United States
Department of
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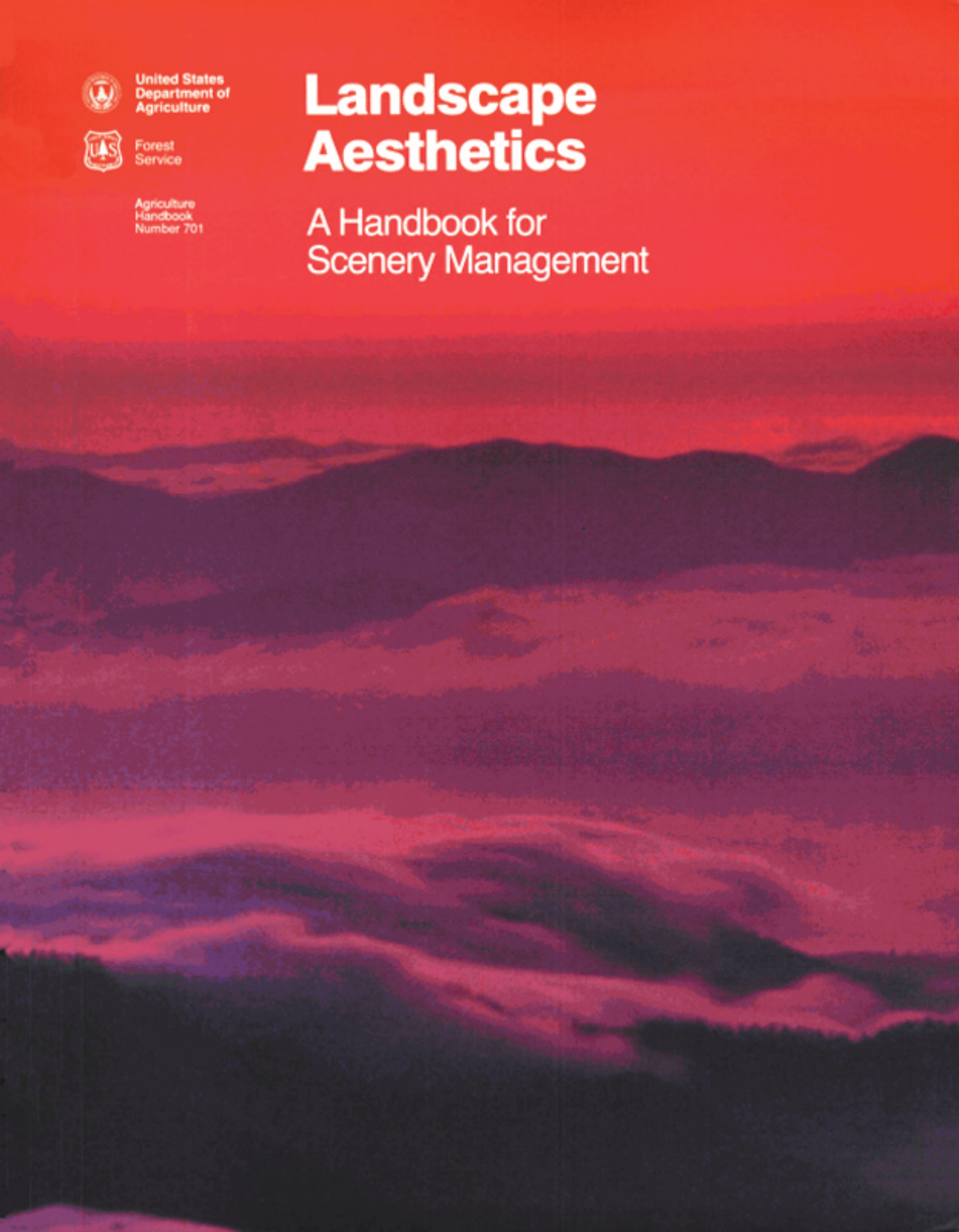
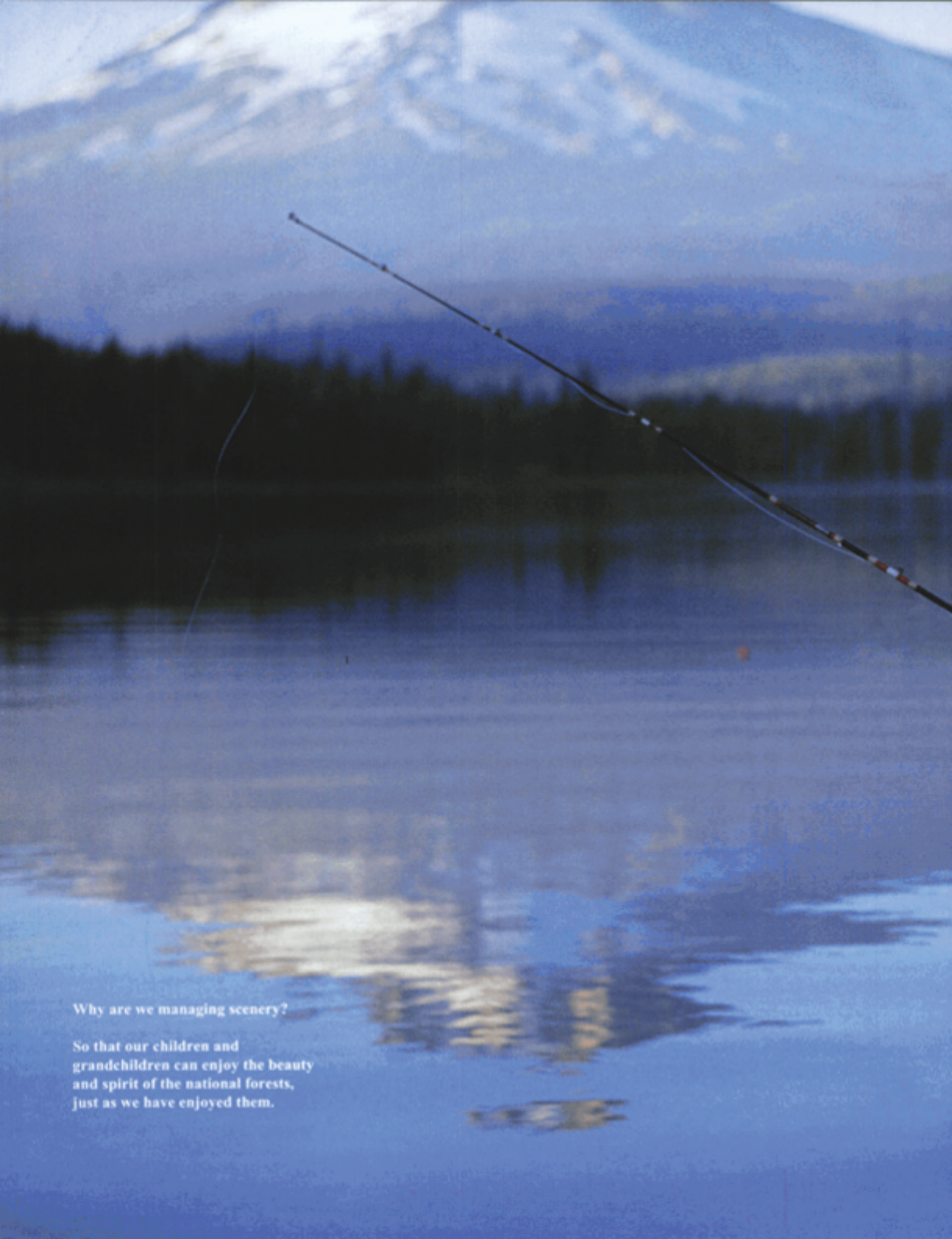
Forest
Service

Agriculture
Handbook
Number 701

Landscape Aesthetics

A Handbook for Scenery Management



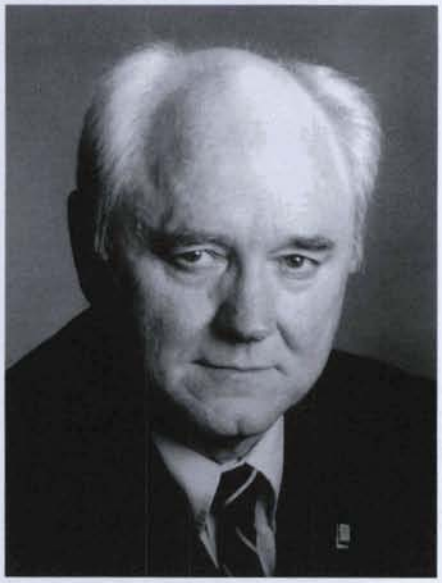


Why are we managing scenery?

So that our children and grandchildren can enjoy the beauty and spirit of the national forests, just as we have enjoyed them.

Dear Forest Service Employees,

I am very pleased to introduce the revised Landscape Aesthetics Handbook. This Handbook replaces Agriculture Handbook 462 - The Visual Management System,which has been an important tool for visual resource management for the past 25 years.



The users and owners of the national forests continue to express a strong interest in maintaining the character of forest and grassland settings. These settings provide special places for recreation and visual amenities. Alfred Runte stated in a book called The National Forest Idea (published in 1991) "There is no question...that the national forests are major contributors to an American sense of place, to an identity with landscape that transcends economics for its own sake. The founders of the national forest idea...were consistent in their advocacy for landscape aesthetics. The forests not only should be functional, they should be beautiful as well." This idea is one of the fundamental principles of the Landscape Aesthetics Handbook.

While retaining many of the basic inventory elements of the Visual Management System, the Landscape Aesthetics Handbook incorporates much of what we are learning about the management of ecosystems. The landscapes we see today are the result of both natural and human processes that have occurred over time. Understanding these processes will help us consider the effects of proposed changes in the landscape and to incorporate people's values into our decisions more effectively.

Please begin using the concepts and terms contained in this Handbook as you work on new projects or initiate forest plan revisions. I am confident that with this revised Handbook, the Forest Service will not only continue to be a national leader in visual resource management, but will also demonstrate a strong commitment to integrating human values into ecosystem management.

Jack Ward Thomas

United States Department of Agriculture

Forest Service

Agriculture Handbook Number 701

Landscape Aesthetics

A Handbook for Scenery Management

Abstract

High quality scenery, especially scenery with natural-appearing landscapes, enhances people's lives and benefits society. The Scenery Management System presents a vocabulary for managing scenery and a systematic approach for determining the relative value and importance of scenery in a national forest. This handbook was written for national forest resource managers, landscape architects, and others interested in landscape aesthetics and scenery. Both students and the general public, our "constituents," will benefit from the straightforward approach of the system to a complex art and science. Ecosystems provides the environmental context for this scenery management system. The system is to be used in the context of ecosystem management to inventory and analyze scenery in a national forest, to assist in establishment of overall resource goals and objectives, to monitor the scenic resource, and to ensure high-quality scenery for future generations.

