflects that inadequate attention is being devoted to the strategic long-term issues which we were asked to discuss

here.¹ We suspect that much of the research and inventory activity addressing land supply and access is not well documented yet.

We make no effort to construct a new data base for this paper. Instead, we review the broad background trends in land ownership that affect recreation. We then discuss the problems of defining effective access to land for recreation and some of the factors that determine effective access. Finally, we note four major policy issues: should public subsidies be tied to access policies?; what is the future role of government in providing land for recreation?; how can the private sector role be promoted?; and, what are the issues in land acquisition?

MAJOR TRENDS

To characterize the major economic trends affecting the availability of land and water for recreation is perhaps more useful than attempting to add up all the numbers. General data are shown Table 1. Major forces at work in the past quarter century include:

- The reversal of rural out-migration and revived settlement and construction in remote regions. This revival includes residential settlement, which directly changes land use and often produces posting. A far greater acreage, however, has been affected by speculative "recreational subdivisions" catering to speculators and well-to-do urbanites. Such developments now cover millions of acres of rural land, often blocking access to water and to major public reservations as well

¹In preparing this paper, we have found virtually no trend material on vandalism, other than the Alfano and Magill (1976) Symposium. We suggest that state and federal crime statistics, and the USFS RIM system, might be worth searching for this purpose. We also do not treat specialized issues regarding access to federal lands, such as range land fencing and coal development in the west.

(U.S. CEQ, 1976; Payne, Gannon & Irland, 1975). Development trends on our nation's coasts have led coastal zone planners to identify public access to the coast as a prime policy issue.

Table 1. Outdoor Recreation Acreage - Ownership Trends (Million acres)

	1950	1960	1972	1976	% increase
National Forests	181	--	--	138	4%
National Parks	23.8	--	--	29.6	24%
State Park & Recreation Areas	--	5.6	--	9.8	75%
Municipal & County Park & Recreation Areas	0.6	--	1.7	--	67%
Wilderness	14.9	--	31.2	--	122%
	(1945)*				

*USFS administratively designated wilderness

SOURCE: 1973 Statistical Abstract of the United States, U.S. Government Printing Office, Washington D.C.

- The significant growth in acreage devoted to recreation through increased public ownership and leasing.

- The growth in recreation activities which produce substantial disamenity has expanded some recreational opportunities and reduced others. Few lakes and forests are now havens for peaceable strolling, out of range of the noise of trailbikes, waterskiers and snowmobilers.

- Sizable regions, on the other hand, have been devoted to back country activities, often with motorized and developed opportunities excluded. The potential exclusion of motorized activity has often been the most loudly

contested question in wilderness area debates. Our informal survey found that a number of states have established wilderness areas on state-owned lands.²

- Public agencies and private groups have made major progress in maintaining public access through agreements with landowners-- acquiring easements, leasing and similar measures. The classic example, of course, is the Appalachian Trail (Burch, 1979). Snowmobiling, Hunting and fishing have also been major areas of activity. Such steps have not yet been, it appears to us, widely applied to nongame wildlife, day hiking and cross-country skiing.
- Private enterprises have expanded the supply of many recreation opportunities, including camping, boat access and services, lodging and in other traditional fields. Other specialized activities such as trout farms, cross-country ski areas, and the like have as yet not achieved a large role in their respective fields. Much more could be done to apply the capabilities of private enterprises to recreation supply.
- Recreation developments requiring massive construction now face declining prospects for acceptance in the nation's high mountains and in vulnerable coastal areas. These developments usually serve high income clientele, cause major local social disruption and can cause significant

² Examples culled from our survey of the States: Hawaii, 93,000A. of Natural areas; W. Virginia, "several areas"; Massachusetts, 4 areas; Michigan, 53,000A; Pennsylvania, 224,000A of primitive and wild areas; Maine, 20,000 acres in Allagash Wilderness Waterway plus 200,000A of trust lands in Baxter State Park.

environmental impact. The prospects for increasing numbers of such developments in the next few decades are low. (Anon.,1975).

DEFINING EFFECTIVE ACCESS

In many respects, comprehensive data on land ownership, were it available, would not tell the true story about the availability of lands and waters for recreational use. The total supply available is not the most important factor controlling public availability. We need to define "effective access" with respect to each land and water unit.

A comparable problem has been faced by timber resource survey experts in estimating the supply of privately held timber available for harvest. Methods used in that field should be reviewed for applicability to assessing effective access for recreation.

