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The Recreation Opportunity Spectrum: A Framework for Planning, Management, and Research

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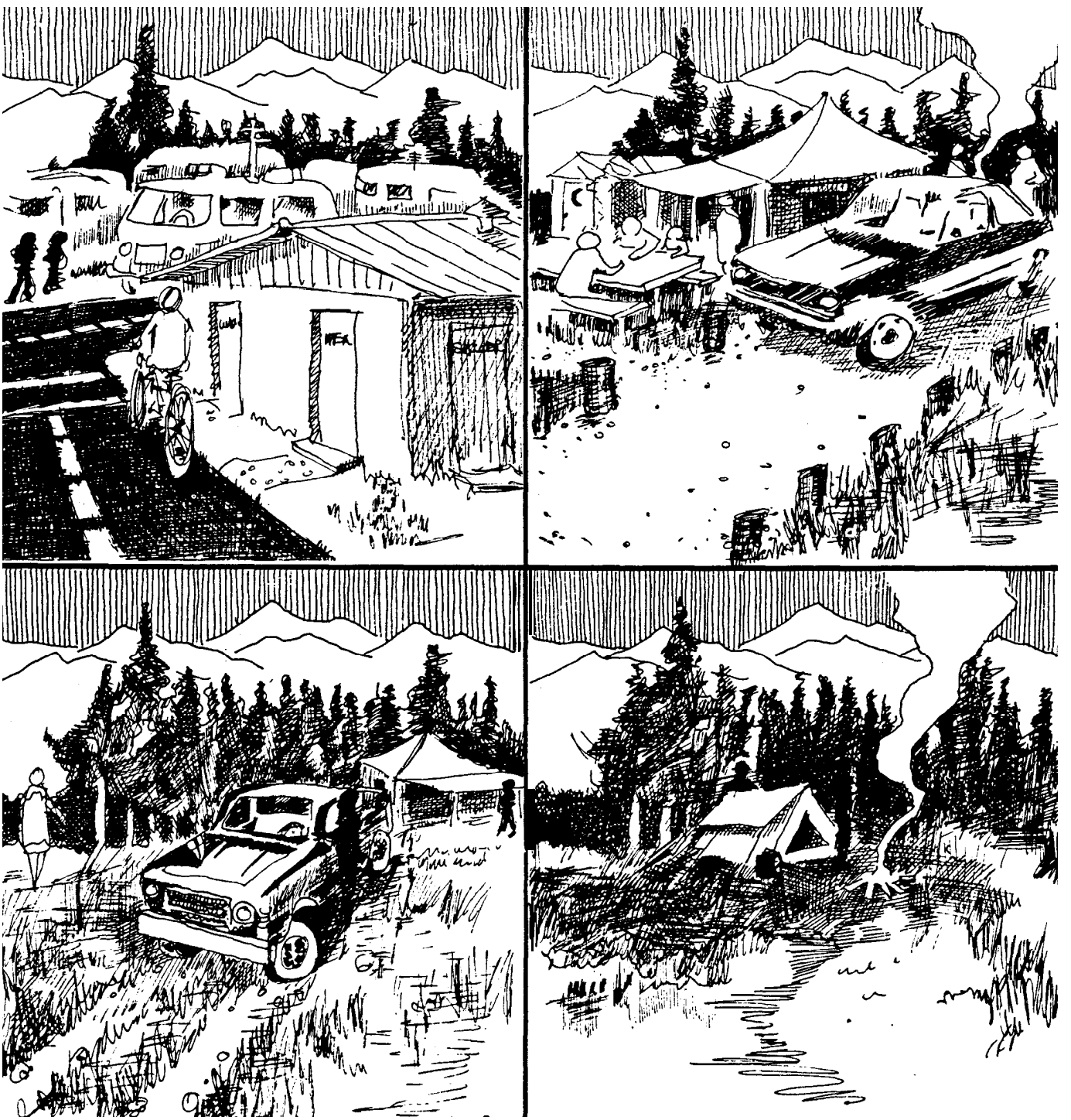

PREFACE

In 1890, two alpine lakes on the east flank of the Cascade Range in Washington State--Little Kachess and Big Kachess--were accessible only by game trails and were used infrequently by people. The lakes (about 2 miles apart) were connected by a trout-filled stream. The area was rich in wildlife. Groves of trees many hundreds of years old were interspersed through the area. Human impacts were virtually non-existent; only a few people entered the area for recreational activities. Hunters and a few trappers were known to use the area on occasion. The Kachess area offered a true wilderness opportunity for those wishing to use it.

In the early 1900's, as part of its water program, the U.S. Bureau of Reclamation designated the Kachess drainage as a potential impoundment, and a dam was soon constructed. The water in the newly created lake reached its first high level in the spring of 1912. The resulting lake, known as Lake Kachess, was approximately 11 miles long and became an attraction for a variety of recreational activities. For the next several decades, the road system used for building the dam and for logging was expanded, facilitating access to recreational opportunities. Evidence of use became obvious as people camped and played along both the lakeshore and several streams that emptied into the recently completed lake. The primeval conditions that once characterized Lake Kachess were no longer present, but the people who came looking for semiprimitive types of recreation were apparently happy with what they found.

By the 1940's, use at Lake Kachess had increased markedly, and several camping areas had been established by users. Firepits abounded in favored spots, trails led to prime fishing locations, and vegetation had been trampled in frequently used areas. In response to these impacts, the USDA Forest Service, the agency responsible for managing the area adjacent to the lake, developed several sites that had been heavily used for recreation along the west side of the lake. Roads were improved and rustic tables and outhouses installed. Agency presence became more evident as fire prevention and directional signs and a list of Federal regulations regarding recreational use were posted. The area, now much more developed, appealed to people looking for some of the conveniences of modern living. Most were apparently happy with what they found.

In response to rapidly growing recreational use and the increasing impact on resources, the USDA Forest Service further modified the area in the early 1960's. Paved roads were developed within the campgrounds, a new camping area was constructed to accommodate the increasing number of travel trailers, and heavily used areas were closed to overnight camping. Parking barriers were also added to prevent cars from driving off established road systems. The 100-acre recreation complex included three separate camping areas with a total capacity for nearly 100 parties, and a mile-long nature trail. Most resemblance to a primitive area had disappeared by this time. Campers had the convenience of paved roads, modern toilets, and running water. Campers seeking modern kinds of camping opportunities came in ever-increasing numbers and were apparently happy with what they found.

As use increased, the USDA Forest Service further developed the area. New campsites brought the total to nearly 200. More flush toilets, permanent fireplaces, and concrete and wood tables were built. The access road, extending some 5 miles from Interstate 90, was widened and paved. By the late 1970's, Lake Kachess represented a modern, highly developed, intensively used recreation complex, readily accessible to large numbers of people. On a typical Summer weekend, hundreds of recreationists enjoy a variety of pastimes.

The level of recreational activities in the Lake Kachess area has slowly evolved for more than three-quarters of a century from a primitive environment to a highly developed, modern setting for recreation. Several questions can be asked about this process of change: What opportunities for recreation was Lake Kachess best suited to provide? What range or mix of opportunities might be developed in conjunction with the Lake Kachess development? What effects have past management decisions had on opportunities for recreation in the area? How have the, changes in the nature of the opportunity affected the kinds of experiences the area provides?

The scenario of recreational development at Lake Kachess is not uncommon. Many campground and recreational areas throughout the country have followed a similar pattern of development. Nor are the questions we raise unusual. In the following pages, we try to answer them.

CONTENTS

INTRODUCTION

Today, many agencies at Federal, State, and local levels are responding to the burgeoning demand for outdoor recreation. In addition, many private firms offer facilities and services for recreation, such as campgrounds, computerized reservation systems, and equipment rentals. With this expansion in the demand for recreational services has come a number of complex policy issues. What range and mix of opportunities should be provided and what are the roles of the various suppliers? Who can most effectively and efficiently serve public needs at national, regional, and local levels?

In this paper we describe a framework for outdoor recreation managers and policymakers who must answer questions concerning both the allocation and management of opportunities for recreation. This framework rests on the concept of the Recreation Opportunity Spectrum (ROS) . It is distinguished by varying conditions, ranging from modern and developed to primitive and undeveloped, or as Nash (1973) succinctly phrased it, "from the paved to the primeval." We will review the background of the opportunity spectrum concept and how it has been used in the past; describe six manageable factors or setting attributes that influence the opportunities for recreation; and describe uses of the spectrum concept for identifying and measuring the consequences of alternative allocations of and management actions on opportunities for outdoor recreation.

THE RECREATION OPPORTUNITY SPECTRUM

In this paper we focus on the setting in which recreation occurs. When considering opportunities for outdoor recreation, people must make choices about activities in which to engage, settings in which to recreate, and kinds of recreation experiences to seek. We believe that, by describing the factors that influence or define the range of possible settings and by communicating this information to recreationists, they will be able to choose the experiences they desire.

We define a recreation opportunity settine as the combination of physical. biological, social, and managerial conditions that give value to a place. Thus, an opportunity includes qualities provided by nature (vegetation, landscape , topography, scenery), qualities associated with recreational use (levels and types of use), and conditions provided by management (developments, roads, regulations). By combining variations of these qualities and conditions, management can provide a variety of opportunities for recreationists (fig. 1).

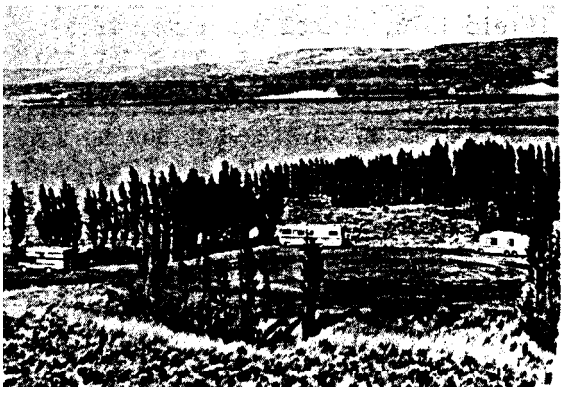

Figure 1. *--A recreation opportunity setting includes features provided by nature or management and associated with recreational use*

Recreation opportunity settings imply a choice for recreationists; people must be aware of the opportunities, and the opportunities must be comprised of conditions desired by recreationists. Thus, opportunities are a function of user preference and a product of management actions designed to provide desired settings and to make people aware of their existence.

