United States
Department of
Agriculture

Forest
Service

1986
ROS Book

1986 ROS BOOK

-Table of Contents-

I INTRODUCTION

II BACKGROUND

III RESEARCH

IV LM PLANNING

V PRACTICAL APPLICATION

THE NATURE OF THE RECREATION RESOURCE

The following was taken from a draft recreation planning handbook that was never published. It is included as it gives a good feel of why ROS is so important to the nature of the recreation resource. Authored by Chuck McConnell and Warren Bacon.

RECREATION DEFINITION

Many definitions of recreation exist, each emphasizing a slightly different aspect of this enjoyable pursuit. They include "the pleasurable and constructive use of spare time" and "refreshment in mind and body".

OPPORTUNITY FOR EXPERIENCE

This sense of creativeness, refreshment, relaxation and pleasure, the experiences of an individual, are realized through participation in recreational activities, preferred surroundings or settings. Therefore, although the recreation resource manager manages settings, he or she does so in order to provide opportunities for recreational experiences. Those experiences are also influenced by many other factors, including the recreationist's own views and expectations.

RECREATION OPPORTUNITY SPECTRUM

THE ROS FRAMEWORK

The Recreation Opportunity Spectrum provides a framework for stratifying and defining classes of outdoor recreation environments, activities, and experience opportunities. The settings, activities, and opportunities for obtaining experiences have been arranged along a continuum or spectrum divided into six classes:

SIX CLASSES

Primitive
Semi-primitive non-motorized
Semi-primitive motorized
Roaded Natural
Rural
Urban

ROS is a macro not a micro system.

DESCRIPTIVE

The names of the classes were selected because of their descriptiveness and utility in Land Management Planning and other applications. The system has application to all lands regardless of ownership or jurisdiction. How ver, not all classes of activity would necessarily exist on all land. In other words, it is not expected that the National Forests would provide the entire spectrum, although a few forests may occassionally do so.

Opportunities for experiences along the spectrum represent a range from a very high probability of solitude, self reliance, challenge, and risk to a very social experience where self reliance, challenge, and risk are relatively unimportant.

THE SETTINGS — The settings necessary to produce these experience opportunities include physical, social, and managerial attributes and are characterized below. More detailed descriptions can be found in the ROS Users Guide.

SUBUNITS — Each class is defined in terms of its combination of activities, setting, and experience opportunities. Where necessary, sub lasses may be established to reflect local and Regional conditions as long as they fit within the six major classes for Regional and National summaries. An example of a subclass may be a further breakdown of the roaded natural class into subunits such as roaded natural and roaded modified. These two classes have different user cliental and physical settings. Another breakdown of a primitive class may be based upon aircraft or power boat access.

IMPORTANCE

HOW IMPORTANT — How important is resource-based outdoor recreation? Where there are finite resources-financial and physical-how do you measure how much support recreation deserves relative to other needs in society? How do you evaluate the benefits which accrue from it?

A MAJOR ELEMENT — Evidence from National surveys, Forest Service research, and other data point to leisure as a-major element in an individual's personal sense of life satisfaction. A perception of phyiscal and psychological wellbeing pervades the survey responses regarding recreation. Recreation activity can vary from passive contemplation to strensous climbing of sheer rock faces. Recreation settings can range from crowded beaches to isolated mountain streams. Regardless of the type of recreation, across the board benefits were cited--as a tonic for physical and psychological weariness and a respite from the day-to-day of routine of activities. Psychological increments to the individual include the perception of personal development and self-reliance, communion with nature, a sense of renewal, and relaxation from pressures. Significantly, the priority consideration given to outdoor recreation is consistent with persons on all levels of income, education, and occupational status.

A PRIMARY LINK — In terms of family and community, central elements in people's lives, recreation is a primary link in building and maintaining these necessary social interactions. Family relationships are enhanced when the opportunity for experiencing outdoor recreation settings together result in eased tensions, better communication, and possible long-term behavioral improvements leading to better family cohension. The shared enjoyments of outdoor recreation cement social relationships between existing and new found friends in the community.

BENEFITS

Benefits to society from such school or community-initiated endeavors as participating in ecology projects, can result in increased future demand for the desired physical setting.

ECONOMIC FACTORS

Economic benefits resulting from outdoor recreation include improved health and job productivity. Increased tax bases for community services and increased Regional income can be brought about by preservation of the resource for recreational activity. Outdoor recreation is a multi-billion dollar industry that provides jobs, and produces goods and services.

BENEFITS

ECONOMIC VALUATION

The old question arises here--how do you place a dollar value on a sunset? A number of methods have been developed for approximating a dollar valuation of the benefits of recreation. Most have been based on the concept of "willingness to pay". The question is to ascertain what users would pay were the opportunity supplied in a price-elastic market. Since there is no such market, the valuation should include not only what is actually paid but the "consumer's surplus" or worth of the opportunity above the cost.

QUALITY

OPPORTUNITIES

The basic assumption underlying the ROS is that quality in outdoor recreation is best assured through provision of a diverse set of opportunities. Providing a wide range of settings varying in level of development, access, and other factors, insures that the broadest segment of public will find quality recreational experiences, both now and in the future. Although the notion of quality is relative--a value judgment--the concept of quality can be stated for management decision purposes in this way: quality depends on what experiences the individual is looking for, how much of it is realized, and the degree of satisfaction.

DESIRES FOR SETTINGS

A cruical problem for resource managers, then, is to respond to recreationists' desires for various kinds of appropriate settings managed to produce as many of those experience opportunities as are within the National Forest role. A further challenge is to determine what different practitioners need for satisfying experiences, and if it can be delivered within existing constraints. If a recreation opportunity area is consistently providing satisfactory experiences, the area can be said to be producing quality recreation opportunities, and the users to be receiving full benefit from their experiences. If, on the other hand, there is evidence that inconsistencies exist between what an area offers, what users are led to expect and what managers are trying to provide, the area is producing less than full quality recreational opportunities.

INCONSISTNCY

THE NATURE OF IT

A setting inconsistency occurs when the physical, social, and/or managerial settings do not each seperately contribute to the same type of ROS opportunity.

An example of an inconsistency was the paving and straightening of access roads along the southern edge of the Boundary Waters Canoe Area. Levels of use rose rapidly, and following the change in the access factor, pressures developed for increases in facilities and other measures to control use-developments generally inconsistent with a primitive-type opportunity. This inconsistency with the Wilderness Act was recognized by land managers and recreationists.

MINIMIZE EFFECTS

An objective of the opportunity spectrum concept is to minimize the effects of inconsistencies unless purposely managed for. This can be done by analyzing how they occur.

ROADS

An inconsistency 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.

UN-AVOIDABLE

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 the costs (i.e., the benefit of a timber harvest exceeding the costs incurred by changing the nature of the recreational opportunity).

PLANNED SHIFT

The inconsistency could be the result of a purposeful course of action. For example, there may be plans to convert a generally primitive opportunity to a semi-primitive motorized opportunity where motorized 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 semi-primitive motorized opportunities is low. It may be that an apparent inconsistency is required to achieve certain objectives; it may be desirable, for example, to provide a primitive setting with some form of motorized access to allow easy entry for the handicapped or to provide cabins in primitive areas for protection against the elements.

CONSEQUENCE

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 that may cause a problem, particularly, when they are not anticipated or recognized.

CHANGES IN USE

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 formerl enjoyed. This process of "invasion and succession" 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. 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? For example, will the highly developed access lead to higher levels 9f resource impact because of increased use at the site and will this necessitate development of more facilities or further regulation of use? And, if these outcomes appear likely, are they within national goals and direction?

A SYSTEM

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 (either 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 ses. Changes in any one factor may lead to an inconsistency resulting in a negative impact on other factors.

NO ACTION

When inconsistencies occur, managers have three responses available. First, a "no action" response can be adopted. For example, planned changes in the access to an area by one government agency may affect adjacent recreation lands managed by another agency.

CLOSURES

A second response would call for closures of certain types of roads, elimination of facilities, or institution of the onsite modifications.

ALTERING FACTORS

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 develop 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 roaded natural. S ch a change would have to be justified in the area management plan. Obviously, .it is better to think through such relationships before taking the other resource action rather than letting it dictate the recreation response.

THE NATURE OF CONFLICT

DEGRADES

As previously stated, the intended output from providing outdoor recreation opportunities is satisfactory experiences. Conflict generally degrades an experience. Conflict may be either real or perceived.

ELEMENTS

If it is perceived or imagined, it can often be as disturbing to the user as if it really is happening. Several elements increase the likelihood of conflict occurring. They include:

1. The intensity of a recreational pursuit--is it a part of a person's central life interest or only a 09ce in a while pastime?

2. The attachment to a specific setting--a favorite place visited many times or a first time visit?

3. The environmental focus--is the setting an important part of the experience or is it just an incidental backdrop?

4. Tolerance to the lifestyles of others.

The following chart outlines some possible causes of conflict, grouped under physical, social, and management attributes. Generally, the more specialized a recreation user is, the more likely he or she will conflict with others.

Physical	Social	Management
Unexpected or severe modification of natural setting.	Inappropriate number of people (groups) - relative congestion.	Inappropriate condition of facilities (sites, trails, roads)
Inappropriate facilities. Perceived degradation of expected (preferred) setting over time.	Inappropriate behavior of groups.	Inappropriate regulation of activities, space, or congestion.
	Inappropriate behavior or activities.	
	Competion for space (relates to the 3,above)	Perceived poor stewardship of the land.
	Inadeqate or wrong information.	Non-predictable future for an area.
		Nonconfidence in management actions.
		Nonresponsiveness to needs.

SPECIALIZATION

A number of generalizations can be made about the role of specialization in recreation behavior:

NEWCOMERS WANT RESULTS Newcomers to an activity are intent on getting results in their recreational pastime, any results. The beginning photographer wants his snapshots of the children to turn out. The novice hiker wants to get from point A to point B, in relative comfort, without blisters on his feet.

VALADATE COMPETENCE When the participant becomes competent, the recreationist seeks to validate that competence with the number of successes achieved, or else he operates in settings providing greater challenge. Hikers and backpackers strive to be fully prepared; birdwatchers accumulate long lists of birds sighted; skiers want to perfect style in a consistent manner; canoeists enjoy adventures without pain or pitfall; and photographers attempt to duplicate the results of professionals.

SPECIAL-IZATION It is after the accomplished stage of development is reached that the recreationist seems most vulnerable to adjunct types of specialization. The flyfisherman may develop a fixation on fly-tying and entomology. In fact, preoccupation with sporting equipment may become an end in itself.

ACTIVITY FOR ITS OWN SAKE

Finally, at the extreme end of the specialization continuum are those recreationists who place the most emphasis on doing the activity for its own sake, those who are heard most frequently to refer to the "quality" of the experience and those who make the most specific demands for particular resource settings. Included in the category are the "artist photographers" who view the camera as a means to creative expression. Here too are found the hunter who mimimizes the importance of the kill, the hiker who seeks the challenge of unguided journeys, and the "no-trace" camper who enjoys the preparation, execution, and communion with nature.

SPECIFIC PREFERENCES

Persons with specific preferences and requirements are completely disenfranchised if opportunities for their desires are not met, whereas "generally" motivated users have more numerous alternatives. This notion is politically viable as well, for the specialized users are often the most organized and vocal, since they consider themselves as having the most at stake in terms of personal commitment and involvement in their activity.

ALLOCATING AND PLANNING RECREATIONAL RESOURCES

TYPES OF OPPORTUNITIES

The ROS is a helpful concept for determining the types of recreation opportunities that should be provided. 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

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

RELATIVE AVAILABILITY

The concept addresses the issue of supply as well as the appropriate role of the recreation manager. 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 with that supply to actively encourage other suppliers to provide other kinds or opportunities. For example,

in an area such as southeast Alaska, primitive and unroaded opportunities are abundant and the USDA Forest Service manages most of the land. The agency might find it necessary to actively encourage other agencies to provide modern and semimodern opportunities in the interests of offering diversity.

REPRODUCIBILITY AND REVERSIBILITY

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 primitive to modern are more difficult, than changes in the other direction. 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.

SPATIAL DISTRIBUTION

In planning and managing large areas for recreational purposes, managers must consider the spatial distribution of opportunities. Sharply dissimilar opportunities generally should be kept apart so that conflicts are minimized

EXAMPLE

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 Lake Wilderness in Washington's Cascade Range will be bordered by a management area featuring primarily semiprimitive recreational opportunities. This differs from a "buffer" concept in that the semi-primitive area is managed to provide a specific recreation opportunity and is a professional, management response because-it considers the coordination/conflict potentials of activities on adjacent land.

CONSTRAINED — 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 recreation 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.

Demand.

THE NATURE OF DEMAND — There are three identifiable dimensions of demand. These are: demands for activity opportunities, such as to picnic, hike or ski tour; demands for setting opportunities such as to hike in an environment with specified characteristics (e.g., few people, many facilities and services, scenic vistas, etc.) and demands for specific types of experience opportunities, such as solitude, group interaction, mental relaxation, exhilaration, physical rest, or physical challenge.

RESPONSE TO SUPPLY — Demands for recreation opportunities are inexorably tied to what is available. Demand can often be increased by merely increasing supply directly (e.g., new downhill ski areas). In other areas, demand (as related to supply) can be increased by the management practices in other resource areas. For example, new roads constructed for a timber sale produce incidential RVD's. Other demands can be related to factors that are totally uncontrolled and generally are a result of population increases.

PRICE — The demand for product recreation opportunities is often in direct relation to the prices which the consumer must pay for the recreation experience (campground fees) and/or the cost of getting to the area. (Used as part of the travel cost method for establishing values.)

ATTRACTIVENESS — Effects on Demand--The degree that visual quality is maintained in a particular opportunity setting should be consistent with the activities involved. The degree of acceptable landscape alternation can vary widely from settings designed for alpine skiing and those maintained for back packing. Visual inconsistencies can substantially alter demand in a given area.

SUBSTITUTABILITY — Many outdoor recreation activities are capable of being substituted for other activities or locations and many are not. Knowing the difference is critical in the development of alternatives that satisfy the recreational preference of user groups. For example, the roaded natural setting rarely

satisfies demand for primitive or semi-primitive settings. On the other hand, hikers are generally happy to try new trails or routes as long as the experience is to their liking. To insure that substitutability is considered in the development of alternatives, insure that recreation settings and activities are not lumped into broad categories. Focus on those settings and experiences that are being eliminated in specific alternatives and discuss their substitutability.

DIVERSITY OF OPPORTUNITY

Demonstrated demand for a particular activity can and usually does create demand for additional activity opportunities. The demand for a new campground can often create demand for other activities such as hiking, fishing, or trail biking. The demand for any one activity should always be considered in light of associated activities and provisions identified for providing settings appropriate to a diversity of activities.

TRENDS

Use trends are an important part of any demand analysis. Correlation of a past population group with past recreation use and projections of how this relationship may change in the future often provides the major basis for demand projection.

Resource Inventory

CURRENT SITUATION

The land and water area of National Forest lands are inventoried and mapped by Recreation Opportunity Spectrum class to identify which areas are currently providing what kinds of opportunities. This is done by analyzing the physical, social, and managerial components of each area. The physical setting is defined by the absence or presence of human sights and sounds, size, and the amount of environmental modification caused by human activity. The social setting reflects the amount and type of contact between individuals or groups. It indicates opportunities for solitude, for interactions with a few selected individuals, or for large group interactions. The managerial setting reflects the amount and kind of restrictions placed on people's actions by the appropriate administering agency or private landowner.

The inventory has application to land administered by Federal, State, and local agencies as well as on private lands.

Actual inventory procedures are outlined in the ROS User's Guide and FSM 2300.

CHARACTER-ISTICS — The characteristics of components (physical, social, and managerial) of the setting affect the kind of experience the recreationist most probably realizes from using a particular area. Also, the inventory can identify the quality and quantity of recreation opportunities; inconsistencies, the current mix of opportunities, and relative abundance and supply.

OUTPUTS

RVD's — Recreation outputs are displayed in the form of recreation visitor days (RVD's)--12 visitor hours, which may be aggregated continuously, intermittently, or simultaneously by one or more persons. Output code listings are displayed in the Management Information Handbook. Following are those listed for recreation:

Code	Title	Code	Title
W01	Primitive Recreation Use (Std.)	W02	Primitive Recreation Use (Less than Std.)
W03	Semi-Primitive Non-Motor.(Std.)	W04	Semi-Primitive Non-Motor. (Less than Std;)
W05	Semi-Primitive Motorized (Std.)	W06	Semi-Primitive Motorized (Less than Std.)
W07	Roaded Natural Use (Std.)	W08	Roaded Natural (Less than Std.)
W09	Rural Recreation Use (Std.)	W10	Rural Recreation Use (Less than Std.)
W11	Urban Recreation Use (Std.)	W12	Urban Recreation Use (Less than Std.)

ACTIVITIES — In the Recreation Information Management System (RIM) these RVD's of use are further broken down by recreation activities. Keep in mind that recreation outputs are really outdoor experiences enjoyed and are linked to user preferences and setting quality.

LINKING LAWS, REGS., AND POLICY TO ALTERNATIVE REQUIREMENTS

SOCIAL GOALS — Recreation does not have legal requirements that set minimum and maximum limits of management. Recreation is linked rather to satisfying national social goals through recreational settings which provide quality recreation opportunities.

To the degree consistent with needs and demands for all major resources (one of which is recreation), a variety of Forest and rangeland related outdoor recreation opportunities shall be provided for in each alternative. Thus the key to setting alternative management requirements is to know the recreation market area and the social needs which are to be addressed through recreational opportunities for users.

INTERRELATIONSHIP BETWEEN RESOURCES

RESOURCE INTERFACE

The purpose of this section is to describe the interface between Recreation and other resources. The interface refers to identifying the areas of compatibility and conflict in developing integrated management prescriptions. It also refers to identifying the procedural steps in using the different resource inventories so that opportunities are not foreclosed before analysis and any conflicts are identified.

