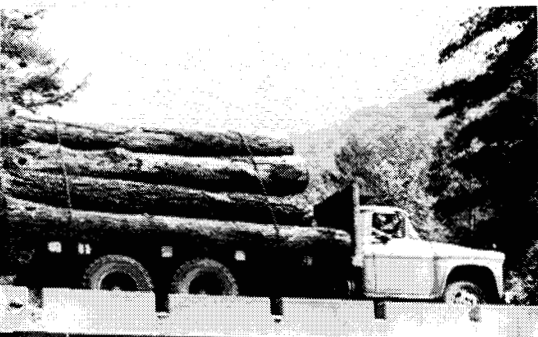
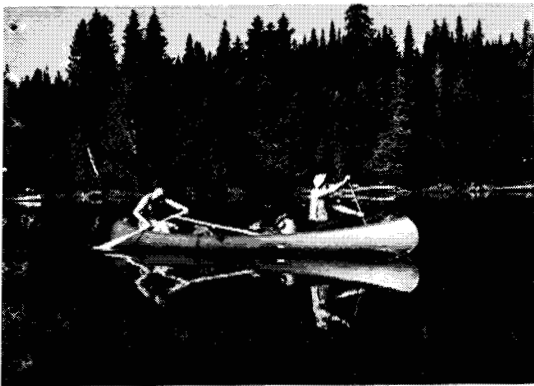




SUMMARY of the FOREST RECREATION SYMPOSIUM



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NORTHEASTERN FOREST EXPERIMENT STATION, UPPER DARBY, F
FOREST SERVICE, U. S. DEPARTMENT OF AGRICULTURE
WARREN T. DOOLITTLE, DIRECTOR



FOREWORD

THOSE WHO ATTENDED the Forest Recreation Symposium held 12-14 October 1971 at Syracuse, New York, heard 26 papers about various aspects of forest recreation. Those papers have already been printed, in Proceedings made available at the Symposium, and also available upon request from the Northeastern Forest Experiment Station, 6816 Market Street, Upper Darby, Pa. 19082

This paper contains the welcoming remarks, the keynote address, the banquet speech, and a summary of the papers—thus completing the record of the Symposium.

SUMMARY of the FOREST RECREATION SYMPOSIUM

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WELCOMING REMARKS AT THE FOREST RECREATION SYMPOSIUM

by EDWARD E. PALMER, *President of the State
University of New York College of Forestry
at Syracuse, N. Y.*

A tribute to Robert Marshall, who contributed creative leadership to developing a greater understanding of the multiple use of forests—particularly the importance of wilderness areas for water and soil conservation and for essential ecological, recreational, aesthetic, and psychological needs.

IT IS INDEED a great pleasure and privilege to welcome the members of this Symposium this afternoon and to pay special tribute to the Pinchot Institute for Environmental Forestry Research and the U. S. Forest Service for inviting the College to join with them in the sponsorship of such critically important deliberation as that in which you will be engaged in the next few days.

I have had the honor of presiding over the administration of this College for the past 2 years, during which, as you can well imagine—since I have not even yet become a professional forester—I have engaged in a vigorous program of reading and studying about the profession and its responsibilities.

As I was pursuing a segment of that inquiry the other evening, I ran across frequent references to the work of Robert Marshall, the son of one of the principal founders of the College of Forestry here in Syracuse—Louis Marshall. As many of you know, Louis Marshall's memory is celebrated on our campus, where one of the principal buildings carries his name. It was he who drafted the legislation passed in 1911 creating the College which, I believe, for the first time, incorporated the broad ecosystem approach to forestry education,

including recreation, more than 60 years ago.

Robert Marshall, his son, decided at the age of 15 to become a forester so that he might spend the greater part of his life in the woods he loved. He attended the New York State College of Forestry, was graduated in 1924, received his Master's degree from the Harvard Forest in 1925 and his Ph.D. from the Johns Hopkins Laboratory of Plant Physiology in 1930. He joined the U. S. Forest Service in the summer of 1924 and was on the staff of the Northern Rocky Mountain Forest Experiment Station from 1925 to 1928.

As Director of the Forestry Division of the U. S. Office of Indian Affairs from 1933 to 1937, Mr. Marshall helped to integrate the preservation and utilization of Indian forest lands into rebuilding tribal life on the principle of self government, and raising the level of living of the Indians. The U. S. Forest Service established the position of Chief of the Division of Recreation and Lands for Mr. Marshall in May 1937, and he occupied this post until his death in November 1939.

Perhaps Robert Marshall's greatest contribution was his creative leadership in developing a greater understanding of the

multiple use of forests—particularly the importance of wilderness areas for water and soil conservation and for essential ecological, recreational, aesthetic, and psychological needs.

In my own mind, as I welcome each of you to Syracuse, I at the same time celebrate Robert Marshall's early attempts to quantify and to evaluate forest recreation to get some real handles on a subjective experience tied closely to aesthetics, enjoyment, and thus the quality of human life. Although he said it in 1935 as a commentary on "Priorities in Forest Recreation," he perhaps set the stage well for a symposium of this kind when he worried the problem posed in the fact that:

"There are two worlds in which people may live today. The dominant one is the world of the 20th Century, with its great cities, its network of boulevards, its almost instantaneous means of communication, its inescapable machinery, and its high-speed, high-tension processes of life. It is the world which most of mankind chooses, and while some of us do not find it enough, we do not have the slightest missionary desire to lead others away from it. There is ample room in the United States for all those who want this world of the 20th Century, to enjoy it to their heart's content, and still leave a few nooks in the second world. It only demands a little planning, a little tolerance of a different mode of enjoyment, and some suppression of the dog-in-the-manger psychology.

"The second world does not date to any century, but only to the timelessness of the primeval.

"It is an impersonal world in which

beauty has come into being without the slightest assistance from man.

"It is a subtle world in which great dramas of nature are enacted only for those who have the leisure and the patience of the primitive.

"It is a delicate world which is irreparably ruined by the slightest introduction of artificiality.

"It is a peaceful world in which the most instinctive yearnings are at home with environment.

"It is a world which to many of us contains the highest values in life.

"It is a world which can and must be used properly."

I derive some amusement out of comparing Robert Marshall with Henry David Thoreau both because the similarities between them are striking, and because so are the differences. Marshall's best-selling book, *Arctic Village*, ranks as an American classic along with *Walden*. Marshall had a deep love for the natural world and the strong confidence that the forests suggested the secrets of the good life. In these ways they are similar; but as Henry David Thoreau rejected society, social organization, and particularly governmental organization, Robert Marshall held high positions in public life and accepted the social governmental system on its own terms. He thus learned, as we must, to work with it and to obtain the best from it in the common interest. It occurred to me that some references to him and his work might not be inappropriate as a way of invoking the subject of your deliberations, in which I wish you all the best of luck and Godspeed!



KEYNOTE ADDRESS AT THE FOREST RECREATION SYMPOSIUM

by ALEXANDER ALDRICH, *Commissioner,
Parks and Recreation, State of New York, Albany, N. Y.*

An outline of the recreation facilities and programs of the New York State park system, with suggested considerations for thought in planning and operating recreation facilities on both public and private lands.