We recognize that the recreational value of an opportunity is a function of the perceived ability of that opportunity to provide certain activities and experiences. Our definition focuses on the social, physical, and managerial attributes of settings, not on the psychological values that may be derived. The link between the setting and experiences or "psychological outcomes" (Driver and Brown 1978) is an issue to which we will turn shortly.

The basic concept underlying ROS is not new. Many authors have remarked that a range or continuum of opportunities is needed to efficiently serve diverse public tastes for recreation. Wagar (1966) called for campgrounds ranging from highly developed sites suitable for modern self-contained campers to remote locations accessible only to backpackers. Similar continua have been suggested for hunting (Potter et al. 1973) wildland areas (Marshall 1933, Lloyd and Fischer 1972, Helburn 1977, Driver and Brown 1978), and parks (Field 1976, McCool and Elmer 1975). All these continua are characterized by a range of conditions from modern to primitive.

The spectrum concept is also reflected in a variety of land management descriptions. A basic recommendation of the Outdoor Recreation Resources Review Commission (1962) was for classification of recreational resources along "a spectrum from areas suitable for high-density use to sparsely used extensive primitive areas ."

To implement terms of the National Forest Management Act (NFMA) (U.S. Laws, Statutes, etc. 1976a), the USDA Forest Service published draft regulations that note, "a broad spectrum of dispersed and developed recreation opportunities . . . will be provided." Through provision of this spectrum, land management planners will best be able to offer the diversity deemed so important by NFMA. To develop operational guidelines for the implementation of the ROS, the USDA Forest Service has established a task force of managers and researchers. 1/ This group will be responsible for development of procedures to apply the opportunity spectrum concept on the ground. The Bureau of Land Management, U.S. Department of the Interior, is similarly involved in developing such guidelines.

1/ Members of the task force include Thomas Hoots (Task Force Leader, Washington Office), John Asterford (San Bernadino National Forest), Wendell Beardsley (Northern Region, USDA Forest Service), Perry Brown (Colorado State University), Leon Buist (University of Nevada), Roger Clark (Pacific Northwest Forest and Range Experiment Station, USDA Forest Service), Charles McConnell Rocky Mountain Region, USDA Forest Service), Gary Morrison (Mount Baker-Snoqualmie National Forest), George Olson (North Carolina National Forest), Doug smith (Southwestern Region, USDA Forest Service), George Stankey (Intermountain Forest and Range Experiment Station, USDA Forest Service), Lance Tyler (Arapaho-Roosevelt National Forest), Donald Warman (Pacific Northwest Region, USDA Forest Service), Bev Driver (Rocky Mountain Forest and Range Experiment Station, USDA Forest Service).

The tabulation below further illustrates the spectrum concept as used in legislation, in land management planning' procedures, and in user-oriented classifications of recreational opportunities, such as river running and mountain climbing. These examples are evidence of growing recognition by both managers and recreationists of the importance of diversity in settings for recreational opportunities.

Federal legislation:	
Wild and Scenic Rivers Act (U.S. Laws, Statutes, etc. 1976c)	Recognizes three classes of rivers varying in level of modification, development, and permitted activities
National Trails Act (U.S. Laws, Statutes, etc. 1976b)	Recognizes three classes of trails varying in purpose, permitted uses, and adjacent development
National Forest Management Act (U.S. Laws, Statutes, etc. 1976a)	Calls for providing a broad spectrum of dispersed and developed recreational opportunities
Federal agency planning:	
USDA Forest Service	Recognizes five recreation experience levels, ranging from those offering challenge, solitude, and demanding high skills to those involving extensive facilities and few skills.
Heritage Conservation and Recreation Services (formerly Bureau of Outdoor Recreation)	Recognizes six types of outdoor recreation settings ranging from class I (high density recreation areas) to class VI (historic and cultural sites)
Opportunity for recreation:	
River running (e.g. Arighi and Arighi 1974)	International scale of river difficulty recognizes six classes of conditions, ranging from class I (moving water with a few riffles and small waves, and no obstructions to class VI (nearly impossible, very dangerous)
Mountain climbing (e.g., Robbins 1971)	International Decimal System describes climbing skills ranging from class 1.0 (hiking) to class 5.0 to 5.11 (increasingly difficult piton-protected climbing)

DIVERSITY AND QUALITY IN OUTDOOR RECREATION

The basic assumption underlying the ROS is that quality in outdoor recreation is best assured through provision of a diverse set of opportunities. A wide range of tastes and preferences for recreational opportunities exists among the public and, as Wagar (1966) points out, "Quality seems to be a highly personalized matter." Providing a wide range of settings varying in level of development, access,' and so forth insures that the broadest segment of the public will find quality recreational experiences, both now and in the future (fig. 2).

The importance of supplying diverse opportunities for camping has been illustrated by Wagar (1966). As he indicates, even a few different kinds of camping facilities greatly increase the probability of meeting more people's desires. If any generalization can be made from the body of knowledge about recreationists, it is that people vary enormously in what they desire from their recreational pursuits. This generalization is true, even for specific categories of recreationists; not all campers, hikers, or wilderness users are alike. Building management programs around average tastes can greatly miss the mark, because often such averages are statistical phenomena that do not adequately account for the wide variation in tastes (Shafer 1969).

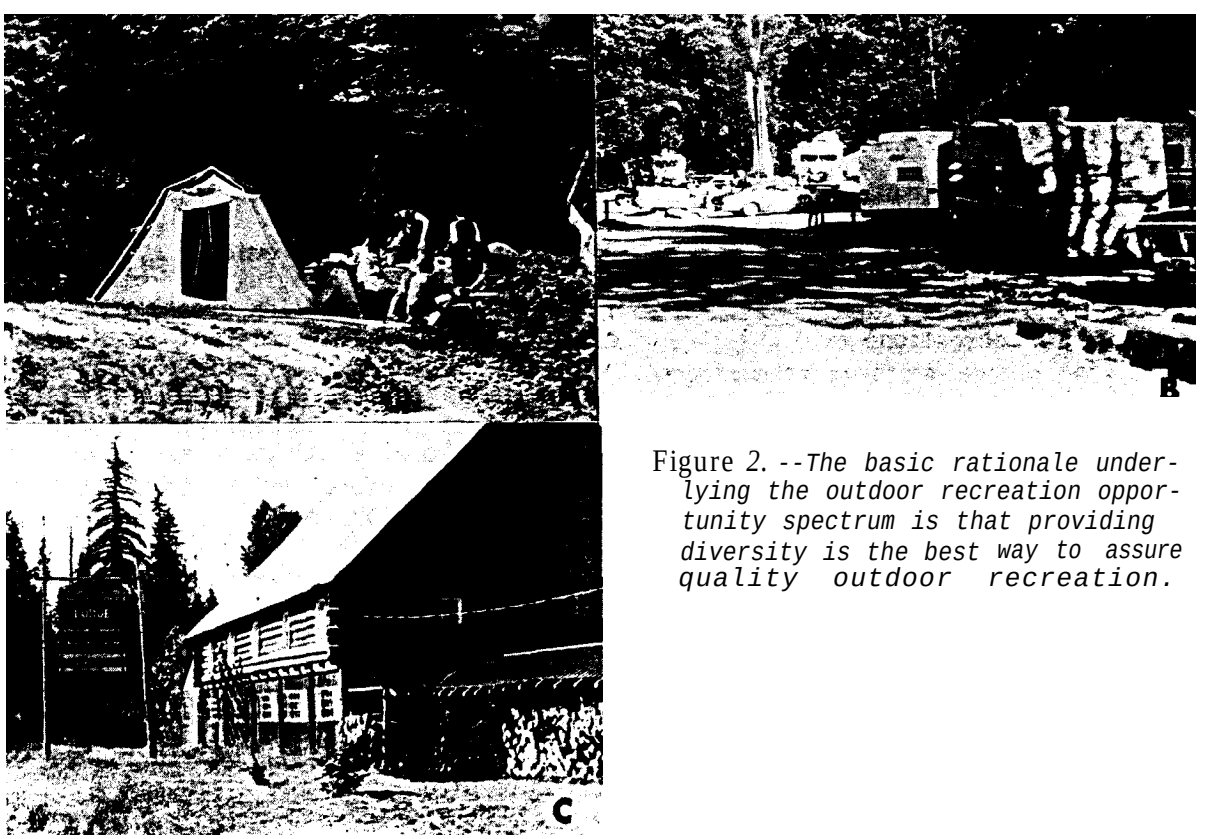

Figure 2. *--The basic rationale underlying the outdoor recreation opportunity spectrum is that providing diversity is the best way to assure quality outdoor recreation.*

Diversity represents an important characteristic of any recreation system. Managing opportunities for recreation to promote a diversity of experiences is crucial for social equity (Watt 1972). Failing to provide diversity of opportunity invites charges of favoritism, elitism, and discrimination. Further, diversity insures the flexibility necessary to mitigate changes or disturbances in the recreation system stemming from such factors as social change (changing age structure of U.S. population) or technological change (outdoor recreation vehicles, etc.).

But diversity is only a means to an end. Quality recreation, producing desired satisfactions and benefits for participants, is the objective and concern of both managers and recreationists. But what is quality,? From an individual perspective, it is fairly easy to describe a quality recreational experience. For one person, it might be an extended backpacking trip in a very primitive area. For another, it might mean a camping trip in a motor home along a lightly used logging road. For yet another, a quality recreational experience may be camping in a 500-unit intensively developed campground where it is easy to visit with other people. Furthermore, the same person may find all these experiences enjoyable and of high quality at one time or another. Recreation is indeed a phenomenon in which quality is in the eye of the beholder.

