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1986 ROS Book

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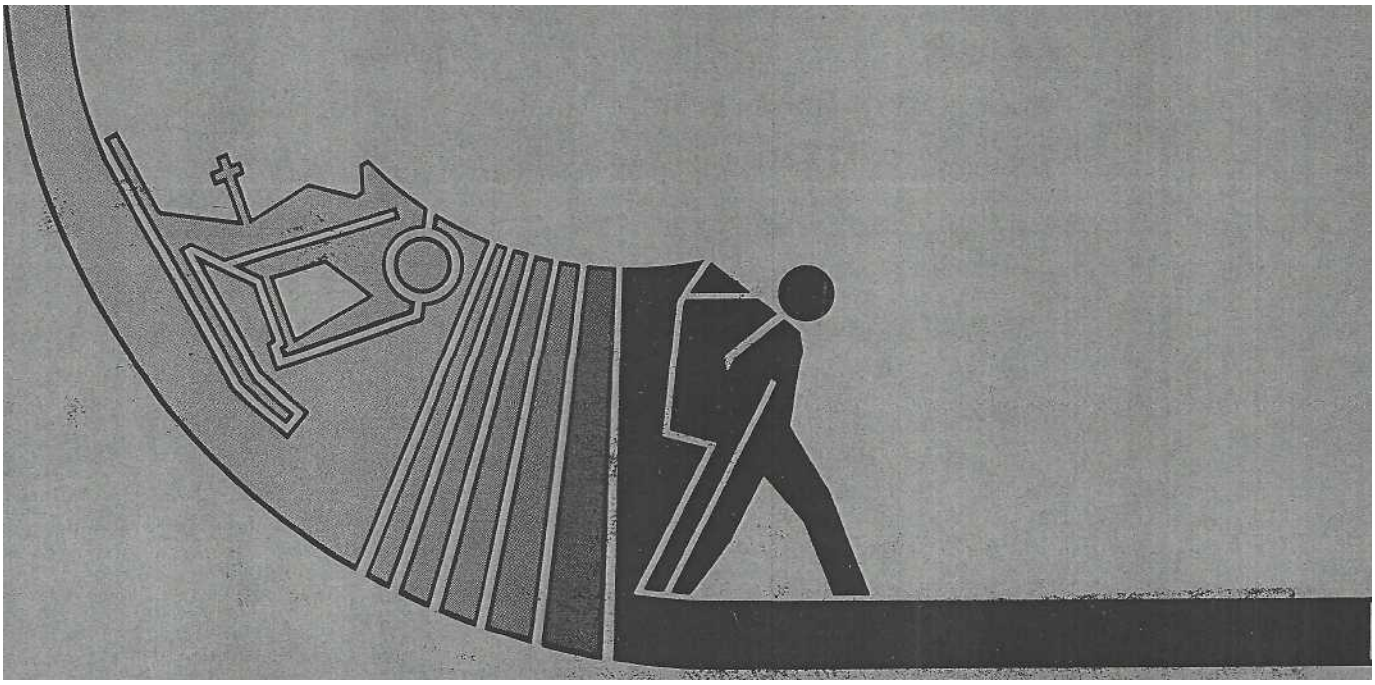

1986 ROS BOOK

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THE NATURE OF THE RECREATION RESOURCE

[Excerpt from 1986 ROS BOOK]

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. However, 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, subclasses 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 clientel 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 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 ing 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 formerly 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 of 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 uses. 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. Such 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 once 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 tin' 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 sett I ny," -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 mimlmizes 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 OPPORTUN-ITIES

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 AVAILABIL-ITY

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 Un 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.)

ATTRACTIVE-NESS

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.

SUBSTITUT-ABILITY

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

DIVERSITY OF OPPORTUNITY

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.

TRENDS

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.

CURRENT SITUATION

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

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.

CHARACTERISTICS 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.)
Wll	Urban Recreation Use (Std 0	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 recreation, 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 managerial 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 National Forest boundaries, visual benefits accrued to 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 solitude, 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.

SPNM	SPM	RM	RN	Rural Urban
No timber harvest or habitat manipul-ation as the norm.	May range from no timber or habitat manipulation to harvest habitat manipulation units that meet retention to travelway and crosscountry users.	Reg. units and habitat manipulat ion meet partial retention from travel-ways or crosscountry.	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 distur-bance 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

RECREATION

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.

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 opportunities 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 opportunities. Details such as the attributes of an old growth Forest (rotting logs with conks, large trees with distinctive 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

[Excerpt from 1986 ROS BOOK]

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

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.

First, visitors seek opportunities to participate in certain activities.

MORE THAN JUST 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.

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

SETTINGS

Settings are composed of three primary elements: The physical setting, the social setting, and the management setting. These 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 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

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CONCEPT OF ROS FRAMEWORK

[Excerpt from 1986 ROS BOOK]

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.)

UNDERSTANDING ROS

To increase understanding 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 PRIMITIVE

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 bias.