A FEW WEEKS ago, I did not expect to be here today addressing you who are attending this Forest Recreation Symposium. Your keynote speaker was to have been Dr. Sal J. Prezioso, who until a few days ago was Commissioner of Parks and Recreation. However, Governor Rockefeller has asked Dr. Prezioso to assume new responsibilities as Commissioner of the Office for Local Government, and has asked me to assume the responsibilities as Commissioner of Parks and Recreation.

I am looking forward to this challenging responsibility of providing recreational opportunities for the 20 million people in New York State to the extent possible with the facilities provided by the State's park system.

WHAT THE STATE DOES

In its more than 40 years' existence, the New York State park system has been developed to include 215 thousand acres encompassing 128 parks from Montauk Point to Lake Erie and the St. Lawrence River. These parks can accommodate more than 700 thousand people at one time and provide such services as 36,632 picnic sites, 91 beaches, 22 swimming pools, 25 golf courses, 8,790 camp sites for tents or trailers, and 596 cabins.

Other services provide playgrounds for

the small fry, small-game areas, adult game areas, and areas for strolling, resting, and viewing the scenery. Another area of endeavor is the operation of 33 State-owned historic sites where one may review and study the role of New York State in the Nation's development.

We also provide such services as the registration of motor boats, along with the very important education and training of junior operators and the placing of buoys as a safety operation for 15 interior New York lakes.

We have instituted a busing program, which brings inner-city youngsters and adults to the State parks for a day's outing or a day of supervised sports and recreation. This program has admirably served New York City, the Capital District, Rochester, Buffalo, and Syracuse. Two exceptionally successful ventures were the establishment of outdoor education centers in State parks to serve youngsters attending certain of the Syracuse public schools and students of 18 school districts in Suffolk County, whereby these children received excellent education in an outdoor natural area center.

The theme of the State parks' recreational-opportunities program is to provide a broad opportunity for its patrons to pursue almost any type of recreational experience they may desire. We have facilities of

high-intensity use, such as Jones Beach on Long Island; and we have the really remote camping sites, such as those in the peripheral area of the Adirondacks and in the central area of New York State. We have recreational opportunities to satisfy almost any interest.

Outdoor recreation has been thought for many years to be primarily a summer program; but with the development of new types of lightweight warm clothing, new types of camping equipment such as trailers and truck campers, and new types of vehicles such as snowmobiles, the demands on our park system for year-round recreation programs have become fantastic. People now visit our parks in the winter for camping, picnicking, snowshoeing, wildlife watching, skiing, snowmobiling, skating, ice fishing, hunting, and a myriad of other activities which are now considered enjoyable during the cold winter months.

SNOWMOBILING

A 1-year-old newcomer in our program of responsibility is the administration of the snowmobile law. In the first year, we have registered 144,000 snowmobiles. We forecast that we will reach a numerical plateau in about 5 years of some one-half million registrations. The first paragraph of the Snowmobile Law states:

"It is the intent of this article to promote the safe and proper use of snowmobiles for recreation and commerce in this state by encouraging their use and development and minimizing detrimental effects of such use upon the environment."

We are interested in promoting safety and have recruited over 3,300 volunteer instructors to provide the required instruction to junior operators, aged 10 to 16.

Our first year's history of reported snowmobile accidents indicates a high percentage of head injuries, which leads us to believe that it may be necessary to institute a regulation requiring the wearing of safety helmets.

The snowmobile industry should change their emphasis on development from the horsepower race to a concern for public

safety and the protection of our environment.

New York State law requires that snowmobile engine noise emissions be not greater than 82 decibels after June 1972 and not greater than 73 decibels after June 1974. The industry will meet this requirement. Industry has also lowered the oil-to-gasoline requirements to one part oil to 50 parts of gasoline, which will help to reduce air pollution. Must we stop at this point? Can we not reduce noise levels and air pollution much more?

The snowmobile industry should take the lead in this and in the more important consideration of improper impact on our environment from snowmobile use—the compaction of the soil with its resultant destruction of soil cover and eventual erosion through water runoff—the possible extirpation of forest growth—the destructive menace to wildlife.

Let's not sit still enjoying the immediate benefits of our technology, which created the snowmobile. Let's join hands to mitigate its destructive capabilities.

PRIVATE HELP

Your Symposium is to discuss forest recreation along with all of its attendant aspects. The State park system is quite familiar with forestry programs and forest recreation, as we have substantial forested land within our State parks. Probably the largest is that located in the Allegany State Park region. We also have heavily forested regions in the Taconic, Palisades, Central New York, and Finger Lakes areas. Many of our activities are associated with forest programs.

But let's look at some of the other types of forests throughout the State of New York. We have many and varied forests. We have the State forests, which are primarily areas of wornout farmlands that the State acquired and has replanted. Many of these areas are called reforestation areas. Their primary purpose is to demonstrate the capability of the soil and the geographical area to produce crops of wood products.

We also have large commercial wood-products forests. The Finch-Prunyn Lumber Company is the largest single owner of a commercial forest in New York State.

We have other types of forest land owners, such as the small woodlot owner, the farm woodlot owner, and the city person who has become affluent enough to be able to acquire some farmland that has been . . . well . . . possibly used up or possibly just tired . . . upon which he felt he must and should plant trees. He loves the growing things, but most important it's his—all his—and his alone. Never in his lifetime does he consider, and probably rightfully so, that there will be an opportunity to harvest a wood crop from these lands.

THE RECREATION EXPLOSION

Now let's take a look at forest recreation—the relationship of recreation to forests and the relationship of forests to recreation.

The interest of people in forest recreation has been exploding in this State at a tremendous rate. The State cannot keep pace with the demands and the needs for camping, hiking, fishing, hunting, bird watching, skiing, snowmobiling—you name it, it's there—we can't meet it.

An area of great interest to us in the State Park and Recreation Program is the encouragement of large private landowners who, as good citizens and good businessmen, will go into the recreation business.

In my judgment, no matter how fast we expand, the State park system cannot cope with the enormous demand for recreation across the State.

This means that, if the State needs parks, it needs partners who have the interest—who have the desire and the concern in providing a service to the citizens of the State. Forest recreation, as we've discovered, covers many things, and *it is compatible* with timber production.

You must recognize that there is nothing a recreating public can do on timber production land that will cause damage that cannot be prevented by control, exclusions, and management.

There are many and varied types of recreational pursuits in which the American public has an interest today. Consider the wide areas of interest and enterprise—hunting, fishing, hiking, skiing, snowmobiling, camping, bird watching, snowshoeing, boating, canoe trails, nature study, golfing, swimming, picnicking, horseback riding,

games areas, and tot lots. Consider the economics and methods of operation.

In the matter of economics, it is necessary to consider three primary directive factors: (1) Do you desire to make a profit from the recreational facility; (2) Will you be happy with a "break-even" status?; Or (3) will you be willing to accept a financial loss in order to provide a public service as a public-spirited citizen?

In method of operations, you should consider a number of different types of program. One could be the owner-operated venture; and I think that discussion of owner operation can be assessed fully in the light of what I just mentioned about economic considerations.