The existence of different conceptions of quality does not mean that it is a meaningless concept; the provision of opportunities for quality outdoor recreation is a legitimate goal of recreation management. Quality is a relevant notion along the entire spectrum. Quality, then, is not judged by the presence or absence of some factor (facilities, naturalness, or other visitors), but as the extent to which a given setting satisfies the desires of a particular recreationist. The recreation opportunity spectrum helps clarify the quality issue by providing a framework that calls for the systematic provision of diverse settings for recreation (fig. 3).

Figure 3. *--The opportunity spectrum is not a quality continuum. Quality reflects the extent to which a setting meets the recreationists' desires and needs. Camping in a clearcut area is as satisfying to some people as camping in a wilderness is to others.*

THE LINK BETWEEN RECREATIONAL OPPORTUNITIES AND EXPERIENCES

Development of opportunities for recreation is not an end in itself. By providing different kinds of recreational settings and accommodating different types and styles of recreational use, managers can best give people the opportunity for various kinds of experiences.

Driver and Brown (1978) proposed a hierarchical framework that specifies four distinct levels of recreational demands: (1) for activities, (2) for certain situational attributes (settings), (3) for specific psychological outcomes--experiences and satisfactions and (4) for benefits.. Our focus is primarily on level 2, the situational attributes that comprise a recreational opportunity. We concur with these authors that level 2 demands do not exist' in and of themselves, but for the satisfactions and benefits derived at levels 3 and 4. Figure 4 shows the link between these levels of demand and the opportunities provided by managers.

Some gains have been made in the ability to define links between activities and outcomes (Driver and Tocher 1970, Brown et al. 1977, Potter et al. 1973). And it is clearly possible to facilitate the achievement-of certain

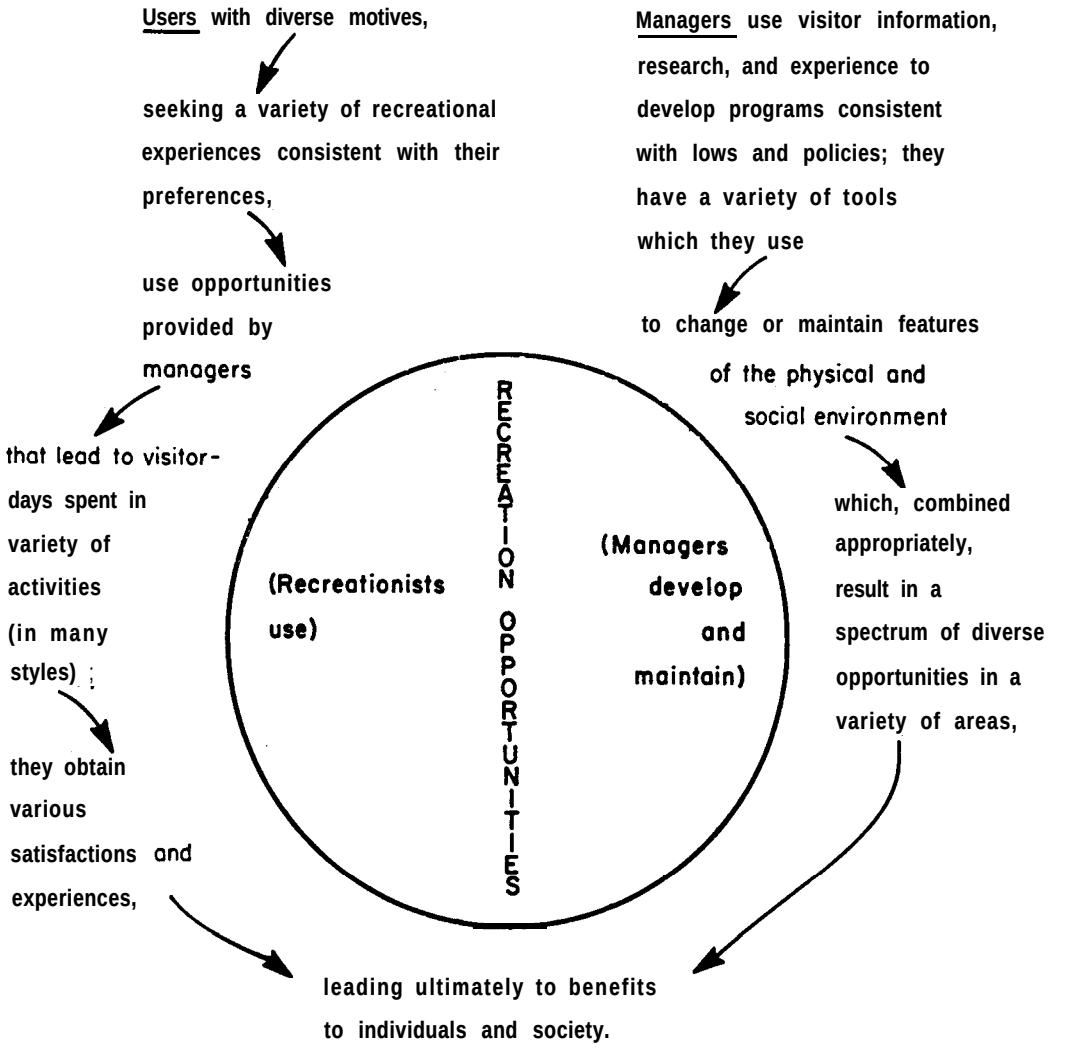

Figure 4. *--Link between recreationists' desires and the opportunities provided by managers.*

experiences by the way situational attributes are manipulated. Furthermore, by altering the setting, the same activity can be participated in in a variety of styles, thereby producing different satisfactions (fig. 5). As Knopp (1972) indicates, characteristics of a place will influence whether or not a given individual will recreate there, because the place is closely tied to the function of specific activities. As our knowledge of the linkage among settings, activities, experiences, and satisfactions improves, our ability to fine-tune the supply sector to most efficiently meet demands of visitors will grow.

Opportunities for recreation ought to differ in terms of producing distinctive experiences or "psychological outcomes" (Driver and Brown 1978). Work by a number of investigators increasingly improves the ability to do this (Lime 1971, Clark et al. 1971, Knopf et al. 1973, LaPage and Ragain 1974, Brown et al. 1977). Application of the opportunity spectrum framework outlined in the following pages, however, is not contingent on understanding the link between experiences (a psychological outcome) and opportunity settings. Simply put, the ROS can be used by managers to provide specific information to potential visitors about what a place is like, not about experiences they will derive.

The individual's choice of opportunity (or their expressed preference) provides feedback on the degree to which the opportunities might fulfill the desired outcomes. The specific experiences derived are a function of the individual's past experience, expectations, present state of mind, and so forth, not a function of an explicit management decision to produce a given outcome or set of outcomes.

ROS offers a framework within which to explicitly vary situational attributes (access, density, etc.) to produce different recreation opportunity settings. From these opportunity settings, recreationists participating in different kinds and styles of activities derive different satisfactions and experiences and, ultimately, benefits. Our intent here is to systematically and explicitly describe a framework that permits managers to provide diversity in the range of opportunity settings available to individuals.

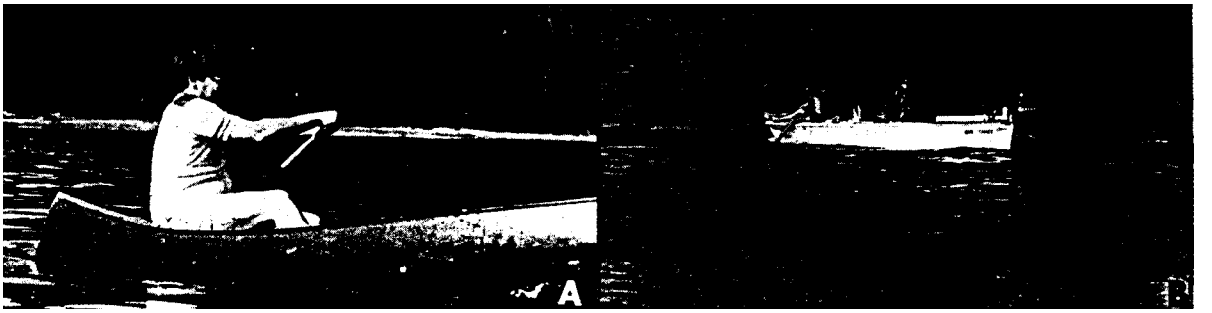

Figure 5. *--Different activities can produce different experiences. But different styles of the same activity, carried out in various settings, can also produce different experiences.*

DEFINING OPPORTUNITY FACTORS

Four criteria were used to select factors that define the opportunity spectrum:

1. The factor is observable and measurable,
2. The factor is directly under management control,
3. The factor is related to recreationists' preferences and affects their decisions about areas to use, and
4. The factor is characterized by a range of conditions.

When these criteria were applied to existing conceptions of the ROS, previous research on recreationists' preferences, management experience, and state-of-the-art judgment, six factors emerged:

1. Access,
2. Other nonrecreational resource uses,
3. Onsite management,
4. Social interaction,
5. Acceptability of visitor impacts, and
6. Acceptable level of regimentation.

Each factor is described below. Natural features (topography, scenery, water, wildlife, etc.), which are important across the spectrum are discussed in a later section.

In this paper we describe the end points of the opportunity spectrum as modern to primitive. Other authors have used urban, developed, wild, natural, remote, etc. The labels are really unimportant and reflect authors' preferences rather than any conceptual difference between what we are proposing here and what is described in papers by others.