INTEGRATION

The various resources including those closely related to re-. creation, should be kept entirely separate in the planning steps of issues, concerns, opportunities, inventory, decision criteria and analysis of the management situation •. Only in the development of a range of alternatives do they begin to come together in the form of integrated management prescriptions.

INTERRELATIONSHIPS

VISUAL

Defining the interface between recreation and visual resource is important because there are many overlaps in inventory, analysis, and management application--most of which are complementary. Secondly, many of the laws pertaining to one resource have direct implications to the other.

INHERENT QUALITY

Visual Resource Management is based upon the inherent scenic quality of the land, the degree of existing alteration of that resource, and the amount of use of that scenic resource generated by travel routes and use areas.

ROS

Recreation Resource Management, using the Recreation Opportunity Spectrum, is based upon the experience opportunities provided by the physical, social, and managerial settings of the land and the recreation activities which occur in those settings.

COMPLEMENTARY

The two systems, ROS and VMS, are different--complementary and entirely compatible if used properly. The ROS system measures the existing and potential opportunities from Primitive to Urban based on the physical, social, and martagerial settings. The Primitive and Semi-Primitive setting descriptions are particularly definitive The Roaded Natural through Urban setting descriptions are quite broad, allowing most any evidence by humans within the setting description. Missing is a good measure of the inherent or cultural scenic quality (attractiveness) of the settings, differing levels of concern for that attractiveness in many ROS classes, and a method for measuring the degree of alteration of the setting for inventory and management. The Visual Management System--or adaptations of it--provides the latter through variety class and existing visual condition inventories, use of visual quality objectives and carefully prepared characteristic landscape statements for Rural and Urban settings.

But except for variety class and existing visual condition inventories, the Visual Management System does not analyze the dispersed opportunities of the Primitive and Semi Primitive settings. Visual Quality Objectives can be used as proxies to manage these settings but only after ROS analysis has been completed.

BENEFITS

Visual Resource Management is reflected in ROS settings and contributes to recreation benefits which are accounted for by the measure of RVD's. It also covers public needs for scenic quality which incur costs to maintain or create but which are not reflected or measured as RVD benefits. The latter instance includes the National Forest scenic backdrops of cities, communities, or other occupancy sites on private lands, scenic backdrops along travel routes outside of Nation l Forest boundaries, visual benefits accrued t'o nonrecreation travelers on National Forest travel routes, and visual benefits accrued to nonrecreation residents of National Forest lands.

VRM and CRM

Visual Resource Management is based upon the inherent scenic quality of the resource, the degree of alteration of that resource, and the amount of use of that scenic quality that is generated by travel routes and use areas. It is quite independent of the needs to maintain natural appearing landscapes due to cultural, religious needs of Native Americans or other groups of the public. Visual Resource Management can be a useful tool to maintain or create such physical setting. In order for this to happen, the extent and acceptable degree of human alternative of the landscape must be prescribed by CRM in the planning process.

TRAILS

Examples of such situations may be seen most from trails used almost exclusively for religious or other cultural purposes and prominent features in the landscape, such as mountain peaks, springs, or groves of trees almost exclusively used for such purposes.

CULTURAL LANDSCAPES

Visual Resource Management can also contribute to maintaining or creating cultural landscapes identified as being significant to cultural heritage by CRM. The results will ordinarily be compatible with VRM, but in some cases CRM needs will override VRM and violate the minimum desired visual condition identified by the VMS. The direct costs to maintain or recreate such cultural landscapes and the opportunity costs to other resources should be assigned to CRM.

IS and RECREATION

The Interpretive Services program is an essential ingredient in the user achieving a successful set of psychological experiences. Interpretation or lack of it is important in such experiences as a sense of learning and self-discovery, exploring to satisfy curiosity needs, sense of achievement, feeling of so.litude, sense of security, teaching and leading others, applying and developing creative abilities, learning more about nature, gaining a greater appreciation of the Nation's cultural heritage, and improving an understanding of resource management and conservation practices. Interpretive elements which are critical are the amount and type of information provided, and the location and design of facilities, including materials, architectural style, and complexity or sophistication of displays (i.e. simple sign vs. three dimensional moving exhibit).

WILDLIFE

Wildlife management is done to maintain or improve habitats for a wide range of both game and nongame species. Desired changes in amount of forage areas, thermal and. hiding cover, and areas for reproduction are usually done through Timber Management Activities. Where such activities occur they are key to accomplishing wildlife, recreation, and timber objectives. Compatibility for wildlife in the matrix might be shown as part of timber.

p	SPNM	SPM	RM	RN	Rural	Urban
No timber harvest or habitat manipulation as the norm.	May range from no timber or habitat manipulation to harvest habitat manipulation units that meet retention to travelway and cross-country users.	Reg. units and habitat manipulation meet partial retention from travelways or cross-country.	Reg. units and habitat manipulations are strongly dominant from within area.	Reg. units and habitat manipulations designed to maintain a natural appearing Forest.		

USER ACCESS ROS classes vary in the amount of recreation users allowed in both motorized and nonmotorized types. Wildlife (species populations) benefit in general from decreased human disturbance resulting from low road densities and/or restrictions on motorized use.

SECURITY From this standpoint, wildlife populations have greater habitat security and are, therefore, better off in Primitive, SemiPrimitive, and Nonmotorized, Semi-Primitive Motorized classes. In these classes, however, manipulation of vegetation for habitat improvement is limited. Roaded natural allows more habitat manipulation, but also allows potential increases in numbers and density of people. The roaded modified class used in some western Regions allows the maximum amount of manipulation and significant reduction in numbers of people. Timber harvest activity may be intense at times, causing unwanted motorized disturbance.

However, there are options for creating wildlife emphasis areas with habitat manipulations and high density of roads which may be periodically closed to the public. These areas should be given a wildlife emphasis title. Recreation experiences created are closer to a Roaded Modified except roads are closed. It may be established as an ROS subclass.

OVERLAP AREAS There are habitats or certain attributes of habitats which have compatible benefits for both wildlife and recreation. Areas maintained with a significant proportion of old growth characteristics often also produce Semi-Primitive or Primitive recreation experiences. The desired vertical diversity of vegetation often desired for certain wildlife

species is also a desired character in many road and trail foreground landscapes. Increased edge of created openings (vertical and horizontal diversity) is also a highly desirable visual objective. Where these result in mutual overlapping, allocation areas in Forest planning, benefits, and costs should be distributed accordingly.

RECREATION

Much of the success in managing vegetation to achieve desired visual character and meet visual quality objectives in Roaded Natural and Rural areas is tied to control of viewing positions primarily on roads, highways, and use areas. When the recreation user is traveling on trails or cross-country in Primitive or Semi-Primitive areas, near view becomes very evident. Recreation experience oppor-tunities not as available in Roaded Natural and Rural should become a primary goal. Some of these may include:

1. Obtaining privacy, solitude, and tranquility in an outdoor setting.

2. Experiencing natural ecosystems in environments which are largely unmodified by human activity.

3. Gaining a new mental perspective in a tranquil out-door setting.

4. Self-testing and risk-taking for self-development and sense of accomplishment,

5. Learning more about nature, especially natural processes, human dependence on them, and how to live in greater harmony with nature. To the extent practical, these opportunities should be goals in all ROS settings on the National Forest System,

SUBTLE

Any vegetative management must be quite subtle and for the purposes of creating and maintaining an attractive recreation setting that will offer these types of experience oppor-tunities. Details such as the attributes of an old growth Forest (rotting logs with conks, large trees with distinc-tive bark, etc.,) become even more important in Primitive and Semi-Primitive than in Roaded Natural and Rural. Providing human scale or created openings generally means they must be quite small with natural appearing forest floor, edge, shape, and disbursement.

More detailed guidelines can be found in the Timber Agricultural Handbook 559: National Forest Landscape Management, Vol. 2 Chapter 5.

ROS RATIONALE

'From "A Technique for Recreation Planning and Management! in Tomorrow's Forests" by Brown and Stankey I

TOMORROW'S FORESTS

In characterizing the nature of tomorrow's forests, several features appear likely. Increasing population coupled with growing aspirations have already produced greater demands on forests for the various goods and services they produce, and these demands will certainly continue to grow. There is also a steady growth in the level of demand placed on forest lands for non-forest uses. Spreading urbanization, agriculture, and other uses have displaced forestry as the principal land use in many areas. Tomorrow's forests almost certainly will be characterized by an increased level of management presence. Forests of free access and unregulated resource setting will be increasingly difficult to locate. Finally, with the growth in forest and non-forest dependent demands, the level of conflict among forest users will assuredly grow. The preservation versus development issue found in the forests of many countries today will be increasingly common.

MORE COMPLEX

Planning and managing recreation in forests where such demands and conflicts exist is an inherently difficult task. It is made even more complex by the rapid and often unpredictable nature of change.

This includes changes in technology, recreation tastes and preferences, and social, political, and economic conditions. The typically low accuracy and reliability of recreation use projection is indicative of the difficulty of anticipating these changes, and make the task of planning into the future extremely difficult.

A FRAMEWORK

Despite the complexity of the issue, it seems clear that recreation will remain one of the principal services provided by forests. And in coping with the uncertainty of future conditions, it seems important that recreation managers have at their disposal a framework that recognizes recreation as one element of an integrated forest system. This is especially necessary given that non-recreation related decisions in forest settings are often the major influence on the nature of the recreation opportunities supplied. Changes in the nature of the vegetation mosaic brought about by timber harvesting, and changes in the amount, distribution, and nature of access created for timber management and fire control purposes are examples of such influences.

A FRAMEWORK FOR INTEGRATION

Recent legislation has given impetus to efforts to supplant traditional functional planning with comprehensive land management planning programs that recognize the integrative and interdependent nature of the forest resource systems.

In meeting this need in recreation, planning and management have developed the Recreation Opportunity Spectrum (ROS) framework for guiding recreation planning and management. Although not a new idea, the ROS has only recently been sufficiently operational to permit its systematic application in planning, allocation and management.

DIVERSE RECREATION

The basic assumption underlying the Recreation Opportunity Spectrum is that options to realize the number of recreational experiences sought by users are best assured by providing a diverse set of recreation opportunities. A recreation opportunity is a chance for a person to engage in a specific recreational activity within a specific environmental setting to realize a predictable recreation experience. Thus, the ROS conceives of the recreation management and planning task as a behaviorally-based production process, with three distinctive aspects of demand that must be considered.

MORE THAN JUST ACTIVITIES

First, visitors seek opportunities to participate in certain activities.

Traditional analysis has focused on activities and levels of participation in them, but there is increasing recognition that such an approach is inadequate as a basis for establishing meaningful management objectives or assessing the output of the recreation management system.

SETTINGS

Second, visitors seek certain settings in which they can recreate.

Settings are composed of three primary elements: The physical setting, the social setting, and the management setting. Tnese three elements exist in various combination and are subject to managerial control so that diverse opportunity settings can be provided.

DESIRED EXPERIENCES

These settings, however, are not ends in themselves. Providing settings is a means of meeting the third aspect of demand, desired experiences. Settings are used for providing opportunities to realize specific experiences that are satisfying to the participant. In offering diverse settings where participants can pursue various activities, the broadest range of experiences can be realized. The task of the recreation planner and manager, then, is to formulate various combinations

of activity and setting opportunities to facilitate the widest possible achievements of desired experiences--or to preserve options for various types of recreation opportunities.

EIGHT GUIDELINES

These ideas about a spectrum of recreation opportunities were used to design the Recreation Opportunity Planning system. In developing this system, several additional guidelines were followed so that the system would: (1) build on the existing system, (2) have intuitive appeal to managers and give them useful results, (3) be both simple and inexpensive to implement, (4) fit with the land planning and management process, (5) give consistent results, (6) provide objective criteria for evaluating the recreation opportunity potential of different types of resources and landscapes, (7) assure that the total range of recreation opportunities is considered, and (8) be based on tested behavioral science theories that are relevant to recreation choices. Using these guidelines, a number of existing planning systems were reviewed and useful elements of each were combined with the fundamental precepts of the ROS concept to produce the ROS system.

USE AND VALUE

The ROS framework is useful for several purposes. It helps specify more clearly the recreation opportunities demanded, guides resource inventory for arriving at recreation planning recommendations, combines recreation opportunity analysis into integrated forest resource planning, assesses the impact of a recreation allocation on other resource outputs or the impacts of other resource uses on recreation opportunities, guides recreation demand analysis by better defining recreation outputs, and ensures consistency between allocation, action, and project plans. The ROS provides a framework that will aid in the systematic provision of diverse opportunity settings that build to different styles as well as kinds of activities, thus promoting the equitable, effective, and efficient delivery of outdoor recreation services. Through the diversity which the ROS promotes, the kinds of change for tomorrow's forests with which planners must contend can be accomodated and, as suggested earlier, the consequences of alternative solutions to meet these changes can be more readily identified.

VISITOR EXPECTATIONS

Finally, ROS concepts can them?elves be used as a framework for communicating and interacting with recreationists. By providing information to visitors about ROS with regard to acceptable activities, the nature of the setting, and the likely kinds of experiences, the likelihood of linking recreationist's expectations and desires with places that meet their demands is greatly increased. Similarly, by asking recreationists

of activity and setting opportunities to facilitate the widest possible achievements of desired experiences-- or to preserve options for various types of recreation opportunities.

EIGHT GUIDELINES

These ideas about a spectrum of recreation opportunities were used to design the Recreation Opportunity Planning system. In developing this system, several additional guidelines were followed so that the system would: (1) build on the existing system, (2) have intuitive appeal to managers and give them useful results, (3) be both simple and inexpensive to implement, (4) fit with the land planning and management process, (5) give consistent results, (6) provide o'bjective criteria for evaluating the recreation opportunity potential of different types of resources and landscapes, (7) assure that the total range of recreation opportunities is considered, and (8) be based on tested behavioral science theories that are relevant to recreation choices. Using these guidelines, a number of existing planning systems were reviewed and useful elements of each were combined with the fundamental precepts of the ROS concept to produce the ROS system.

USE AND VALUE

The ROS framework is useful for several purposes. It helps specify more clearly the recreation opportunities demanded, guides resource inventory for arriving at recreation planning recommendations, combines recreation opportunity analysis into integrated forest resource planning, assesses the impact of a recreation allocation on other resource outputs or the impacts of other resource uses on recreation opportunities, guides recreation demand analysis by better defining recreation outputs, and ensures consistency between allocation, action, and project plans. The ROS provides a framework that will aid in the systematic provision of diverse opportunity settings that build to different styles as well as kinds of activities, thus promoting the equitable, effective, and efficient delivery of outdoor recreation services. Through the diversity which the ROS promotes, the kinds of change for tomorrow's forests with which planners must contend can be accomodated and, as suggested earlier, the consequences of alternative solutions to meet these changes can be more readily identified.

VISITOR EXPECTATIONS

Finally, ROS concepts can themselves be used as a framework for communicating and interacting with recreationists. By providing information to visitors about ROS with regard to acceptable activities, the nature of the setting, and the likely kinds of experiences, the likelihood of linking recreationist's expectations and desires with places that meet their demands is greatly increased. Similarly, by asking recreationists

to specify what it is they want, managers can help people find these desired opportunities, thus avoiding problems related to conflict and displacement.

2310.3 - Policy. In addition to general planning policy presented in 36 CFR 219.1, FSM 1903, FSM 1920.3, FSM 1922.03, and FSM 2303:

1. Use the Recreation Opportunity Spectrum (ROS) to establish planning criteria, generate objectives for recreation, evaluate public issues, integrate management concerns, project recreation needs and demands, and coordinate management objectives.

2. Use the ROS system to develop standards and guidelines for proposed recreation resource use and development.

3. Use the ROS system guidelines to describe recreation dpportunities and coordinate with other recreation suppliers.

4. Recognize individual National Forests need not provide recreation opportunities in each ROS class.

5. Do not provide urban opportunities with appropriated or other public funds. Channel urban class provided by private sector funds to private land if available.

2311 - RESOURCE OPPORTUNITIES IN RECREATION ?LANNING.

Stratify and define outdoor recreation setting opportunities to:

1. Establish outdoor recreation strategies and supporting standards and guidelines.

2. Ensure the proper scale and design criteria of development as explained in FSM 2330 and FSM 2340.

3. Support tradeoff analysis of possible recreation opportunities and quality (36 CFR Part 219.21 and Part 219.26 and FSM 1922.12-15).

4. Monitor the quality of recreation outputs and effects in Forest plan implementation (36 CFR Part 219.11(d) a3 defined in each Forest plan).

11.1 - Recreation Opportunity Spectrum (ROS). Use the Recreation Opportunity Spectrum (ROS) system and the ROS **Users** Guide {U.S. Department of Agriculture, Forest Service. ROS Users Guide. Washington, DC: U.S. Department of Agriculture, Forest Service: 1982. 37 p.) to delineate, define, and integrate outdoor recreation opportunities in land and resource management planning (FSM 1922.15, item 2). Recreation integration/coordination provides for integrated management prescriptions and associated standards to deal with the recreation resource. ROS defines six recreation opportunity **classes** that provide different settings for

recreational use: primitive, semi-primitive nonmotorized, semi-primitive motorized, roaded natural, rural, and urban. Use ROS classes to describe all recreation opportunity areas--from natural, undisturbed, a d undeveloped to heavily used, modified, and developed. Apply the criteria involving the physical, social, and managerial environments found in the ROS Users Guide to delineate the different ROS classes of land. Urban class areas are not normally an appropriate management objective for National Forest lands.

2311.11 - Recreation Opportunity Spectrum Visual and Access Guides. Exhibit 1 presents visual quality guides for each ROS class. Exhibit 2 presents access strategies for each ROS class.

2311.12 - Recreation Opportunity Spectrum Subclasses. Each Recreation Opportunity Spectrum class may be divided into subclasses to better reflect local or Regional conditions. Regions using subclasses shall define subclasses clearly and coordinate with adjoining Regions. Subclasses must fall within the six major classes for regional and national data summarization.