A second choice would be a concession-type of operation, whereby the owner would either build the recreation facility and contract the operation to a concessionaire who would return to the owner a monetary dividend to pay off the first instance cost, with the concessionaire absorbing the cost of maintenance and operation and rehabilitation and, hopefully, making a profit. Or, he may elect to contract the construction and operation to a concessionaire on a long term or provide a write-off.

The third type would be the landowner's providing an easement to a government agency or to a private organization for the use of such land for recreational pursuit as may be in accord with the policy of the landowner.

CONCLUSION

A keynote speaker is supposed to set the tone of the meeting to follow. I have tried to make you aware of the many areas that the State park system has and is operating. I have also tried to give you some thoughts in reference to what could be done in areas other than State-owned lands. I have suggested considerations for thought in planning, economics, and methods of operation.

There are many other aspects in developing a well-rounded recreational facility upon which I have not touched. The keynoter is to present certain problems that he knows will be discussed along with many others in meetings of the program to follow. I hope that I have germinated some

thoughts and provided something for you to think about in your discussions for the rest of the day and at succeeding meetings.

I hope your meeting will provide sound

thoughts for future recreational opportunities for all the many thousands upon thousands of people who have an interest in recreation.



CONSERVATION CONSIDERATIONS —A BOON TO OUTDOOR RECREATION

by PHILIP A. DOUGLAS, *Assistant to the Executive
Director, National Wildlife Federation,
Washington, D. C.*

Banquet address given at the Forest Recreation Symposium, Syracuse, N. Y., 13 October 1971.

SOCRATES WAS a Greek, a philosopher. He went about giving advice. They poisoned him.

In my remarks to you this evening I shan't repeat Socrates' mistake, though I hope I shall leave with you some concrete thoughts—many you've probably heard—to help us along in vital current programs to conserve our natural resources and, in keeping with the theme of this conference, to illustrate how these actions can aid us in providing, not just forest recreation, but various other phases of outdoor recreation.

I'm certain that your panel experts have covered the transition from pure fiber production by silviculture to multiple use, emphasizing the recreation potentials in our 508 million acres of commercial forest land and 250 million acres of private forest lands. My thoughts this evening will be along more general conservation lines—consummation of which will be a boon to outdoor recreation in all areas.

We must do all we can to foster more opportunity for outdoor recreation, particularly around water—a perpetual magnet to people, as are the forested public playgrounds. Our best planners estimate that by the year 1975 water-based recreation needs will have increased by 170 percent over what they were in 1960, and by 400 percent by the year 2000.

Every year, 9 out of 10 Americans—some

175 million—are on the move in search of outdoor recreation, places to fish, boat, picnic, swim, hunt, play, or just relax and enjoy fresh air and sunshine, generally close to water. 60 million of these will fish.

Those who despoil our waterways, in general, wear the black hats—the dam and road builders, nuclear- and hydro-power producers, irrigators, and the manufacturers of persistent and poisonous chemicals, the polluters by whatever means.

We in the natural resources conservation force, now to be reckoned with, very recently wore the white hats. Remember, this IS the Environmental Decade of 1970-1980.

BLACK HAT OR WHITE?

Now some strong and vigorously unscrupulous public-relations programs, in some cases by giving only half-truths, would put us under a black hat. They say:

- We don't want air conditioners and electric clothes dryers.
- We don't care who gets typhus or malaria, or that the spruce budworm is decimating our western forests.
- We don't want to travel smooth highways along scenic waterways; nor will we permit the people of Alaska to have road access to their new North Slope.

—We don't care about the farmer's need for water for his crops, with really no hope anyway to feed the geometrically expanding population growth.

But I say to you this evening, THE PEOPLE are deciding that THEY do want all of these things; and modern technology says that we safely can have most of them. IF we want to pay the piper. We can incorporate protection and safeguards for the natural environment in our original plans and design. AND at a price several recent surveys have shown we are willing to pay.

So isn't it really a matter of industry and conservation working TOGETHER at the very outset, rather than fighting a pitched battle after the fact?

We can have our water and drink it, boat on it, swim through it, and fish in it.

I feel that it is important at the outset to set up a series of definitions so that there are no misunderstandings. In my remarks, "conservation" means the wise use of the renewable natural resources. This differs from "preservation," which in my view precludes any use and implies a concerted effort to retain a natural resource in its original state—denied to most. Preservation is a retrogressive philosophy, because long-term retention in original condition is patently impossible in most cases.

Conservation practices are absolutely essential in many instances. One of the most-used examples involves the perpetuation of a deer herd. To accomplish this, a harvesting rate is established, based on optimum yield or what the range will produce and support in a healthy and productive condition. Hunters are allowed to crop off the surplus animals. With such practices as predator control, many of the deer's natural enemies are eliminated. The final outcome, if left to nature, would be starvation—a cruel fate. Protectionists have attacked this method of management; but do they proffer a better solution?

ENVIRONMENT AND ECOLOGY

President Nixon has pointed out the necessity to conserve our natural resources, particularly stressing a great need for restoration ". . . of the beauty of waterways and of air, and land which have been de-

stroyed or virtually ruined by reason of our economic progress . . ."

So there is emphasis on restoration of the environment within the overall context of conservation. What do we mean by environment? "Environment" may be regarded as the sum total of our surroundings, made up of bits and pieces—air, soil, water, forests, grasslands, fish and wildlife, and open space; physical, biological, and chemical—whereas a counterterm, "Ecology," often misused, connotes the study of the relationships of organisms to each other within this composite environment.

The real crux of "conservation considerations" lies with many disrupting factors that affect the wise use of a renewable natural resource. My special expertise is in the conservation of aquatic resources and their essential ingredient, good-quality water.

One of the greatest problems confronting this Nation and the world today is the population expansion—explosion, if you will. A population of approximately 80 million in the United States in 1900 projected to the year 2000 could range between 280 and 310 million, with 80 percent in urban areas. For our natural water resources alone this means a tremendous overburden and an area of great concern to all of us for basic enjoyment, and some even say survival, of life. For instance, the future expansion of steam-electric power generation alone has placed a requirement for condenser cooling by the year 2000—if conventional once-through cooling procedures are employed—of 50 percent of the natural water runoff in the contiguous 48 states.

There is an increasing demand involving a requirement for higher quality water. For example, we anticipate an additional 20 million anglers, a third more than we already have; but at the same time the demand for water will triple while the population doubles, due to increased per-capita use of water caused by increased urbanization, industrialization, rising levels of income, individual expectations, and increased leisure and outdoor recreation.

POLLUTION PARAMOUNT

Pollution control is paramount. Pollution may be regarded as being a specific impairment of quality to a degree that has an adverse effect upon any beneficial use. If

there is no impairment of use, then there is no pollution.