Opportunity Setting Factors

1. Access

Several elements can be used to describe access. Managers can control the ease of access by the types of access (e.g., roads, trails, cross-country travel) and by the means of conveyance allowed (e.g., cars, all-terrain vehicles, horses, feet). Both access elements can vary across the spectrum from easy to difficult. Design and management standards are important in defining the range of access systems. For example, roads and trails can be designed as high standard systems, requiring intensive maintenance, to low standard roads and trails needing little or no maintenance. In many cases, the topography and type of vegetation will help define the conveyances that can be used. Thus, managers are able to use a combination of natural features, design and maintenance standards, and regulations for determining and enforcing ease of access.-

Research indicates that recreationists' preferences for alternative types of access cut across the range of access conditions (fig. 6). For example, among wilderness users, there is a spectrum of preferences for trails ranging from highly developed to no trails at all (Stankey 1973, Lucas 1973). Although users of forest lands with roads are there because they prefer a more primitive recreational setting than is typically found in developed campgrounds, they, too, vary in their preferences for paved or unpaved roads. 2/

2/ Clark, Roger N. Russell W. Koch, Mack L. Hogans, and Harriet H. Christensen. Dispersed recreationists along forest roads in three areas of the Pacific Northwest: Their recreation patterns, opinions, and attitudes. Unpublished data on file at Pacific Northwest Forest and Range Experiment Station, Seattle, Washington.

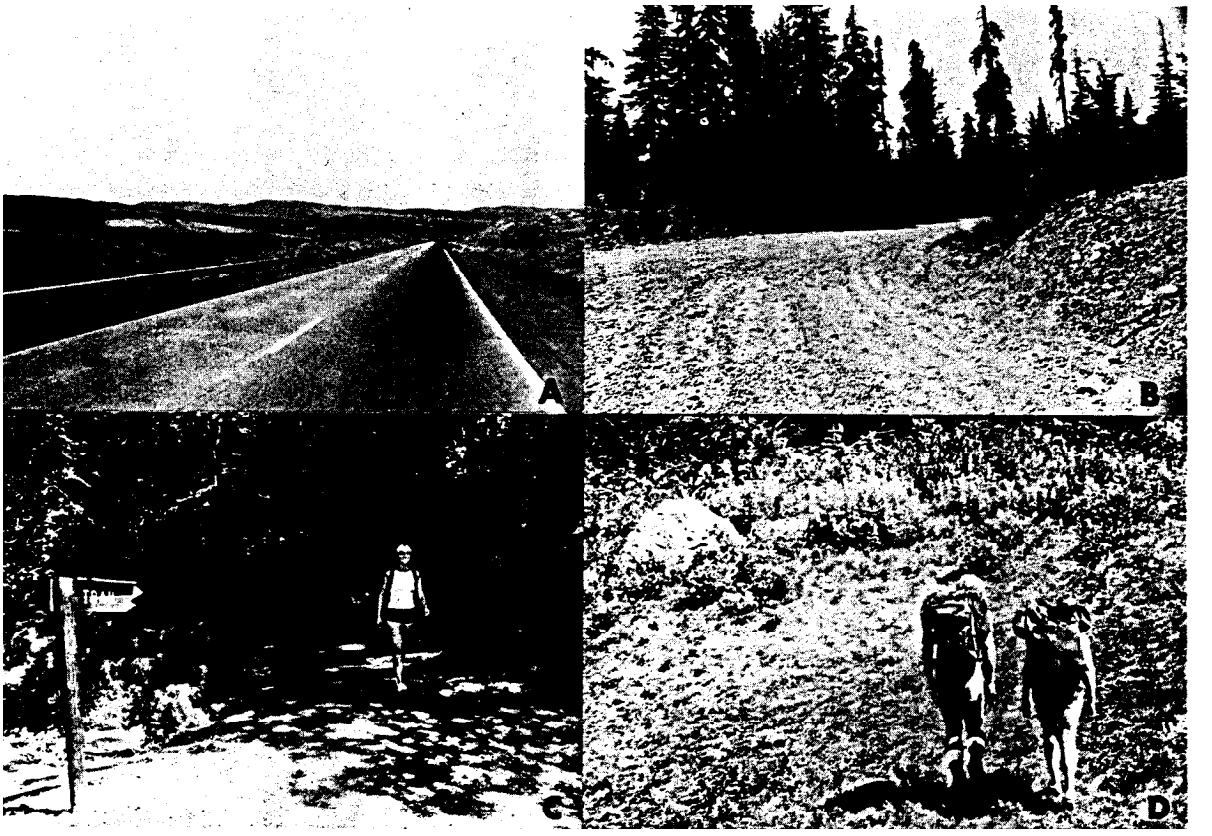

Figure 6.--*Visitor preferences for access within recreation areas range from well-developed, paved roads, to gravel roads, to trails, to cross-country travel. Access also controls the type of conveyance recreationists may use.*

2. Non recreational resource uses

This factor considers the extent to which nonrecreational resource uses (grazing, mining, logging) are compatible with various opportunities for outdoor recreation. Other uses can severely conflict with opportunities for primitive experiences. For example, Stankey (1973) found that grazing in the Bridger Wilderness in Wyoming was the most serious source of conflict reported by visitors. In other cases, a variety of resource management activities that might even contribute to visitor enjoyment can be found in conjunction with outdoor recreation. For example, recreationists in semi-primitive areas with roads often find grazing and logging acceptable (see footnote 2). But these users do express concern about large clearcuts, so the scale at which the activity is conducted, as well as the activity itself, influences perceived compatibility (fig. 7). Planners and managers must consider the lasting effects of a resource activity (mines, clearcuts), as well as short-term effects (logging trucks, noise from a mine) to determine the impacts on the recreational opportunity.

Figure 7. *--Generally opportunities for primitive experiences are incompatible with nonrecreation resource uses. For example, timber harvests conflict with the kinds of experiences wilderness visitors seek. But in semiprimitive or semimodern areas with roads, clearcuts may be acceptable to some recreationists.*

Figure 8. *--Onsite management includes modifications, such as bridges, which can vary from simple logs for foot travel to complex developments capable of supporting automobiles.*

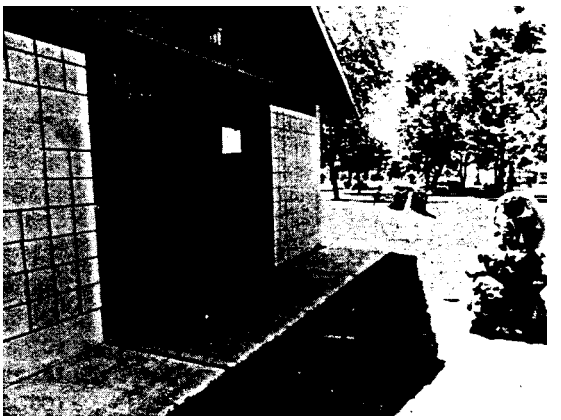

Figure 9. *--In modern settings, well-developed toilet facilities may be provided for convenience of visitors; in more rustic settings, they may be for safety of visitors or for protection of resources.*

3. Onsite management

The onsite management factor includes site modifications, such as facilities, exotic species of vegetation, vegetation management, landscaping, traffic barriers, etc. The appropriateness of site management should be considered in light of four elements:

a. Extent of the modification. Is it limited to a few isolated location's or distributed throughout the area?

b. Apparentness of the modification. Has the use of native materials helped blend the modification into the natural setting or do artificial materials make the modification readily apparent?

c. Complexity of the modification. A bridge could be a simple log footpath (fig. 8) or a complicated engineering effort.

d. Facilities. Facilities can be largely for convenience and enjoyment or safety of users, or only for protection of the resources. In some areas, no facilities whatsoever are appropriate; in others, all possible conveniences would be appropriate. Toilet facilities can range from heated buildings with flush toilets and showers, to pit toilets, or, in some settings, to no toilet facilities at all (fig. 9).

4. Social interaction

The appropriate amount of social interaction is an important characteristic of different recreational opportunities. Generally, in more primitive settings, low levels of interaction are appropriate and expected. In more modern settings, interaction can rise to very high levels. The level of use beyond which crowding occurs, then, is not absolute but varies by expectations of visitors and the extent to which interaction levels are perceived as appropriate (fig . 10) . Insufficient levels of interaction in some modern settings can be just as unacceptable to some people as excessive levels in primitive settings (Heberlein 1977).

Both natural variations (topography and vegetation patterns) or management actions (access) can greatly influence the actual level of contact among people. Consequently, standard measures of density (number of people or parties per unit area) are inappropriate because they fail to consider the potential for contact between people. The number of people in an area, how they are distributed in space and time, and the probability of interaction between parties are important elements in determining the appropriate social carrying capacities at different points along the opportunity spectrum. Although the recreation opportunity spectrum will not give a specific number for the carrying capacity of a specific opportunity type, the basic concepts underlying the framework help in resolving the carrying capacity issue. Managers and planners must apply these concepts on an area-by-area basis.

Appropriate levels of interaction vary along the spectrum; they can also vary for the same physical setting defined as a different kind of rec-.reational opportunity. For example, for travelers on the Rogue River in Oregon who defined the area as wilderness, appropriate daily levels of contact averaged 2.6; for those who perceived the river as a semiwildemess setting, 4.4; and for those who defined the river as an undeveloped recreation area, 7.0.3/

In addition to the level of interaction, managers must also give attention to the type of use appropriate for each setting. Generally speaking, there is greater diversity of activities possible in modern settings than in primitive. Such factors as access may account for some of this difference; for example, in the most primitive setting, travel is by foot, but farther along the spectrum, travel by horses, outdoor recreational vehicles, and automobiles becomes appropriate. In the most modern setting, all types of groups and activities might be acceptable.

It is necessary to consider the acceptable diversity of use because interaction alone is not a sufficient measure of an area's social carrying capacity; the types of use found at a particular setting may be more important in defining capacity than the amount of use. Lucas (1964) found that canoeists in the Boundary Water Canoe Area thought that up to five encounters per day with other canoeists was acceptable, but even one contact with a motorboat was not acceptable. There are probably many reasons why this variable pattern of acceptability occurs (perceived inappropriateness of use, experience, or values), but the central implication for management is that a greater diversity of uses can be accommodated in modern settings than in primitive.

3/ Presentation made by Dr. Bo Shelby, Oregon State University, Corvallis, at the Rural Sociology Society Annual Meeting in San Francisco in 1978.