RECREATION OPPORTUNITY SPECTRUM / VISUAL MANAGEMENT SYSTEM

	Visual Quality Objectives				
ROS	Preservation	Retention	Partial Retention	Modification	Maximum Modification
PRIMITIVE	Norm	Inconsistent	//////////	//////////	//////////
SEMI-PRIMITIVE NON-MOTORIZED		Norm	Inconsistent	////////// Unacceptable //////////	
SEMI-PRIMITIVE MOTORIZED	Fully Compatible		Norm*	Inconsistent	//////////
ROADED NATURAL			Norm	Norm	Inconsistent
RURAL				Norm	Norm
URBAN**	Acceptable				Norm

* From sensitive roads and trails. (USDA Handbook 462)
** Normally inappropriate on National Forest land.

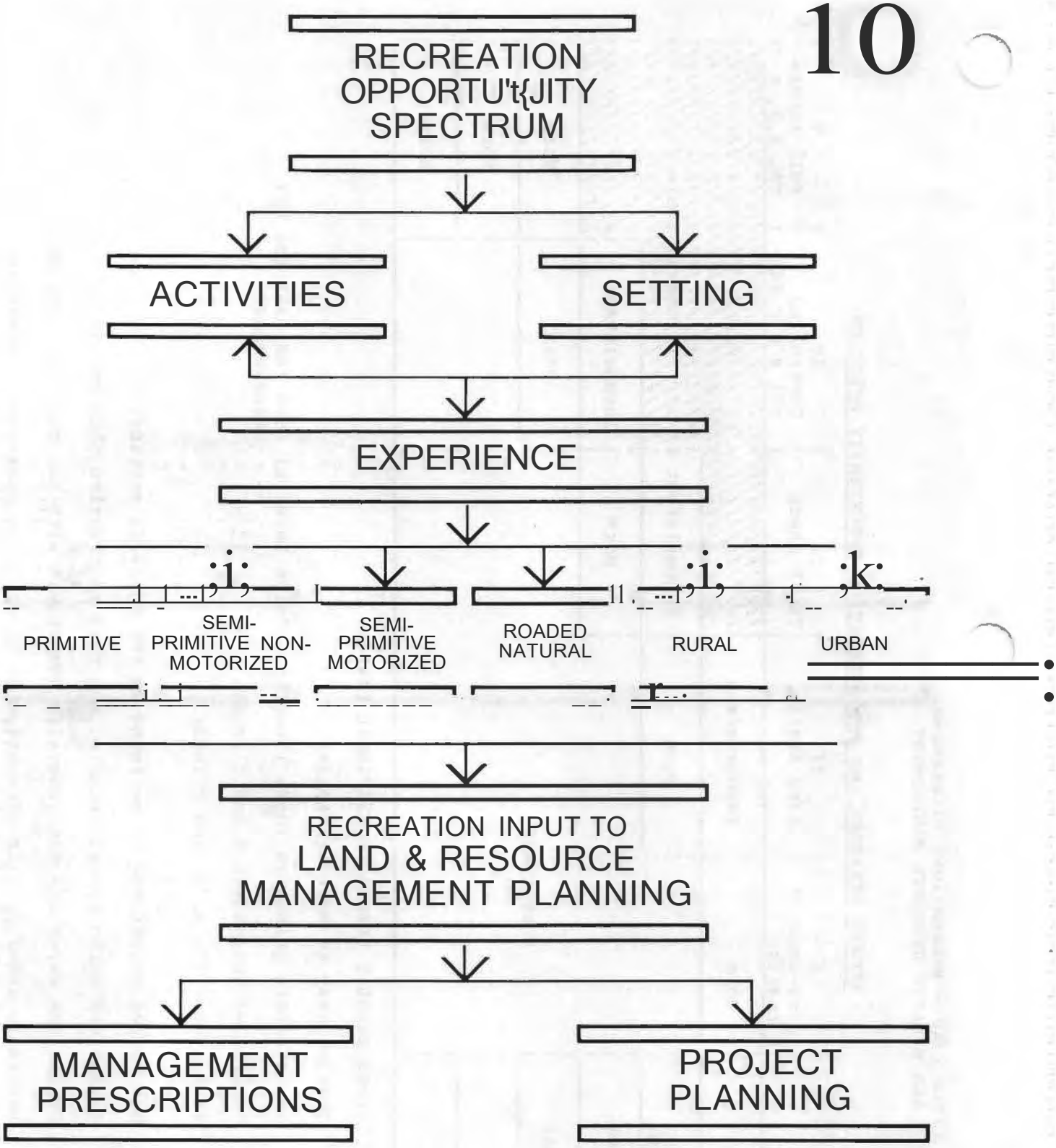
ACCESS STRATEGY AND THE RECREATION OPPORTUNITY SPECTRUM

	I Cross-country & trails	II Easy trails	III TSL D roads	IV Controlled TSL B & C Rds	V Full Access TSL A,B, & C
PRIMITIVE	Norm	Inconsistent	Unacceptable	Unacceptable	Unacceptable
SEMI-PRIMITIVE NON-MOTORIZED	Acceptable	Norm	Inconsistent	Unacceptable	Unacceptable
SEMI-PRIMITIVE MOTORIZED	Acceptable	Acceptable	Norm	Inconsistant	Unacceptable
ROADED NATURAL	Acceptable	Acceptable	Acceptable	Norm	Norm
RURAL	Acceptable	Acceptable	Acceptable	Acceptable	Norm
URBAN	Acceptable	Acceptable	Acceptable	Acceptable	Norm

I	Cross-country travel to difficult trails.
II	Trails, easy to most difficult.
III	Low-standard primitive roads (Traffic Service Level D) (See FSM 2355 for ORV management)
IV	Controlled-access TSL B and C roads.
V	Full-access TSL A, B, and C roads.

Norm:	The normal conditions to be found in the physical setting.
Acceptable:	Conditions which are acceptable, but more restrictive than normal.
Inconsistent	Conditions which are not generally compatible with the norm, but may be necessary under certain circumstances to meet the management objective.
Unacceptable	Unacceptable conditions under any circumstances.

10


RECREATION
OPPORTU'tJITY
SPECTRUM
ACTIVITIES
SETTING
EXPERIENCE
PRIMITIVE
SEMI-
PRIMITIVE NON-
MOTORIZED
SEMI-
PRIMITIVE
MOTORIZED
ROADED
NATURAL
RURAL
URBAN
RECREATION INPUT TO
LAND & RESOURCE
MANAGEMENT PLANNING
MANAGEMENT
PRESCRIPTIONS
PROJECT
PLANNING

11-RECREATION

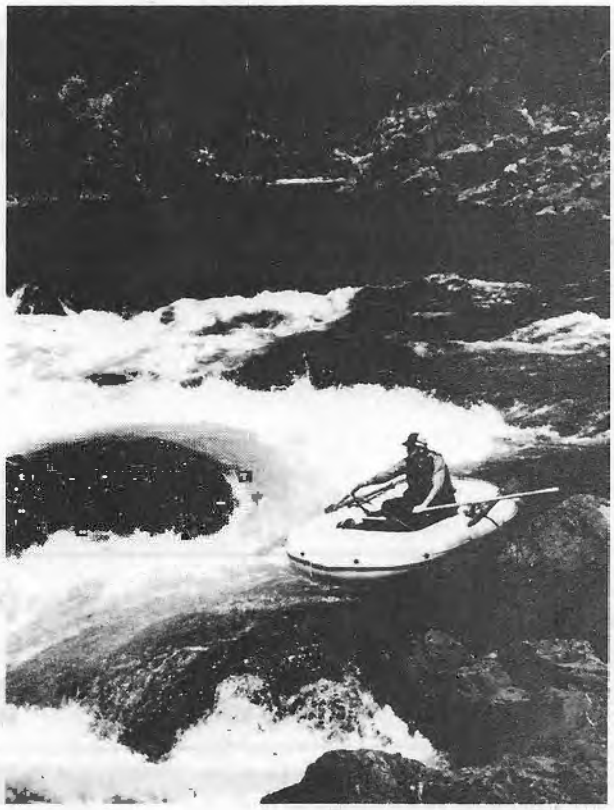
Many definitions of recreation exist, each emphasizing some slightly different aspect of this complex phenomenon called "recreation." In the *Recreational Use of Wild Lands,* Frank Brockman defines recreation as "the pleasurable and constructive use of spare time." Howard Danford, iti *Creative Leadership in Recreation,* defines recreation as "any socially desirable leisure activity in which an individual participates voluntarily and from which he derives immediate and continuing satisfaction." *Webster* defines recreation as "refreshment in mind and body."

The sense of creativeness, refreshment and pleasure which the recreationist has while recreating or having a good time can be viewed as the recreationist "realizing satisfactory experiences." The recreationist attains these satisfactory experiences by participating in preferred recreation activities in preferred surroundings or settings. Therefore although the recreation resource manager manages settings, he or she does so to provide opportunities for recreation experiences and the benefits those experiences produce for individuals and society. Those experiences are influenced by many factors, the settings, the activities, other resources present, activities by managers, and by the values, expectations and other characteristics of the recreationists. These factors interrelate to define outdoor recreationists' needs and the way these needs are met by management action.

"Managing for recreation requires different kinds of data and management concepts than does most other activities. While recreation must have a physical base of land or water, the product- recreation experience-is a personal or social phenomenon. Although the management is resource based, the actual recreational activities ara a result of people, their perceptions, wants, and behavior." (From: Final Report of the Committee of Scientists for Implementation of Section 6 of the National Forest Management Act of 1976, February 22, 1979, as published in the Federal Register, Part V, May 4, 1979, p. 26628.)

12-RECREATION OPPORTUNITY

The word opportunity is defined as a "combination of circumstances favorable for a purpose." The purpose or goal of the recreationist, as discussed above, is to realize satisfying experiences. This is done by participating in preferred activities in preferred environmental settings. Thus, recreation opportunity is "the availability of a real choice for a user to participate in a preferred activity within a preferred setting, in order to realize those satisfying experiences which are desired."



13-RECREATION OPPORTUNITY SPECTRUM

While the goal of the recreationist is to obtain satisfying experiences, the goal of the recreation resource manager becomes one of providing the opportunities for obtaining these experiences. By managing the natural resource setting, and the activities which occur within it, the manager is providing the opportunities for recreation experiences to take place. Therefore, for both the manager and the recreationist, recreation opportunities can be expressed in terms of three principal components: the activities, the setting, and the experience.

For management and conceptual convenience possible mixes or combinations of activities, settings, and probable experience'opportunities have been arranged along a spectrum, or continuum. This continuum is called the Recreation Opportunity Spectrum (ROS) and is divided into six classes (Figure 1). The six classes, or portions along the continuum, and the accompanying class names have been selected and conventionalized because of their descriptiveness and utility in Land and Resource Management Planning and other management applications.

Each class is defined in terms of its combination of activity, setting, and experience opportunities (Table 1). Subclasses may be established to reflect local or regional conditions as long as aggregations can be made back to the six major classes for regional or national summaries. An example of a subclass may be a further breakdown of Roaded Natural into subclasses based on paved, oiled, or dirt surfaced roads, which in turns reflects amount of use, or a further breakdown of Primitive based upon aircraft or boat use.

The Recreation Opportunity Spectrum provides a framework for stratifying and defining classes of outdoor recreation opportunity environments. As conceived, the spectrum has application to all lands regardless of ownership or jurisdiction. It's use in the National Forest System will facilitate the considetation, determination and implementation of the recreation management role.

Figure 1

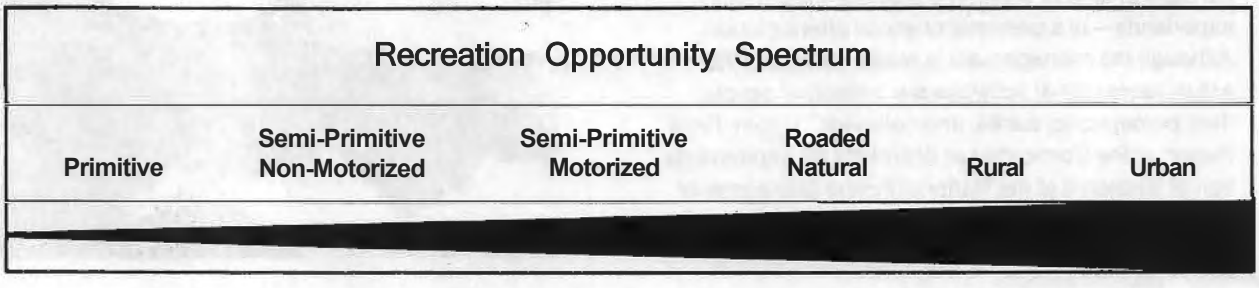


Table1

ROS
Activity Characterization*

Primitive	Semi-Primitive Non-Motorized	Semi-Primitive Motorized	Roaded Natural	Rural	Urban
Land Based:	**Land Based:**	**Land Based:**	**Land Based:**		
Viewing Scenery	Viewing Scenery	Viewing Scenery	Viewing Scenery		
Hiking and Walking	Automobile (off-road use)	Viewing Activities	Viewing Activities		
Horseback Riding	Motorcycle and Scooter Use	Viewing Works of Human-Kind	Viewing Works of Human-Kind		
Tent Camping	Specialized Landcraft Use	Automobile (includes off-road use)	Automobile (Includes off-road use)		
Hunting	Aircraft Use	Motorcycle and Scooter Use	Motorcycle arid Scooter Use		
Nature Study	Hiking and Walking	Specialized Landcraft Use	Train and Bus Touring		
Mountain Climbing	Horseback Riding	Train and Bus Touring	Aircraft Use		
	Camping	Aircraft Use	Aerial Trams and Lifts Use		
	Hunting	Aerial Trams and Lifts Use	Hiking and Walking		
	Nature Study	Hiking and Walking	Bicycling		
	Mountain Climbing	Bicycling	Horseback Riding		
		Horseback Riding	Camping		
Water Based:	**Water Based:**	Camping	Picnicking		
Canoeing	Boating (powered)	Picnicking	Resort and Commercial Services Use		
Other Watercraft (non-motorized use)	Canoeing	Resort and Commercial Services Use	Resort Lodging		
Swimming	Sailing	Resort Lodging	Recreation Cabin Use		
Fishing	Other Boating	Recreation Cabin Use	Hunting		
	Swimming	Hunting	Nature Studies		
	Diving (skin or scuba)	Nature Studies	Gathering Forest Products		
	Fishing	Mountain Climbing	Interpretive Services		
		Gathering Forest Products	Team Sports Participation		
Snow and Ice Based:	**Snow and Ice Based:**	Interpretive Services	Individual Sports Participation		
Snowplay	Ice and Snowcraft Use		Games and Play Participation		
X-Country Skiing/Snowshoeing	Skiing, Downhill	**Water Based:**			
	Snowplay	Tour Boat and Ferry Use	**Water Based:**		
	X-Country Skiing/Snowshoeing	Boat (Powered)	Tour Boat and Ferry Use		
		Canoeing	**Boat** (Powered)		
		Sailing	Canoeing		
		Other Watercraft Use	Sailing		
		Swimming and Waterplay	Other Watercraft Use		
		Diving (skin and scuba)	Swimming and Waterplay		
		Waterskiing and Water-Sports	Diving (skin and scuba)		
		Fishing	Waterskiing and Watersports		
			Fishing		
		Snow and Ice Based:			
		Ice and Snowcraft Use	**Snow and Ice Based:**		
		Ice Skating	Ice and Snowcraft Use		
		Sledding and Tobogganing	Ice Skating		
		Downhill **Skiing**	Sledding and Tobogganing		
		Snowplay	Downhill Skiing		
		X-Country Skiing/Snowshoeing	Snowplay		
			X-Country Skiing/Snowshoeing		

·These activities (from RI M FSH 2309.11) are illustrative only. Specific additions or exception of activities within a ROS class may occur depending upon local forest situations.

Table 1 (continued)

ROS Setting Characterization*					
Primitive	**Semi-Primitive Non-Motorized**	**Semi-Primitive Motorized**	**Roaded Natural**	**Rural**	**Urban**
Area is characterized by essentially unmodified natural environment of fairly large size. Interaction between users is very low and evidence of other users is minimal. The area is managed to be essentially free from evidence of human-induced restrictions and controls. Motorized use within the area is not permitted.	Area is characterized by a predominantly natural or natural-appearing environment of moderate-to-large size. Interaction between users is low, but there is often evidence of other users. The area is managed in such a way that minimum on-site controls and restrictions may be present, but are subtle. Motorized use is not permitted.	Area is characterized by a predominantly natural or natural-appearing environment of moderate-to-large size. Concentration of users is low, but there is often evidence of other users. The area is managed in such a way that minimum on-site controls and restrictions may be present, but are subtle. Motorized use is permitted.	Area is characterized by predominantly natural-appearing environments with moderate evidences of the sights and sounds of man. Such evidences usually harmonize with the natural environment. Interaction between users may be low to moderate, but with evidence of other users prevalent. Resource modification and utilization practices are evident, but harmonize with the natural environment. Conventional motorized use is provided for in construction standards and design of facilities.	**Area** is characterized by substantially modified natural environment. Resource modification and utilization practices are to enhance specific recreation activities and to maintain vegetative cover and soil. Sights and sounds of humans are readily evident, and the interaction between users is often moderate to high. A considerable number of facilities are designed for use by a large number of people. Facilities are often provided for special activities. Moderate densities are provided far away from developed sites. Facilities for intensified motorized use and parking are available.	Area is characterized by a substantially urbanized environment, although the background may have natural-appearing elements. Renewable resource modification and utilization practices are to enhance specific recreation activities. Vegetative cover is often exotic and manicured. Sights and sounds of humans, on-site, are predominant. Large numbers of users can be expected, both on-site and in nearby areas. Facilities for highly intensified motor use and parking are available with forms of mass transit often available to carry people throughout the site.

*This table is for descriptive purposes only.
Use the five specific ROS class delineation criteria given in Table 2 to identify the actual areas to which these descriptions apply.