Effective access is controlled primarily by the ability of recreationists to "get there." A unit of land or water is of little recreational value if the public is unable to get to it in the first place. In many areas, particularly in larger public and private holdings, effective access has been significantly increased since World War II through accelerated private and public road building programs.

As an example, the large private landholdings which constitute the major portion of the northern half of the State of Maine, were accessible only by float plane and/or canoe prior to World War II. Since that time, this area has become laced with a comprehensive network of private woods roads, open to the public on a regulated basis. In the future, road building will continue to open up more areas to recreation, but at a declining rate. According to some, of course, this increased access is a trend for the worse, since it adds to fishing and hunting pressure and reduces the wilderness atmosphere.

Closely linked to the impact of road building into previously unroaded

areas, is the changing technology of recreational transportation. The use of snowmobiles and other off-road vehicles (ORV's) in conjunction with expanding road systems has opened up many areas previously limited in access. Increasing fuel costs will most likely stabilize the use of this access tool in the future.

Effective access may be limited in the more traditional physical sense as well. Lack of boat ramps can close off otherwise "public" waters. Strip development along roadways has effectively closed off large blocks of public and private land since World War II. This trend is likely to continue into the future in areas of high population density and economic growth.

Conflicts between mutually exclusive recreation user groups can effectively limit accessibility on a unit of land or water for a given recreational user. User group conflicts have escalated considerably since World War II and will continue to intensify (Bryan, 1979). In the future these conflicts can be most effectively reduced by zoning recreational lands to separate conflicting users either in time or in space. This technique will not eliminate the problem completely, and user group conflicts will continue. In Maine, improved cooperation between x-c skiers and snowmobilers is reported. Such cooperation should be encouraged.

In many parts of the country, a traditional package of social, cultural and historical use of lands and waters may effectively preclude exclusion from private ownerships. This phenomenon serves to highlight the dichotomy between the explicit and implicit availability of lands and waters. Explicit availability is determined by specific legal provisions for accessibility. The most common approach for obtaining explicit availability is through public ownership. Implicit availability, on the other hand, usually does not stem from any legal provisions, but rather from historical patterns of use. For example,

the woods of northern Maine have been used by residents for hunting and fishing for generations, despite the fact that they are almost entirely privately owned, and accessible only by private roads. Efforts by some owners to regulate access to these lands in the last 10 years have met with strong resistance from local residents (For case studies, see Hengsbach, 1970; Stewart, 1963).

In some cases, implicit availability may be incorporated into provisions of state law, as with the various Great Ponds Acts common in New England, which were enacted in Colonial times. These laws commonly hold that on Great Ponds the public has the right to fish, fowl, cut ice, swim and boat (Smith, 1950). In some cases, this historical ordinance provides for access to Great Ponds over private land. As population pressures increase, and as community cohesion weakens in our mobile society, implicit access to private land will erode in the future.

LAND POSTING

The posting of private land against use by others has disturbed those concerned with outdoor recreation, especially hunting and fishing, for decades. The ORRRC reports on hunting and fishing in the early 60's reported that access to private land was a major future priority for expanding the supply of these activities. Yet their reports did not offer extensive analysis of alternative policies to promote such areas. (ORRRC, 1962a, 1962b). Nor, disappointingly, does the Third Nationwide Plan emphasize the issue.

Considerable private land remains open to public use. The Third Nationwide Plan estimates that 32% of the non-corporate land acreage is open to the public (217 million acres) and 54% of the corporate land is open (40 million acres). Most of the land owned by forest products companies is open to the public. In the South, acreage of forest industry land open to the public for recreation rose from 19.5 million acres in 1962 to almost 25 million acres in 1974 (Convery, 1979, p.29; Cordell and Maddock, 1969; and Patrick, 1969).

Land posting results from social change and social conflict. In the

past, rural landowners in many regions accepted the right of others to cross their property for the purpose of hunting, fishing and travel. When the people doing so were neighbors, and when the owner himself expected to enjoy the same right elsewhere, a supportive social consensus favoring public access to private land could exist. Today, the users are increasingly strangers from a distance. They at times damage roads with four-wheel drive vehicles, hot-rod snowmobiles, or hunt birds in the backyards of persons who disapprove of hunting. The consensus supporting public use wrinkles. When fences are broken and buildings vandalized, it collapses. The increased development of rural regions means that residents are closer together; but even neighbors are often strangers.