We are faced with much impairment. It is said that "Americans will contribute their share of 142 million tons of smoke and fumes, 7 million junked cars, 20 million tons of paper, 48 billion cans, and 26 million bottles to the environment each year. To run their air conditioners they will strip-mine a Kentucky hillside, push dirt and slate down into the stream, and burn coal in a power generator, whose smokestack contributes a plume of smoke massive enough to cause cloud seeding and premature precipitation from Gulf Winds which should be irrigating the wheat farms of Minnesota. In his lifetime, one American will personally pollute 3 million gallons of water, and industry and agriculture will use ten times this much in his behalf . . ."

A real problem exists for industry and large municipalities requiring at least secondary and, in some cases, tertiary waste treatment to comply with established water-quality standards. This requires substantial sums of money from both industry and government, and must encompass a definite involvement of state, county, city, local, and private segments of concerned organizations. Complete appropriation of authorizations, and the actual allocation of funds must be forthcoming under several clean-water acts now on the books, for the years to come until the job is done.

The President has stated that "The great question of the 70's is, shall we surrender to our surroundings or shall we make our peace with nature and begin to make reparations for the damage we have done to our air, our land, and our waters?"

CLEANING CAN HURT

A strange example illustrates an antithesis, where damage has been done to the aquatic environment by the Nation's effort to keep clean. Commercial laundries and home washing machines contribute to the detriment of the aquatic ecology in receiving waters. The so-called "hard" detergents exhibit high toxicity to fish. The more readily decomposable but more toxic "soft" detergents in minute concentrations, for instance, effect the ability of bullheads and bluegills to reproduce. Now we are learning that substitutes are caustic and

can damage human tissue. There appears to be no solution to this problem as yet, and much confusion is aggravating the problem.

Municipal and industrial operations generate over 190 million tons of solid wastes annually, and this figure is expected to rise to 340 million tons at the end of this decade—great quantities finding their way to our waterways. Traditional disposal of municipal solid wastes by land-fill and incineration often results in pollution of land, water, and the atmosphere.

Of great concern to us is the Atomic Energy Commission forecast that approximately 111 nuclear powered steam-electric stations generating 84 million kilowatts of electricity will be built in the near future. These plants would require 170,000 cubic feet per second of cooling water, approximately the average flow of the Mississippi River at St. Louis, Missouri—a tremendous volume of water!

Of paramount concern is the heating effect on aquatic organisms—particularly in a confined area where there is no opportunity for adequate circulation and where natural temperatures are high. Heat has many side-effects on water quality, which affect aquatic life. Different species of fish require different temperatures at which they perform various activities at peak efficiency, at which they function inefficiently, and at which they die. With increased temperatures, the solubility of oxygen is decreased, and certain slimes and fungi flourish. Too, winter water temperatures must remain low enough to insure gradual growth of aquatic insects and provide food during protracted periods of emergence in the spring. Temperatures consistently at or above recommended limits place fish under stress, limit their scope of activity, and subsequently lower the fish's ability to compete for food and living space with other species that have greater heat tolerance.

THE ALASKA PIPELINE

Construction along waterways paralleling and traversing important fishery waters must be carefully planned and executed, such as the one much in the news today, the trans-Alaska pipeline system. Inasmuch as the present routing over the fragile Arctic by the 800-mile-long 4-foot hot-oil pipeline traverses and parallels many waters

between Prudhoe Bay and Valdez known to be productive of the important sport and commercial fisheries needs of Alaska, and with great potential for future natural resource needs of all America, great care must be exercised to prevent irreparable damage during some 175 crossings of various waterways. The Sagavanirktok River, for example, is traversed 32 times.

The timing of construction is important so that waterway sections are not disturbed during spawning and other migration periods of salmon and other species, and that gravel not be removed from areas where spawning normally takes place. It is estimated that over 13 million yards of gravel will be required for roads and stations alone, not to mention huge supportive requirements for the pipeline, landing strips, etc.

The Water Quality Improvement Act of 1970, P. L. 91-224, is providing some needed relief in establishing liability for the costs of clean-up of oil contamination from tankers and onshore and offshore loading of petroleum products, as well as fixing the responsibility for such oil spills. M. A. Wright, Humble Oil Company board chairman, stated during a recent meeting with conservationists and the Secretary of the Interior that better decision-making authority is needed by Government agencies on the local scene. This would permit immediate remedial action where an oil spill has taken place.

I am currently involved with working out response and research contingency plans to help prevent damage to our natural resources following an oil spill. I shudder to think about the many problems that could be encountered in transportation of oil from Prudhoe Bay via supertankers over 1,500 miles of foreboding ocean and sound to U. S. West Coast refineries. It would seem that this would set the stage for great oil-spill potentials. Conservationists are particularly concerned with overland transport because of the high frequency of earthquakes in the circum-Pacific seismic belt.

The Wild and Scenic Rivers Act of 1968 set aside certain waters designated in whole or part for perpetual free-flowing and undeveloped character—no dams! Generally, in these cases there are certain specific attributes that the waterway has that are unique and must be preserved. Currently, Ameri-

cans are faced with hydropower development in the Columbia River Basin, which is seriously jeopardizing the Nation's irreplaceable remnant Pacific salmon and steelhead stocks. Gas-bubble disease, caused by supersaturation of nitrogen below spillways, is a real fish killer!

MORATORIUM ASKED

Specifically, conservationists have been fighting the power industry of the Northwest, as well as Federal dam builders who wish to construct several high dams on the Middle Snake and Salmon Rivers. These areas constitute the prime remaining spawning and nursery grounds of salmon and steelhead in the entire Columbia River Basin. Senators Frank Church and Len Jordan of Idaho have proposed a bill, S. 488, to declare a 7-year moratorium on dam-building in the Middle Snake River. This would provide a delay until resource agencies have a better opportunity to study and prepare alternate plans for needed power in this region of the country.

The National Wildlife Federation is currently working with the State Department, professional organizations, and the long-established International Commission for the Northwest Atlantic Fishery to solve problems of competition for Atlantic shelf fishes by foreign-flag fishing vessels. I cite here a current example: Atlantic salmon are being heavily harvested by Danish, Greenland, and Faroese drift-netters southwest of Greenland in Davis Strait. The vast majority of Atlantic salmon caught within these waters originate in spawning rivers outside Greenland, the largest proportion in Canada. Denmark voted against a moratorium during a 1970 conference of the 14 nations represented, refused to recognize the will of the majority, and established its 1970 and 1971 catch limits at the high point of 1969. Economic sanctions by other ICNAF member-nations may have to be applied to force compliance.

I believe the preceding gives ample evidence of what should not be done and what activities are detrimental to wise use and what is needed for the protection of the environment. The value of history is to show us the mistakes that have been made in the past. Our continued existence and

our well-being depend upon our working with nature, not against her.

Robert O. Anderson, chairman of the board and chief executive officer, Atlantic Richfield Company, said in a major public forum that we had better start shifting our sights from quantity to quality. An historic

corner plainly has been turned. The cost to industry of environmental restoration appears very substantial. However, it must be borne in mind that industry will pass along most of this cost to its consumers, who appear to be determined to have adequate conservation of natural resources, whatever the cost will be.