Table 1 (Continued)

ROS Experience Characterization*					
Primitive	**Semi-Primitive Non-Motorized**	**Semi-Primitive Motorized**	**Roaded Natural**	**Rural**	**Urban**
Extremely high probability of experiencing isolation from the sights and sounds of humans, independence, closeness to nature, tranquility, and self-reliance through the application of woodsman and outdoor skills in an environment that offers a high degree of challenge and risk.	High, but not extremely high, probability of experjencing isolation from the sights and sounds of humans, independence, closeness to nature, tranquility, and self-reliance through the application of woodsman and outdoor skills in an environment that offers challenge and risk.	Moderate probability of experiencing isolation from the sights and sounds of humans, independence, closeness to nature, tranquillity, and self-reliance through the application of woodsman and outdoor skills in an environment that offers challenge and risk. Opportunity to have a high degree of interaction with the natural environment. Opportunity to use motorized equipment while in the area.	About equal probability to experience affiliation with other user groups and for isolation from sights and sound of humans. Opportunity to have a high degree of interaction with the natural environment. Challenge and risk opportunities associated with more primitive type of recreation are not very important. Practice and testing of outdoor skills might be important. Opportunities for both motorized and non-motorized forms of recreation are possible.	Probability for experiencing affiliation with individuals and groups is prevalent, as is the convenience of sites and opportunities. These factors are generally more important than the setting of the physical environment. Opportunities for wildland challenges, risk-taking, and testing of outdoor skills are generally unimportant except for specific activities like downhill skiing for which challenge and risk-taking are important elements.	Probability for experie:ncing affiliation with individuals and groups is prevalent, as is the convenience of sites and opportunities. Experiencing natural environments, having challenges and risks afforded by the natural environment, and the use of outdoor skills are relatively unimportant. Opportunities for competitive and spectator sports and for passive uses of highly human-influenced parks and open spaces are common.

*These experiences are highly probable outcomes of participating in recreation activities in specific recreation settings.

14-RECREATION INPUT TO LAND AND RESOURCE MANAGEMENT PLANNING

Planning for recreation opportunities using the Recreation Opportunity Spectrum is conducted as part of Land and Resource Management Planning. The recreation input includes factors such as supply and demand, issues and identification of alternative responses to those issues which the planner must assess in order to develop management area prescriptions designed to assure the appropriate recreation experience through setting and activity management on the Forest.

Use of the Recreation Opportunity Spectrum classes in the formulation of Land and Resource management prescriptions provides the primary recreation framework for:

1. Establishing outdoor recreation management emphasis, standards and guidelines for specific management areas.
2. Trade-off analyses of available recreation opportunities as environmental characteristics might be changed by other proposed resource management actions.
3. Monitoring outputs in terms of established Recreation Opportunity classes.
4. Providing guidelines for project plans.

Recognition that National Forest System lands potentially have a large and diverse variety of recreation opportunities does not imply that equal or balanced allocations of classes be provided, nor does it mean that individual National Forests provide some of each class. Specific kinds and quantities of recreation opportunity classes are more appropriately established considering Forest capabilities with other resource integration needs as guided by national policy direction.

15-MANAGEMENT PRESCRIPTIONS

In the Land and Resource Planning process the management emphasis selected for a specific management area is achieved through the implementation of management prescriptions. Prescriptions are closely integrated sets of specific management practices scheduled over the entire planning period or portions of the planning period. Most acres within a planning area have the inherent capability, to some degree, to provide recreation opportunities and experiences. Therefore management prescriptions for each management area should include consideration for recreation use.

The introductory portion of a management prescription states in a concise way the goals and objectives of the prescription; what resource outputs are being emphasized; and the expected future "condition of the Forest" that will result from application of the prescribed management actions. Alternative sets of management prescriptions are developed to reflect and evaluate emphasis of different resource output management directions.

Each prescription should contain minimum guidelines and standards to be met as well as directions concerning the type of activities, settings, and experience opportunities to be managed for during the planning time periods.

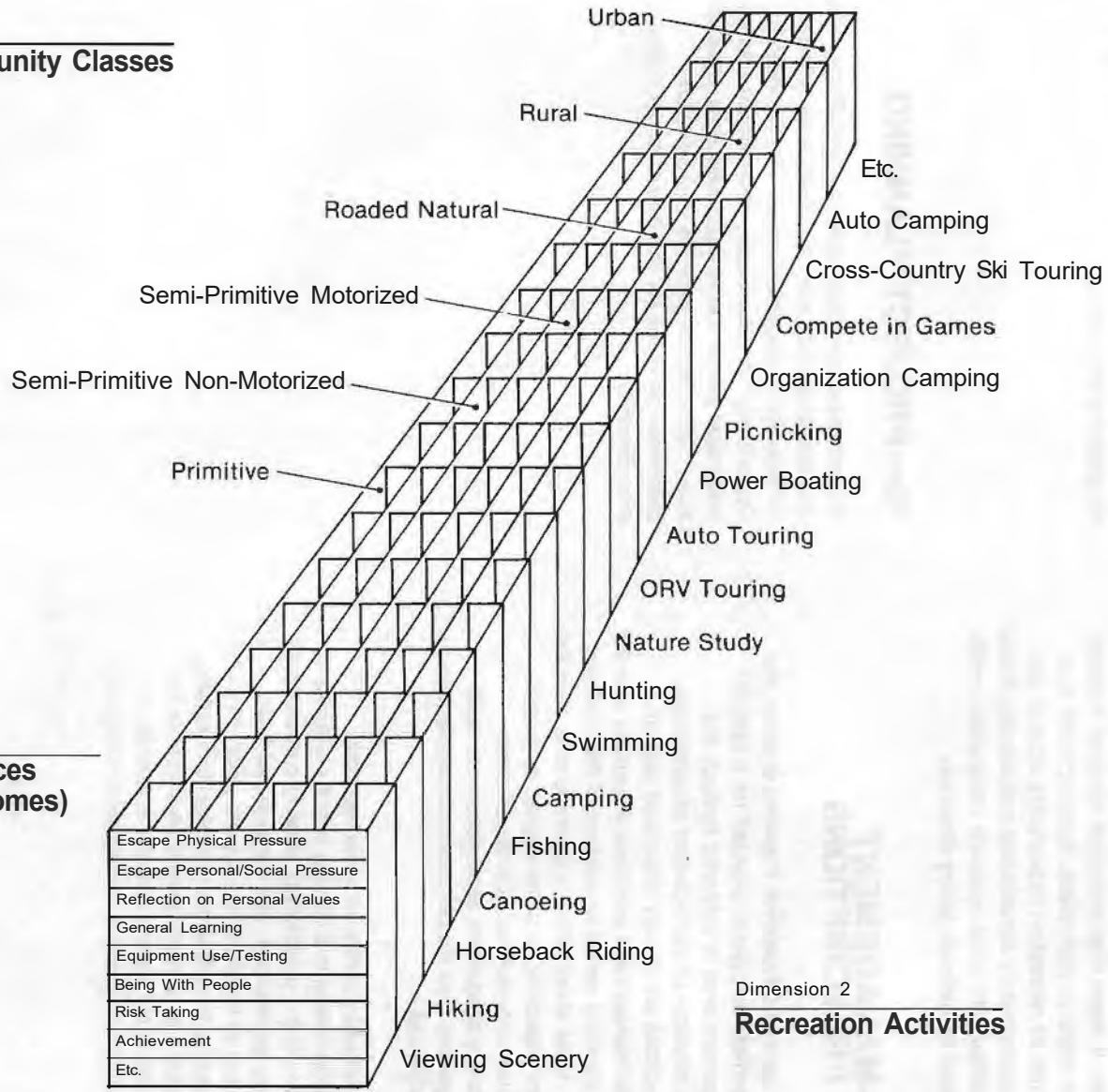
16-PROJECT PLANNING

Project plans take their direction from Forest land and resource plans which include prescriptions for specific management areas. The Recreation Opportunity Spectrum class determination as an integrated part of the management area prescription in conjunction with the standards and guidelines provides for the overall project planning dir.ection.

Dimension 1

Recreation Opportunity Classes

Physical Setting
Social Setting
Managerial Setting



Dimension 3

Recreation Experiences (Psychological Outcomes)

Dimension 2

Recreation Activities

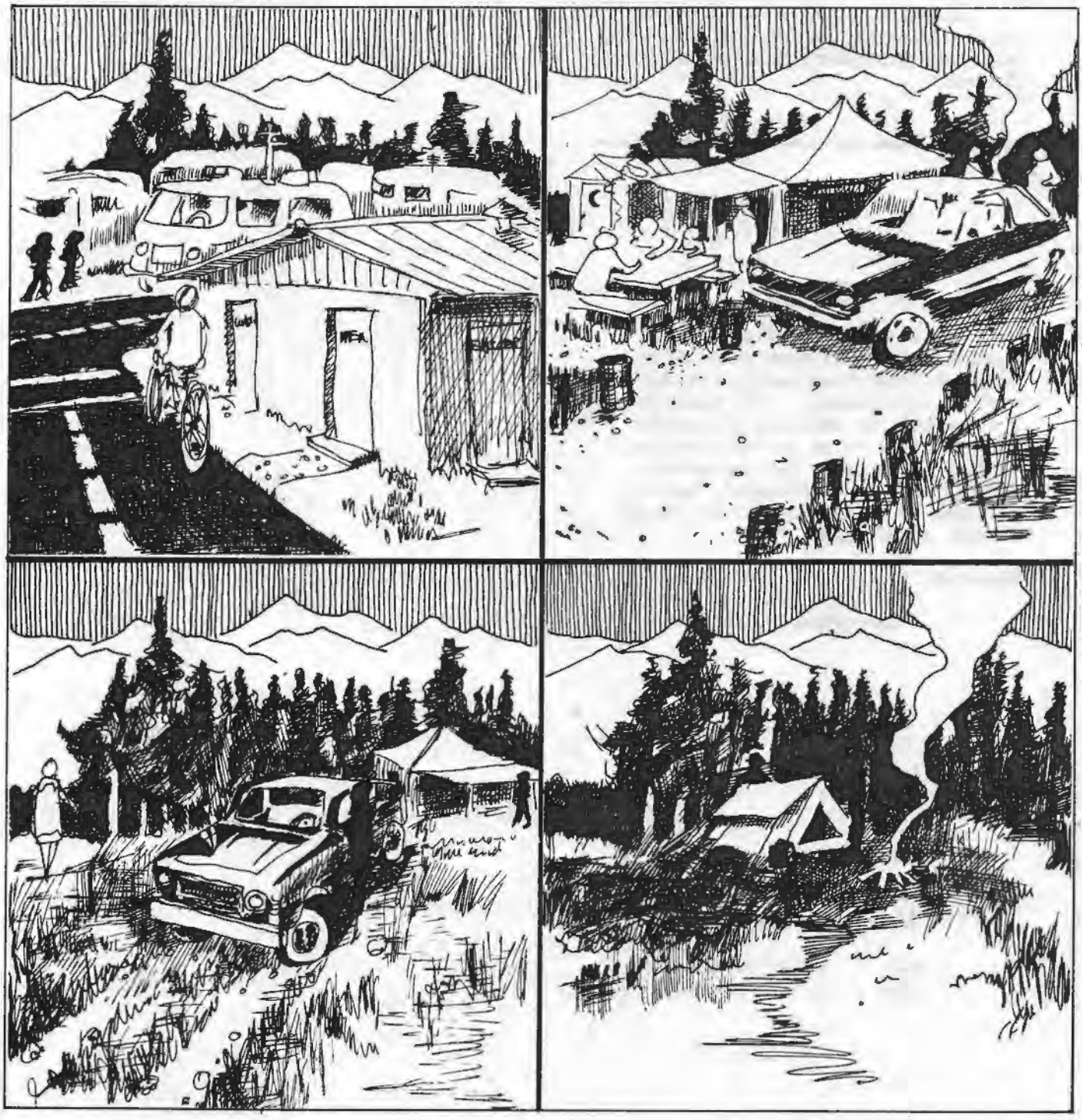
US. Department of Agriculture
Forest Service

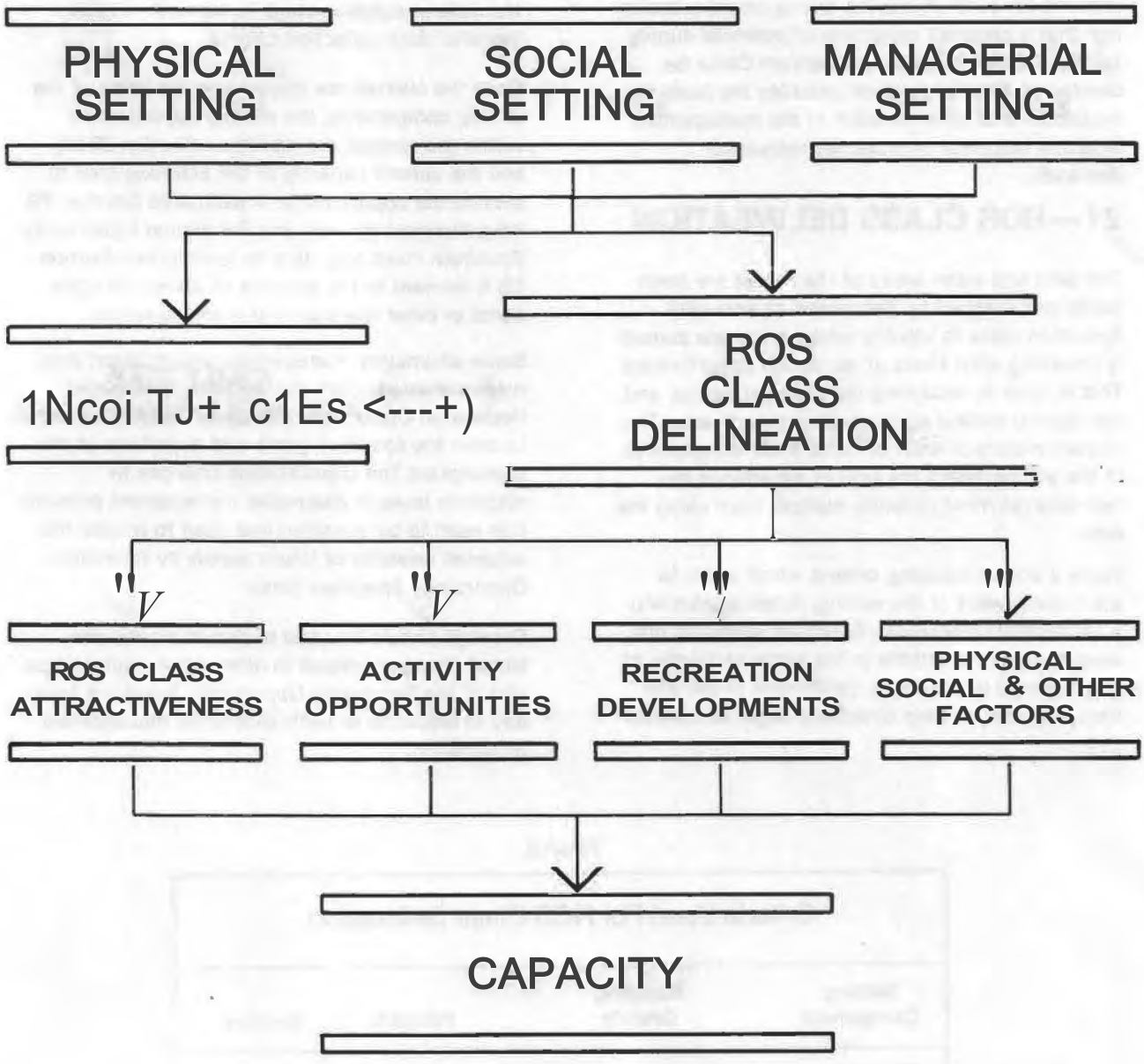
Pacific Northwest Forest
and Range Experiment Station

General Technical Report
PNW-98 December 1979

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

Roger N. Clark and George H. Stankey




PHYSICAL SETTING
SOCIAL SETTING
MANAGERIAL SETTING
1Ncoi TJ+ c1Es <---+)
ROS CLASS DELINEATION
ROS CLASS ATTRACTIVENESS
ACTIVITY OPPORTUNITIES
RECREATION DEVELOPMENTS
PHYSICAL SOCIAL & OTHER FACTORS
CAPACITY

20.1-THE SUPPLY COMPONENT-The supply component of recreation input to Land and Resource Management Planning requires an inventory of recreation supply opportunitie by Recreation Opportunity Spectrum class that are currently available as a result of existing conditions. It also requires for each alternative management prescription that a separate projection of potential supply by Recreation Opportunity Spectrum Class be developed. This information provides the basis for evaluation and determination of the management direction response to projected recreation demands.

21-ROS CLASS DELINEATION

The land and water areas of the Forest are inventoried and mapped by Recreation Opportunity Spectrum class to identify which areas are currently providing what kinds of recreation opportunities. This is done by analyzing the physical, social, and managerial setting components for each area. The characteristics of each of these three components of the setting affect the kind of experience the recreationist most probably realizes from using the area.

Table 2 shows mapping criteria which apply to each component of the setting. When conducting a Recreation Opportunity Spectrum inventory proceed through the criteria in the same sequence as that outlined in the Table. Definitions of the settings and step-by-step directions begin at Section 21.2.

Mapping the Recreation Opportunity Spectrum classes should be done on a map scale which allows an overall view of the planning area. A 1 inch = 1 mile scale is usually sufficient to provide this overview. If necessary the map information may be transferred to larger scale maps later in the data processing stage to conform with integrated data collection criteria.

Once the classes are mapped on the basis of the setting components, the activity opportunities within the classes are identified (Section 23-24), and the current capacity of the planning area to provide the opportunities is estimated (Section 25). Attractiveness by area and Recreation Opportunity Spectrum class may also be inventoried (Section 22) if relevant to the analysis of issues and concerns or other management planning needs.

Some alternative management prescriptions may require changes from the currently inventoried Recreation Opportunity Class delineation in order to meet the specified goals and objectives of the prescription. The classification changes in response to each alternative management prescription need to be specified and used to project the adjusted capacity or future supply by Recreation Opportunity Spectrum class.

Overlays should be used to document the projected changes needed in delineation or classification of the Recreation Opportunity Spectrum inventory in response to each alternative management prescription.