December 1995

This handbook supercedes AH-462,
National Forest Landscape Management,
Volume 2, Chapter 1,
The Visual Management System
Issued April 1974

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CONTENTS



3

Constituent Information

Purpose & discussion ●
Preparing constituent inventory ●
Information sources ●
Sample constituent survey ●

4

Landscape Visibility

Purpose & discussion ●
Travelways use areas ●
Concern levels ●
Seen area ●
Distance zones ●
Scenic classes ●

5

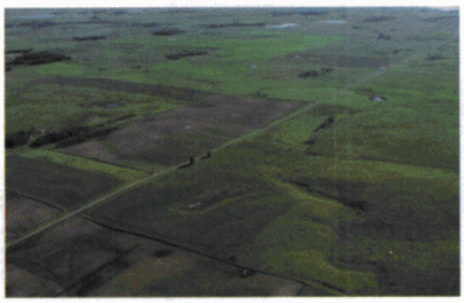
Scenery Management System Application

Ecosystem analysis, planning and implementation ●
Alternative development ●
Alternative evaluation ●
Alternative selection ●
Achievement of landscape character goals ●
Monitoring ●

Appendix

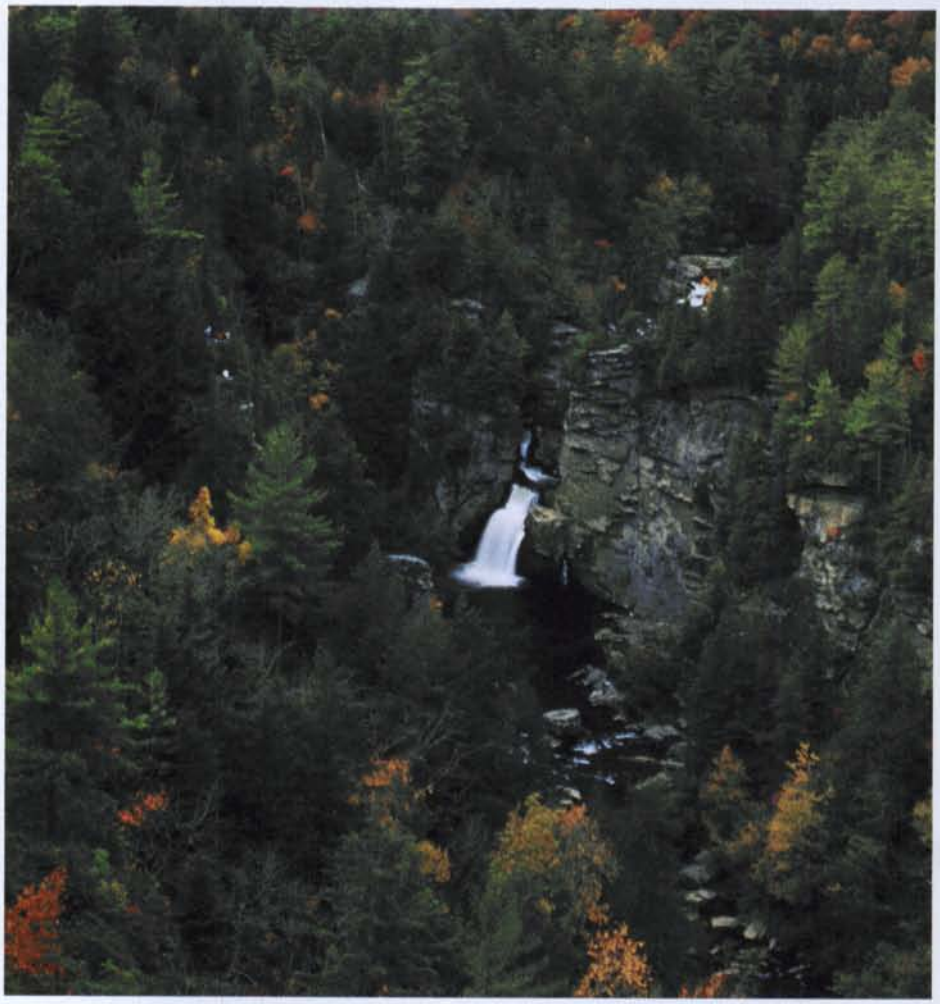
Terminology and component changes - *A*
Legislation and directives - *B*
Visual absorption capability - C
Viewer platform design - D
Existing scenic integrity inventory - E
Recreation opportunity spectrum - F
Background and history - G
Examples of scenic integrity levels - H
Case study - I

Glossary
Bibliography


A Note to the Reader

I mean not, with
unphilosophic weakness,
to bemoan the perishable
condition of sublunary things;
but to lament only,
that, sublunary things,
the wood-land-scene,
which is among
the ***most beautiful***,
should be among
the ***most perishable***.
Willaim Gilpin, A.M. 1791.



Why is a handbook on landscape aesthetics needed? There are many reasons. Let's think about it.

On your next visit to a national forest, what awaits you as you explore nature? You have driven from your home, leaving behind the bustling traffic of modern life. You see the national forest entrance sign and know that a treasure chest of experiences awaits you. What is at the end of the road, at the end of the trail?

Hiking along a trail, your vehicle left far behind at the trailhead, you discover that tension is leaving your body, and you are tuning in to your new surroundings. You hear the sound of your boots scuffing fallen leaves on the earthen trail, and your breathing deepens.

When hiking with friends, conversations cease, and you focus on the forest environment. Walking quietly now, you inhale the clean, clear air and smell the unique fresh scents of the woods. Splashes of red and coral wildflowers dot the forest floor. You look around and see that bark on one grove of trees is different from its neighbor, and wonder why. The wind rustles through the tree tops and you are startled by the call of a hawk as it floats high overhead on a powerful thermal updraft.

The trail curves out of sight ahead, and you hear the first unmistakable sound of falling water. You know your destination, that favorite waterfall, where you will stop a while and feel the cool mist billowing up into your face. You remember from your last visit here the verdant ferns spilling down along the cliffs behind the falls and splashes of bright reds and subtle deep blues from flowers clinging tenaciously to the rock cliffs as if planted by a master gardener.

Sooner than you had expected, you are there once again. You round the bend and see the glistening water as it cascades over its stone precipice, contrasting against the darkness of the forest. Sitting on a rock ledge, you wonder who it was who first followed a deer trail and came upon this place with its exceptional combination of rocks and water and ferns and forest. You enjoy this landscape, reflecting on how unique it is, and how different from your daily surroundings. This is a special place.

The landscapes of your national forests are distinctive and unique. Some would say they have a **character** all their own.

Acknowledgments

Several hundred individuals and many organizations and agencies have made important contributions in various ways to the development of this handbook.

Ever since *The Visual Management System* was published in 1974, there have been helpful comments and critiques from within the Forest Service, other agencies, academic institutions, organizations, and private practitioners. Along the way there have been many innovators who have helped develop appropriate subsystems to complement the basic system. Dozens of researchers in the fields of landscape architecture, psychology, sociology, economics, ecology, and so on, have since added to the evolving knowledge and understanding of scenic quality, attributes, and values. Throughout the development of this handbook, there was a concerted effort to analyze and utilize new knowledge developed by researchers.

Among the pioneers in scenery management research was Professor R. Burton Litton of the University of California-Berkeley. Litton developed many of the concepts and vocabulary still used today. Regional Landscape Architect Warren Bacon of the Pacific Northwest Region of the Forest Service, far more than anyone else, is the primary contributor to this handbook. He spearheaded the development and publication of *The Visual Management System* in 1974, served as a watchdog over the system for almost 20 years, and then played a major role in updating the system by publication of this handbook. He served as contracting officer's representative on its production, guiding the contracting team through the maze of possible approaches. Without the backing and perseverance of Bob Ross, Chief Landscape Architect in the Washington Office, the high standards of quality and priority for funding for this handbook would not have been possible. Regional Landscape Architect Steve Galliano of the Southern Region rounded out this core team of contract administrators, working side-by-side with Bacon as an associate contracting officer's representative in guiding and reviewing the development of the handbook over a 2-year period. Galliano guided the steering committee and technical advisory group through a very difficult and key technical review session in May 1992 in Denver, CO. He provided in-depth editing and organized a field testing workshop on the Jefferson National Forest in March 1993.

A steering committee of regional landscape architects and representatives provided invaluable reviews and recommendations from the time of development of the request for proposals through the development of the handbook. In addition to Bacon and Galliano, steering committee members included:

Meeting of steering committee and technical advisory group in May 1992 in Denver, CO.

- Larry Blocker—Northern Region.
- Herb Mittmann—Rocky Mountain Region.
- Bill Larsen—Southwest Region.
- Tom Hagan- Intermountain Region.
- Gary Brogan—Pacific Southwest Region.
- Dennis Parker—Eastern Region.
- Nora Laughlin—Alaska Region.

A technical advisory group of forest landscape architects and educators provided multiple reviews and critiques of the expanded process developed in this handbook. They helped test how concepts would actually work in field practice. This group included:

- Pat Thomas, Flathead National Forest
- "Corky" Sanborn, Idaho Panhandle National Forests
- Stan Specht, Rocky Mountain Region
- Erik Martin, White River National Forest
- Terry Reetz, Black Hills National Forest
- Doug Schleusner, Santa Fe National Forest
- Ron Wilson, Tonto National Forest
- Terry Fletcher, Sawtooth National Forest
- Ken Sonksen, Sierra National Forest
- Jerry Mosier, Klamath National Forest
- Philip Horning, Tahoe National Forest
- Al Grapel, Siuslaw National Forest
- Jennifer Burns, Sisters Ranger District, Deschutes National Forest
- Steve Hendricks, Cherokee National Forest
- Melinda McWilliams, National Forests in North Carolina
- Sherri Schwenke, Ottawa National Forest
- Gary Kell, Allegheny National Forest
- David Johnson, Shawnee National Forest
- Carol Jensen, Petersburg Ranger District, Tongass National Forest
- John Short, Tongass National Forest, Ketchikan Area
- Dom Monaco, Tongass National Forest, Chatham Area
- Deirdre Buschmann, Tongass National Forest, Stikine Area
- Professor Wayne Tlusty, University of Wisconsin-Madison

Professor Tlusty is singled out from the above group for commendation, not only because he is a nationally recognized expert on this subject, but because he unselfishly committed far more time to this project than his university activities would normally allow.

Environmental Consulting, Planning and Design (ECPD) developed a high quality preliminary draft document which provided an excellent basis for refinement of this final document. ECPD, led by Lee Anderson, Principal, utilized the expertise of the following members: Wayne Iverson, Dr. Perry Brown, Bennie Blake, Roy Maloney, Robin Velte, Patrick Neff, and Janie Gustafson.