SUMMATION OF THE FOREST RECREATION SYMPOSIUM

by PAUL F. GRAVES, *Professor, School of Environmental and Resource Management, State University of New York College of Forestry at Syracuse University, Syracuse, N. Y.*

A general summary of the Recreation Symposium held 12-14 October 1971 at Syracuse, N. Y., sponsored by the State University of New York College of Forestry, the USDA Forest Service, the National Recreation and Park Association, the New York State Office of Parks and Recreation, and the New York State Department of Environmental Conservation.

PURPOSE OF THE SYMPOSIUM

ONE OF THE REASONS for this conference is that the deepening public interest in and concern for environmental quality has given new dimension to the steadily expanding participation in forest recreation, bringing dynamic changes and unknowns that have led to both a sense of urgency and some feeling of frustration by those responsible for guiding development of resources in the proper directions. It no longer appears that the future can be readily predicted by simply extending past trends or using past criteria or standards. It is indeed timely that attention be given to the topics exposed here.

Major purposes of the Conference were to consolidate and evaluate our state of research understanding and managerial oversight for many of the current recreation-resource problems and to assess emerging new directions, needs, and concepts requiring cognizance in today's planning and in judgments toward the future. These purposes have been served rather well through the presentations and discussions of the 26 papers in the five sessions. The questions and participation by conferees have shown

enthusiastic desire by all to get deeper insight into their functions and responsibilities, and to more fully meet their obligations to translate the recreation resource as meaningfully as possible into the dynamic public interest.

PLANNING AND DEVELOPING THE RECREATION RESOURCE

Reduced flexibility and other complications in planning are an outcome of the usual recreation-resource inventory process that does not clearly separate a mere inventory of resources from some built-in evaluation of them. Agency philosophy, social and political constraints, administrative needs, and personal values are all reflected in the standards and guidelines used for screening. This means that much planning judgment has been preempted in the data-gathering process, and in varying degrees a preformed development priority system has been initiated.

Prof. Davis criticized this prevalent approach for a number of serious shortcomings. By far the most important is the slower pace of change in natural resource complexes than in the dynamics of societal, political, and administrative conditions,

thereby making the inventory and the plans based upon it rather rapidly discordant with the setting in which they are expected to be useful.

A better approach suggested is to limit inventory standards to conditions and characteristics of the natural resources, which in turn requires definition of outdoor recreation activities to be served and some specification of quality for the recreation experience. From these data, a set of alternative development priorities can be woven into a plan with sufficient flexibility to meet changing societal needs and constraints.

While this revised inventory approach should certainly permit much better planning, it still would require guidelines or standards for defining quality and characteristics of recreational experiences. Man being what he is, these guidelines would seem inevitably to reflect the manager's or the researcher's cultural bias inasmuch as we have so very little useful knowledge of what constitutes quality of a user's experience.

Recognizing this, Prof. Davis suggested that perhaps the most important research needed is of this type—how people perceive their environment. We need to know much more about what a given recreational experience means to them if we are to plan suitably for providing it.

Dr. Shafer and Mr. Moeller also offered strong reasons for our getting quickly into better forecasts of the quality aspects of recreation use, as well as the usual quantity forecasts, even though it invades the battleground of natural sciences and social philosophies. Understanding of values and phenomena in this sector requires that recreation-resource managers and researchers be willing to change some of their present attitudes and research approaches.

Some methods already have been developed for predicting certain types of recreation values for specific management purposes, but very few managers have used the proven methodology because they find it difficult to act on estimates and uncertainty. They still prefer to trust their own intuition and judgment when planning ahead. Better information on the prove-out of these methodologies in real application would certainly increase their acceptance; but the future is now, and forecast experi-

ence is minimal. It is interesting that even the research authors based an evaluation of how useful an equation may be, for forecasting recreation use or amenity values, on past *research* efforts rather than on actual application and experience.

Numerous research results and predictive equations were offered and evaluated as to their potential utility for planning and forecasting, but the authors cautioned that much more exploration is needed on ways to forecast recreation values. While they spoke of using the qualitative values of an environment as part of a predictive model, they also noted that determining the best forest-recreation environment for man is extremely difficult. Qualitative recreation values involve such intangibles as security, beauty, freedom from stress, pleasant feelings, health, self-satisfaction, the psychological need for territory and status and recognition, and the amenities. Even if all of these can be measured with appropriate statistical reliability, one is inclined to sympathize with the doubt by some recreation managers that we will not forecast quality values very accurately until we can somehow cope with such powerful influences on recreational behavior as emotionalism, sentiment, irrationality, and unexplainable changes in public taste or mores. People's feelings are dynamic and constantly changing, hence unreliable as bases for forecasts.

It seems plausible to offer an observation here about other ideas to consider. We are faced by a fundamental dilemma, emphasized by the banquet address by Commissioner Aldrich: on the one hand, we have a population that will be 50 percent larger in 30 years, and a set of trends that clearly indicate a greatly disproportionate increase in outdoor recreation and other types of people participation with the resources of the land; on the other hand, the amount of land *available* to people for such participation is steadily decreasing, and the expectations of people for *quality* benefits from the land are rapidly increasing. Planning, forecasting, and research in recreation should start to give cognizance to the eventualities involved here. People-pressure alone can ultimately defeat the concept not only of wilderness, but of campgrounds, beaches, hiking trails, mountain climbing, hunting and fishing, and the very quality itself of

the forest recreation experience. Furthermore, the present condition of our environment indicates that our whole approach to resource use *must* change, and soon.

Perhaps the most reasonable ultimate solution to plan toward lies in a somewhat different vein than noted in the Conference papers. It could be thought of as having two major components:

1. Determine the true nature of individual and societal benefits and values derivable from quality experiences in recreation-resource uses, and then, using this knowledge, seeking out and developing feasible ways of substituting *other recreation* or *other human* experiences that offer comparable benefits and values in order to forestall strangulating pressures upon forest recreation resources;
2. Encourage and foster in every way possible a whole new ethic and philosophy toward resource uses by the public, aiming more at individual self-responsibility and service to society and *less* at the Benthamist philosophy of personal gratification and selfishness at others' expense. Such a change in philosophy should invalidate many of the trends and projections of forest recreation use that now threaten to destroy the quality that makes it valuable.

Relating somewhat to this concept, Prof. Fabos' critical analysis of the many new quantitative ranking systems that have been developed in recent years for measuring environmental qualities brought out other aspects of our developing state of knowledge for evaluating peoples' preferences and landscape qualities for support of planning and action. While also emphasizing the importance of being able to predict environmental *quality* values on various levels, as some of these systems may be able to do, he suggested that their greatest value may be to create new social norms for greater appreciation of environmental qualities. Here again, however, much more needs to be done toward making the existing ranking systems more valuable, and more and deeper research is needed in user preferences to provide a base of understanding for normative values that *should* be used in place of intuitive values in the ranking systems.

Quality also is emphasized through modification of recreation environments by design and layout to serve man's well-being as effectively as possible. Some recreation sites often receive more impact per visit than they can sustain, usually due to poor utilization of the recreation resource. This is frequently relievable in part by better design and layout. Mr. Lyons's discussion of a system for determining potential pedestrian impact described the numerous variables and their application as one useful tool for recreation facility design. However, until we know much more about how people perceive and benefit from the recreation environment, attempts to design either for sustainable carrying capacity or quality of user experience would seem to be made largely in the dark.