Table2

Criteria Used For ROS Class Delineation

Setting Component	Mapping Criteria	Found In	Section
Physical	Remoteness	Table3	21.21
	Size	Table 4	21.22
	Evidence of Humans	Table 5	
Social	User Density	Table 6	21.23
Managerial	Managerial Regimentation & Noticeability	Table 7	21.32 21.41

21.1-WILDERNESS-SPECIAL AREAS-PRIVATE LANDS- The Recreation Opportunity Spectrum inventory identifies the kinds or classes of recreation opportunities of an area as a function of its physical, social and managerial setting characteristics. The inventory helps identify what is actually happening on the land, and applies uniformily across Wilderness, special areas, political or administrative boundaries, and land ownership. Although some designated Wildernesses are composed largely of the Primitive type of recreation opportunity, many designated Wildernesses also include Semi-Primitive or Roaded-Natural opportunities. Therefore the Primitive Recreation Opportunity Spectrum class is not synonomous with designated Wilderness.

The Forest is inventoried using the Recreation Opportunity Spectrum criteria independently of any area designation. Inventory private lands within the Forest boundary and landownership adjacent to the boundary to the extent necessary to determine the affect of such land on the kinds of recreation opportunities available on the National Forest land. Application of the Recreation Opportunity Spectrum inventory outside the Forest boundaries may also be helpful in assessing the kind and amount of recreation opportunities available within the total planning area.

21.2-PHYSICAL SETTING- The physical setting is defined by the absence or presence of human sights and sounds, size, and the amount of environmental modification caused by human activity. The physical setting is documented on an overlay by combining these three criteria as described below.

21.21-REMOTENESS-Remoteness from the sights and sounds of humans is used as an indicator of the opportunity to experience greater or lesser amounts of social interaction, and primitive to urban influences, as one moves across the spectrum.

To identify remoteness:

1 - On the base map or overlay delineate all roads, railroads, and trails. Distinquish between two levels of roads, "primitive roads," and "better than primitive roads." Trails with motorized use are included in the "primitive road" category.

a. Road Classification-For roads which are difficult to classify into the "primitive road," or "better than primitive road" categories apply the definitions, which are that "better than primitive roads" are constructed or maintained vehicle ways for the use of highway type vehicles having more than two wheels. "Primitive roads" are not constructed or maintained, and are used by vehicles not primarily intended for highway use.

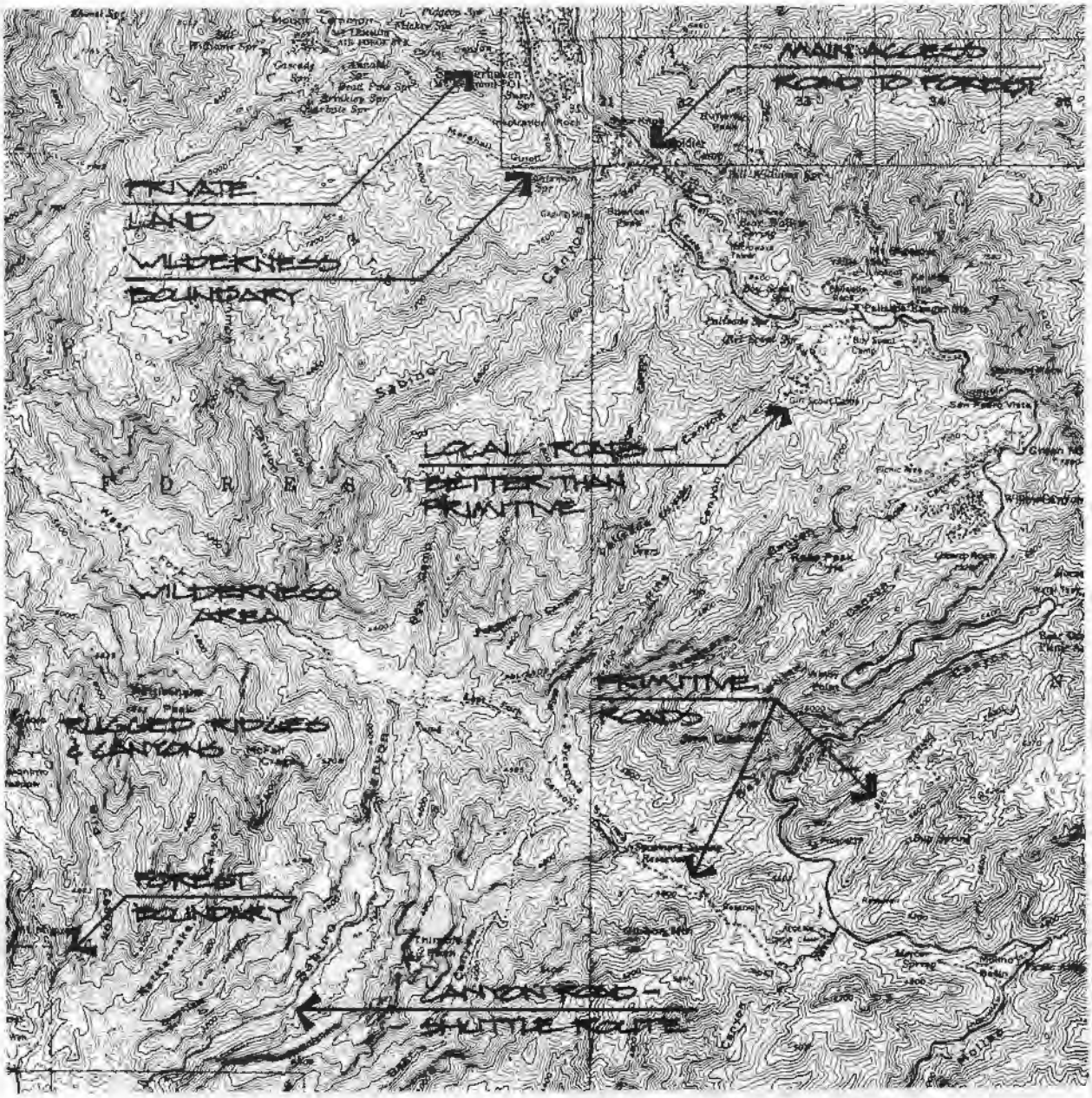
b. Sources of Road and Trail Information- Various sources can be used to obtain the transportation system information. Road classification and inventory Form 7700-9R is one such source. Three of the four road standards on the Form: graded and drained, aggregate surface, and pavement, apply to the "better than primitive road" category. The fourth standard is "primitive road" and includes "way, rut, track, not graded and drained."

For trails Form 2300-9T (or older Form 7700-9T) is an information source. Distinguish between motorized and nonmotorized trails by symbol. For many Forests this information is in the ORV plan.

c. Road Patterns-In most cases all roads and trails are mapped. In areas with dense road patterns, (e.g. greater than 4 miles per section), it may not be necessary to identify each road for Recreation Opportunity Spectrum class delineation. The entire area will be road-influenced and become the same Recreation Opportunity Spectrum class. In these cases only the roads along the periphery of the densely roaded area are needed to define the Recreation Opportunity Spectrum class boundaries.

d. Traffic Volume-Although volume of traffic may vary widely on the "better than primitive roads," depending upon the specific road involved, volume need not be recorded on the base map or overlay. The physical presence and sight of a road, even with no traffic on it, still impacts the visitor experience and is accounted for through the Recreation Opportunity Spectrum criteria. If traffic volume results in sounds from a road at distances greater than the line of sight, then sound may become the determinant criteria in delineating the appropriate Recreation Opportunity Spectrum class.

2 - Where air and motorized water travel routes provide the only access consider them in a manner similar to roads. These specialized types of access may also provide a basis to determine the need for Recreation Opportunity Spectrum subclasses.



the landbase

3-Using the distance guidelines of Table 3 develop a remoteness overlay. Table 3 is only a guide. Lines between Recreation Opportunity Spectrum classes should reflect topographic and vegetative differences which adequately screen out the sights and sounds of humans to the same extent, i.e., the same portion of the spectrum, as the generalized distance guidelines. Relatively flat terrain with low tree cover, or large bodies of water, may require greater distances to achieve screening for remoteness, while deep canyons or heavily wooded terrain might provide equivalent screening with less distance. The fundamental determinant is the type of experience opportunities which either currently exist or might exist given the alternative management prescription assumptions.

a.Step One-In developing the remoteness overlay it is often easiest to begin by drawing the lines separating the Roaded Natural class from the Semi-Primitive Motorized class. This in effect divides the spectrum, with areas on one side of the line either Primitive or Semi-Primitive, and areas on the other side Roaded Natural, Rural, or Urban. The Roaded Natural, Rural, and Urban classes are distinguished from one another using the Evidence of Humans criteria in Table 5 page 22. No further separation therefore occurs in the relation to the remoteness criteria.

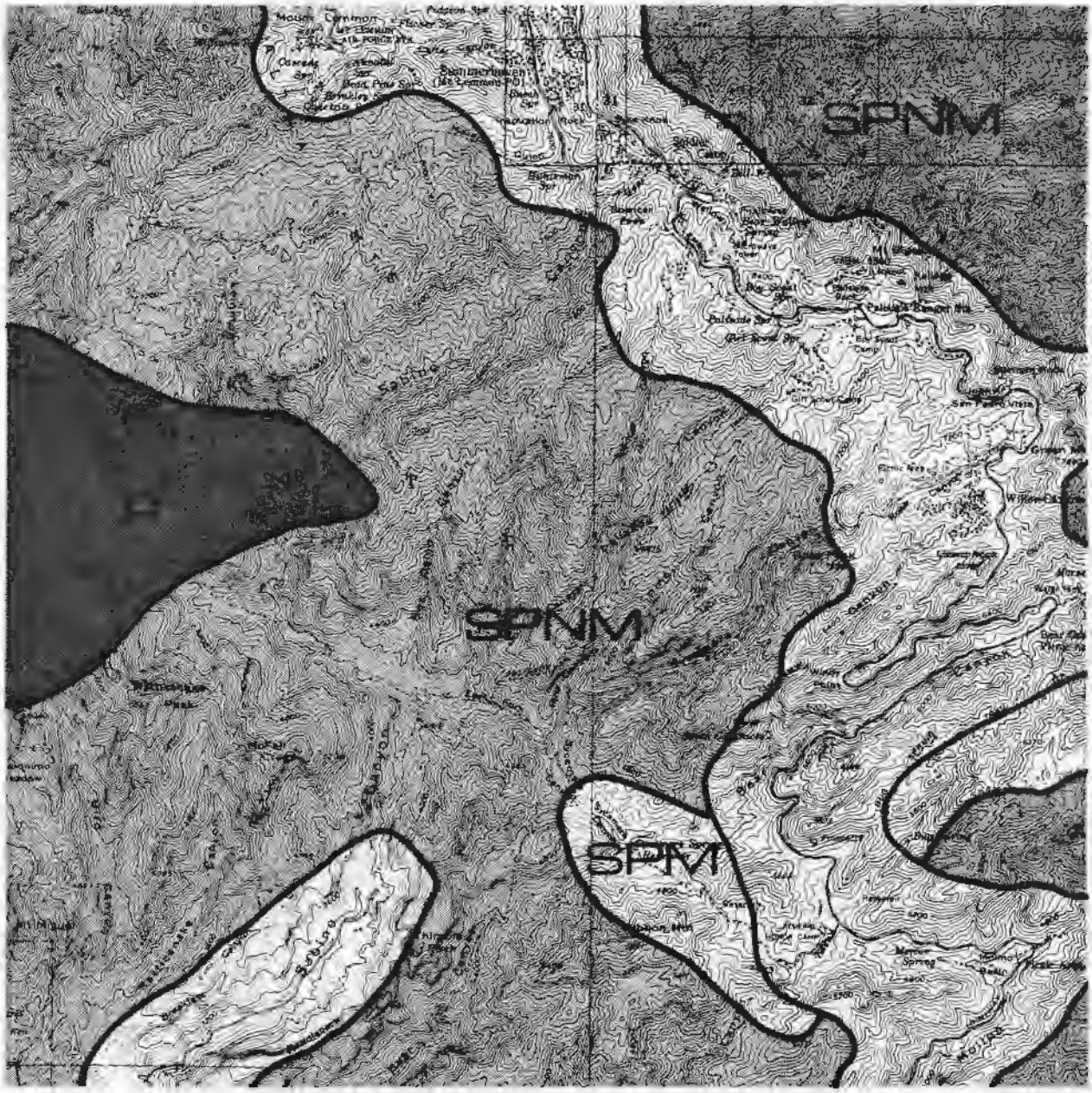
b. Step Two - Next delineate the Semi-Primitive Motorized class by a line approximately one-half mile-depending upon vegetation and terrain-from primitive roads and trails with motorized use. The Semi-Primitive Non motorized and Primitive portion of the spectrum now remain.

c. Step Three - Finally, delineate the Primitive class by a line approximately three miles from all roads, railroads, or trails with motorized use. All areas between the Primitive class line and Semi-Primitive Motorized line, are classified as Semi-Primitive Nonmotorized.

Table3

Remoteness Criteria*					
Primitive	**Semi-Primitive Non-Motorized**	**Semi-Primitive Motorized**	**Roaded Natural**	**Rural**	**Urban**
An area designated at least 3 miles from all roads, railroads or trails with motorized use	An are• desiQnated at least ½-mile but not further than 3 miles from all roads, railroads or trails with motorized use; can include the existence of primitive roads and trails if usually closed to motorized use.	An area designated within ½-mile of primitive roads or trails used by motor vehicles; but not closer than ½-mile from better than primitive roads.	An area designated within ½-mile from better than primitive roads, and railroads.	No distance criteria.	No distance criteria.

•The criteria can be modified to conform to natural barriers and screening, or other relevant features of local topographic relief and vegetative cover. This fits the criteria to the actual Forest landscape.



remoteness

21.22-SIZE OF AREA-Size of area is used as an indicator of the opportunity to experience self-sufficiency as related to the sense of vastness of a relatively undeveloped area. In some settings application of the remoteness criteria (Table 3) assures the existence of these experience opportunities; in other settings the remoteness criteria alone do not. Therefore, apply the size criteria. Table 4, to the map or overlay developed using the remoteness criteria to insure that the appropriate experience opportunities are available.

Table4

Size Criteria					
Primitive	Semi-Primitive Non-Motorized	Semi-Primitive Motorized	Roaded Natural	Rural	Urban
5,000 acres•	2,500 acres••	2,500 acres	No size criteria.	No size criteria.	No size criteria.

·May be smaller if contiguous to Semi-Primitive Nonmotorized Class.
. .May be smaller if contiguous to Primitive Class.

1-Area Adjustments-Situations where an area identified on the remoteness overlay is slightly smaller than the size criteria for a Primitive or Semi-Primitive class-or the area is a unique entity for some other reason-may require individual consideration. If the area is sufficiently added to, or buffered by, the next contiguous class it may still provide the kinds of opportunities which would more certainly occur if the area were larger. The decision as to whether this condition applies-or as to whether the area is for some other reason unique relative to the surrounding area and provides a given class of opportunity in spite of its size (e.g., an island)-requires local knowledge of the area and its features on the part of the planner.

21.23-EVIDENCE OF HUMANS-Evidence of Humans is used as an indicator of the opportunity to recreate in environmental settings having varying degrees of human influence or modification.

Apply the Evidence of Humans criteria given in Table 5 to determine whether the impact of human modification on the landscape is appropriate for each class designation on the inventory overlay. If the Evidence of Humans is more dominant than indicated for the designated Recreation Opportunity Spectrum class, adjust the class boundaries on the overlay so the designations accurately reflect the situation. If the class boundaries change markedly reevaluate the size of the classes (Table 4) to make sure size remains adequate.

The Evidence of Humans criteria for each Recreation Opportunity Spectrum class is primarily based on the visual impact and affect of modifications on the recreation experience, as distinguished from only the physical existence of modifications. The criteria take into account the variation in visual absorption capacity of different landscapes.

1-Evidence of Humans Criteria and the Visual Management System-While in some ways it seems possible to equate Visual Quality Objectives, or a range of objectives, with each Recreation Opportunity Spectrum class the function of the Evidence of Humans Criteria in the Recreation Opportunity Spectrum is not the same as Visual

area & landform adjustments

Quality Objectives in the Visual Management System and equating the two is not recommended. For example, middle and background Visual Management System areas are often where Primitive and Semi-Primitive Recreation Opportunity Spectrum classes occur. A retention or partial retention Visual Quality Objective given to such an area for management direction could have a vastly different meaning than the delineated Recreation Opportunity Spectrum class.

Thus identify the Recreation Opportunity Spectrum classes through the setting descriptions in the Evidence of Humans Criteria. Table 5, and not through use of Visual Quality Objectives. To assist in this, the Evidence of Humans Criteria are purposely worded differently than the definitions of Visual Quality Objectives.

Forests which have completed an Existing Visual Condition inventory as part of their Visual Management System can use this information to assist in using the Evidence of Humans Criteria. However, interpretation of Existing Visual Condition data (s.hort of determining Visual Condition Type) on location and size of existing human activities can be a helpful aid in determining the Recreation Opportunity Spectrum class.