Our survey of recreation agencies and perusal of SCORP's yielded little comparative data on posting trends over time. In a Michigan study comparing 1929 to 1960, a sample of Upper Peninsula counties saw land posting rise 600%, while a lower peninsula sample rose more than threefold (ORRRC, 1962b, p. 97-98). This is the only study of

posting trends we were able to locate. As an example of currently available data, results of several U.S. Forest Service studies are summarized in Table 2. They display considerable variation in landowner reactions to different public uses of their land.

The importance of these landowner preferences cannot be overemphasized. A change of 10 percentage points in the proportion of owners allowing a given activity can nullify the state-wide effect of millions of dollars of outlays on land acquisition, leaving the general public no better off than before.

Posting is likely to continue to increase, based on the social trends now visible in rural America. To preserve access to land and water in the face of changing land owner attitudes will require that the major conflicts be addressed. User groups and public agencies will have to assure land owners that vandalism, littering and noise will be controlled. Owners may have to be paid for allowing recreational uses. Users will have to accept "corridorizing" along designated

Table 2. Activities Permitted on Private Lands. Selected Northeastern States 1979's

Region and Item	Hunting	Fishing	Hiking	Snowmobiling	All Use	Total owners or acres
	percent permitting					
Southern New England 1972-73 ^{1/}						
% of Owners	25	17	42	N/A	-	18,400 owners
% of Land	37	30	48	N/A	2/3	4.4 million acres
New Hampshire & Vermont 1973 ^{2/}						
% of Owners	51	37	51	50	51%	154,000 owners
% of Land	50	59	73	59	-	8 million acres
Kentucky 1975 ^{3/}						
% of Owners	24	6	12	1	39%	455,000 owners
% of Land	46	13	22	3	52%	11 million acres
West Virginia 1975 ^{4/}						
% of Owners	49	5	37	11	60%	124,000 owners
% of Land	58	26	44	11	65%	6.7 million acres

1/ Neal P. Kingsley. The Forest Landowners of Southern New England. USDA Forest Service, Resource Bulletin NE-41, 1976.

2/ Neal P. Kingsley and Thomas W. Birch. The Forest-Land Owners of New Hampshire and Vermont. USDA Forest Service, Resource Bulletin NE-51, 1977.

3/ Thomas W. Birch and Douglas S. Powell. The Forest-Land Owners of Kentucky. USDA Forest Service, Resource Bulletin NE-57, 1978.

4/ Thomas W. Birch and Neal P. Kingsley. The Forest-Land Owners of West Virginia. USDA Forest Service, Resource Bulletin NE-58, 1978.

paths and corridors that avoid gardens, tree plantations and homes. These arrangements can only be made by organizations. Snowmobile groups have successfully used this approach in many states. (Nordstrom, Stephenson and Nies, 1977).

In States where citizens have enjoyed common law rights of access to seashore, to Great Ponds and to undeveloped wildland, the basis in custom exists to rebuild a consensus in support of public use and access. A possible model is the program of Public Footpaths in England, in which the public is secured the right of transit over private lands for recreation. The Footpaths are well marked and provided with occasional parking places off small rural lanes. Thus, a medieval system of public rights necessitated by the three-field system of farming and the lack of public roads has been turned into a basis for recreational use by visitors from afar. The essential rights are supported by a public consensus. (See Sidaway, 1979 for related information on trails in England)

In efforts to prevent the loss of public access through posting, most states have provided laws limiting land owner liability and otherwise promoting public access. These have been extensively reviewed by Bradley (1977), Quaterman (1975), and Stroditz and Dane (1968). These laws are probably of greater importance in reducing the anxiety level of large owners than they are in promoting public use on small ownerships.

POLICY ISSUES

Should Public Subsidies and Tax Breaks Be Tied to Public Access?

Our society offers a variety of subsidies, some trivial, some substantial, to private landowners. They range from low-cost wildlife bunches and extension pamphlets to the \$15 million in public funds spent to fight the spruce budworm in Maine.

We offer land owners help in cutting and planting trees, in planting cover crops, and for an impressive array of management practices, including construction of farm ponds.

Because of its political sensitivity, it is understandable that a coherent policy has never emerged concerning any obligation on the part of the beneficiaries of subsidies to allow public recreational use of the benefitting lands. We think that this issue must be addressed immediately. Where land owners benefit substantially from production or amenity - increasing public subsidies, they should be required to allow public access. There is no excuse for subsidizing timber stand improvement or cover crops on private estates closed to all public use. The task will be to design programs that protect legitimate land owner interests that are at stake, and to achieve their acceptance politically. Enforcing the access provisions will be a challenge.