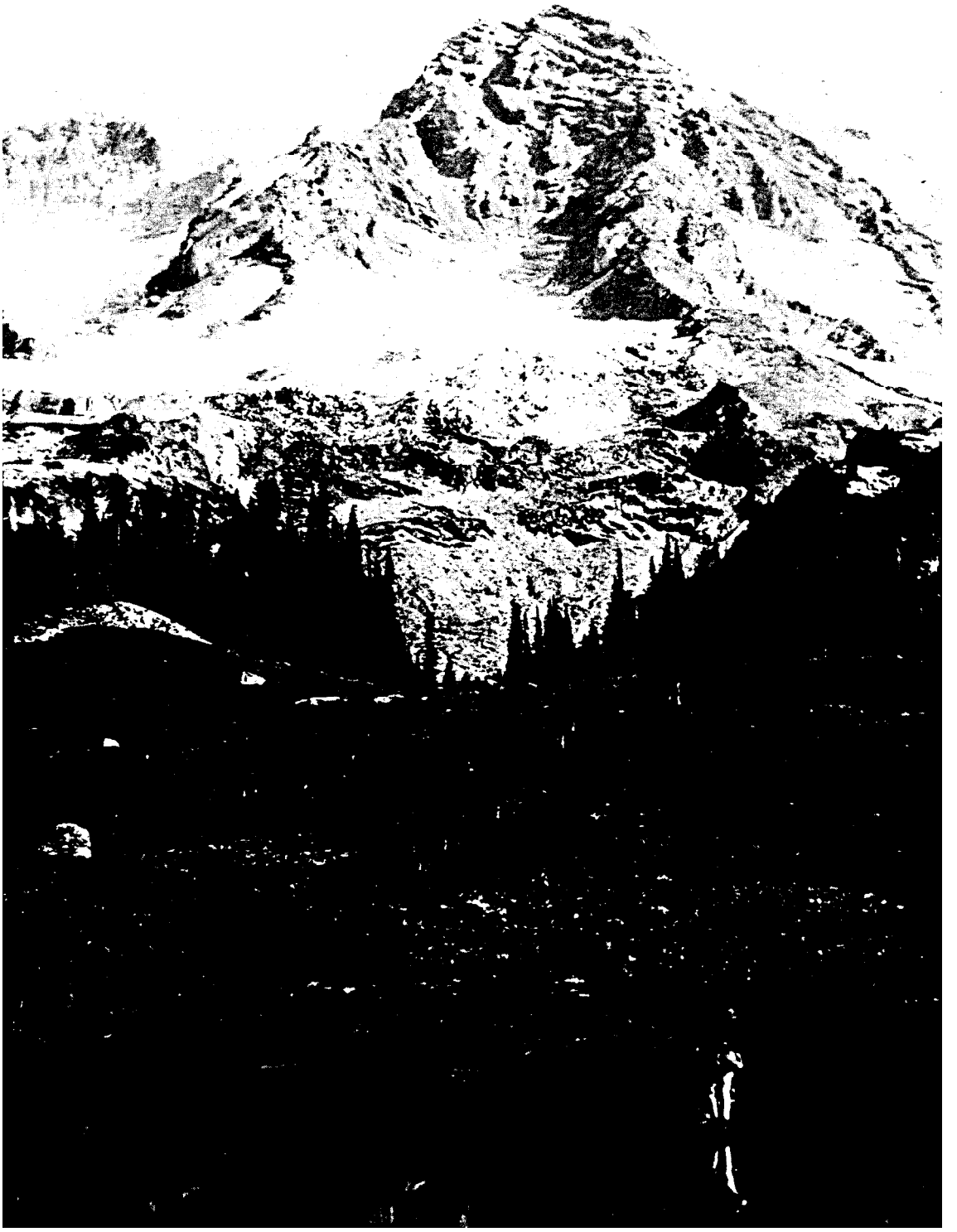

Figure 10. *--In primitive settings, any other people might represent crowding; in modern settings, large numbers are acceptable. Crowding is a relative measure; there are no absolute standards.*

5. Acceptability of visitor impacts 4 /

Human use of resources inevitably results in impacts, and recreation is no exception. These impacts might be on resources (trampling of vegetation or polluting of water) or on other people (noise, depreciative behaviors, inappropriate activities). Any use creates some impact; thus, the relevant question for managers is not "how can impacts be prevented" but "what level of impact is consistent with the type of opportunity being supplied."

The acceptable level of impacts on recreation is a concern to both users and managers. Managers must be concerned about maintaining opportunities for quality recreation, as well as protecting other resource values. Research indicates that managers' perception of what constitutes impacts may be very different (generally more conservative) from users' perceptions (Clark et al. 1971, Bultena and Hendee 1972, Downing and Clark 1979, Lucas 1970). When users' perceptions are considered, acceptable impacts take on a range of conditions across the ROS.

Two concepts are useful in resolving how much impact is appropriate. In assessing environmental impacts, one should consider both magnitude and importance. The magnitude of impacts is based on an objective assessment--there should be no substantive disagreement on the magnitude of the impact. The importance of environmental impacts is based on a value judgment which can result, however, in considerable disagreement between managers. and recreationists, depending on expectations, knowledge, and points of view of each group. It is the professional's responsibility to insure that objective measurement procedures are used to determine the magnitude of environmental impacts resulting from recreational use. It is also a professional responsibility to provide accurate assessments of the kinds of impacts stemming from recreational use, their implications for the environment and solutions to their management . But the importance of impacts must be considered in light of the desired opportunity and subsequent impacts on people's experiences. As noted above, total prevention of impacts is impossible, short of complete prohibition of recreational use.

Thus, damage or a level of impact necessitating correction by management occurs only when the impact exceeds the magnitude defined in area management plans as appropriate for an opportunity level. The level of impact defined as damage in an area managed for modern opportunities will be quite different from that in the same area managed for primitive opportunities. Definitions of impact as "damage," then, depend on the type of opportunity or context in which they occur, rather than on any absolute measure. Generally, recreationists' tolerances for impacts (ecological, social, or managerial) are greater among modern styles of recreation than among primitive styles in both degree and prevalence.

6. Acceptable regimentation

The nature, extent, and level of control over recreational use is an important factor characterizing different opportunities. A continuum of controls can be described, ranging from subtle techniques--such as site design and providing visitors with information to fairly heavy-handed measures that are authoritarian and perhaps accompanied by legal sanctions (Lime 1976). Specific techniques for regimenting recreationists' activities include regulations, rules, site design, and laws.

4/ See Clark and Stankey (1979) for discussion of the acceptability of recreation impacts, noise in particular.

Modern opportunities are generally characterized as more highly organized and regulated than are primitive types. But the "principle of minimum regimentation" should apply across the spectrum; we should regiment only as much as necessary to protect the qualities of the opportunity in question (Stankey and Baden 1977).

Ideally, the most primitive opportunities should have few regimenting influences . With the reality of increasing pressures from use of primitive settings, regimentation may be necessary to protect the integrity of the opportunity and to insure its use into the future. This is particularly true where management objectives call for the preservation of naturalness. Thus, management actions that might otherwise be appropriate for protecting an area (facilities, onsite management) would not be satisfactory if they themselves would alter natural integrity. Control of visitation would be necessary, and such measures have been instituted in several Wilderness Areas and in National Park back country (Stankey 1979, Fazio and Gilbert 1974).

POSSIBLE COMBINATIONS OF FACTORS

In figure 11, each factor is displayed graphically. The range of conditions that a factor can have (for example, from very easy to very difficult access), represents relative rather than absolute limits of what is acceptable and appropriate along the ROS. Certainly, when the framework is applied, specific criteria must be developed. Our objective, however, is to focus on the process by which the ROS factors can be managed to achieve desired objectives in a conceptual fashion. After the reader understands the approach, then more specific values for each factor can be estimated. Readers are encouraged to review Driver and Brown (1978) and Brown et al. (1978) for examples of proposed criteria developed for recreation inventory purposes. Information for selecting management objectives is found in Brown (1977).

A recreation opportunity setting is the result of a specific combination of the six factors in a particular location. Alternative combinations of the factors (and other natural features discussed later) create different opportunity settings that give recreationists many options from which to choose. Considerations about appropriate criteria for any one of the factors are largely judgmental; there are seldom absolute standards.

There are no obvious points at which boundaries for the different opportunities can be established. For purely illustrative reasons, we use four generic opportunity types in the discussion below. But any number of categories could be substituted across the top of figure 11. For example, modern-urban, semirural, rural, semiprimitive motorized, semiprimitive nonmotorized, and primitive as used by Driver and Brown (1978). The key is that the type of setting is determined by the combination of factors, rather than the name or number of categories.

Existing knowledge about visitors' preferences, managers' judgments, and public involvement can help guide development of appropriate opportunity setting categories. By packaging recreational settings in terms of the six factors we have described, we can begin to explicitly develop a range of opportunities to better meet public desires.