Dealing with a more mundane element of planning and development, Dr. Beardsley rather effectively shot down the popular promotive stance commonly taken by many government agencies and some economists that recreation development induces economic growth and substantial multiplier benefits, such as is usually the case with industrial development. His overview found that beneficial impacts from recreation are low compared to other economic sectors in local less-developed areas, especially when viewed from the standpoint of net gains and trade-offs for the larger economy. Even the probable local benefits that accrue from public investment in a large recreation reservoir must be reconciled against the priorities and opportunity costs, or benefits lost, to society from other uses of the funds that were foregone in building the reservoir. This sort of concern has become critical and preemptive under the climate of overdrawn government expenditures that has finally swept in upon us, under which the competition among high-priority public needs has become severe, and forceful examination of justification excludes many heretofore accepted proposals.

Sustained local economic growth not only is not enhanced, but on the contrary is often hindered where recreation-related spending is seasonal and is concentrated in a short period of the year, resulting in idle investments, loss of quality labor force, and heavy leakage of recreation income from the local area. We have seen the long-term

impacts of this condition in our Adirondack Region in New York State. Even the establishment of major national programs that are unable to overcome the seasonal characteristic of disutility, such as the Cape Cod National Seashore, makes little difference in local jobs, population, and tax income. Some disproportionate increases in local private land values do seem to occur, which is not necessarily good. One might observe that generally comparable impacts have been experienced locally from the St. Lawrence Seaway, which also is confined to seasonal use.

Mr. Lyons expressed hope in recent trends toward integrated year-round recreation communities. This would enable recreation enterprises to be conducted much more as efficient and sustainable business investments, with the stability that contributes to livelihoods, communities, and careers. At the same time, it could provide excellent promise as a cure for many of the maladies that Prof. Bevins found now afflict private recreation enterprises.

The relatively limited opportunity for financial success in the privately managed outdoor recreation business should be a cause for major concern to all of us. We should recognize that the great bulk of forest lands and their attractive outdoor recreation opportunities is in private ownership, and near at hand for the burgeoning metropolitan populations. Further, land costs have reached levels prohibitive for purchase to provide any sizable increases in public ownership, with the consequence that public forest recreation facilities cannot continue to sustain the pressures of use without ultimate loss of the qualities people seek. In the face of this impending crisis, however, public recreation managers still seem impelled to out-service and out-compete private efforts to serve recreationists on a business basis.

Recreational service pricing, Prof. Bevins brought out, is unrealistic and below operating costs. Obviously then, forest recreation cannot be kept solvent without subsidy. Why is this, if recreation is so valuable and in such demand? The reason seems to be that because public agencies historically made formerly little-used public lands available without charge, all outdoor recreation gradually came to be regarded as a

service that the consumer expects to receive at a minimal price. This attitude has been conditioned over the years through public facilities being made ever bigger and more elaborate to meet user desires, always at much less than full-cost pricing. One could take the position, unpopular in today's setting, that this is patently inequitable. Perhaps more serious, however, are three other factors:

1. The basic rationale for forest recreation being provided by the public at heavily subsidized cost may not any longer be sound or defensible.
2. The best opportunities for providing whatever benefits are derivable from forest recreation to the urban populations likely needing it most, exist on privately owned lands relatively close-in and quickly accessible to cities.
3. Public recreation lands cannot indefinitely fulfill the enlarging interests of the American people in providing suitable quality recreational experiences. The much more abundant private forest recreation opportunities must be provided a healthy place in the scene, perhaps sooner than many public agencies care to consider, and such an ultimate goal should be made a part of recreation-resource planning and development.

MANAGING THE RECREATION RESOURCE

Because some of our most outstanding public recreation-resource assets depend for their quality and uniqueness upon preserving trees, and the prevailing ecological balance of the forest community, it is extremely important to management to understand the dynamic character of forested wilderness areas and parks and the likelihood of our failure in trying to preserve nature. Mr. Lime, speaking for Dr. Heinselman, offered convincing evidence that current management, with its strict protection both from the elemental forces of nature and from man's artificial substitutes, is not resulting in the preservation of nature. It may surprise many people that we are literally protecting these recreation resources to extinction, for under present management

concepts we are not providing for their recycling and natural ecological succession.

Ways must be found to restore and then manage the dynamic primeval environmental system as it lives and maintains itself, rather than trying to freeze it into a static mold. In this concept, we do not know how to manage them, and perhaps cannot do so. Feasible compromises between nature's way and man's management need to be spelled out in the form of specific ecosystem objectives, and then action should be taken to attain these objectives. Ecologist Heinselman expressed the view that only natural environmental forces should be used, particularly fires, insects and diseases, but not logging or professional forestry practices, which he feels are inconsistent with the preservation philosophy.

Whether he is correct or not, it seems difficult to believe that widespread public opinion would long accept deliberate burning of park or wilderness forests, which people surely would think a greater sin than the carefully managed clear-cutting of commercial timber that public sentiment has already condemned so vigorously, if ignorantly. Obviously *some* sort of management attention is needed, other than protection from destruction and from man tearing it apart, but there must be less risky and wasteful strategies that we can devise.

Wilderness, virgin forest conditions, and desirable qualities of the environment are "what we see them to be"—a frame of mind. Natural landscapes are of any age in most any location, and to many people wild forest land is any wooded place where the usual signs of man's habitation are not evident. Proper management of recreation resources requires that we understand much more than we do today about the processes and mechanisms of how man visualizes and perceives his environment.

Dr. Newby brought out the important concept that recreation resources must be *psychologically* accessible; that is, that individuals perceive much more in the recreational or esthetic experience if they are able to approach it with a conceptually receptive frame of mind or understanding.

His research also indicated, however, that perception depends as much upon complexity and order in the visual environment

as it does upon the very important motivational and behavioral characteristics of the individual. This should give managers some assurance that their efforts can be significant in providing the qualities sought.

Another facet of perception is the value of external or largely unrealized benefits, such as "existence value" discussed by Dr. Tombaugh. He feels that these important values, which help keep the price system from working in the forest recreation field, do exist but are not yet fully understood or evaluated. Quite possibly many people feel that what he terms "existence value" may be thought of as being important because of many other reasons than recreation, such as watershed or open-space social values, sense of ownership and participation even though at a distance, strong sense of kinship to mankind, or simply a desire to do the "right thing," whatever societal sentiment indicates that that might be.

Management of the recreation resource increasingly requires reliable information about the user public as well as about the resource itself, and Mr. James' analysis of numerous inventory-sampling techniques dealt ably with the hard realities of assessing current conditions. All of these methods now available appear to need improvement; and as in other sectors of our concern, much remains to be done, particularly in reducing costs and increasing practical applicability. It might be interesting to observe here that as soon as we begin to really understand more about recreation benefits and peoples' quality perception of the environment, it is likely that most of our inventory approaches will be found inadequate.