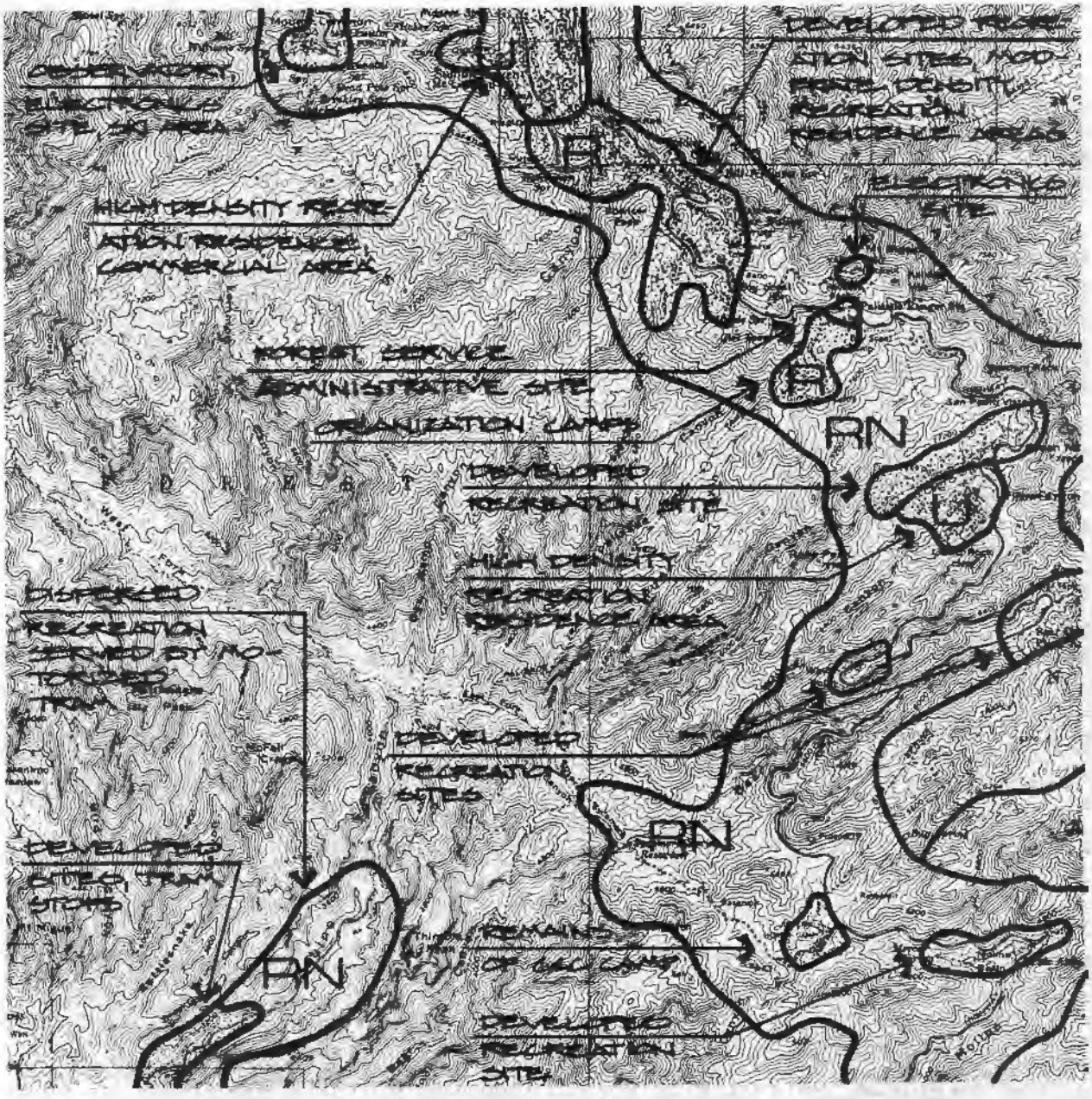
Tables

Evidence of Humans Criteria

Primitive	Semi-Primitive Non-Motorized	Semi-Primitive Motorized	Roaded Natural	Rural	Urban
Setting is essentially an unmodified natural environment. Evidence of humans would be unnoticed by an observer wandering through the area.	Natural" setting may have subtle modifications that would be noticed but not draw the attention of an observer wandering through the area.	Natural· setting may have moderately dominant alterations but would not draw the attention of motorized observers on trails and primitive roads within the area.	Natural" setting may have modifications which range from being easily noticed to strongly dominant to observers within the area. However from sensitive** travel routes and use ***areas*** these alterations would remain unnoticed or visually subordinate.	Natural* setting is culturally modified to the point that it is dominant to the sensitive*- travel route observer. May include pastoral, agricultural, intensively managed wildland resource landscapes, or utility corridors. Pedestrian or other slow moving observers are constantly within view of culturally changed landscape.	Setting is strongly structure dominated. Natural or natural-appearing elements may play an important role but be visually subordinate. Pedestrian and other slow moving observers are constantly within view of artificial enclosure of spaces.
Evidence of trails is acceptable, but should not exceed standard to carry expected use.	Little or no evidence of primitive roads and the motorized use of trails and primitive roads.	Strong evidence of primitive roads and the motorized use of trails and primitive roads.	There is strong evidence of designed roads and/or highways.	There is strong evidence of designed roads and/or highways.	There is strong evidence of designed roads and/or highways and streets.
Structures are extremely rare.	Structures are rare and isolated.	Structures are rare and isolated.	Structures are generally scattered, remaining visually subordinate or unnoticed to the sensitive·· travel route observer. Structures may include power lines, micro-wave installations and so on.	Structures are readily apparent and may range from scattered to small dominant clusters including power lines, microwave installations, local ski areas, minor resorts and recreation sites.	Structures and structure complexes are dominant, and may include major resorts and marinas, national and regional ski areas, towns, industrial sites, condominiums or second home developments.

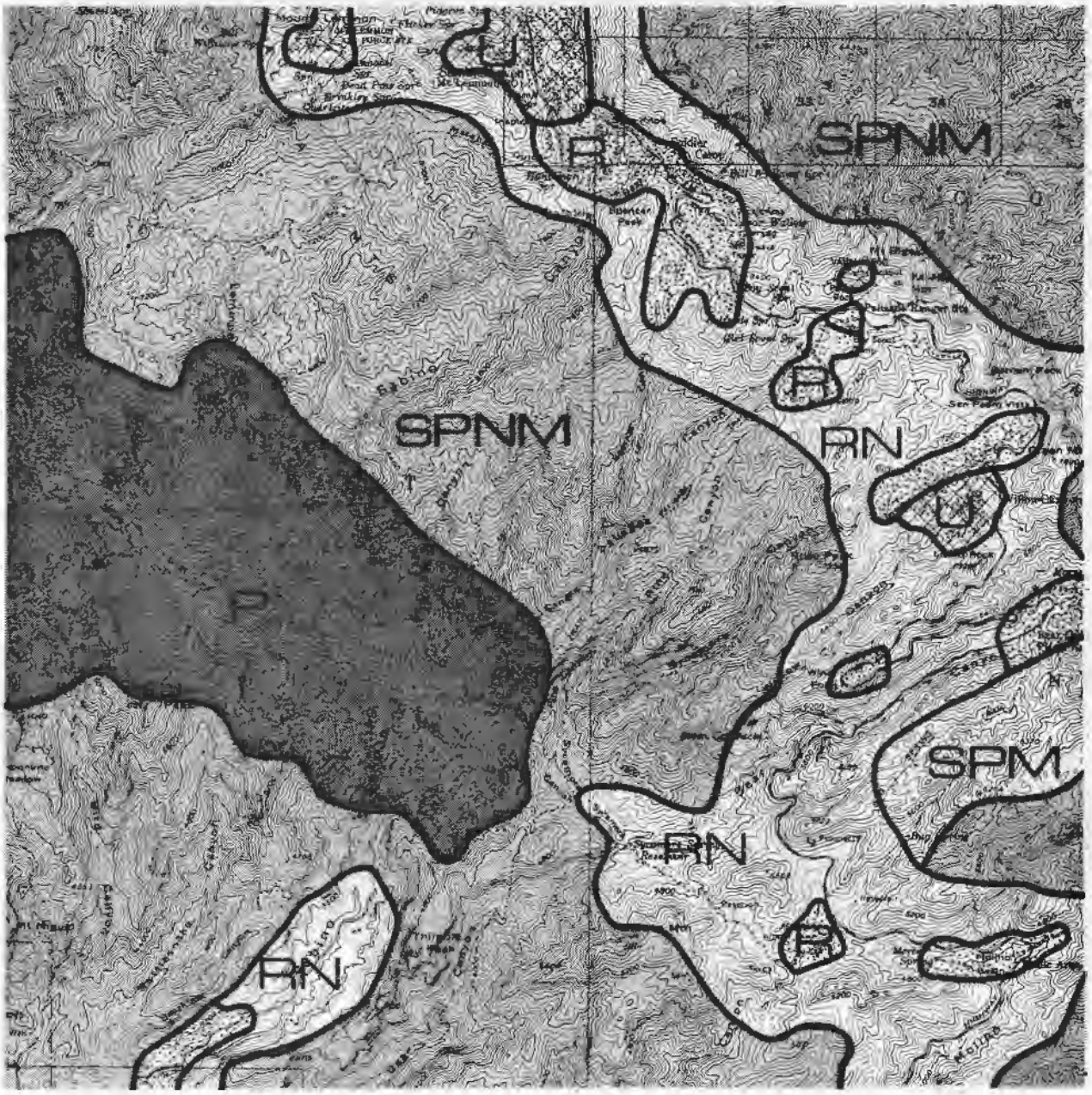
·in many southern and eastern forests what appears to be natural landscapes may in actuality have been strongly influenced by humans. The term natural-appearing may be more appropriate in these cases.

..Sensitivity level 1 and 2 travel routes from Visual Management System USDA Handbook 461.



evidence of humans

21.24-PHYSICAL SETTING MAP - The result of completing the remoteness, size, and evidence of humans steps (Sections 21.2 -21.23) is the physical setting map (or overlay).



physical setting

21.3-SOCIAL SETTING-The social setting reflects the amount and type of contact between individuals or groups. It indicates opportunities tor solitude, tor interactions with a few selected individuals, or tor large group interactions.

21.31-SOCIAL SETTING OVERLAY-In many cases it is easiest to document the social setting (and managerial setting, Section 21.4) component on a separate overlay from the physical setting. However, Forests without complex social or managerial settings may prefer to record their information on the same physical setting overlay rather than prepare a second overlay. Whichever method is used, label the social and managerial information clearly tor future identification.

21.32-SOCIAL SETTING MAPPING-Apply the "user density" criteria in Table 6. These criteria are used as a measure of user interaction.

Table6

Social Setting Criteria*					
Primitive	**Semi-Primitive Non-Motorized**	**Semi-Primitive Motorized**	**Roaded Natural**	**Rural**	**Urban**
.Usually less than 6 parties per day encountered on trails and less than 3 parties visible at campsite.	Usually 6 -15 parties per day encountered on trails and 6 or less visible at campsites.	Low to moderate contact frequency. • •	Frequency of contact is: • • Moderate to High on roads; Low to Moderate on trails and away from roads.	Frequency of contact is: • • Moderate to High in developed sites, on roads and trails, and water surfaces; Moderate away from developed sites.	Large numbers of users onsite and in nearby areas.

·These criteria apply during the typical recreation use season. Peak days may exceed these limits.
• ·specific numbers must be developed to meet regional or local conditions.

In areas of concentrated use the social setting criteria may not result in the same Recreation Opportunity Spectrum class as the physical setting criteria for the area. When this occurs a "setting inconsistency" is taking place. Setting inconsistencies are discussed in Section 21.5.

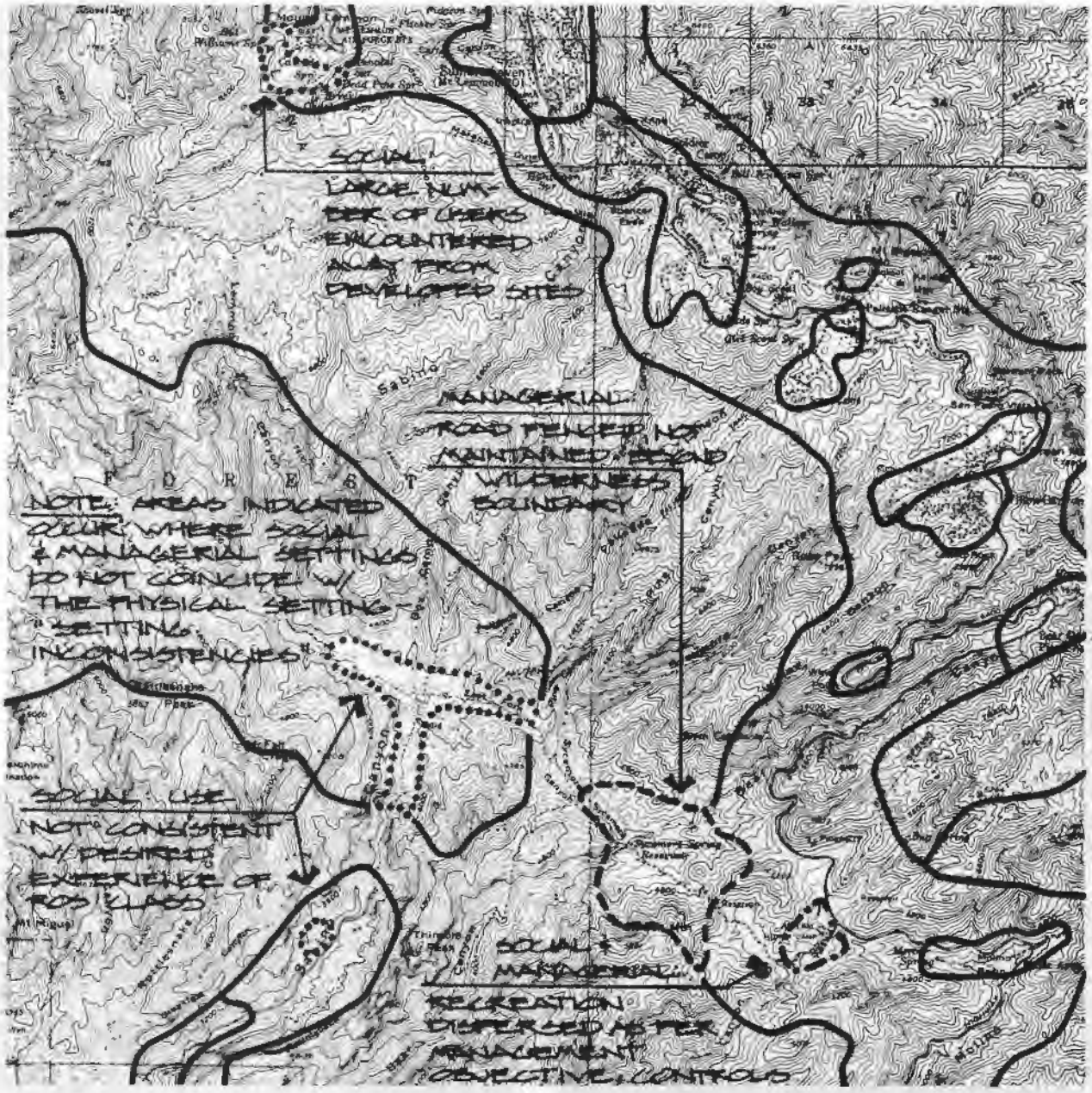
Table7

Managerial Setting Criteria					
Primitive	**Semi-Primitive Non-Motorized**	**Semi-Primitive Motorized**	**Roaded Natural**	**Rural**	**Urban**
On-site regimentation is low with controls· primarily off-site.	On-site regimentation and controls· present but subtle.	On-site regimentation and controls· present but subtle.	On-site regimentation and controls· are noticeable, but harmonize with the natural environment.	Regimentation and controls* obvious and numerous, largely in harmony with the man-made environment.	Regimentation and controls* obvious and numerous.

·controls can be physical (such as barriers) or regulatory (such as permits).

21.4-MANAGERIAL SETTING-The managerial setting reflects the amount and kind of restrictions placed on people's actions by the administering agency or private landowner which affect recreation opportunities.

21.41-MANAGERIAL SETTING MAPPING-Apply the managerial regimentation and noticeability criteria in Table 7. Place the information on the social setting overlay, or on the physical setting overlay if a separate social setting is not used. Label the information for future identification.



social & managerta1 setting

The physical, social, and managerial setting overlay maps together document the recreation opportunities of the planning area, and the conditions under management control which affect the recreation experience. This information is used in developing the Analysis of the Management Situation.

21.5-SETTING INCONSISTENCIES-When the physical, social, and/or managerial settings are not the same on the same piece of ground a "setting inconsistency"• is occurring. A heavily-used hiking trail in a Primitive class physical setting may register a Semi-Primitive or Roaded Natural class social setting, for example, due to the amount of use.

To resolve setting inconsistencies for the current situation, map the Recreation Opportunity Spectrum class which best reflects current management direction. If this consideration still leaves a dilemma in identifying the existing class, use the following approach.

1. Tend toward the physical setting. The physical setting often represents the more permanent (or less easily changed) component of the Recreation Opportunity Spectrum class. The social and managerial components can often be altered in shortef time frames.

2. If emphasizing the physical setting yields unrealistic results average the differences between the physical, social and managerial setting components.

3. If averaging is necessary, consider that it is usually easier to shift in a Primitive to Urban direction along the spectrum than to move from Urban toward Primitive. Once physical developments or other human modifications are in place it is generally infeasible to remove or destroy them. Hence to preserve more options for the future, extra weight might be given in averaging setting components more toward the Primitive end of the spectrum.

Whether a setting inconsistency is acceptable or not for other alternatives reflecting future management options is determined by each specific management prescription being considered. Setting inconsistencies are a basis for developing management prescription alternatives which change the existing physical, social, or managerial setting components to make them consistent for an area, or to purposefully manage an area with a setting inconsistency to attain some specific management objective. If trails are placed in an area to concentrate use, for example, then a trail social setting more toward the urban end of the spectrum than the physical setting may be desirable. On the other hand if trail use is so high that it detracts from the experience the recreationist is seeking, then the setting inconsistency is undesirable.

21.6-SEASONAL MAPPING-Forests which have issues, concerns, and opportunities relating to both summer and winter recreation opportunities may find it necessary to complete a Recreation Opportunity Spectrum map for each season. Activity, setting, and experience opportunities may change significantly between the seasons as a result of changes in travel restrictions, accessibility, and apparentness of the Evidence of Humans Criteria.

22-ROS CLASS ATTRACTIVENESS

Attractiveness information for each Recreation Opportunity Spectrum class:

1. Provides a general evaluation of the landscape in the class in relationship to its recreation opportunities.

2. Further describes each class by identifying those areas with specific attractions for the recreationist.

existing recreation opportunities

Whether to make an attractiveness overlay for each class is dependent upon the issues, concerns, and opportunities which the Forest plan is addressing. If the information gathered in the attractiveness step is relevant, an attractiveness overlay should be made. If the attractiveness information is not issue, concern or opportunity-related the overlay is optional (though attractiveness information is often valuable in helping to make "best buy" decisions during the resource allocation phases of the planning process).