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 relationshlpts 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 nonmotorized 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 should 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 CHECKLIST

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.

USES OF THE ROS
[Excerpt from 1986 ROS BOOK]

The ROS has a variety of uses that aid recreation managers as they strive to provide opportunities for the public and to integrate recreation with other land uses. The following identifies and describes some of these uses.

1. A WAY TO THINK ABOUT RECREATION PLANNING AND MANAGEMENT

Possibly one of the most important roles of the ROS is in providing managers and planners a framework within which they can consider the role of recreation within a complex human and resource system. It can facilitate purposeful thinking about the kinds of recreation provided, the location and relationship of these opportunities, and the kinds of complementarities and conflicts that exist among different opportunities as well as with different resource uses. The ROS also helps focus our attention on the fact that recreation is concerned primarily with producing experiences for people.

2. ALLOCATING AND PLANNING RECREATION

The ROS helps planners identify different allocations of recreation, specifying where and what types of recreational opportunities might be offered and the implications and consequences associated with these different allocations. Because the ROS requires explicit definitions of different recreation opportunities, it facilitates comparisons between different alternatives. It also helps identify what specific actions might needed in order to achieve certain allocations in the future.

3. EVALUATING CONFLICTS

The explicit nature of the ROS assists managers in identifying and, hopefully, mitigating conflict. Because the ROS identifies appropriate uses within different recreation opportunities, it is possible to separate potentially incompatible uses. It also helps separate those uses that yield experiences that might conflict, such as solitude and socialization. The explicit nature of the ROS helps pinpoint where conflicts might occur and their specific nature.

The ROS also helps identify potential conflicts between recreation and non-recreation resource uses. It does this in several ways. First, it can specify the overall compatibility between a given recreation opportunity and other resource management activities. Second, it can suggest how the activities, setting quality, or likely experiences might be impacted by other

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We have compiled this list of uses from our experience during the last several years in numerous ROS workshops in this and other countries. Your suggestions for expanding the list would be appreciated. Please send your suggestions to either Perry Brown, Roger Clark or George Stankey.

non-recreation activities. Third, it can indicate how future land use changes might impact the present pattern of recreation opportunity provision.

4. LINKING USER DESIRES WITH RECREATIONAL OPPORTUNITIES

The ROS conceives of recreational engagements as being comprised of people participating in selected activities in preferred settings in order to realize desired recreational experiences. In this framework, the activities in which people participate plus the places where they do these activities are seen as combining to produce experiences or outcomes. Thus, it is possible for managers to more easily link the desires that people express—for activities, for places, or for experiences—to available opportunities, because both user desires and recreational opportunities are defined in similar terms.

Moreover, the ROS allows managers to gain a more sophisticated notion of some of the subtle differences in demands for an apparently similar activity (e.g., camping) that is, in fact, composed of a range of complex differences in the style with which it is pursued. Many people enjoy camping and exress this preference verbally. But when we look at their behavior we find a wide variety of settings involved, ranging from backpack camping to 'camping in well-developed, convenience campgrounds. By better understanding exactly what the visitor demands (i.e., beyond the fact they want to camp), we are better able to match their specific preferences for settings and experiences with places that will likely fulfill these preferences.

5. GUIDING AND EVALUATING MANAGEMENT OPTIONS AND ACTIONS

In point 1 above, we discussed how the ROS serves as a useful framework for managers and planner to think about recreation. One specific area this is particularly useful is when we begin to consider what specific actions we should undertake. Another is when we attempt to evaluate how well these actions have accomplished their purpose. By providing explicit, objective measures of what conditions—bio-physical, social, and managerial—are appropriate in a given recreational opportunity setting, we are in a much better position to make such determinations. And because these conditions are explicit, it is possible to evaluate whether or not our judgments of appropriate conditions are sound and, if they should be changed, in what way. It also means that we can judge what effects a change in the criteria and standards that define a recreational opportunity setting will have, not only with regard to supply, but to demand as well.

6. CONDUCTING RESEARCH STUDIES

The ROS is founded upon a base of research that has been underway for a number of years. This research foundation has helped shape much of the structure of ROS as well as its basic rationale. However, many questions still remain and although it is important to remember that the ROS is a state-of-art judgmental process, it is also true that an improved understanding of the relationship among activities, settings, and experiences will greatly improve application of the ROS. For example, an improved understanding of the linkage between setting conditions and certain experiences would be of great value.

Also, the ROS helps direct research toward those questions that are of major importance to management, thereby increasing the relevance of that research,

7. INVENTORYING RECREATIONAL RESOURCES

A basic application of the ROS is providing planners with a baseline of current conditions, showing the amount and distribution of present recreational opportunities. Because these settings are defined by measurable, objective standards* it is readily possible to conduct such inventories. The key point to be understood here is that the inventory provides only a measure of what is, not what might be or should be provided.