Multiple-use management as applied on National Forest lands attempts to integrate recreation-resource management into the total complex of resource utility to society. It is fine in theory, but difficult and still largely unrealized in application. While, as Mr. Prausa noted, it comes down mostly to a management of conflicts, it is basically much more a set of people problems than of resource problems. For too long the Forest Service has tried to be all things to all people, especially in servicing user desires in outdoor recreation, to the point where many recreation-use desires themselves are in conflict. It is interesting to re-

flect on how this situation could have been permitted to come about in view of the basic purposes for which the National Forests in the East were acquired, but this is quite another component of constitutionality and Federal land management. As Mr. Prausa said, we must now recognize and "be concerned with the fact that full development of National forest lands and waters for recreation opportunities in the East may *not* be in the best public interest."

A crying need to make the multiple-use management concept work appears to be much better coordinated planning, both between the Forest Service and other landowners in regard to capabilities and interests, and among all the many purposes, including recreation on the lands for which the Forest Service is obligated to serve the public interest. Realistic goals and priorities must be developed and followed to assure that the *whole* public interest is being considered and aimed at, and not rationalized away to serve vociferous pressure groups and opportunism as demands are made and decisions reached.

Multiple-use management efforts can be so directed that maximum advantage of complementarity among functional objectives far exceed the benefits from single-purpose management. The optimum mix for complementarity is not static, and it also requires understanding and tolerance by the user public of the extent to which less than maximum dedication by the Forest Service to any one use is essential.

CHARACTERIZING THE RECREATION USER

The camper, as one of the major outdoor recreation user groups, was characterized in the overview by Dr. Cole and Dr. Wilkins as tending toward higher incomes than the average citizen, residing in suburban areas, having significantly higher levels of education, and being heavily represented in the professional-technical employment categories and other responsible positions. The camper tends to place extreme and increasing pressures upon public agencies to provide the facilities and sophistication in recreation areas that he has become accustomed to at home, and his reasons for camping are closely associated with extent and quality of facilities he expects to find. He

prefers public-owned campgrounds because they have better facilities, are less expensive, and are better maintained.

A number of management implications are raised by the profile of campers, including the particular purposes for which public agencies supply camping opportunity. How far is it their responsibility to go in providing home-type facilities? What allocation mechanism will be acceptable for rationing use of well-developed areas? Is *attraction* of campers to public campgrounds appropriate? And to what extent is less-than-cost pricing of facilities and services to users a desirable policy? Differential pricing will likely become more necessary to regulate and balance uses between areas.

Hikers and trail users are a much less favored breed—the neglected outdoorsmen—as reported by Dr. Lucas. One reason seems to be their inconspicuousness and dispersal, with consequent lack of pressure and demand. The trail system seems to be declining slowly, with no national pressure for hiking opportunities outside wilderness areas. Hikers and trail users are predominantly younger people who seek esthetic values and contact with the natural environment rather than exercise or specific activities. Much of their need could readily be satisfied in a semi-wild setting, leading to the management implication that non-wilderness "trail recreation areas" could fill a real void and provide for hikers' needs better and cheaper than do wilderness trails. Diversity and variety are necessary, but the greatest need now is for day-use opportunity necessarily close to urban populations. There appears to be no reason why such trails need to be confined to public lands.

The phenomenon of recreation users articulating power and influence over public agencies through membership in highly organized clubs and groups is well recognized today. Their accomplishments are far out of proportion to their segment of the population. Dr. Hendee's synopsis indicated that they are urban-oriented, well above average in education, in income, and in occupational group. Their activism and multiple memberships are typical of other socially active interests today. Their numbers likely will increase *as a percentage* of total population in consonance with both rising educational levels and rising urbani-

zation. It is critical that public recreation-resource managers realize that members of conservation groups and outdoor clubs are not representative of all outdoor recreationists; Dr. Hendee estimated that less than 1 percent of recreationists hold such membership. Too often, especially of late, resource managers do consider such groups as being representative of all recreationists and probably give undue weight to their concerns. Further, this small fractional interest invariably presents its particular desires in such a way that it rationalizes or identifies them into the public interest. Public land managers should appreciate the value to them of the challenges being raised, but they seriously slight their obligations when they forget that the public interest is determined by all the people, not by a group or class seeking to speak for all.

Dr. Bond and Dr. Whittaker see a declining population of hunters and fishermen, despite the traditional free use of the resource base as the accepted norm. Motivations for hunting and fishing were found to be much more than killing game and catching fish, with a wide range of implications for resource managers, and with indications that privately managed hunting and fishing opportunities may fulfill needs for an increasing percentage of these recreationists in the future. Needed in-depth research into motivations may ultimately find possible substitute activities as well.

The characteristics and preferences of the skier as brought out by Dr. Leuschner indicate the overriding importance of locating ski areas near population centers, managing toward the preferences of the user, such as day-skiing, and providing ski-schools and varied ski slopes. There appears to be an excellent opportunity in this sector for *private* rather than public ski facilities to furnish the services sought by this user population, if permitted to do so without the competition of below-cost public ski enterprises. Ski touring also seems to offer good potential for offsetting excessive pressure on ski slopes.

The snowmobile, discussed by Mr. Hetherington, is probably with us to stay, judging from the heavy investment already made by over a million owners. Trail systems are available on both public and private lands, averaging some 50 miles in

length. More are sought by snowmobile owners, but they are costly to develop (\$100 to \$150 per mile) and to maintain (\$100 per mile per season). Public resource agency officials need to consider the potentially serious impact upon their existing primary-purpose programs that might well result from snowmobile accommodations they may enter into, especially since technological advances will continue to bring new types of outdoor vehicles into the natural recreation-resource setting. Also, an overall reading on where the public interest lies is provided by the array of snowmobile regulatory laws being enacted by the states.

SPECIFIC MANAGERIAL CONSIDERATIONS

Depreciative behavior of recreationists is a major managerial problem that we have not found a suitable solution to as yet. Mr. Clark, in studies in the State of Washington, found various reasons for such behavior and some hope for controlling it. Recreational sociology is changing as society as a whole does, and some heretofore standard rules designed to control recreational behavior need review and possible adjustment. Further standardization of rules and enforcement, and strengthening of the police powers of park authorities are suggested. But greater acceptance of responsibility by individual campers or development of a new ethic, is likely to reach more widespread and lasting results. Experiments in using anti-litter incentives have proven economical and surprisingly effective, offering considerable potential for managerial innovation.

Additional perspectives on law enforcement in recreation areas, discussed by Mr. Arthur for Mr. Hadley, also stressed that the changing nature of American society is causing millions of people to question the validity of some accepted traditions and values; and this philosophy carries over into park-user populations. He suggested that both the traditional functions and educational preparation of park personnel are unsuited to the emerging situations that demand involvement, especially law enforcement. Park managers must see that the law is up to date, and also use the law vigorously for control of hard crime, but make needed

innovations in management programs that offer alternatives to law enforcement as the ultimate action. Considerable organizational and training actions have been taken by the Park Service to achieve an effective posture in law enforcement. As pressure of use continues to build up in public recreation areas, we in forest recreation will no doubt face similar behavior problems. It is essential that we as resource managers must develop the sociological insights suitable to enlightened human management in recreational settings.