22.1-ATTRACTIVENESS OVERLAY- If the decision is made to construct an attractiveness overlay proceed through the following steps:

22.11-VARIETY RATING-Use the Variety Class rating, as defined in *National Forest Landscape Management Volume 2, Chapter 1,* to determine !he attractivenes rating for each of the Recreation Opportunity Spectrum classes delineated on the physical setting overlay map. The premise is that landscapes with the most variety or diversity (landforms, vegetation patterns, water forms, and rock formations) also have the greatest attractiveness for recreation use and enjoyment.

22.12-OUTSTANDING FEATURES- Identify all those outstanding or unique features in the landscape, such as waterfalls, sand beaches, and the like, which are important in the development of the alternatives for the Forest Plan.

22.13-SPECIAL AREAS- Identify any specially recognized or designated areas that provide opportunities for special or unique activities or experiences, such as scenic or historical areas.

23-ACTIVITY OPPORTUNITIES

Recreation activities in given settings provide opportunities for the recreationist to attain desired experiences. The activity opportunities which make these experiences possible should be identified. This information may be recorded on a separate overlay.

23.1-ACTIVITY IDENTIFICATION-Use the appropriate RIM definitions and codes, FSH 2309.11, to identify existing activity opportunities, and those potential activity opportunities for which data should be collected as a result of issues, concerns, and opportunities evaluated in the Forest plan. Also identify any unusual recreation activities not listed in the RIM codes if these activities are pertinent to the issues, concerns, and opportunities.

Activity opportunities which are common to given Recreation Opportunity Spectrum classes may be listed as being generally available in those classes. Activity opportunities which are unique, or which may be in short supply, should be specially noted as to kind, amount and location.

1-Existing Activities-identify and inventory existing activities for each Recreation Opportunity Spectrum class delineated on the physical setting overlay under current management direction.

2-Potential activities-refer to activity opportunity needs identified through analysis of the management situation issues and concerns that are inconsistent, inappropriate, or inadequately provided for within the current situation inventory of recreation opportunities.

Alternative management prescriptions should be designed to assure that recreation goal and objective directions respond to a range of recreation activity opportunity needs inclt ding projected activity demands. The alternative management prescriptions provide the directional basis for changes in the current Recreation Opportunity Inventory that will in turn consistently, appropriately and adequately provide for the identified potential activities.

These may be identified on the overlay for each alternative management prescription.

23.2-ACTIVITY CRITERIA-All activities considered must meet the following criteria:

1. The resource must be capable of sustaining the impact of the use.

2. The activity is suitable as defined by Forest Service policy and established role FSM 2303.

24-RECREATION DEVELOPMENTS

24.1-EXISTING DEVELOPMENTS- Indicate by kind and PAOT capacity on the activity, or another overlay, where Forest Service, other public agency, and private recreation developments exist within and adjacent to the planning area. Consider developments outside the Forest boundary when they may affect plan alternatives.

24.2-POTENTIAL DEVELOPMENTS-Map on the appropriate alternative management prescription overlay the potential development sites needed to meet the recreation goals and objective directions of the management prescription. Use information previously gathered if currently useful for site identification (NFRS, composite plans, code-a-site inventories, environmental assessments, etc.). Indicate an estimate PAOT.

25-CAPACITY

Recreation capacity is a measure, by Recreation Opportunity Spectrum class, of the maximum number of people who can obtain given kinds of recreation experiences at an established standard on a Forest within the constraints of resource capability. Capacity indicates the maximum recreation opportunity supply.

25.1-PRINCIPAL FACTORS AFFECTING CAPACITY - The principal factors affecting capacity for a Recreation Opportunity Spectrum class include:

1. **LandType**
   a. Topography
   b. Erodibility
   c. Drainage
   d. Productivity
   e. Geologic Hazard
   f. Resistance to Compaction

2. **Vegetation**
   a. Height
   b. Density
   c. Resiliancy to Use
   d. Reproducibility

3. **Social**
   a. Number of Contacts With Others
   b. Types of Encounters (Behavior)
   c. Types of Activities
   d. Design Capacity

4. **Other**
   a. Access
   b. Length of Season
   c. Pattern of Use
   d. Occupancy Length
   e. Attractiveness of Site for Specific Activities

Capacity is a function of how a particu1ar combination of these physical and social factors on a Forest interact to absorb or screen the sights and sounds of human activity and absorb physical use. Lower capacities generally exist where landscapes are open (little vegetative screening and flat topography) or where the soil or vegetation is fragile. Higher capacities generally exist where landscapes have more screening and are resistant to physical use.

By Recreation Opportunity Spectrum class, the more primitive the class along the spectrum, the greater, usually, the acreage requirements to provide the kinds of opportunities associated with the class.

25.2-"PRACTICAL MAXIMUM" VERSUS "MAXIMUM THEORETICAL" CAPACITY-Two ways exist to view or interpret the capacity concept. The first is that capacity-a measure of maximum potential supply-is best expressed by a figure based upon each acre of the Forest being at its upper physical and/or social capacity limit by Recreation Opportunity Spectrum class. This "maximum PAOT" times the number of days in the recreation season or year, becomes the "Maximum theoretical capacity."

The second view is that while this "maximum theoretical capacity" may provide a theoretical upper limit, it seldom represents a realistic or "practical maximum" because of usable versus unusuable acres, weekend versus weekday use, occupancy rate, and the like. In this view "practical maximum capacity" is the effective upper limit because it accounts for factors which are always present and significantly affect recreation participation patterns.

The "maximum theoretical capacity" interpretation of capacity, that of a given Forest or Recreation Opportunity Spectrum class full of maximum number of people throughout a maximum season weekend, weekday, rain or shine notwithstanding-is useful to provide absolute upper limits beyond which recreation opportunities or use cannot exist. These values are not directly applicable for Land and Resource Management Planning analysis, however, since they usually represent tradeoffs between theoretical upper limits which seldom, if ever, occur on the ground.

The "practical maximum" interpretation of capacity does provide values which can be used in most Land and Resource Management Planning analyses, and is the approach portrayed in Sections 25.31 -33.

25.3-CAPACITY DETERMINATION-Forests or Regions can use one of two approaches to determine the "practical maximum capacity" of the Forest. One is to derive PAOT capacity for the developed sites and remaining area within and consistent with each Recreation Opportunity Spectrum class. Then, convert this figure to RVD's in order to compare supply with RVD units of demand and current and alternative management prescription direction.

The second approach is to derive capacity directly in RVD's by considering the specific activity mixes occurring on the Forest. This requires applying capacity standards for each activity by ROS class, such as hikers per mile of trail per hour, and summing the individual activity capacities to obtain one total maximum capacity for the area.

Whichever approach is used, indicate acres by Recreation Opportunity Spectrum class, so that per acre capacity coefficients can be calculated.

This must be done for the current inventoried situation and for each alternative management prescription when the direction provides for changes from current delineation or classification of ROS classes.

25.31-PAOT APPROACH-Sum by Recreation Opportunity Spectrum class the PAOT capacity of all developed sites, and the maximum PAOT capacity of the remaining area, within each class.

Table 8 gives capacity coefficient ranges which have been developed from numerous Forest settings, but which are not adjusted tor "practical maximum capacity" as discussed in Section 25.2.

Table a

Capacity Coefficient Ranges* (in PACT/Acre)

Primitive	Semi-Primitive Non-Motorized	Semi-Primitive Motorized	Roaded Natural	Rural	Urban
High: .025	.083	.083	2.500	7.500	N/A
Low: .002	.008	.008	.083	.830	N/A

"Specific ranges must be developed to meet Regional or Forest Conditions.

To make the "practical maximum" adjustment, lower the values in Table 8 on the basis of desirable versus undesirable acres, occupancy rates, or other characteristics which apply to particular Forest settings. A combination of attractiveness (measured by Variety Class) and percent slope as criteria to define desirable acres, has been highly successful in some areas. In addition, the concept of "limiting factors," access or transportation system capacity, tor example, has been successfully used tor deriving viable capacity values.

Since the significance of which factors, or combination of factors (Section 25.1), varies as a function of actual Forest terrain and landscape, the Forest planner must tine-tune or determine the reasonableness of the capacity estimates on a local basis. The planner is encouraged to check with surrounding Forests, other public agencies and/or the Regional Office to take advantage of specific procedures or considerations that may have been developed to address this point.

Once the maximum potential supply of opportunities by Recreation Opportunity Spectrum class is estimated in PAOT, the PAOT's should be converted into Recreation Visitor Days (RVD's).

25.32-PAOT TO RVD CONVERSION-PAOT's are converted into RVD's, or vice versa, in accordance with the following formulas:

$$1.\ PAOT = \frac{RVD}{MS \times PU \times \frac{LOS}{12}}$$

$$RVD = \frac{PAOT \times MS \times PU \times LOS}{12}$$

Where:

MS = Managed Season of Use, in days;

PU = Pattern-of-Use, or the relationship between the average weekend use and average weekday use of sites and/or areas;

LOS = Average length of time the area or site is occupied in hours. (If not known base upon local knowledge or experience.)

12 = The Constant for 12 hrs= RVD.

Two calculations are needed, one for PAOT (RVD's) or overnight use, and the second for PAOT (RVD's) of day use. Added together, the two calculations give the total for an area or site.

2. Rationale For Deriving Pattern-of-Use-
People seldom use recreation sites or areas as completely on weekdays as on weekends. If they did the ratio of weekday to weekend use would be 1:1. Local patterns-of-use result from socio-economic considerations such as the five-day work week, five-day school week, vacation patterns, kinds of access (e.g., interstate systems), proximity to major metropolitan areas, and other such factors.

Table 9 can be used as a guide for reducing theoretical capacities of sites and areas to allow for patterns-of-use, and thus derive a "practical capacity."

Table9

Pattern-of-Use Adjustment Factors

Pattern	Factor
Weekday:Weekend	
1:1	1.00
1:1½	.80
1:2	.65
1:3	.50
1:4	.45
1:5	.43
1:6	.40
1:7	.38
1:8	.37
1:9	.36
1:10	.35

In many places the pattern-of-use applicable to local Forest recreation opportunities may be known. If not a review of research studies or other information may be necessary. In the absence of such information the pattern-of-use will have to be estimated based upon the local experience.

25.33-RVD APPROACH- In the RVD approach the relationship between RVD's of capacity per Recreation Opportunity Spectrum class and the physical characteristics of the class settings must first be established. Table 10, for example, shows values established by the Southwestern Region.

The Table 10 regional values are then adjusted for applicable local conditions, as shown in the following example:

Example:

1. The Recreation Opportunity Spectrum class of an area is Roaded Natural, and the cover type pinyon juniper. The Table 10 coefficient is 10.5.

2. Capability area information indicates that only 50 percent of the area is suitable for the major recreation activities because of slope and vegetation. The adjustment factor is 0.5.

3. The area can be used yearlong, but because the attractions on the area are only small and big game hunting the use season is actually 60 days. The adjustment factor is 60 days/100 days (of total use season) = 60/100 = 0.6.

4. Observation of the occupancy pattern during the use season indicates that on the average weekends have four times as many people as weekdays. The adjustment factor in Table 9 is 0.45.

The adjusted coefficient is 10.5 x 0.5 x 0.6 x 0.45 = 1.42 for this Roaded Natural area.

Regardless of the approach used it must be done individually for the current inventoried situation and for each alternative management prescription direction that would require changes to the current delineation or classification of ROS class.

Table10

Southwestern Region Use Densities By ROS Class and Eco-Region (RVD's/Acre/100-Day Season)						
Eco-Region	**Primitive**	**Semi-Primitive Non-Motorized**	**Semi-Primitive Motorized**	**Roaded Natural**	**Rural**	**Urban**
Tundra	.45	1.05	2.4	6.0	Coefficients for Rural and Urban are based upon design capacity.	
Coniferous Forest	1.05	2.40	6.0	15.0		
Coniferous Woodland	.75	1.72	4.2	10.5		
Evergreen Woodland	.75	1.72	4.2	10.5		
Deciduous Forest	.75	1.72	4.2	10.5		
Grassland	.45	1.05	2.4	6.0		
Desert Shrub	.45	1.05	2.4	6.0		
Lava Flow & Gypsum	.45	1.05	2.4	6.0		
Riparian	1.05	2.40	6.0	15.0		
Range	.45 -1.05	1.05 -2.40	2.4 -6.0	6.0 -15.0		

25.4-USE OF CAPACITY FIGURES- The per acre capacity coefficients by Recreation Opportunity Spectrum class, derived by either the PAOT or RVD method for each alternative management prescription are used in the Land and Resource Management Planning analysis to register what kinds and amounts of recreation opportunities are being allocated or traded off.

CONCEPT OF ROS FRAMEWORK

/Adopted from vidio tape script by Bev Driver, Rocky Mtn. Forest and Range Experiment Station, Ft. Collins, Co.

INTRODUCTION

The United States is blessed with a vast, rich supply of natural resources, and has a relatively low population density. However, demands for timber production, water development, hiking, camping, and hunting opportunities have increased rapidly. Consequently, the competition for our dwindling resources has intensified.

COMPREHENSIVE PLANNING

In the past it was difficult to intergrate all resource information into a comprehensive plan. For example, until the Recreation Opportunity Spectrum or ROS, was developed, no system existed which adequately integrated outdoor recreation values into multiple-use land management planning. Now, however, the ROS system provides the land manager with a useful framework for thinking about recreation resources and their values during all stages of planning and management. Instead of being a set of hard fixed rules and requirements, the ROS is a conceptual scaffold on which management direction can be built.

BASIC CONCEPTS

This paper covers five short sections that describe the basic concepts of the ROS framework. The reader should have a general understanding of the ROS system such as obtained from the ROS Users Guide.

PRODUCTION

Contrasted with outputs of timber or mineral resource management--where the outputs are things or commodities--the recreation outputs are defined as opportunities for particular types of use. More specifically, the ROS framework defines a recreation opportunity in terms of three demensions of user demand. First, there is demand for activity opportunities such as picnicking, hiking, or cross country skiing. Second, there is demand for what the ROS system recognizes as setting opportunities, because users select activities within desired settings. The third dimension of recreation demand reflects the users' preferences for experience opportunities. The manager helps produce and provide the opportunity to realize these experiences. The actual experiences are produced by the users.

USER DEMANDS

User demands for specific types of recreation opportunities are inputs which need to be considered along with the supply-side inputs of land, labor, capital, and technology. Demand inputs help determine what types of recreation opportunities, or outputs, should be supplied. That demand determines the use of the outputs supplied. Demands also determine most of the positive impacts, because most of the benefits are realized by the users. User demands, particularly economic demands, are of fundamental importance in determining the dollar values assigned to the recreation goods and services, or opportunities produced. These economic values, or the users' willingness to pay for particular opportunities, vary by type and quality of the recreation opportunities provided. The value of these opportunities is measured by actual fees and entrance prices and through the use of surrogate value-estimating techniques, such as the travel-cost and contingent-valuation methods.

ROS FRAMEWORK

The ROS framework considers recreation goods and services to be outputs of the recreation production process. More significantly, recreation outputs are defined in terms of user demands for opportunities, and supply inventories are made using the same definition to determine the type, amount, and quality of these opportunities. In this way recreation demand is. better integrated with supply. In addition, estimates of the economic worth of the recreation outputs are improved because the ROS framework provided a better identification of recreation goods and services. Recreation resources and values can be more fully integrated into land management planning, because the ROS framework allows a more precise evaluation of the desirable and undesirable impacts of alternative land and resource uses. In this way, the positive and negative impacts of logging roads or of mineral and water developments on recreation settings can be documented more systematically than in the past.

Recreation Diversity

The ROS recognizes that variables affect the types of experiences that the recreationists will produce for themselves. These variables include the size of the user group, past experience levels of the users, and the users' personality, skills and peer-social norms and pressures.

ROS IS RESOURCE BASED

While the ROS system is primarily resource-based and differentiates recreation opportunities mostly in terms of differences in the physical settings along the spectrum, it actually considers three types of settings: the physical, social and managerial. The characteristics of each setting will influence the type and the diversity of recreation opportunities that can be provided. To help assure that maximum diversity of recreation opportunity will be identified along the spectrum, the ROS system's inventory criteria and their associated standards were developed to consider each of these types of settings. It is necessary that users of the ROS system have a good understanding of the characteristics of each type of setting for each of the six ROS classes. (See the users guide.)

UNDERSTAND ING ROS

To increase understandlng about the ROS framework three points are made. First, there has been a misinterpretation that the ROS is one dimensional, that it is just levels of development. Although the ROS system has never attempted to consider all dimensions of recreation, it is not one dimensional. It covers several dimensions, including:•development levels, remoteness, user density, degree of managerial control, ease of access, and types of services offered. Although several of these dimensions are related, each is distinct and can independently affect recreation choice and management actions.

GUIDES RECREATION INVENTORIES

Second, the system was developed to guide recreation inventories and management of large land areas such as National Forests. As such, the ROS is a macro, or regional, system that establishes only general guidelines for site and project-level planning and management. Such a system cannot possibly address all dimensions of recreation diversity. However, the system does not constrain the recreation planner from providing for most, if not all, of the other dimensions of recreation diversity through site- and project-level planning.

NO BIAS TOWARD PR IM IT IVE

Third, it has been suggested that the ROS system is biased toward the primitive end of the spectrum because early inventory direction suggested leaning toward the more primitive categories when in doubt. This has been dropped. Actually, the system simply presents a full spectrum of opportunities and should be used to identify types and quality of experiences without bi as.

OBJECTIVE INVENTORY

The ROS helps to objectively inventory those types of recreation opportunities that can be, or are being, provided. It also provides guidelines for implementing the recreation component of the approved plan. The ROS says nothing about what types of opportunities should or should not be provided. Furthermore, the system does not endorse one type of recreation opportunity as contributing more to human welfare than another. The ROS describes opportunities that exist; it does not prescribe or limit opportunities. It identifies and provides options for those types of recreation opportunities that are demanded and can be supplied along the spectrum.