An additional subsidy is use-value taxation. Should owners benefitting from lowered tax assessments be required to allow public use of the land or a portion thereof? We understand that in Michigan such a policy is in effect under that state's forest tax program, covering 1.25 million acres (Act 194, PA 1925).

Future Role of Government

The Federal Government has taken on an awesome responsibility for the nation's outdoor recreation needs. This is based on the large federal landownership, on the ease of raising revenue through federal taxes, on the multistate nature of outdoor recreation, on explicit economic development considerations and, frankly, on the unwillingness and incapacity of state and local governments to address the issue.

Specific groups have used their organizing ability to use government as a potent tool in advancing their interests. Hikers have led the fight to preserve wilderness areas and constrain the activities of ORV'ers on federal lands. Snowmobilers have worked with state programs to expand

the supply of trails, and have taxed themselves to provide those services. Most successful of all, of course, have been sportsmen, whose taxes on equipment and successful lobbying are responsible for large programs of land acquisition, wildlife and fish management, and research. This is for a series of activities on which state and federal governments are demonstrably unwilling to spend general fund dollars. (Recall that a major source of LAWCON funding is offshore oil revenues and motorboat fuel taxes.)

On the whole, investors in intensively developed recreation such as marinas and ski areas have been modestly successful in receiving government support in terms of use rights on public lands, construction of roads, subsidized financing for buildings and pollution control facilities, and subsidized tourism promotion. But this seems to be changing. The opposition of environmental groups and nearby residents, financial difficulties, and the complexities of government permit processes are now the key factors affecting future developments of this kind.

One role played by government in recreation is the management of its own lands. Major opportunities for improved recreation supply exist on federal, state and locally owned lands. As an example, significant undeveloped opportunities exist on some 3 dozen Corps of Engineers reservoirs in New England (U.S. Congress, 1975). Much of the nonfederal land has the major asset of being close to the major cities.

Government affects recreational land supply profoundly through the tax system. Over the years, millions of acres of land have been preserved for public use by private charity. Prominent in fostering such donations have been the provisions of federal and state tax laws concerning charitable donations. Thus government, through its taxing power, has significantly promoted land supply for outdoor recreation.

Government sets the rules of liability for landowners and recreational users. One-sided views of this

problem can fail to understand the issues in their full complexity. But clearly, on both public and private land, the allocation of liability appears as a significant role of government.

As an arbiter and definer of shifting public consensus on the content of property rights, government affects the right of the public to use privately owned land. Government is the only available instrument for expressing changing public attitudes about this problem. Unfortunately, it is likely that attitudes of small owners are changing away from allowing public uses of their land. Large owners still appear to accept a responsibility for public recreation access.

State and federal governments must play a major role in gathering and interpreting information, in developing and evaluating better management policies, and in basic research. A good part of the effort now invested in meaningless demand projections could profitably be diverted to studies of the costs and benefits of alternative policies for expanding the supply of recreation opportunity. The first step is a better data base on current effective land supply.

Public agencies have been crippled in the past by underfunded workloads in management, acquisition and enforcement. They have been unable to take active roles, except in a few cases, in promoting the application of private initiative to these problems. Numerous success stories exist. In our emerging era of financial stringency, we must look more and more to promoting our objectives by relying on the user groups themselves to organize and arrange for their needs.

The difficulty will be to employ private initiative in a manner that allows fair access to the general public. Already, significant opportunities for hunting are engrossed by individuals and private clubs leasing or owning land.³ Often the members are more

³There is no good national data on the extent of privately leased land held by hunting clubs. In Alabama alone, some 2.5 million acres were leased by hunting clubs in the early 70's (Alabama SCORP, Vol. 20, p. 82).

affluent than most. They have succeeded, however, in preserving their own recreation opportunities and in managing open spaces in a generally beneficial manner. But to remove the opportunity for exclusivity dilutes the incentive for private action.

Promoting the Private Sector

Far more effort should be devoted to increasing the role of profit-making enterprises in supplying outdoor recreation. In the 1977 NACD inventory, 44,356 out of a total of 71,483 enterprises were operated for profit. (National Ass'n of Conservation Districts, 1977). This base of successful enterprises should be used to expand in existing areas like camping, and could be an innovative source of supply for less traditional fields now handled by the public and non-profit sectors. The Task Force Report (n.d.) prepared on this subject for the 1978 Nationwide Plan at least identified major issues, though it was flawed by self-serving argument and undocumented assertions. Serious research and case studies are needed to develop improved policies for promoting an expanded private role in providing recreation.