Another aspect of the recreationist's behavior is how he thinks of the recreation resource and what it is that he wants to get from his experience there. Dr. Wagar's studies into the effectiveness of communicating and interpreting the meaning of the environment to recreationists showed that motivation and interest are generally low, and that considerable innovation, use of dynamic presentations, participation arrangements, and rewards for learning are required for success, all handled at quite a sophisticated level. Pre-programming with script, tape players, and orientation movies has been found to be very successful. Apparently the underlying need is to generate a sense of motivation and interest on the part of the recreationist. There are limitless opportunities for applying educational and teaching concepts here, but recreation managers may well question the validity of providing the recreational opportunity in the first place if the recreationist's interest requires this degree of electric prodding. On the other hand, perhaps with a little more such innovation, we could go all the way and move the resource to the people via TV.

An increasing problem of recreation managers is controlling carrying capacity at a level within which it is possible to maintain resource and recreation quality. Dr. Lime and Dr. Stankey defined the concept and offered many useful suggestions for those planning and managing recreational uses, involving either site management or modification of visitor behavior. Rotating use among available sites, or overdeveloping sites to permit non-use of one site for extended periods, are ways that carrying capacity can be spread and overused areas can be allowed to recuperate. But the variable carrying capacity of specific recreation

areas depends on the site characteristics, the objectives for the area in question, and the user values involved. Often some determination must be made as to who shall be permitted to use, or not use, a particular site in order to hold numbers within necessary limits. Such action does little to enhance user satisfaction. However, there are still many ways to greatly increase the recreation load without damage to the resource, as illustrated by heavy use of some forest areas in Germany and France.

A specific illustration of the problems of managing for carrying capacity and rehabilitating overused sites was brought out by Prof. Ketchledge in describing research and restoration work on trails and alpine summit excessively trampled by hikers. His experience revealed the possible utility of a new dimension in site rehabilitation, that of involving the recreationists themselves in some aspects of overuse control and restoration. Its main value would appear to be its educational and corrective impact upon the behavior of recreationists as users.

LOOK AT THE RESEARCH TASK AHEAD

Recreation research and recreation-resource management have suffered severely from the cultural blinding, cultural myths, and similar cultural "fogweed" that Dr. LaPage and Dr. Lloyd so effectively uprooted for us. Outdoor recreation is an inseparable part of our culture and is a focal point for cultural clashes. Now that our whole American society is in the midst of change in some of its most important cultural values, basic changes are also appearing in the underlying precepts that have long supported planning, management, and research in outdoor recreation. The grand theories of perfect planning and neatly ordered systems do not fit the turmoil of reality. The challenge to recreation research is to recognize and avoid the many fictions, and get on with the important questions.

What are the important questions? They are many, and can be categorized in various ways. It seems to me that our most important and critical needs and challenges for research revolve around the *people* aspects of outdoor recreation. As Keith Arnold put

it 5 years ago at the National Conference on Policy Issues in Outdoor Recreation, "Federal outdoor recreation programs have been converted rapidly and dramatically from *resource oriented* byproducts of conservation and preservation to a *people-oriented* major public purpose." It is time we recognized that forest recreation is the *social* service of the forest and hence is far more a people problem than it is a forest problem.

As with the disorientation of current park rangers toward deviant behavior of recreationists, we have been perceiving the managerial needs and research tasks of forest recreation through the eyes of foresters and others with a resource-culture blindness. As a result, the great bulk of research conducted over the past decade and more has dealt with concerns over the resource base and with the pressing problems daily confronting resource managers. While this was initially necessary, it is time for us to begin to come to grips with underlying causes and realities, to try to elicit and assess the difficult concepts and facts necessary to intelligently determine the proper courses to pursue in recreation-resource use. There have been many illustrations during this conference of how handicapped we are without better basic information about the purposes we are serving and the appropriate methods for reaching public-interest goals.

We need to understand much better than we do what it is that human beings seek to satisfy through outdoor recreation, what are man's perceptions of a quality recreational environment, what motivates him to such participation. This is an extremely complex area, but is basic to policy judgments, to intelligent planning of both current and long-term programs, to determining potentially substitutable activities, and many similar practical considerations.

Another important question is the value of forest recreation to participants and through them to society and particularly to urban populations. What actual benefits accrue to both, what do we get out of it, how really important or necessary is it? As a corollary of this, there are certain assumptions that provide the basis for public subsidization of forest recreation for the public good that need serious examination of their validity in the light of experience to date.

No doubt our recreation case has been built on several fictions that we can no longer afford to accept.

Meanwhile, those involved in managing recreation resources *must* respond to the burgeoning demands facing them and must make plans and investment decisions with whatever knowledge, experience, and intuition they can muster. They need the clairvoyance to see the future needs to be satisfied at a given time commitment, both in quality and amount. The important need here is for research to provide the resource manager with a sound basis for predictability that he will use in place of his own intuition. But such predictive outlook must somehow give full cognizance to the changes occurring in societal value systems and future life styles that will really call the tune on what people will be doing at future time of plan horizon.

The relationships that should pertain between public and private responsibilities in the American system for providing the best utility of forest recreation to the people must also be determined soon, and ways must be found to nurture and implement them. It is abundantly clear that public agencies cannot fulfill the public's expectations for quality recreational experience, nor are public recreation needs likely to compete at desired funding levels against other priority demands looming in future.

A somewhat more mundane question of critical importance in the research and management task ahead is to find ways to implement optimal multiple use or multipurpose management of public resources. Little real progress has been made in developing the dynamics of interrelated priorities, goals, optimal levels of use and complementarity, and user acceptance for the array of resource conditions that prevail. Public forest lands must serve the *whole* public, and we no longer can afford the luxury of preemptive commitment of major areas for any *particular* use.

This is only a brief glance at part of the research task ahead. There are many other important sectors, some no doubt much easier to handle, but these few I have mentioned may be sufficient to indicate the kinds of effort that seem important to me. Empirical studies and measurement of all kinds have tended to clutter the field of

recreation research in the past, and they were necessary to meet needs of resource managers. But it is time now that we get into the complexity that actually controls where we should go and what we should be doing in resource use to establish the mutually compatible and beneficial relationships that must be made to endure between our people and our landed resources from here on out.

In concluding this conference, I think we have all been especially impressed with the magnitude of the problems and the opportunities and the responsibilities that we collectively share. At the same time, it is a great credit to the rather young field of concerted forest recreation and to those dedicated to the work going on within it that an enormous body of useful research and managerial expertise has been developed over the past decade or so. With the so-

cial pressures upon all resources being already severe and sharply increasing, we need urgently to keep up the momentum of this great effort. In doing so, however, we must be ever mindful that momentum alone can throw us off some curve in the road ahead that we have not foreseen.

This has been a provocative and productive conference. It has been valuable in identifying and cross-communicating potential solutions for concerns of common interest, and thereby enhancing progress to the best of our present ability. But perhaps most important, this conference should also have impressed upon us the necessity for collective and joint action among many diverse interests and agencies concerned with outdoor recreation if we are to succeed in attaining the highest level of enlightened interactions for man with his natural environment.





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