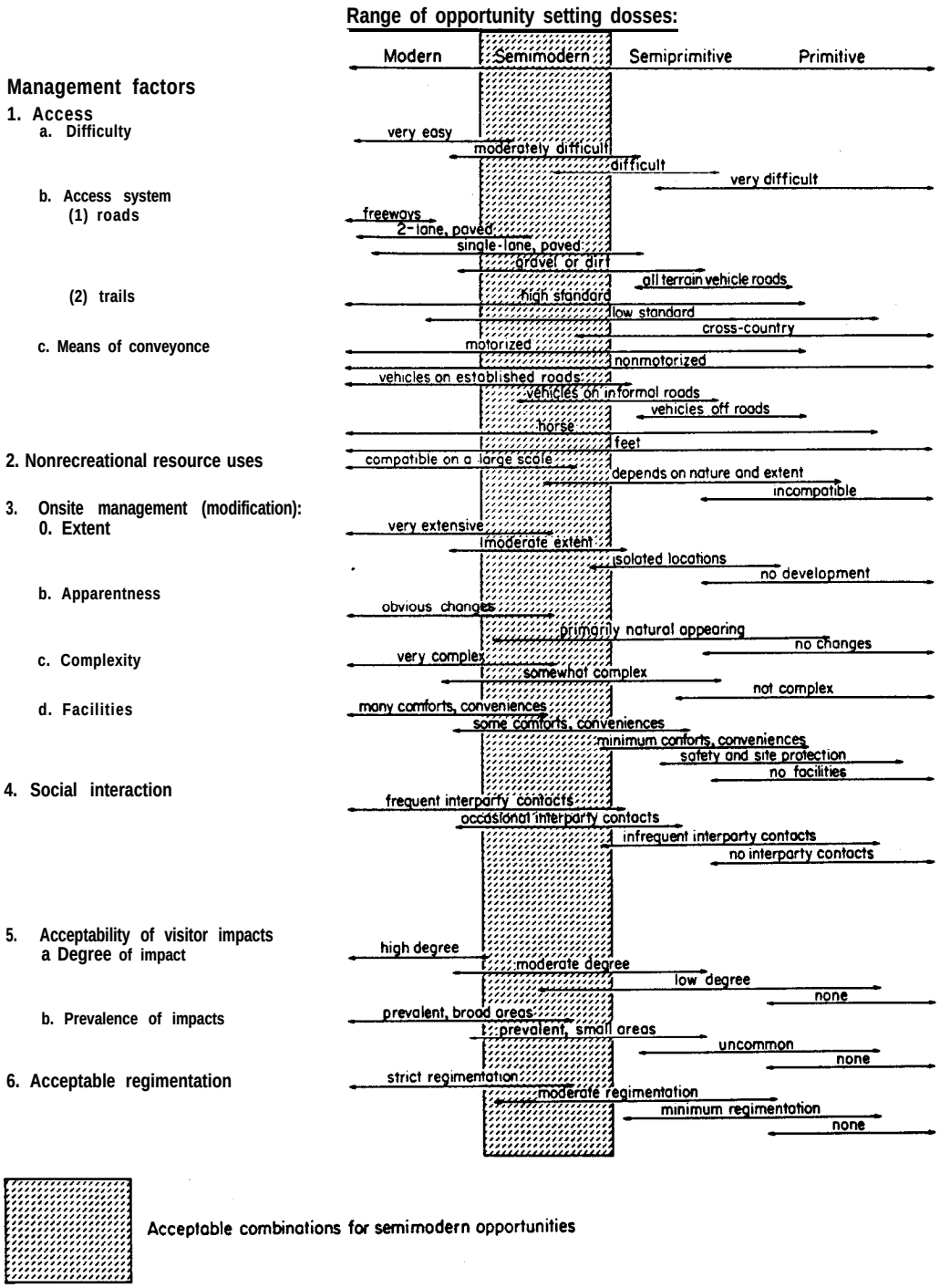

Figure 11. --*Factors defining outdoor recreation opportunity settings.*

In this discussion, we assume that all the factors have coequal weight; they all influence recreational behavior in the same way. In reality, we are sure that this is not the case. For some people, type of access might be the most important influence. For others, it might be the type of facilities, or the nature of previous visitor impacts, etc. When choices of recreation in general, are considered however, such individual differences may balance out. Further research will be required to determine under what conditions this assumption is appropriate.

An approach for combining the factors is shown in figure 11. All the conditions represented by the six factors are arrayed along the modern to primitive opportunity continuum. For any generic type of opportunity--modern, semimodern, etc. --a band of acceptable combinations can be described in area management plans through the use of objectives and standards.

In figure 11, for example, we show a band of acceptable combinations for the semimodern types of opportunities. This band simply means that any of the conditions within the range indicated for the six factors are acceptable in an area managed as semimodern. Anything outside the band would be unacceptable. We will talk more about conditions outside the band of acceptability in the section, "Inconsistencies."

It should be clear that, although we describe only four generic opportunity types here, each represents many possible combinations of the six factors. It is important that we provide diversity, not only between opportunity types but also within individual types. For example, semimodern opportunity settings might include sites where access, facilities, and so forth are relatively highly developed; other settings might have developed facilities but be accessible only by foot or bicycle; still others might feature a rustic setting reached by gravel roads, but with extensive site modification to minimize impacts on the resources. The point is, designation of an opportunity as "semimodern", "primitive", etc., does not imply a single standard of development for areas within that category. Variations in settings within and among opportunity types within a band of acceptability further increases the range of options for recreationists pursuing different types and styles of activities.

Other Features of Settings

We have mentioned several times that a recreation opportunity setting is composed of other natural features in addition to the six factors. Landform types, vegetation, scenery, water, wildlife, etc., are all important elements of recreation environments; they influence where people go and the kinds of activities possible. Considerable work has gone into developing procedures for measuring and managing visual resources (USDA Forest Service 1974). Planners and managers should also consider these features when determining for which types of opportunity to manage an area.

But it is important to recognize that there is no intrinsic quality of these other natural features that suggests the appropriate type of recreation opportunity setting. Any of the opportunity types are as possible and appropriate in mountainous areas as they are in desert settings. Indeed, greatest diversity would be assured if the full spectrum of opportunity types (modern to primitive) could be found across the range of environmental settings (fig. 12).

Environmental settings:	Opportunity types:			
	Modern	Semi-modern	Semi-primitive	Primitive
Mountains	All possible combinations are appropriate			
Rivers				
Lakes				
Deserts				
Etc.				

Figure *12.--Appropriate combinations of opportunity types and environmental settings.*

Figure 13.--*There is nothing intrinsic in the landscape to dictate the best type of opportunity. Modern opportunities in an alpine setting are needed as much as primitive opportunities in deserts or plains.*

And it is the combination of these environmental settings and opportunity types that determines the range of allowable recreational activities in a specific area. The nature of participation in recreational activities depends on the place in which it occurs (Cheek et al. 1976). Thus, natural features (terrain, rivers, lakes) will influence the activities that are possible; for example, you cannot waterski without a relatively large body of water. The type of opportunity for which the area is managed, however, will help determine the appropriateness and styles of activities. It is inappropriate to expect to be able to waterski in primitive areas, even if there is a large body of water and one could get a powerboat there. Conversely, it would be inappropriate for a backpacker to expect to find a low level of social interaction in a highly developed, modern campground (fig. 13).

Inconsistencies

One important issue that must be considered when specific opportunity settings are being developed is the avoidance of inconsistencies. An inconsistency occurs when the status of a factor (or factors) exceeds the parameters specified in the area management plan; for example, Brown et al. (1978) propose a series of standards for selected criteria that define appropriate conditions for different opportunity types. Although their criteria differ somewhat from ours, their process is identical. By specifying standards for the range of appropriate conditions for a given type of opportunity, managers have a rational basis for determining inconsistencies. Formulation of appropriate standards combines information from research, public input, administrative policies, legislative guidelines, and managers' judgments. Examples of standards would include such things as standards for constructing highways and trails, frequency and type of user interaction, types and amounts of facilities, and other specific onsite management actions.

In some cases, laws or policies provide guidelines for what is appropriate (no mechanized access is permitted in Wilderness Areas). More commonly, managers must rely on other guidelines. Studies of recreationists' preferences or other measures of appropriateness can help identify the factors that users define as consistently related. In other cases, managers will be able to use the ROS framework to identify potential undesirable consequences that would follow from an inconsistent combination of factors.

For example, when access roads along the southern edge of the Boundary Waters Canoe Area were paved and straightened, levels of use rose rapidly (much as they did at Lake Kachess). Following this change in the access factor, pressures developed for increased facilities and other measures to control use--developments generally inconsistent with primitive type opportunity and so recognized by land managers, recreationists, and the Wilderness Act (fig. 14).

Figure 14. *--A road used to reach the timber near wilderness is now used by increasing numbers of recreationists. This may lead to increased need for facilities and more regimentation (picture deleted due to poor reproduction).*

The opportunity spectrum does not offer a prescribed formula for providing outdoor recreation opportunities. It does provide a systematic framework for looking at the actual distribution of opportunities and a logical procedure for assessing possible management action. To demonstrate how one might use the framework to test for consistency, we present the following example:

For illustrative purposes, we have shown within the band of acceptability the relative range of conditions one might describe as a "semimodern" opportunity (fig, 11). Such an opportunity could be characterized in general by relatively well-developed access roads, extensive development of facilities for both resource protection and visitor convenience, relatively high densities of users and social interaction, etc. Thus, the opportunity setting has all six factors approximately equal in their position along a modern to primitive continuum; i.e., there is a "consistency" among the various factors within the band of acceptability.

But what if one or more factors is outside the band of acceptability? In figure 15 the overall pattern suggests that the area has potential as a supplier of a primitive type opportunity; however, access to the area is well developed along paved roads (in the "modern" category). Thus, an apparent inconsistency exists. If an objective of the opportunity spectrum concept is to minimize the effects of inconsistencies, a series of questions concerning the apparent inconsistency can be asked.

Management factors:	Recreation opportunity types (X = existing condition for the management factors):			
	Modern	Semimodern	Semiprimitive	Primitive
1. Access	X			
2. Nonrecreational resource uses				X
3. Onsite management				X
4. Social interaction			X	
5. Acceptable impacts				X
6. Regimentation			X	

Figure 15. *--An example of an inconsistency.*

How did the inconsistency occur? A variety of causes could be responsible for the inconsistency. It might result from an earlier management action (e.g., roadbuilding for timber harvest), for which the effects on recreational use were never identified or anticipated. Had these effects been recognized, the road might not have been built, the type of construction or the road's location might have been changed, or perhaps the road would have been closed after the timber was removed.

Or, the impacts on recreation of an earlier action might have been identified and considered but judged to be unavoidable. Such a situation might develop where the anticipated benefits seem to outweigh costs (the benefit of a timber harvest exceeding the costs incurred by changing the nature of the recreational opportunity). Perhaps different administrative jurisdictions were involved, one controlling the management action, the other the recreational opportunity. Even though the latter jurisdiction had fully identified anticipated impacts, it did not control the management action and was thus unable to influence the other organization's decision.