A revision team led by Larry Blocker, Northern Region Landscape Architect, refined, reorganized, and completed the Landscape Aesthetics Handbook. Other members of the revision team included:

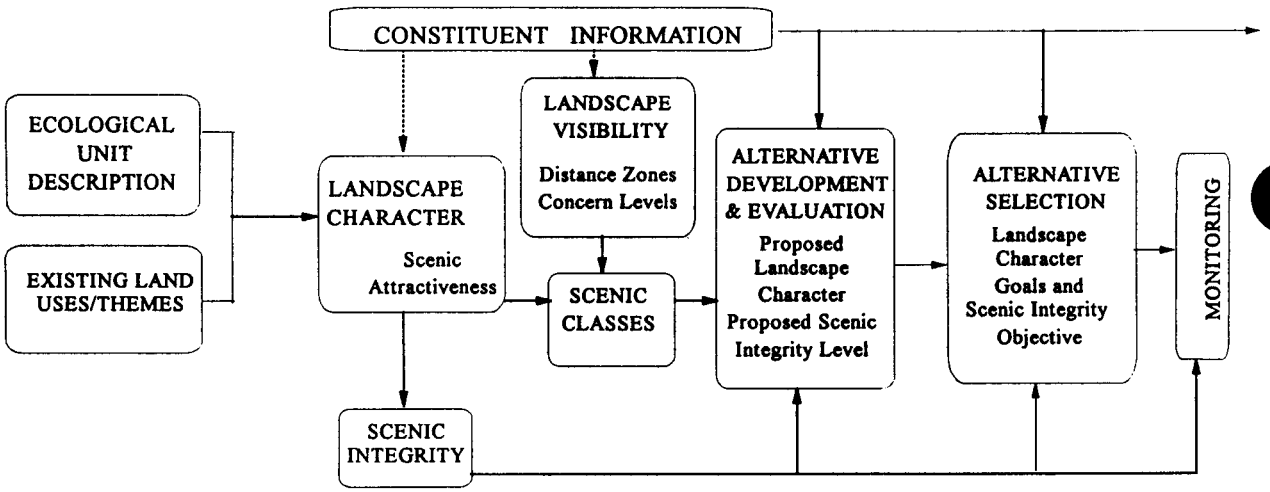
- Terry Slider. Deschutes National Forest
- Jane Ruchman. Gallatin National Forest
- Jerry Mosier. Klamath National Forest
- Larry Kolk. National Forests in Florida
- Janet Silbernagle. Hiawatha National Forest
- Jim Beard. Coconino National Forest
- Dave Wagner. Jefferson National Forest
- Gary Brogan. Pacific Southwest Region
- Dennis Jones. Hiawatha National Forest
- Nora Laughlin. Alaska Region

Summary

Purpose and Scope

This handbook defines a system, referred to hereafter as the Scenery Management System (SMS), for the inventory and analysis of the aesthetic values of National Forest lands. The Scenery Management System evolved from and replaces the Visual Management System (VMS) defined in Agricultural Handbook #462. While the essence of the system remains essentially intact, still supported by current research, terminology has changed and the system has been expanded to incorporate updated research findings. Conceptually, the SMS differs from the VMS in that: it increases the role of constituents throughout the inventory and planning process; and it borrows from and is integrated with the basic concepts and terminology of Ecosystem Management. The Scenery Management System provides for improved integration of aesthetics with other biological, physical, and social/cultural resources in the planning process.

The flow chart below outlines the Scenery Management System process. This process involves identifying scenery components as they relate to people, mapping these components, and developing a value unit for aesthetics from the data gathered. This value unit provides information to planning teams and leads to rational decisions relative to scenery as a part of ecosystems.



Process

An **Ecological Unit Description** (EUD), sometimes called a mapping unit description, represents the common starting point for SMS and for Ecosystem Planning. An objective description of the biological and physical elements is drawn from the EUD and combined with identified landscape character attributes to develop the Landscape Character Description. It is a combination of the scenic attributes that make each landscape identifiable or unique. Landscape Character creates a "Sense of Place," and describes the image of an area. The Landscape Character Description provides the frame of reference for defining the Scenic Attractiveness classes.

Scenic Attractiveness (ISA) classes are developed to determine the relative scenic value of lands within a particular Landscape Character. The three ISA classes are: Class A, Distinctive; Class B, Typical; Class C, Indistinctive. The landscape elements of landform, vegetation, rocks, cultural features, and water features are described in terms of their line, form, color, texture, and composition for each of these classes. The classes and their breakdown are generally displayed in a chart format. A map delineating the ISA classes is prepared.

The Landscape Character description is used as a reference for the **Scenic Integrity** of all lands. Scenic Integrity indicates the degree of intactness and wholeness of the Landscape Character; conversely, Scenic Integrity is a measure of the degree of visible disruption of the Landscape Character. A landscape with very minimal visual disruption is considered to have high Scenic Integrity. Those landscapes having increasingly discordant relationships among scenic attributes are viewed as having diminished Scenic Integrity. Scenic Integrity is expressed and mapped in terms of Very High, High, Moderate, Low, Very Low, and Unacceptably Low.

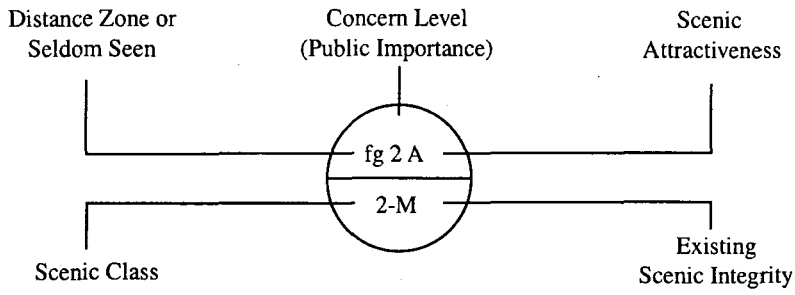
Landscape Visibility is composed of two parts: human values as they relate to the relative importance to the public of various scenes and the relative sensitivity of scenes based on distance from an observer. Human values that affect perceptions of landscapes are derived from constituent analysis. This information may be derived from many sources including, but not limited to independent research; other facets of ecosystem assessments; local, regional, and national studies.

Constituent Analysis serves as a guide to perceptions of attractiveness, helps identify special places, and helps to define the meaning people give to the subject landscape. Constituent analysis leads to a determination of the relative importance of aesthetics to the public; this importance is expressed as a **Concern Level**. Sites, travelways, special places, and other areas are assigned a Concern Level value of 1, 2, or 3 to reflect the relative High, Medium, or Low importance of aesthetics.

Seen Areas and Distance Zones are mapped from these 1, 2, or 3 areas to determine the relative sensitivity of scenes based on their distance from an observer; these zones are identified as Foreground (up to 1/2 mile from the viewer), Middleground (up to 4 miles from the foreground), and Background (4 miles from the viewer to the horizon). Landscapes that are not visible in the Foreground, Middleground, or Background from any of the selected travelways or use areas, are considered **Seldom-Seen** areas since we know they may be seen, at a minimum, from aircraft and by the occasional viewer wandering through the forest.

Using the data gathered and mapped for Scenic Attractiveness and Landscape Visibility, a numerical **Scenic Class** rating is assigned to all lands. These ratings, 1-7, indicate the relative scenic importance, or value, of discrete landscape areas. Mapped Scenic Classes are used during forest planning to compare the value of scenery with other resources, such as timber, wildlife, old-growth, or minerals.

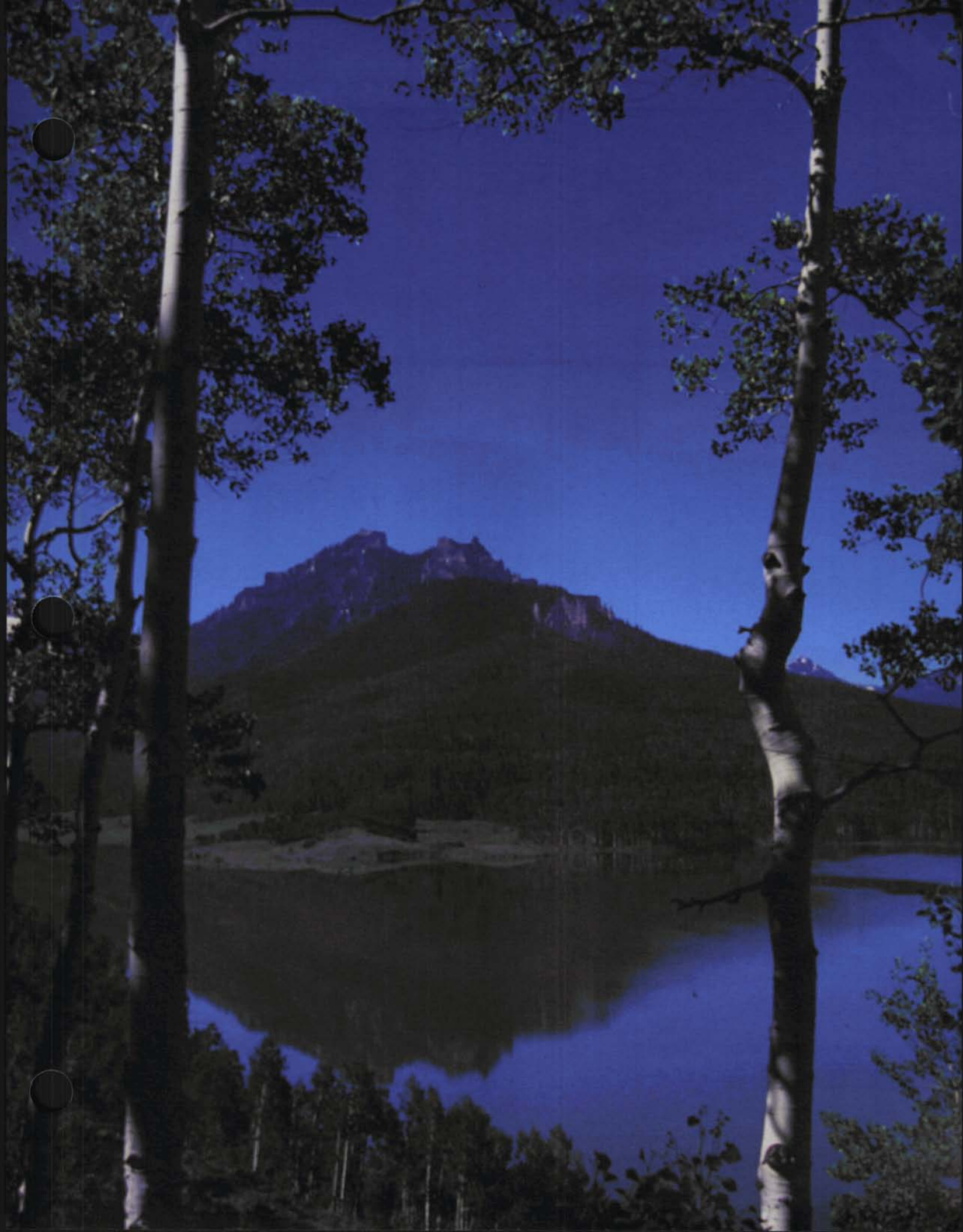
At this point in the planning process, a **Landscape Value** map is prepared using overlays of all the data gathered. The Landscape Value is expressed as an icon, a sample of which is shown below:

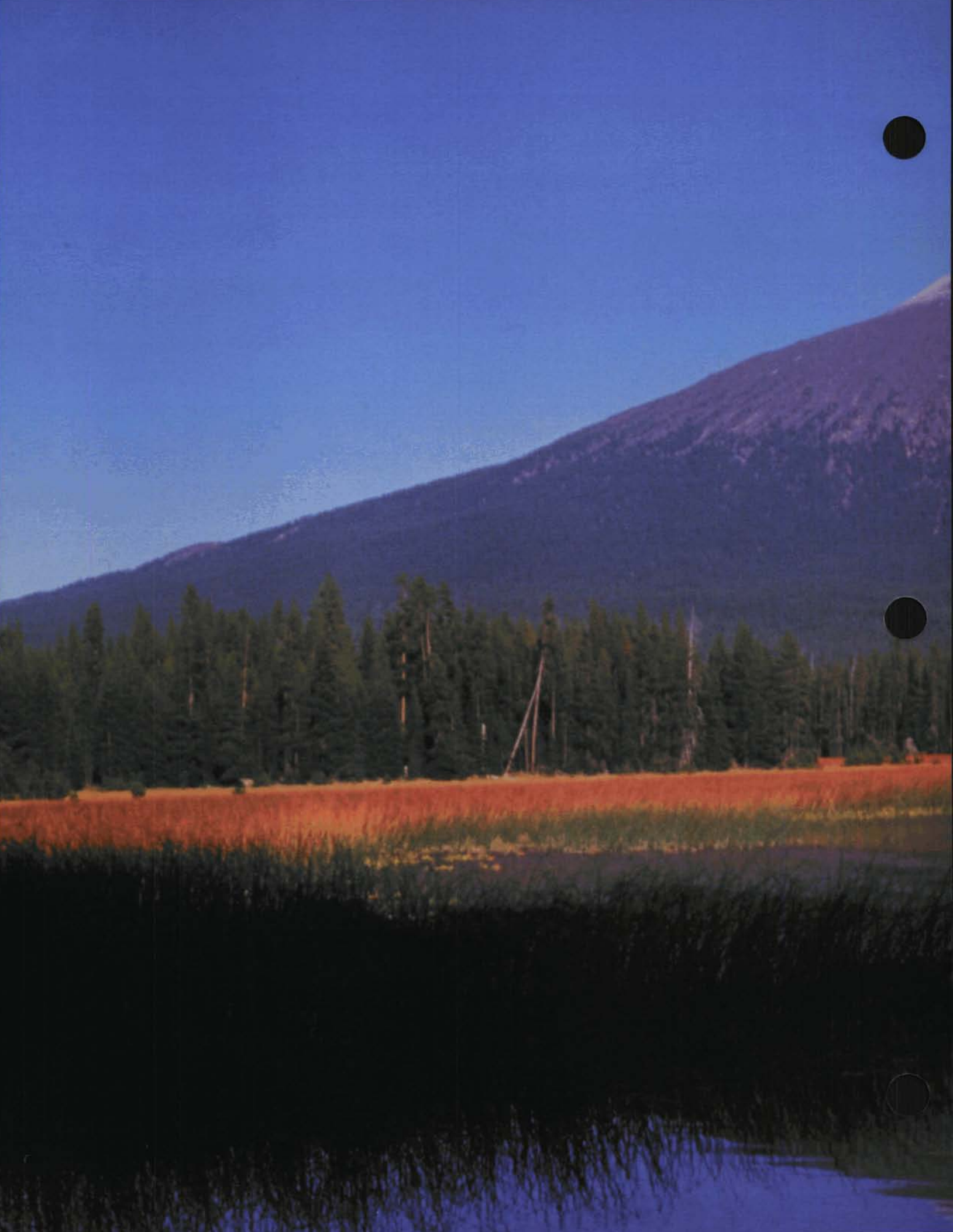


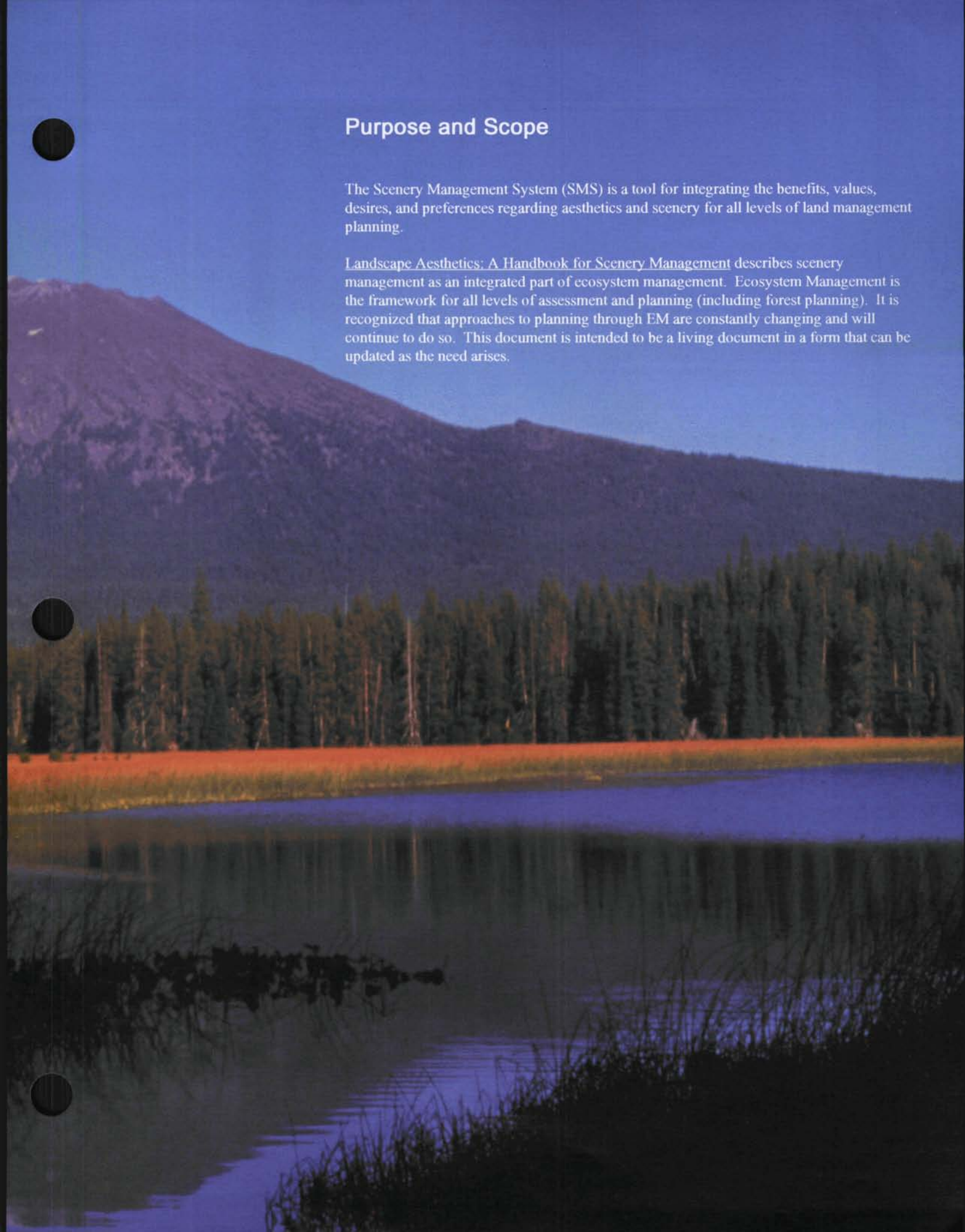
This icon represents the inventory of scenic attributes and their related social values. The map provides information to planning teams concerning the relative scenic values of a subject area and the extent to which those values are intact.

During the alternative development portion of the planning process, the potential and historical aspects of the Landscape Character Description are used to develop achievable **Landscape Character Options** in concert with other resource and social demands. Landscape Character Descriptions and associated Scenic Integrity levels, long- and short-term, are identified for each option and alternative. Upon adoption of a plan, the Landscape Character Description becomes a goal and the Scenic Integrity levels become **Scenic Integrity Objectives.** Subsequent plan implementation will include monitoring of both long- and short-term goals and objectives for scenery management.

Scenery Management is not static. It is a dynamic as the world in which we live. This handbook is provided in a loose-leaf format to facilitate the refinement of this system in time and the incorporation of future knowledge and research findings.







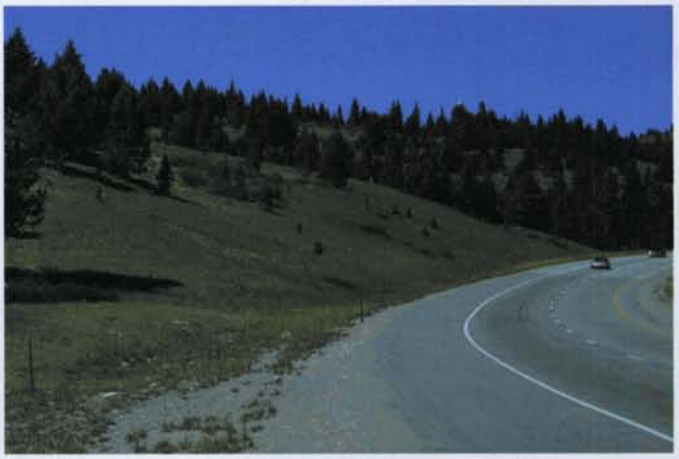
Purpose and Scope

The Scenery Management System (SMS) is a tool for integrating the benefits, values, desires, and preferences regarding aesthetics and scenery for all levels of land management planning.

Landscape Aesthetics: A Handbook for Scenery Management describes scenery management as an integrated part of ecosystem management. Ecosystem Management is the framework for all levels of assessment and planning (including forest planning). It is recognized that approaches to planning through EM are constantly changing and will continue to do so. This document is intended to be a living document in a form that can be updated as the need arises.