One key obstacle in promoting private recreation enterprise is the public provision of recreation at prices below cost. While this question is a complex and serious one, it appears to us that public recreation pricing policies should recognize this concern to a greater degree than is now the case. The enduring belief in "Davy Crockett Economics" -- hunting and fishing free of charge -- is a serious obstacle to progress.

In summary, the most important contributions that government can make to the supply of land for recreation are:

1. Develop more fully the latent opportunities on its own ownerships. Examples:
 - (a) better access and land use at existing reservoirs;

- (b) effective access for winter recreation;
- (c) opportunities specifically for day use and short walks.

2. Use owned properties as cores for regional networks of water trails and land trails.
3. Promote self-help by organized private user groups and local governments. Perhaps the best example is the Appalachian Trail.
4. Effectively address the policy issues raised by public use of private land.
5. Promote development by the private sector.

Land Acquisition

The SCORPs and most traditional reviews have placed their primary emphasis on government acquisition of interests in land. Such interests have ranged from fee simple acquisition, to easements and other limited rights, to short-term leaseholds. While dramatic progress has been made in the past half century, much more needs to be done. Because of the steady pressure of development, which consumes three million acres per year, we can be confident that our current best efforts to acquire more land for public purposes will be appreciated by our descendants.

At the same time, fee simple acquisition for recreation encounters severe obstacles --

- local opposition to removing land from tax rolls;
- sentiment against government ownership and against single-purpose land uses;
- the rapidly escalating cost of purchasing land.

These problems will cripple future land acquisition programs. To adapt, it will be necessary to pursue a mix of strategies. These will rely increasingly on less than fee methods

tailored to specific purposes, such as fishing easements (in the 1960's, some 27 states had programs of acquiring fishing easements).

Programs of leasing private land should be de-emphasized in favor of methods offering more permanent protection. In SCORPs, several states report difficulty in maintaining leased acreage for hunting. The State of Pennsylvania operates one of the most extensive leasing programs, leasing 2.7 million acres from 16,000 cooperators. The State of Florida also has a large program.

Many states have traditionally planned land acquisition around providing access to water. This is a sound emphasis and should be continued, especially in view of the increased amenity value of waterways resulting from pollution cleanup. There is a serious danger that the recreation benefits of water pollution cleanup will simply be capitalized into private land values and not benefit the general public. For a useful review of one state's approach, see, the 1979 Connecticut SCORP (p. 143-163).

CONCLUSION

If sound recreational planning and development is to be carried out in the future, a comprehensive nationwide system for gathering information on the lands and waters available for recreation, classified by relevant variables, is essential. As we argue here, simply tabulating ownership and facility data tells us almost nothing about recreation land availability. The Heritage Conservation and Recreation Service (HCRS) should take lead responsibility for this activity, in close coordination with the U.S. Forest Service through its Resource Planning Act activities, and the Soil Conservation Service through the requirements of the Resource Conservation Act. HCRS should promulgate standards for assessment to ensure comparability and implement them through the existing State Comprehensive Outdoor Recreation Plan (SCORP) process.

This data base will be essential in evaluating existing programs and in suggesting cost-effective ways to increase effective access. It will allow a periodic appraisal of the true availability of land for recreation, a task which cannot be accomplished with existing data.

In research, case studies and pilot tests are needed to evaluate potential techniques for increasing the involvement of the private sector in providing and maintaining recreational lands and waters. Improved programs for increasing public access to private land, especially small holdings, are needed. Some of the effective examples of self-help by nonprofit user groups deserve analysis and emulation. Critical evaluation of existing programs, with particular emphasis on economic analysis of costs and benefits of their ability to provide needed recreational opportunities is needed. Only such a close look at various alternatives and their relative effectiveness in achieving expanded land supply will enable responsible agencies to keep up with the demands for increasing the land base available for outdoor recreation.