Finally, the inconsistency could be the result of a purposeful course of action. The apparently inconsistent factor might, in fact, be more in line with the kind of opportunity most needed in the area. For example, there might be plans to convert the generally primitive opportunity in figure 15 to a semimodern opportunity where relatively easy access is desirable. This conversion could be based on an assessment that the relative availability of primitive opportunities in the region is high, whereas the supply of semimodern opportunities is low. Or it might be that an apparent inconsistency is required to achieve certain objectives; it may be desirable to provide a primitive setting with some form of modern access to allow easy entry for the handicapped or to provide cabins for protection in primitive areas with dangerous bears.

What are the Implications of the inconsistency ? Consistency as we describe it above is an ideal concept. In reality, one or more factors may be inconsistent with the others. It is not the inconsistency per se that should be of concern; rather, the consequences of the inconsistencies constitute the problem, particularly when they are not anticipated or recognized.

In the early 1900's, the Lake Kachess campground was a primitive setting. Access was difficult and use was light. But over the ensuing three-quarters of a century, a number of changes altered Lake Kachess. Improved access made it possible for greater numbers of people to reach the area. Management concerns with overuse (both resource impacts and crowding) led to development of various facilities (tent pads, vault toilets, parking areas) and other onsite modifications. Each action at Lake Kachess changed the nature of the opportunity the area provided. Yet visitors still filled the campground. Clearly there was no optimum environment for recreation at the lake; nor is it possible to say that current conditions are either better or worse than they once were. But they certainly are different.

Our purpose in describing the evolution of events at Lake Kachess is not to cite it as an unnatural situation nor to suggest that one particular set of conditions was better than another. Rather, it is to illustrate the consequences stemming from the lack of precise management objectives and an explicit monitoring and evaluation process. As problems arise and management responds to them in an effort to correct or offset impacts, inconsistencies may result and a chain reaction of secondary changes can occur,

ultimately altering the entire nature of the original opportunity. The principal implication of the Lake Kachess example is that the process of change was largely inadvertent and that most of the changes were the result of reactions to problems rather than a deliberate and conscious effort to alter the kind of opportunity the area provided.

Serious problems can develop from inadvertent changes. As the nature of a setting is altered, inconsistencies may occur, resulting in subsequent changes in use. The "new" campground attracts a different type of user, camping in a different style and seeking different kinds of experiences. As the new type of user becomes increasingly established, original users move to other locations more to their liking; that is, where the combination of all opportunity factors (including access, use density, and facilities) still resembles the kind of opportunity formerly enjoyed. This process of "invasion and succession" (Clark et al. 1971) can drastically change the nature of the available opportunities, the clientele served, and their recreational experiences. Particularly where the process is unnoticed, opportunities can be lost and clientele disfranchised.

Given inconsistencies such as those that occured at Lake Kachess, managers must answer the question, What are the implications associated with the factors for both themselves and the users? Part of the answer to this question rests on how far out of line the factor apparently is. It is obvious that a factor only moderately out of line (e.g., density and regimentation in fig. 15) has less significant implications than one substantially inconsistent with the remaining factors (e.g., access). Managers must make judgments about the importance of these inconsistencies.

Implications for managers might involve questions, such as: Will the inconsistency accelerate change in other factors that will, in turn, lead to further undesired changes in the kind of opportunity provided (such as at Lake Kachess)? For example, will the highly developed access shown in figure 15 lead to higher levels of resource impact because of increased use at the site and necessitate development of more facilities or further regulation of use? And, if these outcomes appear likely, are they desirable or undesirable?

It is important to remember that we are looking at recreation as a system, with an interdependence among the various elements of that system. Thus, a change or modification in one element may affect (perhaps slowly or very quickly) the other parts of the system. Remoteness from humans and their impacts, for example, is a major consideration in primitive settings. But the level of remoteness can be affected by changes in several management factors--access, social interaction, and nonrecreational resource uses. Changes in any one factor may lead to an inconsistency resulting in a negative impact on other factors. Consequently, remoteness in an area managed for primitive values may be reduced below acceptable limits.

The basic problem of an inconsistency is that it introduces the potential for triggering a chain of events that might alter the entire nature of the intended opportunity. When such a situation develops, rapid changes in the distribution and use of opportunities can occur.

What should be done about inconsistencies? When inconsistencies occur, managers have three basic responses available. First a "no action" response can be adopted. This might be the case if no significant effects are anticipated, at least within the foreseeable future. Or jurisdictional problems between agencies or functional problems within an agency may mean the inconsistency cannot be directly controlled by recreation managers; for example, planned changes in the access to an area by one government agency might affect adjacent recreation lands managed by another agency. Offsetting the problems brought about by these changes might involve such measures as site modifications, development of facilities, and regimental controls--actions whose costs outweigh any benefit they might have.

A second response is to restore the inconsistency to a status in line with the parameters specified for it. Closures of certain types of roads, elimination of facilities, or other onsite modifications might be instituted to restore consistency.

Finally, managers can respond to an inconsistency by altering the remaining factors to bring them into line with the original inconsistent one. This could occur where changing conditions of demand call for an opportunity not presently provided. Response to a situation where well-developed access is inconsistent with a primitive type opportunity might involve altering the remaining factors to make the area semimodern. Such a change would have its justification outlined in the area management plan.

USING THE RECREATION OPPORTUNITY SPECTRUM

At the broadest level, the ROS offers a way of thinking about opportunities for recreation, of considering recreation as something more than activities or areas. But beyond this, the opportunity spectrum has specific application for at least four major concerns : (1) allocating and planning recreational resources, (2) inventorying recreational resources, (3) estimating the consequences of management decisions on recreational opportunities, and (4) matching experiences recreationists desire with available opportunities.

Allocating and Planning Recreational Resources

The ROS is a helpful concept for determining the types of recreational opportunities that should be provided. And after a basic decision has been made about the opportunity desirable in an area, the ROS provides guidance about appropriate planning approaches--standards by which each factor should be managed.

Three concepts related to the ROS are useful in making such decision : (1) the relative availability of different opportunities, (2) their reproducibility, and (3) their spatial distribution.

Relative availability, although not directly manageable by any one recreation supplier, is a fundamental consideration affecting decisions about the opportunities that should be provided. The concept addresses the issue of supply as well as the appropriate role of the recreation supplier. Adequacy of supply is a function of, among other things. the spatial distribution of opportunities,

and it may be appropriate to estimate relative availability within a regional framework that extends beyond agency boundaries. When one type of opportunity is in abundant supply, it may be necessary for an agency to provide alternative opportunities even though these are not normally a responsibility of the agency. For example, the USDA Forest Service recreation program emphasizes the provision of opportunities for dispersed recreation. In an area like southeast Alaska, however, where such opportunities are abundant and the USDA Forest Service manages most of the land, the agency might find it necessary to also provide modern and semimodern opportunities in the interests of offering diversity (Clark and Lucas 1978) (fig. 16).

Figure 16.--*The role of the private sector will be especially important in areas where the public sector is not a major supplier of certain opportunities.*

Reproducibility and reversibility are also fundamental considerations. They address the question of the extent to which an opportunity can be technologically reproduced, as well as the ability of management to reverse the outcome of decisions. Opportunities at the modern (developed) end of the spectrum are generally more reproducible (capable of creation through use of technology, infusion of capital, etc.) than those at the primitive end. There is a test of reasonableness here, because it is at least possible to reproduce any opportunity, given sufficient time and money. The spectrum is characterized by asymmetry in the reversibility of management actions because changes from modern to primitive can be more easily reversed than changes in the other direction (fig. 17). The obvious implication here is that decisions transforming an area from a primitive condition to something more developed needs to be carefully weighed because of the relative inability to reverse that decision.

Figure 17.--*Through use of capital, design, and engineering, modern opportunities can be more readily created than can primitive settings which are a product of natural processes.*

In planning and managing large areas for recreational purposes, managers must consider the s atial distribution of opportunities (fig. 18) generally should be kept apart so that conflicts are minimized (Hart 1966, Gould 1961, Stankey 1974, Clawson 1975).

Figure 18. - - *Sharply dissimilar opportunities should be separated. Conflicts between mechanized and nonmechanized use, for example, can seriously interfere with the experiences of both users. Spatial zoning can help reduce such conflicts.*

For example, opportunities featuring high standard road systems and highly developed campgrounds should not be constructed adjacent to primitive opportunities. Keeping dissimilar opportunities apart also reduces the likelihood that impacts from one opportunity will "spill over" onto an adjacent opportunity (e.g., noise from an area catering to outdoor recreational vehicle users reaching an adjacent area managed for primitive opportunities). Some recent planning efforts have attempted to incorporate this concept; the recently dedicated Alpine Lakes Wilderness in Washington's Cascade Range will be bordered by a management area featuring primarily semiprimitive recreational opportunities.

Unfortunately, planners and managers often do not have the necessary flexibility to organize opportunities according to this ideal spatial arrangement. They are constrained by previous management decisions, other resource uses, established recreational use, or a variety of other factors that complicate the job. But even within these limitations, mapping recreational opportunities--existing and proposed--, can help identify potential conflicts.

inventory of Recreational Opportunities

The ROS provides a useful framework for the review and evaluation of inventory data (for a good review of various recreation inventory systems, see Brown et al. 1978). Because the ROS focuses on specific situational attributes (access, facilities, etc.) that comprise recreation opportunity settings, managers easily can relate inventory data to the spectrum. From this, the relative availability of different settings can be determined. Moreover, because of the focus on situational attributes, managers will be able to tell how they could change the relative availability of different settings. For example, if semimodern settings were in short supply, the inventory could indicate areas where such settings could be most easily created.

Inventories should encompass at least regional levels and transcend administrative boundaries. Ideally, the goal should be to insure that recreation opportunity suppliers--public and private--collectively provide a range of diverse opportunities. This clearly calls for interorganizational coordination in inventory of planning for recreational opportunities.