Purpose and Scope

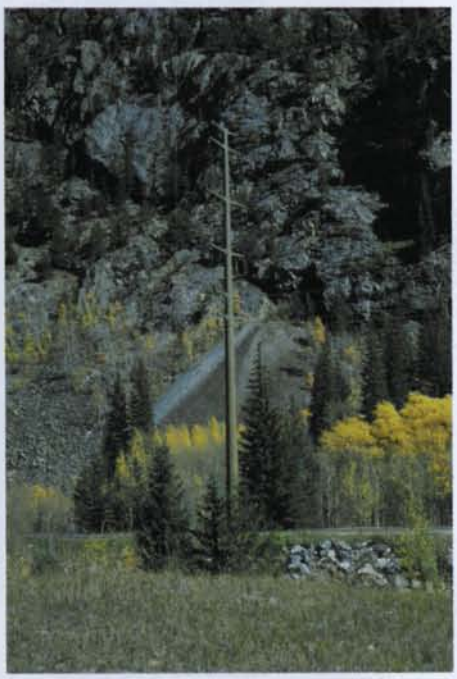
Timber harvesting



Road building

Stream improvements

Special use developments

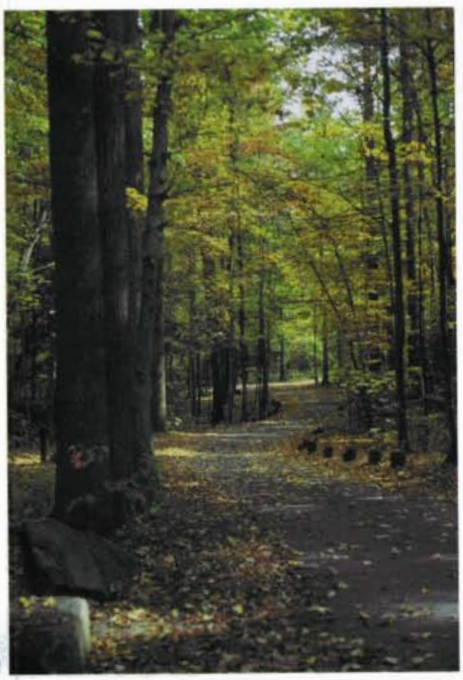


Utility line construction

The **Scenery Management System** provides an overall framework for the orderly inventory, analysis, and management of scenery. The system applies to every acre of national forest and national grassland administered by the Forest Service and to all Forest Service activities, including timber harvesting, road building, stream improvements, special use developments, utility line construction, recreation developments, and fuelbreaks. The Scenery Management System may also serve needs for scenery management outside national forests in the United States and in other parts of the world.

The Scenery Management System establishes the following:

- Common terminology.
- Consistent procedures for inventory, analysis, and synthesis.
- Standards and guidelines for scenery management.
- Techniques for monitoring.

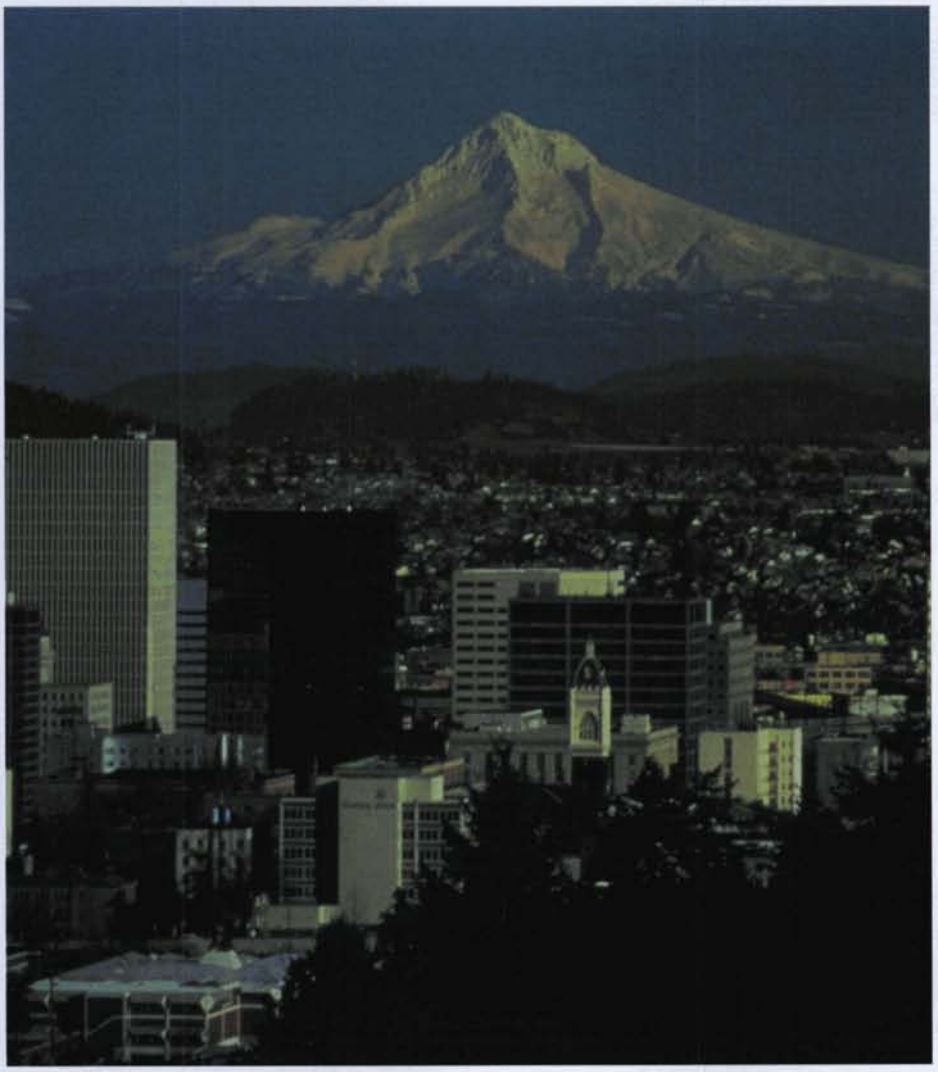


Recreation developments

Fuelbreaks

Why is scenery management necessary?

People are concerned about the quality of their environment, including aesthetic values of landscapes, particularly scenery and spiritual values.

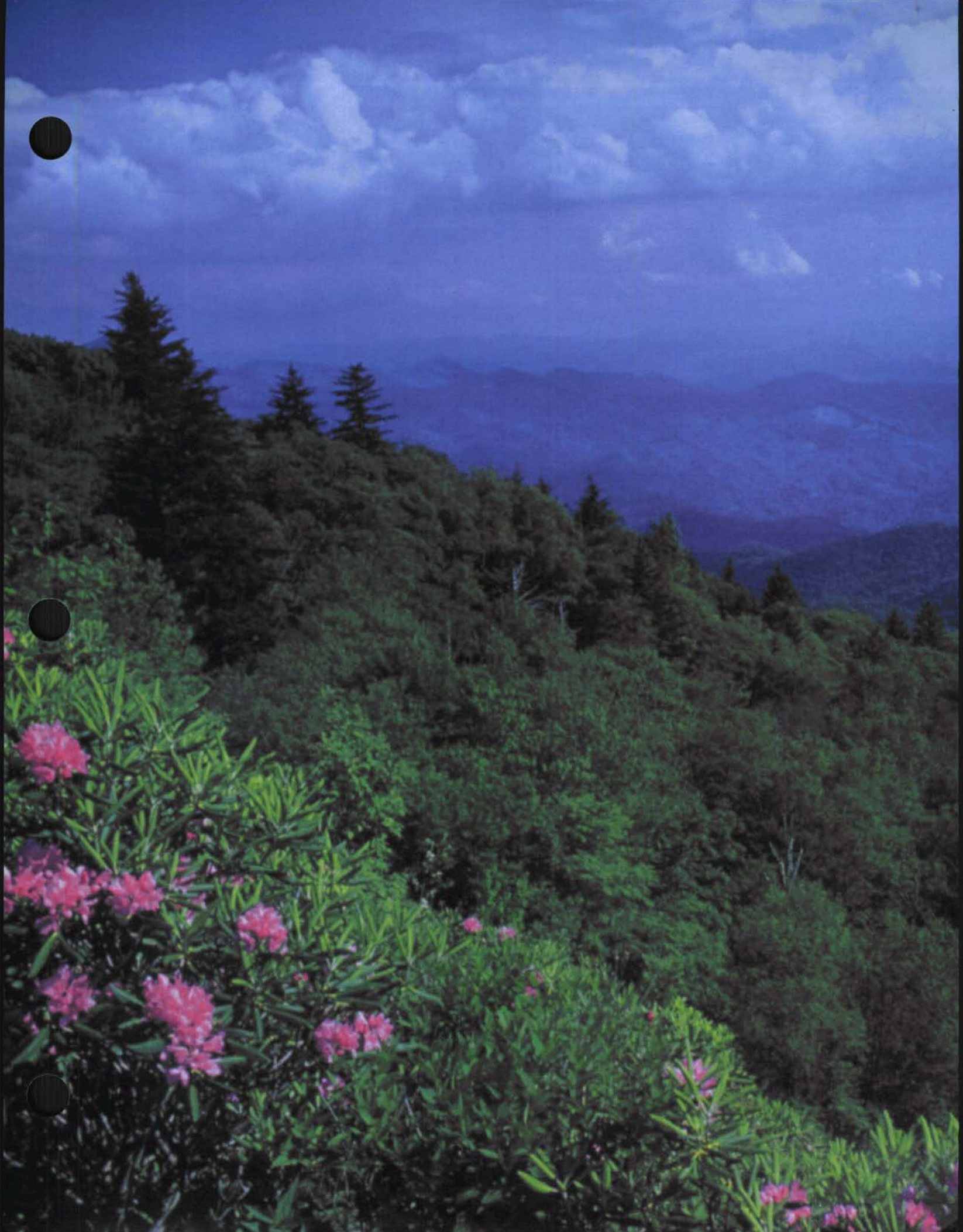


People need natural-appearing landscapes to serve as psychological and physiological "safety valves," for these reasons:

- The world's urban population pressures are increasing.
- Technology is rapidly advancing.
- Demands for goods and services are increasing.
- People's lives are becoming more complex.
- Urban pressures are demanding more land for development.
- Once plentiful natural-appearing landscapes are becoming more scarce.

The Forest Service uses the Scenery Management System as the framework for integrating all scenery management data into all levels of Forest Service planning, including the following:

- National overviews.
- Regional plans.
- Landscape province analysis
- Forest plans.
- Watershed, viewshed, or landscape unit analysis.
- Detailed project plans.
- Project implementation.
- Project monitoring.



Nature

Pedestrian Mall

Traffic

Research has shown that high-quality scenery, especially that related to natural-appearing forests, enhances people's lives and benefits society. Therefore, the **Scenery Management System** aids Forest Service managers in providing benefits to people and society. Research findings support the logic that scenic quality and naturalness of the landscape directly enhance human well-being, both physically and psychologically, and contribute to other importanat human benefits. Specifically, these benefits include people's improved physiological well-being as an important by-product of viewing **interesting and pleasant natural appearing landscapes with high scenic diversity.**

Findings from psychological and physiological studies of people under stress, people recovering in hospitals, people in recreation settings, and people in other various settings, prove that natural landscape scenes have restorative and other beneficial properties. This is particularly important when contrasted with built urban environments such as pedestrian malls and commuter traffic routes.

Results of research by Dimberg, Ulrich, and Simons are shown in Figures 1 and 2 below. Figure 1 displays heart rate in beats per minute, with a positive response to spatially open landscapes of high interest. Figure 2 compares positive responses (lower blood pressure) of people responding to nature as opposed to traffic routes and pedestrian malls.

In turn, when people feel better mentally and physically, they have increased on-the-job productivity, increased community involvement, and expanded family interaction; there is, therefore, an improved well-being of society in general.

The benefits of **high-quality scenery** are numerous despite the fact that a dollar value is seldom assigned to it except in regard to real estate appraisals and areas with major tourism influences.