Characteristics Of The Settings

The settings are the focus of recreation resource planning and management.

RECREATION

For managerial convenience and uniformity, the ROS framework identifies six general classes of recreation settings that can be divided into subclasses as needed. They have been labeled Urban, Rural, Roaded Natural, Semi-primitive Motorized, Semi-primitive Nonmotorized, and Primitive. These names were selected to describe the dominant physical, social, and managerial characteristics of the settings of each ROS class. An understanding of these setting characteristics is necessary for effective use of the ROS System.

URBAN

Urban ROS class settings are characterized by high levels of human activity and by concentrated development, including developments for recreation opportunities. In urban settings levels of recreation use vary and can be extremely high or dense. There are a preponderance of signs and other indications of regulations on the users' behavior. The landscape is dominated by human structures, and green-space is only sporadically dominant.

RURAL

In the Rural class settings, the sights and sounds of human activity are readily evident, though less pronounced and less concentrated than in the Urban class. Levels of use vary, but do not reach- those concentrations of the Urban class except at specialized and developed sites. While the characteristic landscape is often dominated

by human-caused geometric patterns, there is also a dominant sense of open, green-space.

The principles adopted by the ROS system to assess the visual attractiveness of the Urban and Rural settings dictate that human-caused visual patterns will dominate the landscape in these two settings. However, this should not be interpreted to mean that these areas are visually unattractive. On the contrary, there are many examples of beautiful cities, quaint villages and the pastoral beauty of farm and ranch lands.

ROADED NATURAL

The Roaded Natural class is characterized by predominately natural-appearing settings, with moderate sights and sounds of human activities and structures. The overall perception is one of naturalness. Evidence of human activity varies from area to area and includes improved highways, railroads, developed campgrounds, small resorts and ski areas, livestock grazing, timber harvesting operations, watershed restoration activities, and water diversion structures. Roads and motorized equipment and vehicles are common in this setting. Density of use is moderate except at specific developed sites, and regulations on user behaviors are generally less evident than in the Urban or Rural classes.

In some regions, a distinct subclass of setting features exists within the Roaded Natural class. This subclass occurs where human modification is locally dominant or codominant with a natural-appearing landscape, much like the rural setting. However, the recreation opportunities provided are significantly different from the Rural setting. For example, although numerous, highly improved roads might exist in this subclass, there is a sense of remoteness because of the distances from major travelways. In addition, the density of recreation use is often low compared to the Rural class. Also, users have the opportunity for exploration and to use both on-road recreation vehicles and ORV's. Camping is not confined to developed campsites, so users have considerable autonomy in choosing sites and using equipment.

SEMI-PRIMITIVE

Both the Semi-primitive Motorized and Nonmotorized classes are characterized by predominantly natural or natural-appearing landscapes. The size of these areas gives a strong feeling of remoteness from the more heavily used and developed areas. Within these settings, there are ample opportunities to practice wildland skills and to achieve feelings of self-reliance.

The most significant difference between the semi-primitive motorized and nonmotorized settings is the presence or absence of motorized vehicles.

In the nonmotorized settings, the presence of roads is tolerated, provided: they are closed to public use; they are used infrequently for resource protect and management; and the road standards and locations are visually appropriate for the physical setting. In many cases, old roads are acceptable as nonmotorized travelways so long as they do not reflect misuse or poor stewardship of the land. These roads would have motorized use in the semiprimitive motorized class, especially by ORV's.

PRIMITIVE

The Primitive settings are just that! Characterized by essentially unmodified natural environments, their size and configuration assure remoteness from the sights and sounds of human activity. The use of motorized vehicles and equipment is not permitted except in extreme emergencies, such as saving someone's life or protecting the resource.

In the Primitive class, the user is forced to be self-reliant and expects low levels of user density.

In the semiprimitive and primitive settings, the use of the visual management system plays a critical role in assessing and maintaining conditions which support the naturalness of the area. For example, it may not be enough to forbid motorized use in the nonmotorized ROS classes. The character of any roads or other structures, such as buildings, bridges, or fences, must also be in harmony with the natural landscape.

THREE SUB-SETTINGS

Within each of these six general classes, the ROS system identifies three interrelated sub-settings. They are the physical, the social, and the managerial settings. Identification of these sub-settings facilitated developing more specific inventory criteria for the ROS.

It also improved the system's ability to assess the impacts of alternative resource uses and to provide specific direction for management units within the area being planned. For these reasons, users of the ROS system must understand the general characteristics of each of these subsettings.

PHYSICAL SETTING

The physical setting is best defined by an area's degree of remoteness from the sights and sounds of humans, by its size, and by the amount of environmental change caused by human activity.

REMOTENESS

Remoteness is a perceived condition of being isolated from human activities and developments. While most often measured in terms of distance, other factors such as topography, vegetative screening, or extremely difficult travel conditions can also create "remote" setting conditions. The relative size of an area not only influences the users' perceptions of the vastness of the physical setting, but also combines with the sense of distance, or difficulty of travel, to enhance the feeling of remoteness. In addition, the size of trees, rock formations, bodies of water, or open space add to the feeling of vastness and of relative remoteness.

HUMAN DEVELOPMENTS

The apparent naturalness of an area is highly influenced by the evidence of human developments. If the landscape is obviously altered by roads, railroads, reservoirs, power lines, pipe lines, or even by highly visual vegetative manipulations, such as clearcuttings, the area will not be perceived as being predominately natural. Even if the total acres of modified land is relatively small, "out of scale" modifications can have a negative impact. On the other hand, evidence of activities that have been kept in harmony and scale with the natural landscape are often deemed acceptable.

PHYSICAL SETTINGS

The features of the physical setting are relatively fixed and thus costly to change. Any changes will be relatively irreversible and have a long-lasting effect on the types of opportunities provided. The recreation-related features of the social and managerial settings are more easily changed or altered.

SOCIAL SETTINGS

Social settings are described as the interactions between user groups within an opportunity setting. They play an important role in determining the types of experiences that can be realized, and whether or not a "satisfactory" recreation experience is achieved. If users continually encounter large numbers of people or see evidences of heavy use, an area will not be perceived as remote or as isolated as when such evidence is seldom encountered.

MANAGERIAL SETTINGS

Managerial settings are defined as the interactions between user groups and the land manager. They play an important role in providing satisfactory recreation experiences. While not all elemants of the social setting are within the control of the land manager, all managerial elements are, or should be.

These elements include: the degree to which users' actions are regulated; the visible evidence of such regimentation; the type and appropriateness of services and facilities provided by the land manager, and the types of maintenance operations performed.

REGULATION

The degree of regulation of the users' actions is determined by constraints the user experiences when making decisions such as selecting a camp site or mode of travel, or when attempting to practice certain skills such as hang gliding.

REGULATIONS

The visible evidence of regulation reflects the "style" with which the manager imposes constraints on the user. In settings where the density of use is high, the rules and regulations are usually obvious as signs or bulletin boards, or even via uniformed forest officers. In more remote areas, the rules and regulations are often provided to the user group "off-site" in the form of permits or maps, trailhead signs, and so on. Here, the user is relatively free to make many specific choices on-site, so long as they fall within the general rules and instructions. However, there are exceptions to these central cases. In some instances, a high degree of localized regulation might occur in a primitive area to limit use, confine use to particular areas away from trails or shorelines, or to protect wildlife by requiring that all dogs

be on a leash. Users might have to obtain a special permit to use such areas, and they might be checked for compliance while using the areas. Such regulations might not exist in a less remote location.

SERVICES, FACILITIES, OPERATIONS

Within the managerial setting, the provision of services, facilities, and maintenance operations, must be compatible with the physical and social setting. For example, the degree and type of security from other users, and from natural hazards, varies from ROS class to ROS class. In addition, the appropriateness of particular maintenance operations, such as the use of power or hand saws to clear trails, differ between some settings.

Establishing Management Direction

PRESCRIPTIONS

Management prescriptions are the building blocks for formulating planning alternatives, and for providing site specific management. Each prescription describes a set of compatible multiple-use management practices that will produce a particular mix of resource outputs. For example, one management area prescription might allow grazing and provide for primitive recreation opportunities, but permit only minimal water development structures and place strict controls on timber harvesting and mineral development. Another prescription for the same type of land might also permit grazing, but provide for roaded-natural recreation opportunities and allow for clearcutting and strip mining.

FOREST-WIDE DIRECTIONS

The forest-wide directions respond to the issues, concerns, legal requirements, opportunities, and planning objectives that are forestwide in scope. Each direction is influenced by the capabilities and suitabilities of an entire forest. Management area directions also respond to the issues, concerns, opportunities, and management objectives but are related to a particular management area and its associated suitabilities and capabilities.

To understand how forest-wide and management area directions are developed and applied, one must appreciate that public issues, management concerns, and opportunities led to those directions, and that these same factors influence the location where a specific management area direction **will** be applied on the ground.

EXAMPLE: ARAPAHO AND ROOSEVELT NF

A better understanding of these relationshipts can be seen in recreation-related management area directions that were developed for the Arapaho and Roosevelt National Forests.

BOULDER AND REDFEATHER RD

Two Ranger Districts on the Roosevelt National Forest differ in size and distribution of lands that had been classified by a recreation supply inventory into various ROS classes. The Redfeather District, is relatively large. Much of the land is undeveloped and on the primitive end of the ROS. In contrast, the Boulder Ranger District is relatively small and highly developed, with most of its land classified as roaded natural and rural. Because of limited supply and close proximity to Denver, there was strong public concern for non-motorized recreation on the Boulder District. Much more land was available on the Redfeather District for this type of opportunity, so it was not a public issue there. On the other hand limited opportunities for motorized access was an issue.

MANAGEMENT PRESCRIPTION

The Boulder District developed a management prescription that, while providing multiple-use outputs, would also emphasize semi-primitive nonmotorized recreation. This prescription was applied to feasible areas on the Boulder District in an effort to help meet these local needs. This prescription was carried through the planning process and remained in the approved plan as the management direction for land areas identified as 3A.

Other ROS-related management area directions also evolved during the planning process to become management area directions in the approved plan. One, for example, is designated 2A and emphasizes semiprimitive motorized opportunities, and another called 2B emphasizes Rural and Roaded Natural recreation.

The 2A area near Mammoth Reservoir has many low standard roads which were used years ago to access small mines in that areas. These roads help meet demands for semiprimitive motorized opportunities. The 2B area near Mt. Pisgah receives heavy day use, has a fragmented publicprivate land ownership pattern and is easily accessible, which facilitates its management for Rural and Roaded opportunities.

Other types of management areas, do not emphasize recreation--some emphasize wildlife habitat, and others emphasize fuelwood. Nevertheless, each area is managed to provide multiple outputs, so the directions do include guidelines for providing particular types of recreation opportunities even though recreation is not the dominant emphasis.

PHYSICAL SETTING CHARACTRISICS

To maintain appropriate physical setting characteristics of the multiple-use management areas in which semi-primitive non-motorized recreation is emphasized, the standards and guidelines for that direction deal mostly with visual resources, silvicultural practices, and wildlife habitat. For example, although it was necessary to preserve natural appearing landscapes in the 3A semiprimitive nonmotorized settings, it was also necessary to utilize these management units as producers of multiple outputs, including timber. To meet both of these needs, additional standards and guidelines were developed to help assure that all resource treatments in the 3A areas would be compatible with the ROS setting criteria for the semi-primitive nonmotorized class. These guidelines required that the Forest Service's visual resource management system's visual quality objective of partial retention not be exceeded. This means that any developments or modifications, such as the consequence of timber harvesting practices, may be seen but will not be noticeable to the casual observer. The standards and guidelines also required that all travel routes in these management areas be considered at sensitivity Level 1, so users of those travel ways can expect them to be in harmony with the natural setting. (Note roads in semi-primitive non motorized areas are considered an inconsistency to be used only where neccessary to meet the management area objective.)

SIVICULTURAL TREATMENTS

Silvicultural treatments allowed in the 3A management areas permit clearcutting of aspen, with emphasis on regeneration for visual enhancement. Limited clearcutting is permitted in other vegetative types, but selection and shelterwood harvesting practices are recommended, because they are considered to be visually less obtrusive.

In many cases, the management setting criteria and the social setting criteria for a particular ROS class are met by the same standard or guideline. In management area direction 3A, the standard "prohibit or restrict motorized use" applies to the equipment that can be used by both the visitor and by the manager. Motorized equipment can be used to harvest timber in some semiprimitive non-motorized zones. However, discretion must be employed to assure that 3A areas will still provide semi-primitive nonmotorized opportunities. Other provisions of management area direction 3A also clearly deal with management, such as provide "foot and horse trails" or "manage campsites to meet a Frissell class 3 condition."

MANAGMENT REQUIREMENTS

In many forest plans, managerial requirements such as law enforcement, visitor information services, and regulations are not included in the forest-wide or management area directions. They are either included as a part of specific programs or they are implemented by the local field manager.

FLEXIBILITY

Flexibility at that level of management is frequently needed to use different management practices to preserve the character of the ROS settings being managed. As an example, regulations needed in a wilderness area might not be needed in a roaded natural area. Flexibility is also needed in implementing the management area directions that are given in the plan. The parts of management area 3A on the east and west sides of the Continental Divide require different management. On the east side near Rodgers Pass, there are many attractive, high elevation lakes that are readily accessible. That semiprimitive nonmotorized area receives much use and therefore requires regulations to protect the physical settings that are not required in area 3A to the west, near the James Peak area. This need for flexibility is consistent with the point emphasized in the introduction. The ROS framework is not a set of hard, fixed rules and requirements. Instead it is a conceptual scaffold on which the planner and manager can build as conditions warrant.

The ROS In Plan Implenentation

IMPLEMENTATION

Implementating a multiple-use plan involves active management of the recreation resources. Two basic tasks are involved in this process. The first is to determine whether the type, amount and quality of

recreation opportunities called for in the plan are actually being provided. The second task is to identify, justify, and document any revisions that need to be made in the plan.

MANAGEMENT DIRECTION

To accomplish these two tasks, the recreation specialist must refer to the recreation-related management directions in the plan. These directions define the actions that must be taken to provide the different types of recreation opportunities. They assure that planned ROS settings will be created or maintained. These guidelines and standards, along with the ROS class criteria, serve as indices for determining whether actual management departs from planned actions.

If the type, amount, or quality of the recreation opportunities provided are not the same as those called for in the plan, an inconsistency exists. The basic responsibility of the recreation specialist during plan implementation is to help prevent any inconsistencies from occurring.

INCONSISTENCIES

Inconsistencies are of two types, actual and potential. Actual inconsistencies are realized departures from planned actions. They indicate that the physical, social or managerial settings are not being managed to provide the ROS types of opportunity planned. Actual inconsistencies can also be caused by conditions not under managerial control, such as a wild fire or insect infestation.

HANDLING INCONSISTENCIES

Actual inconsistencies can be handled in one of three ways. First, they can be ignored, which is poor management. Second, an actual inconsistency can be corrected if the departure does not cause irreversible changes in recreation opportunities. Levels of recreation use might exceed the densities permitted by the plan's standards and guidelines. In this case, actions to bring use levels within the standards and guidelines of the ROS social setting criteria should be initiated. Third, if an actual inconsistency cannot be corrected because it causes irreversible change, then the plan itself can be changed.

MONITORING

Monitoring the implementation of the plan should concentrate on preventing irreversible inconsistencies. If changes in the planned actions are desired and justified, they sh9uld be documented and supported before they are made. Any revisions in the plan will mean that different types of recreation opportunities will be provided than originally planned. When such revisions are made, the plan's recreation management directions and their standards and guidelines should also be changed accordingly.

POTENTIAL INCONSISTENCIES

Potential inconsistencies can be prevented because a departure from planned actions has not taken place. If the decision is made not to prevent potential inconsistencies, then the plan should be revised before they occur.

ROS ANALYSIS CHECK.LIST

One way to determine consistency between planned and actual recreation opportunities is to use an ROS Analysis Checklist. The checklist identifies the recreation charactaristics of each management area, such as the type of ROS opportunity being provided, and its visual attractiveness rating. It also provides a method for documenting the impacts of proposed projects on the recreation opportunities being provided. The checklist can help trace any cumulative effects of management actions on the recreation opportunities available. This is an important part of monitoring, because some actions cause inconsistencies only when their impacts are considered simultaneously with other actions, or when the impacts are evaluated over time.

ROS GUIDES IMPLEMENTATION

The ROS framework directly and indirectly guides implementation of the recreation component of the multiple-use plan. The criteria and standards provided by the ROS system for defining characteristics of the physical, social, and managerial settings of each ROS class directly provide indices against which planned versus actual opportunities can be evaluated. The ROS also helps develop the recreation management directions and their associated standards and guidelines. Thus, the system also indirectly directs plan implementation through these management directions, standards, and guidelines.

ROS SUBCLASSES

AGGREGATE	Subclasses may be established to reflect local or regional conditions as long as aggregations can be made back to the six major classes for regional or national summaries. Subclasses should be coordinated with ajoining units.
	Some of the subclasses discussed to date are:
Pristine	A subclass of primitive used to describe areas having high quality solitude and where use is generally not encouraged by the construction of trails.
Motorized Primitive	Used in Alaska to designate very remote lightly used settings where access is traditionally by float plane or power boat.
Portal/Transition	These two subclasses have been used to describe heavily used unmodified settings such as gateways to the more popular wilderness areas. They are in the semi-primitive non-motorized ROS class, however the social setting is more toward roaded natural.
Roaded Modified	Used to sub-divide that part of roaded natural which has been heavily modified. Modification is generally more like rural except that the social setting is semi-primitive. Many feel this should be a separate ROS class.
Roaded Scenic	A sub-class of roaded natural which describes areas which are very sensitive to modification such as along scenic highways.
Roaded Natural Non-Motorized	Areas closed to motorized use. yet have been heavily modified or are not large enough to be set aside as semi-primitive non-motorized.
Roaded Natural Appearing	Another name for roaded natural.