A comprehensive inventory conducted at a regional scale and involving all public and private suppliers would provide several critical pieces of information: (1) a profile of existing and potential opportunities; (2) a catalog of administrative responsibilities (i.e., who has which opportunities) ; and (3) an indication of the spatial relationships between various opportunities for recreation (thereby suggesting the potential for conflicts or complementary relationships). Additionally, when such inventory data are combined with studies of recreation demand and preference, it may be

possible to determine gaps in the distribution of opportunities that ought to be filled. Conversely, such information could reveal which opportunities are in excess supply.

Inventory data compiled over a regional setting is critical data in the formulation of appropriate roles for the various suppliers. Seldom will any one supplier be capable of meeting the entire range of recreation opportunity demands. Data about existing and potential opportunities, who manages them, and their location would be important input to decisions about who is best equipped to fulfill which roles. The USDA Forest Service recently completed an analysis of its appropriate role in the provision of opportunities for outdoor recreation (USDA Forest Service 1977). This study is based on assessment of the kinds of opportunities the agency has under its jurisdiction, as well as on such things as expertise, legislative direction, and so forth.

Identifying the Consequences of Management Actions

Because the recreation opportunity spectrum focuses on specific features of the physical, social, and managerial setting, it facilitates analysis of how proposed management actions will alter the nature of a specific opportunity.

For example, the decision to develop an area for timber harvest has the obvious consequence of changing the level and obtrusiveness of nonrecreational resource uses. But logging also often alters the amount and type of access into an area. This improved access, in turn, can lead to higher use and greater demand for facilities. Many of these changes can be anticipated, however, and the ROS provides a simple, graphic way of portraying these anticipated outcomes and evaluating whether or not they are appropriate or desirable.

Such an approach means that explicit recognition of changes affecting the opportunity spectrum is assured. By providing a framework in which the consequences of different decisions can be considered in relation to how they affect opportunities for recreation and their use, many undesirable problems related to functional decisionmaking (about logging, road development, etc.) can be anticipated and possibly avoided.

The key to using the ROS effectively is the area's management plan. Only with clearly specified management objectives is it possible to say whether the consequences of an action are acceptable and appropriate or not. Management without such objectives can only be reactive.

Matching Desired Experiences With Available Opportunities

Matching the experiences visitors seek with opportunity settings best suited to providing those experiences is one of the major challenges to the outdoor recreation manager. We often assume this requires direct management actions, whereby managers know who wants what and direct recreationists accordingly. But without good information about the various types of experiences recreationists seek, this is a hopeless task. To further complicate matters, there is no simple link between experiences sought, recreational activities, and opportunity settings.

One approach that does not rely on a prior knowledge of desired experiences is to upgrade the flow of information to people about the nature and location of existing opportunity settings. At present, recreationists' lack of knowledge about existing opportunities is sometimes as great a deterrent to participation as is the actual unavailability of opportunities (fig. 19).

Figure. 19. - - *Providing visitors with information about available alternatives may be one* of *the most effective actions open to recreation managers. From descriptions of opportunities, visitors can choose the setting that seems to best meet their particular desires.*

If the recreationists are given information about the various opportunities, they can then choose the most appropriate locations for their particular types and styles of activity. For example, recreationists' interests in driving for pleasure (a type of activity) might range from looking at fall leaf colors along a modern paved highway to four-wheel driving off roads.

Several examples of efforts to improve information to users can be cited. On the Suislaw National Forest in Oregon, managers have described five types of camping experiences available, ranging from remote wilderness to highly developed settings. They have not only identified what is available on National Forest lands but also included opportunities provided by other agencies, such as highly developed campgrounds in State parks. After selecting experiences desired, visitors can examine a listing of available campgrounds in the area, categorized by the type of opportunity provided. This approach also gives managers a chance to measure demand for the various opportunities and, if necessary, to make adjustments in their supply (relative availability) to more accurately reflect the-actual demand. Using this approach effectively requires, at a minimum, that managers have a complete and regularly updated inventory of various opportunities in their areas (including those supplied by other agencies).

This approach assumes that people do know, in general, the characteristics of the recreation opportunity setting they prefer or dislike. Thus, management ought to strive to provide recreationists with information about such things as the level of interparty contact, access, or facilities they may find at any given site. Through a trial-and-error process, recreationists can find what suits them best.

Managers can also use predictable, seasonal changes at specific locations to provide diverse opportunities for recreationists . For example, many campgrounds have been developed to provide modern experiences during the summer season of peak use (June through August). These campgrounds are often in spectacular locations that have year-round appeal. Frequently, however, they are closed from August to June (and even on weekdays during the summer season, in some instances). Such closures concentrate use into a relatively short season and eliminate the potential for off-season use.

Natural processes can also alter the opportunities available even in open areas--snowfall may preclude access by conventional, wheeled vehicles, thereby converting a modern opportunity to a more primitive one for part of the year. Such changes, whether by management or natural processes, affect one or more of the opportunity factors and thereby change the opportunity available. Utilizing these seasonal changes, management can provide variety at individual sites, thereby extending use throughout the year, gaining greater use of expensive recreational developments, and broadening the range of options from which visitors can choose (fig. 20).

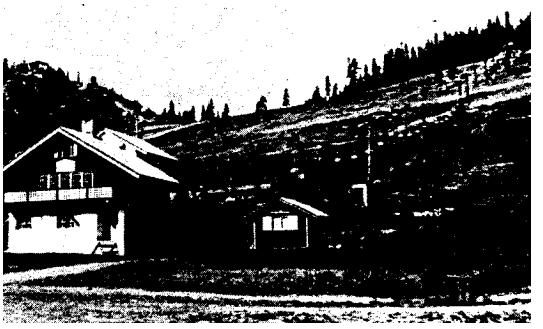

Figure 20.-- *One way to provide additional opportunities for recreationists is to encourage off-season use of settings. For example, summer use of developed ski areas for picnicking, sightseeing, etc., provides a different opportunity for visitors, even though the same area is involved.*

We believe that the key to matching the experiences users desire with available opportunities is to let users make their own choices based on reliable information about the opportunities available. Such information, aimed at creating realistic expectations, should be about the nature of the opportunities, where they are, and how conditions might change throughout the year.

CONCLUSIONS

The recreation opportunity spectrum provides a framework for integrating recreational opportunities and nonrecreational activities. The central notion of the spectrum is to offer recreationists alternative settings in which they can derive a variety of experiences. Because the management factors that give recreational value to a site are interdependent, management must strive to maintain consistency among these factors so that unplanned or undesired changes in the opportunities do not occur.

In this paper we focused primarily on existing social conditions and technology. But, technology and socioeconomic changes often produce impacts beyond the ability of managers to fully anticipate or control. For example, few people anticipated the enormous growth in outdoor recreational vehicles that has occurred in the past decade. Similarly, the consequences of scarce energy resources were not foreseen until the scarcity was already a fact (Shafer et al. 1974). The impact of the changing age structure of the U.S. population has yet to be fully recognized (Marcin and Lime 1977). Such changes can produce dramatic shifts in the type and intensity of demand for opportunities for outdoor recreation. Although the future can be only imperfectly predicted, the ROS does provide a framework for accommodating these shifting demands, as well as estimating the kinds of impacts associated with these changes.

If a full range of opportunity settings is provided, changes in demand can be more easily accommodated because the kinds of features an activity requires are more likely to be available. Although the supply to meet the increased demand might be insufficient, nonetheless some areas with the necessary features should be available. Management of the full opportunity spectrum should permit accommodation of these changes with minimum disruption. Providing opportunities for quality recreational experiences means providing sufficient opportunities across the spectrum. Diversity is the key to meeting this challenge.

There may be an insufficient supply of the opportunities needed to meet changing demands, however, and managers may wish to consider increasing the supply. Such an increase will probably take place at the expense of some other

opportunity setting. The outdoor recreation opportunity spectrum provides a framework for identifying some of the consequences (social impacts) of such a decision. By identifying which specific opportunity factors will be altered and how, we gain knowledge regarding the changing distribution of opportunities, which clientele groups may be affected, the relative availability of alternative settings to meet these people's needs, and the extent to which a proposed alteration may result in a loss of settings formerly available. To allow such an assessment of change requires the routine collection of sufficient baseline information to document the types and amounts of recreational use occurring. Only after the change has been documented can managers rationally determine the most appropriate course of action.

RESEARCH NEEDS

The ROS framework described in this paper is based on state-of-the-art judgments. As such, the relationships we describe are tentative and need further verification; however, we believe that the framework offers a useful approach founded in management reality as well as research on visitors' attitudes and actual behavior. New information from research will aid full development of the outdoor recreation opportunity spectrum. This research should take several directions.

First, further investigations of the relationship between activities, settings, and experiences are needed. Specific efforts to define the psychological outcomes associated with different activity-setting combinations would help reveal how management can better help visitors achieve a diversity of experiences (e.g., see Brown et al (1977) for an example of this in hunting. Such data would also be useful in defining boundaries between

Second, how are people' s taste for recreational settings and activities shaped by the available supply? Are preferences merely a reflection of opportunity? If not, how can latent demand be identified to better fill out the opportunity spectrum?

Third, to what extent does substitutability exist among the various experiences recreationists seek? Are experiences uniquely linked to certain settings or activities? If not, what is the nature of the interchangeability (Field 1976, Hendee and Burdge 1974, Christensen and Yoesting 1979)? How do differences in style account for differences in the satisfactions received (e.g. , what differences, if any, exist between hunting big game, upland-birds, or waterfowl in terms of the satisfactions participants seek)?

Fourth, and related to the earlier concerns with estimating demand, we need a better understanding of how tastes in recreation evolve over time. Are there orderly and predictable evolutions in tastes along the spectrum of settings? If so, how do persons at different stages in this evolution differ in terms of the experiences, activities, and settings they seek (Bryan 1977, 1979)? Does early exposure to modern opportunities lead to a demand for increasingly more primitive styles--do people learn as they recreate and seek more demanding settings and activities to refine their skills (Davidson et al. 1966)?

Finally, there is a need for research on the analysis of policy on such questions as: What are the appropriate roles for the various suppliers to adopt? What role should the private sector undertake and how might this vary across the country? What incentives might promote private development?

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