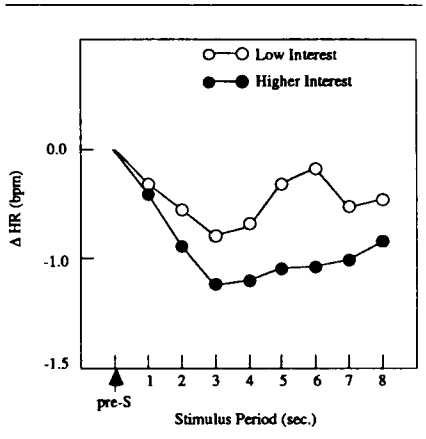


Figure 1. Mean phasic heart rate change expressed in beats per minute (bpm) form the pre-stimulus level for subjects exposed to slides of spatially open landscapes (higher interest) and spatially restricted environments (lower interest). (From Dimberg and Ulrich)

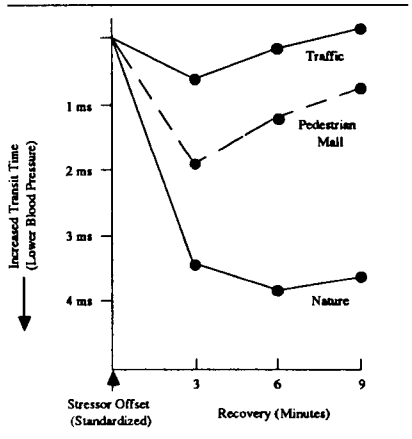


Figure 2. Pulse transit time (systolic blood pressure correlate) during recovery from stress. (From Ulrich and Simons 1986)

Figure 3 compares human physical and psychological responses (skin conductance during recovery from stress) to traffic, pedestrian malls, and nature. Figure 4 compares responses (muscle tension during recovery from stress) to the same stimuli.

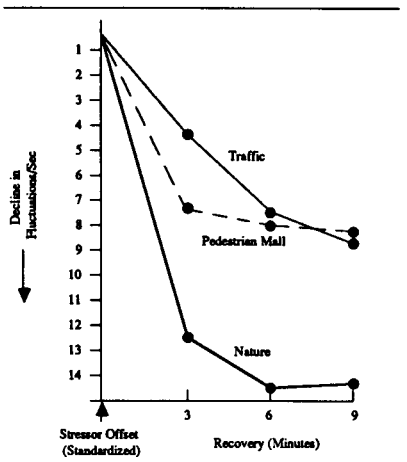


Figure 3. Skin conductance (SCR) during recovery from stress. (From Ulrich and Simons 1986)

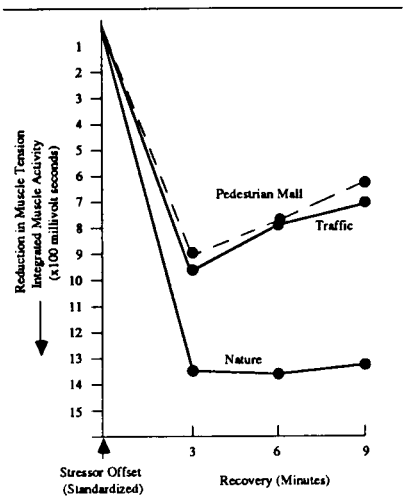


Figure 4. Muscle tension (EMG) during recovery from stress. (From Ulrich and Simons 1986)

It can be concluded that scenery management benefits people who are recreating, traveling for business, or are otherwise passing through wildland environments.

Economists recognize that tourism is becoming the leading industry in many regions in the United States and in many foreign countries. In numerous communities adjacent to national forests, tourism and recreation are replacing the former leading roles of timber harvesting, mining, ranching, and farming. Scenic landscapes and recreational settings help to determine the success of recreation and tourism.

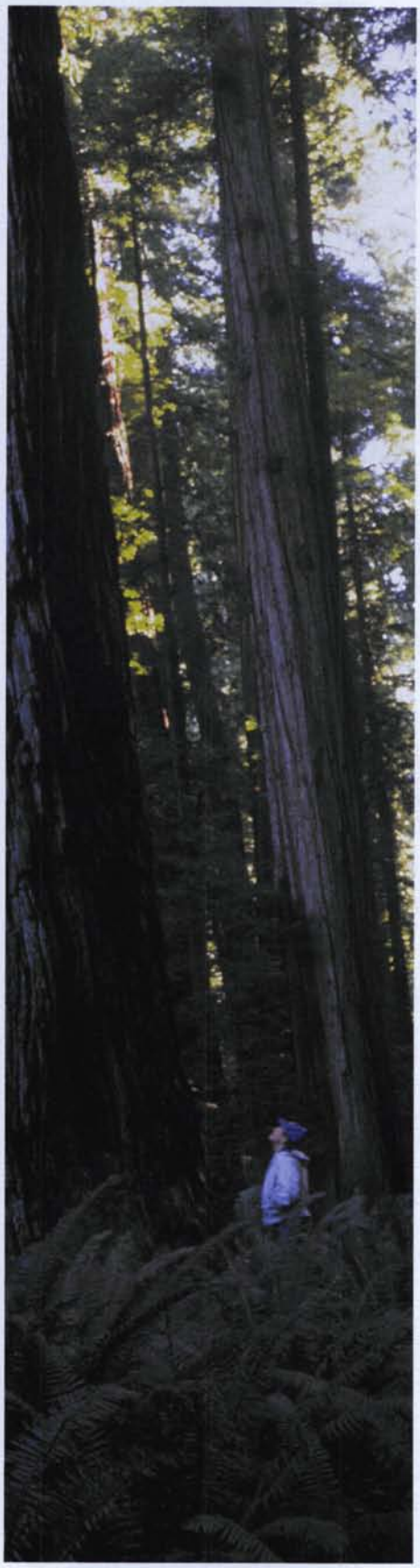
Scenery Management System Objectives

The goal of the Scenery Management System is to create and maintain landscapes having high scenic diversity, harmony, and unity for the benefit of society in general.

- A Scenery Management System should:
  - Be logical and orderly.
  - Serve scenic assessment needs in all levels of planning and implementation, from broad-scale land planning to detailed project planning.
  - Produce goals and objectives useful for scenery management.
  - Allow scenery managers to be capable of interacting with values and needs of other resource disciplines.
  - Have a systematic approach so that others are able to replicate its results.
  - Serve as a communicative tool.

- A Scenery Management System should identify the following:
  - **Landscape character**, including existing landscape character attributes, potential landscape character, and the relative scenic attractiveness of various landscapes within a geographic area.
  - **Visual sensitivity** of landscapes, based on the context of the landscape being viewed, perceptual factors of people viewing those landscapes and different visual characteristics of a landscape.
  - **Scenic integrity**, including the continuum of scenic integrity levels, current integrity of landscapes, role of structures in the landscape, guidelines for determining cumulative scenic effects and allowable duration of scenic effects, and examples of scenes with various human actions that affect scenic integrity.

Handbook Objectives



Landscape aesthetics encompasses all senses—sight, smell, hearing, taste, and touch. However, research indicates that people receive 87% of their information about the world through their eyesight alone. Because the preponderance of human senses are by sight, this handbook deals primarily with the scenic aspects of a landscape. Other aesthetic values—sound, smell, touch, and taste—are also important, but are not handled in detail in this handbook.

The development of *Landscape Aesthetics: A Handbook for Scenery Management* was guided by the following:

- Research findings.
- Literature review (from 1732 to 1992).
- Past experience in application of *The Visual Management System* -- the handbook was issued in and has been used since 1974.
- Past experience in application of subsystems of *The Visual Management System* developed after 1974.
- Advances in technology.
- Constituent demand for high-quality scenery.

The goal of this handbook is to explain scenery management as an integrated part of ecosystem management for all levels of planning, including forest planning. The **objectives** of this handbook are as follows:

- To develop and document a system of scenery management responsive to both current and future needs.

- To develop a state-of-the-art Scenery Management System for resource managers that may be understood by constituents; to provide an overall framework for all landscape information for input into forest planning and project planning; to allow for creative and responsive alternative solutions for planners.

- To establish uniform procedures to identify demand for scenic quality and to identify differences between current supply of and future demand for scenery.

- To establish uniform terminology and procedures to identify and classify physical and perceptual aspects of scenery.

- To establish direction for management of positive natural attributes and cultural elements in landscapes (including natural-appearing vegetation, landform, rockform, waterform, and positive human alterations) and of the overall desired scenic impression. These positive elements are defined as landscape character, and they are used to describe:
  - Existing landscape character.
  - Scenic attractiveness.
  - Long-established cultural landscape character.
  - Existing landscape integrity.
  - Landscape character goals.

- To establish direction for management of "cultural" scenic attributes in human-altered landscapes. In these landscapes, landscape character goals may include selected cultural elements accepted over time to become expected images, that contribute to high-quality scenery.

- To establish uniform procedures to identify and describe movement toward the desired landscape character in terms of scenic diversity and overall positive elements, described as form, line, color, and texture. Scenic integrity objectives establish limits of acceptable human alterations as the landscape moves toward a landscape character goal.

- Chapter 1 introduces **landscape character**—the overall visual impression of landscape attributes, the physical appearance of a landscape that gives it an identity and "sense of place." Landscape character ranges from a natural landscape to one that is urban - from a pristine wilderness to a built environment.

- Chapter 2 discusses **scenic integrity**—the amount of human-caused deviation in form, line, color, and texture in a landscape.

- Chapter 3 explores **constituent information**-expectations, desires, preferences, acceptable levels of quality, behaviors, and values. This information assists Forest Service managers in determining desired and preferred travelways, use areas, landscape character, and scenic integrity.

- Chapter 4 examines **landscape visibility**—one's ability to see and perceive landscapes. Landscape visibility is a function of many interconnected considerations such as context of viewers, duration of view, degree of discernible detail, seasonal variations, and number of viewers.

- Chapter 5 discusses **planning and integration**—it establishes a better understanding of the connectivity with other resource values such as soil, water, vegetation, geology...etc. The chapter also describes establishment of landscape character goals and scenic integrity objectives.

A Context for Scenery Management

Ecosystem management (EM) provides the foundation for planning and the necessary context and basis for managing scenery. **Landscape Aesthetics, A Handbook for Scenery Management** encourages integration throughout the entire systematic approach from inventory, analysis, planning, design, and implementation, to monitoring. Integration within the ecosystem planning framework relates the scenery management system (SMS) to other relevant planning models for the biological, physical and social dimensions of ecosystems.

- An **ecosystem** is a community of interacting organisms (including people) and their environment that functions together to sustain life.

- An **ecosystem management** approach broadens the context and understanding of ecological communities and the environment.

- Through the integration of **physical, biological,** and **cultural/social** information in an interdisciplinary atmosphere we strive to better understand ecological principles and their relationships (such as landscape pattern with components, structures, functions, and processes of our ecosystem), to prescribe management which promotes sustainability.

- The **essence of the ecosystem management** conceptual framework deals with five basic questions:
  - How did the system evolve?
  - What is sustainable?
  - What do we have?
  - What do we want?
  - How do we move conditions from what we have to what we want?