LITERATURE CITED

- Alfano, Sam S. and Arthur W. Magill. 1976. Vandalism and outdoor recreation: symposium proceedings. U.S. Dept. Agric. For. Serv. Gen. Tech. Rept. PSW - 17. 72 pp.
- Anonymous. (ed). 1975. Man, leisure and wildlands. Eisenhower consortium for western environmental forestry research. Ft. Collins. Bulletin No. 1 - 138 pp.
- Birch, Thomas W. and Douglas S. Powell. The forest-land owners of Kentucky. USDA Forest Services. Resource Bulletin NE-57. 1978. 101 pp.
- Birch, Thomas W. and Neal P. Kingsley. The forest-land owners of West Virginia. USDA Forest Services. Resource Bulletin NE-58. 1978. 76 pp.
- Bryan, Hobson. 1979. Conflict in the great outdoors. University of Alabama, Bureau of Public Administration, Sociol. Stud. No. 4. 98 pp.

- Connecticut Department of Environmental Protection. 1978. SCORP. Hartford. 434 pp.
- Convery, Frank. 1979. Applications of economics in national forest planning. U.S. Dept. Agric. For. Serv. Southern Region. Atlanta, Ga. 182 pp.
- Cordell, Harold K. and Stephen J. Maddock. 1969. Recreational policies of the major pulp and paper companies in the south. Jour. Forestry. 67(4):229-231
- Hengsbach, Jeffrey L. A recreational study of the upper St. John River watershed. Maine Agric. Exp. Sta., Bulletin 682. 1970. 72 pp.
- Kingsley, Neal P. The forest landowners of southern New England. USDA Forest Service. Resource Bulletin NE-41. 1976. 27 pp.
- Kingsley, Neal P. and Thomas W. Birch. The forest land owners of New Hampshire and Vermont. USDA Forest Service. NE-51. 1977. 47 pp.
- National Association of Conservation Districts. 1977. Inventory of private recreation facilities. Washington, D.C.. 155 pp.
- Nordstrom, Paul E., Ted C. Stephenson and Lester Nies. 1977. Snowmobiling in South Dakota. South Dakota State University, Agr. Exp. Sta. Brookings. 283 pp.
- Outdoor Recreation Resources Review Commission. 1962a. Hunting in the U.S. Special Report No. 6. Washington, GPO. 110 pp.
- Outdoor Recreation Resources Review Commission. 1962b. Sport fishing today and tomorrow. Special Report No. 7. Washington, GPO. 99pp.
- Patrick, David K. 1969. Role of industrial woodlands in recreation. Jour. Forestry 67 (9):625-627.
- Payne, B.R., R.C. Gannon and L.C. Irland 1975. The second-home recreation market in the Northeast. U.S. Dept. of Interior, Bureau of Outdoor Recreation. Washington. 27 pp.
- Quarterman, Russel T. 1975. Incentives to the use of land for outdoor recreation: insulation from tort liability, tax relief. Office of Special Projects, University of Georgia School of Law. 109 pp.
- Sidaway, Roger. 1979. Long distance routes in England and Wales. In, W.R. Burch, Jr., ed, Long distance trails. New Haven: Yale School of Forestry and Environmental Studies. pp. 11-27.
- Smith, Lincoln. 1950. The great pond ordinance -- collectivism in northern New England. Boston University Law Review, 30. pp. 178-190.
- Stewart, Bruce E. 1963. Recreational use of private land in a portion of eastern Maine. Maine Agr. Exp. Sta. Misc. Pub. 658. Orono. 47 pp.
- Stroditz, Gary L. and C.W. Dane. 1968. Trespassers, quests and recreationists on industrial forest land. Jour. Forestry, 66 (12) p. 898-901.
- U.S. Congress, Senate. 1974. The recreation imperative. Committee on Interior and Insular Affairs. 93d Cong. 2d Sess. Washington. 389pp.
- U.S. Congress, Senate. 1975. Studies of the water project recreation act. Committee on Interior and Insular Affairs, 94th Cong., 1st Sess. Washington. 70 pp.
- U.S. Council of Environmental Quality. 1976. Subdividing rural America. Executive Summary. Washington GPO. 17 pp.
- U.S. Department of Interior, Heritage Conservation and Recreation Service.

- Federal Outdoor Recreation Land -
n.d. Task Force Report
- Nationwide Outdoor Recreation Plan.
-Acquisition - LWCF. Washington.
17 pp.
- Nationwide Outdoor Recreation Plan.
Review Draft var. pg. 1979.
- Needs of private for-profit
enterprises in outdoor recreation.
51 pp.
- Role of Non-profit organizations
in providing outdoor recreation
opportunities. 19 pp.