8. SENSITIZING US TO PERSONAL AND ORGANIZATIONAL BIASES

All of us are influenced by biases and perceptions of the world that are shaped by our personal backgrounds as well as by the views of the organizations for which we work. The ROS does not rid us of these biases, but it does help surface them and force us to acknowledge them. It does this primarily because it requires that our assumptions and judgments be made explicit and thus subject to the review and questioning of others. By reviewing these assumptions and judgments, these biases can be test against other factors related to supply and demand to evaluate their validity.

9. DEFINING RECREATIONAL PRODUCTS

A long-term problem in recreation management has been the definition and measurement of the outputs of such programs. Frequently, the focus has been on such measures as the number of visitors using an area or the number of facilities provided. However, these are invalid measures of the output of recreation management. Increasingly we have come to realize that the real measure of recreation management effectiveness are the experiences that people realize. In the ROS system, these outcomes are clearly seen as critical and although it is not possible to state categorically that certain outcomes are predictably the result to certain activities undertaken in certain settings, it is likely that many experiences are the probable consequence of participation in certain settings

10. PUBLIC PARTICIPATION

The ROS provides a helpful structure for interacting with the public. Again, the basic reason for this is the explicit nature of the ROS and the capacity it has for showing how recreation will be provided and how recreation might be affected by other forest uses. Experience has shown that the general structure and logic of the ROS is readily understood by the public. In particular, the ROS provides the public with a ready ability to see how both recreation management decisions as well as other forest uses will affect their favorite places and preferred uses.

11. COMMUNICATING WITH RECREATIONISTS

The ROS provides a useful framework for developing a program for communicating with recreationists. Because different people will seek different kinds of information regarding a planned outing, it is important that managers be able to supply such demands. The ROS facilitates this as it rests upon a conception of recreation that deals not only with activities, settings, and experiences, but also with bio-physical, social, and managerial settings. By providing information regarding the nature of settings in this fashion, the ROS provides visitors with information in terms most relevant to them

12. DETERMINING ROLES OF VARIOUS AGENCIES AND THE PRIVATE SECTOR

The fundamental idea underlying the ROS is that a diversity of recreational opportunities are demanded by people. And, following upon this, we can best insure quality recreation by providing this spectrum of demanded settings. However, it is unlikely that any one supplier can meet all these demands or supply all the desired settings. In part, this is because different suppliers have different responsibilities and management objectives. Yet, there are often pressures for agencies to supply more and more kinds of opportunities. The ROS can help agencies make decisions about what portion of the spectrum they are best suited to supply. It can also be used to assess, on a regional level, how adequate the various public demands are being met by the various suppliers and, where gaps exist, which agency might be best suited to meet this gap. And it can help provide a rationale for providing types of opportunities that they would normally not provide, in cases where existing demands are not met by current suppliers.

13. IDENTIFYING AND EVALUATING INCONSISTENCIES

A major issue in using the ROS in resource management is how to evaluate the effects of management actions on recreation uses and opportunity classes. In particular, what types of actions or modifications are consistent within each ROS class and which are inconsistent?

In essence an inconsistency occurs when the status of one or more of the physical, social, or management factors exceeds the standards specified in an areas's management plan. The key then for identifying inconsistencies is to specify explicit standards for each of the factors underlying the definition of ROS classes, for example, the type of access, amount of acceptable social interaction, and the appropriateness of other resource uses. After explicit standards have been developed, and a decision has been made about which of the ROS classes an area will be managed for, it will be readily apparent what is and is not consistent with the objectives.

Determining inconsistencies is not a relevant issue during the ROS inventory. At this stage the ROS class appropriate for an area is simply determined by current status of each of the factors. The appropriate class is the one that is met by all of the factors. If, for example, five factors fit the definition of Semiprimitive-motorized and one fits the definition of Roaded Natural, the area should be classified as Roaded Natural because all of the factors fit the definition of the RN class. Resolving what appears to be an

inconsistency at this stage (at least with regard to the SPM class) requires a determination of what conditions will be adopted for future management. Such "what should be" questions are inappropriate during the inventory of what exists now. If it is determined through the forest planning process that the area should be managed as SPM it would then be necessary to determine what should be done with the one inconsistent factor. (See Clark and Stankey 1979 for a further discussion of inconsistencies.)

Note: Because of some confusion about the identification and evaluation of inconsistencies, a small group from research and management has been assigned responsibility for preparing a paper laying out a detailed rationale for handling the issue. Questions to be addressed include: what are the normative conditions in each ROS class that managers should strive to achieve and protect? how can inconsistencies be identified, evaluated* and managed? is there a distinction to be made between roads and other modifications presently on the ground versus those planned in areas considered as SPNM or SPM? if roads or other modifications are necessary in an area designated as SP, what are the options that might be considered to resolve the apparent inconsistency; i.e., what criteria and guidelines need to be developed to insure the integrity of the opportunity class? can a rationale be developed that covers timber management and visual management in the same way as access in the management of the ROS classes? what are the implications of inconsistencies and alternative ways to resolve them for both the land manager and the public? A major concern is to insure that the integrity of the ROS framework is not jeopardized while allowing appropriate management flexibility.