- An ecosystem may be described on the head of a pin or encompass our planet (or any level in between). An ecosystem is always sandwiched between larger and smaller ecosystems described in the National Hierarchical Framework of Ecological Units such as, the Ecoregion or Province, the Section or Subsection, the Landtype Association, or Landtype.

- Within a range of sustainable ecosystem management parameters there may be several landscape character options or variations that provide more diverse scenic character or that best reflect the integrity of special places. These solutions should be encouraged as the desired condition where scenic values are high.

Scenery Management Application

The Scenery Management System applies primarily within the cultural/social dimension of ecosystems management but, also has critical links to the biological and physical dimensions at various scales.

Within the ecosystem management context the cultural/social dimension deals with three basic questions:

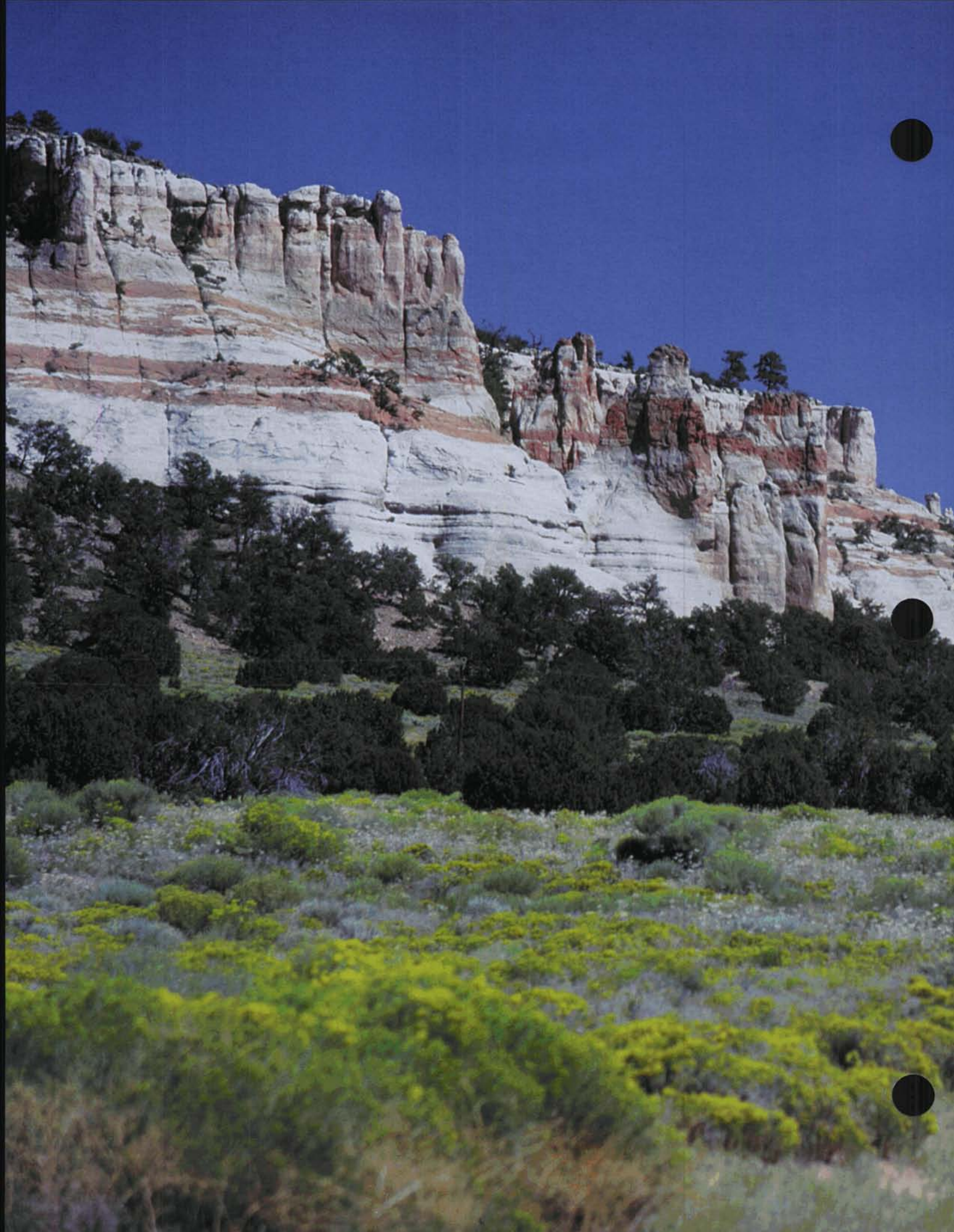
- How do people influence the landscape?
- How does the landscape influence people?
- In time and space what are the apparent trends and risks?

The frame of reference in the social dimension of EM varies from an individual human to large communities and their relationships to one and another and to the landscape in terms of time and space.

Biological and physical dimensions look at how people influence the landscape and how the landscape influences people through time (past and present) and space. Combined with the social component, this defines the reference of acceptable ecological sustainability in which scenery management should operate.

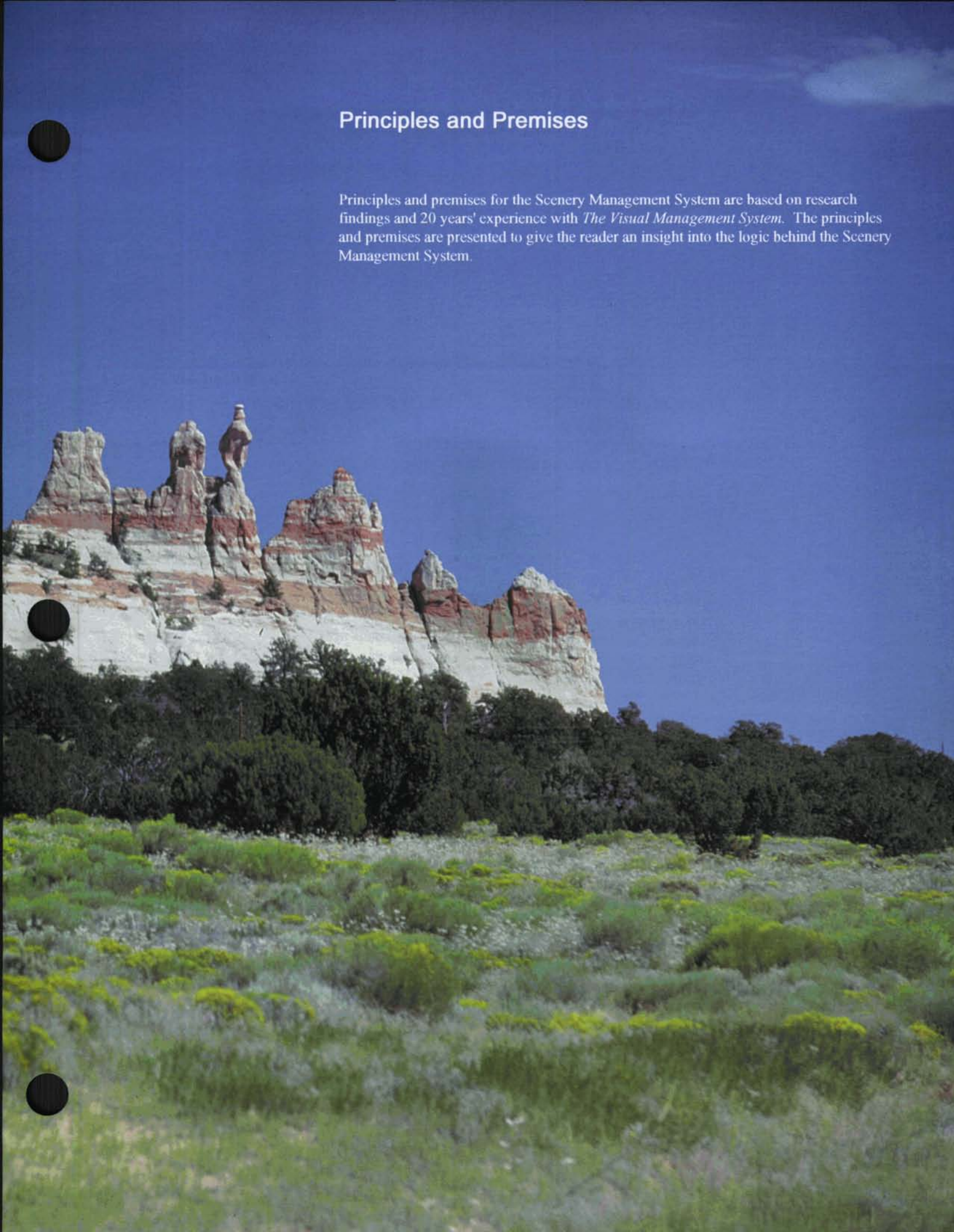
But the modern city-dwelling race of men, if it is to exist at all for any length of time, must obtain in unspoiled landscape some relief from insistent man-made conditions.

Henry Vincent Hubbard and
Theodora Kimball, 1917.



Principles and Premises

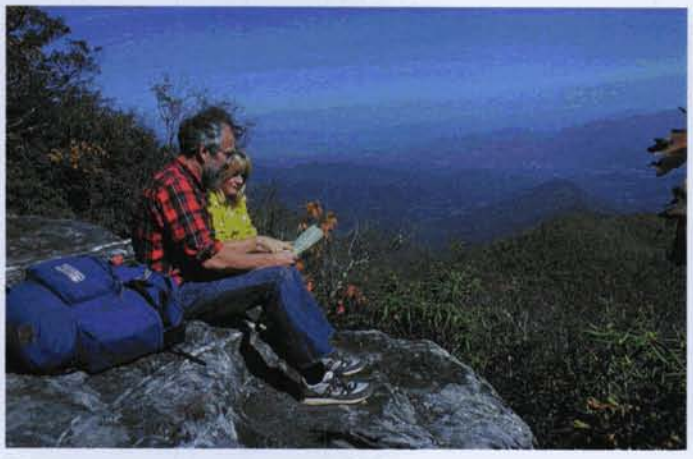
Principles and premises for the Scenery Management System are based on research findings and 20 years' experience with *The Visual Management System.* The principles and premises are presented to give the reader an insight into the logic behind the Scenery Management System.



Fundamental Principles

1● Biological, physical and social factors create and influence scenery and interact to determine landscape character.

2● Landscape character varies greatly with the interaction of environmental factors.

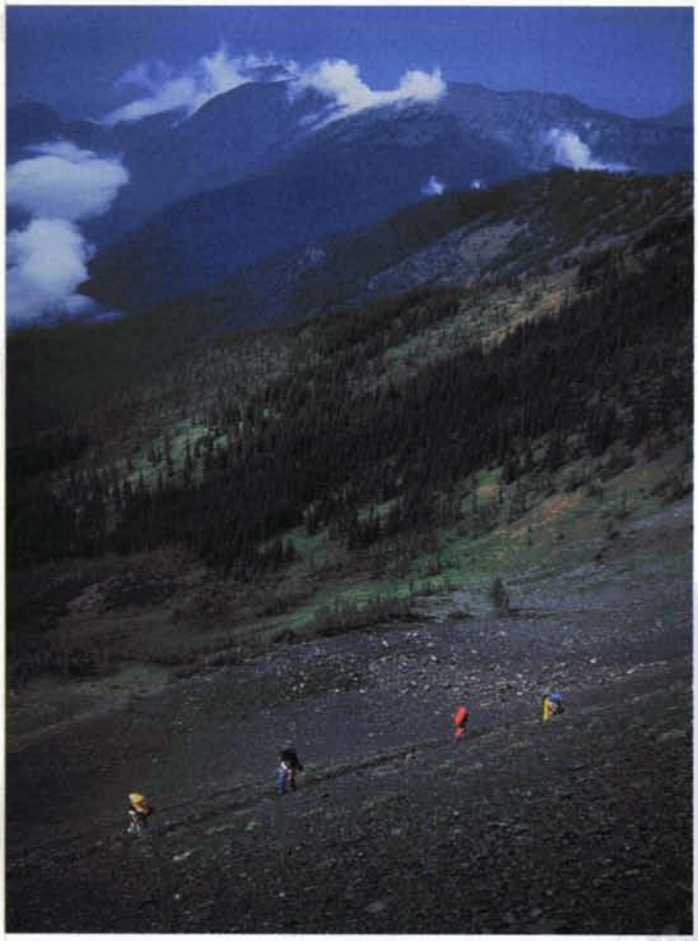


3● People have the ability to perceive landscape character and develop **expected images**.

4● Through various activities, people have the ability to modify landscape character and scenic conditions and have often done so.

5● Such changes in landscape character and scenic condition often modify, suppress, or replace the original landscape character.

6● People value most highly the more scenic landscapes.



7● Generally, **natural-appearing landscapes** are the most valued.

8● Resource managers can design their activities to reduce adverse impacts on landscape character and scenic integrity.

9● People have the ability to establish goals to maintain or create **desired landscape character**.

10● People have the ability to apply ecological, technical, and design knowledge to meet scenery management goals and objectives.

11● In some situations, resource managers perptuate or create desired scenic environments to provide an improved quality of life.

Basic Premises

1. People value highly scenic landscapes.

- Research shows that there is a high degree of public agreement regarding scenic preferences. This research indicates that people value most highly the more visually attractive and natural-appearing landscapes. However, the fact that preferences may vary somewhat in different regions or cultures must be recognized.

- Constituents have a voice, through forest planning, in establishing landscape character goals and scenic integrity objectives.

2. Scenery contributes to a "sense of place", a mutually shared image.

- *"The majority of the recreation-oriented people who visit the National Forests have an image of what they expect to see. Such an image or mental picture is generated by available information concerning a particular area and the person's experience with that or similar areas. The image produced represents the knowledgeability, expectedness, romanticism, and emotionalism associated with features within the area. Obviously, several images may exist simultaneously, even within a single individual, and yet a particular geographic region tends to have an identifiable image."* Floyd Newby, 1968.

3. Landscape character can be defined and managed.

- All landscapes have definable landscape character attributes. In most national forest settings, landscape character attributes are positive natural elements, such as landform, vegetative patterns, and water characteristics. In pastoral or rural/agricultural settings, positive cultural elements may include historic elements such as split rail fences, stone walls, barns, orchards, hedgerows, and cabins. In urban settings, landscape character attributes may include a fabric of architectural styles. Combinations of these attributes define landscape character. The concept of landscape character is embodied in the "image of an area."

- Landscapes that contain both diversity and harmony have the greatest potential for high scenic value.

- Existing landscape character can be described at any scale associated with the aesthetic image of a place or landscape.

4. Scenic attractiveness is important to constituents and is defined and mapped.

- Scenic attractiveness measures the scenic importance of a landscape based on human perceptions of the intrinsic beauty of landform, water characteristics, and vegetation pattern. In combination, these attributes determine the natural scenic beauty of a landscape.

- Environmental factors and natural forces create scenic attractiveness.

- Scenic attractiveness can be described as combinations of attributes in natural or natural-appearing landscapes. Landscape architects have developed criteria to

inventory and map scenic attractiveness into three classes: A—Distinctive, B—Typical or Common, and C—Indistinctive.

- In addition to mapping natural attributes of landform, water characteristics, and vegetation patterns, it may also be appropriate to map scenic attractiveness based on positive cultural elements, such as split-rail fences, stone walls, barns, orchards, hedgerows, and cabins.

5. Natural events may affect scenic attractiveness; generally, human activities do not.

- Scenic attractiveness of landscapes may be altered, either temporarily or permanently, by natural events such as hurricanes, tornadoes, floods, volcanic eruptions, earthquakes, and wildfires.

- In most cases, human activities cannot modify scenic attractiveness. It remains constant, even if a direct human activity, such as timber harvesting, alters scenic integrity. An indirect human activity, such as fire suppression leading unintentionally to plant species succession, may affect scenic integrity and diversity of vegetative character.

6. People cannot always distinguish between natural landscapes and those resulting from historic cultural alterations.

- Over time, some areas have been changed in a manner that creates a new landscape character with positive scenic attributes. These are called desired pastoral landscapes. For instance, pithouse-village sites can add texture to a landscape. The house pits and modified vegetation can increase scenic diversity due to the rich soils and water retention capability of these sites.

- Cultural landscapes are those with elements (either structural, e.g. fences, buildings, or roads, or modified natural areas, e.g. fields, hedgerows, windbreaks, canals, or earth mounds) that produce an integrated whole reflecting a primary cultural activity. Examples include farmsteads, military posts, and plantations.

- Examples of these desired pastoral landscapes include natural-appearing former cotton plantations now revegetated with forests, the mixed forests and fields of the Shenandoah Valley lands that have been cleared to create large open valleys, and mountaintop clearings or "balds" that offer unique scenic viewing opportunities.

7. The public values cultural enclaves in landscapes that are natural or natural-appearing.

- Small areas within natural or natural-appearing landscapes, historically modified but having a new character with positive scenic attributes, are called desired cultural enclaves. These cultural enclaves are normally small points or nodes within larger natural-appearing landscapes.

- Cultural enclaves normally remain subordinate to the overall landscape. They include such elements as historic structures, split rail fences, stone walls, orchards, and other cultural attributes.

8. Scenic integrity is important.

- Scenic integrity is defined as the degree of direct human-caused deviation in the landscape, such as road construction, timber harvesting, or activity debris. Indirect deviations, such as a landscape created by human suppression of the natural role of fire, are not included.
- Scenic integrity is evaluated by measuring degree of alteration in line, form, color, and texture from the natural or natural-appearing landscape character or from the established landscape character accepted over time by the general public. This is done by measuring changes in scale, intensity, and pattern against the attributes of that landscape character.

9. Visual absorption capability is an important tool.

- Different landscapes have differing intrinsic abilities to absorb human alterations without loss of landscape character and without reduction in scenic condition.
- Visual absorption capability depends on the landscape character attributes, landform complexity, and environmental factors, such as climate.

10. Desires of constituents must be considered.

- Constituents demand protection and management of scenery in national forests. They have expectations, desires, preferences, behaviors, acceptable levels of quality, and values of landscape character and scenic integrity.
- Not all landscapes currently exhibit landscape character or scenic integrity desired by the public.

11. Desires of constituents are synthesized into preferred landscape character and preferred scenic integrity for use in forest planning.

- Landscape architects and forest planners, with the help of ecologists, silviculturists, and others, determine landscape character themes. These themes must recognize both biological capability and economic reality.

12. Landscape visibility is significant.

- People view all lands from *somewhere* at *some time*. Landscape visibility is subject to many essential, interconnected considerations. These include context and experiences of viewers, expected images, position of observer in the landscape, number of people, and viewer scrutiny of the landscape caused by duration of view, viewing distance, air clarity, and visual magnitude.
- Observer position depends on location of travel routes, residences, recreational areas, and bodies of water.
- A landscape readily accessible to viewing by large numbers of people is often subject to greater scrutiny of its landscape character and scenic integrity. The context of view, experiences of viewers, and expected image of viewers also affect landscape visibility.

- People have greater scrutiny of landscape character and scenic integrity when they view landscapes close-up and for longer periods of time, or when they look at landscape surfaces from aerial views or at nearly perpendicular angles in steep terrain. People also have greater scrutiny of landscape character and scenic integrity when they view landscapes in a clear atmosphere or when landscape compositions focus their attention.

- Landscape visibility can be maintained or improved by developing vista sites, or reduced by vegetation regrowth or various management activities.

13. Types of viewers are important.

- Different types of people, engaged in specific activities, have varied concerns about scenic beauty of landscapes.

- Types of viewers will vary by geographic region, as well as by travel route or use area, such as a developed recreation site, urban area, or backcountry area. Viewer expectations will vary according to the landscape setting and available recreation opportunities, primary motives of the viewer, and location, standards, and uses of travelways.

- Constituents' varied concerns and expectations need to be identified and recognized to determine the relative importance and value of aesthetics in a national forest.

14. Management activities vary in their intensity.

- Some national forest resource management activities, such as range improvements, at least have potential for adverse effects on scenery. Others, like some timber harvest methods, have major scenic effects.

- How visual elements of line, form, color, texture, and pattern of such activities relate to, or contrast with, natural landscape character attributes is important because we have the ability to alter, conserve or damage landscape character.

- Scenery management goals must consider other national forest resource management activities.

15. Landscape settings required for certain management activities are important.

- In certain cases, natural landscapes need to be maintained in order to meet goals for landscape settings for other resources. Such goals may include **landscape character** and **scenic condition** to meet some wildlife habitat needs, spiritual, recreational, watershed, or other resource management goals and objectives.

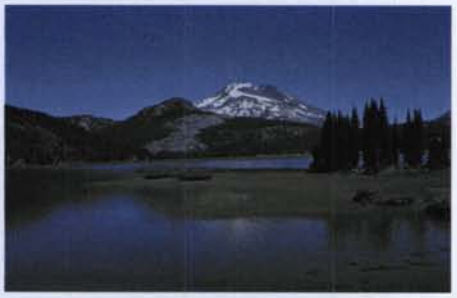
- In many instances, other resource management goals will be complementary to natural or natural-appearing landscape character goals and the associated scenic integrity objectives. In these cases, all resource goals will reinforce each other.

- On the other hand, certain combinations of resource goals may compete with each other. Mineral extraction and some timber harvest methods, for example, may require alteration of natural or natural-appearing landscape character and the associated scenic integrity objectives.

16. Diversity is desirable.

- Harmonious diversity in any landscape generally enhances scenic beauty. Increasing scenic diversity may lead to an increased level of public acceptance. Increased scenic diversity may also allow for greater ecological diversity.
- However, scenic diversity needs to be selective and is not always aligned with ecological diversity. Activities undertaken to improve scenic diversity should be weighed against their possible negative effects on sustaining ecological systems.
- Conversely, activities proposed to create diversity toward a sustainable ecosystem could lead to undesirable scenic effects if care is not taken to consciously manage scenery.

17. Harmony is desirable.



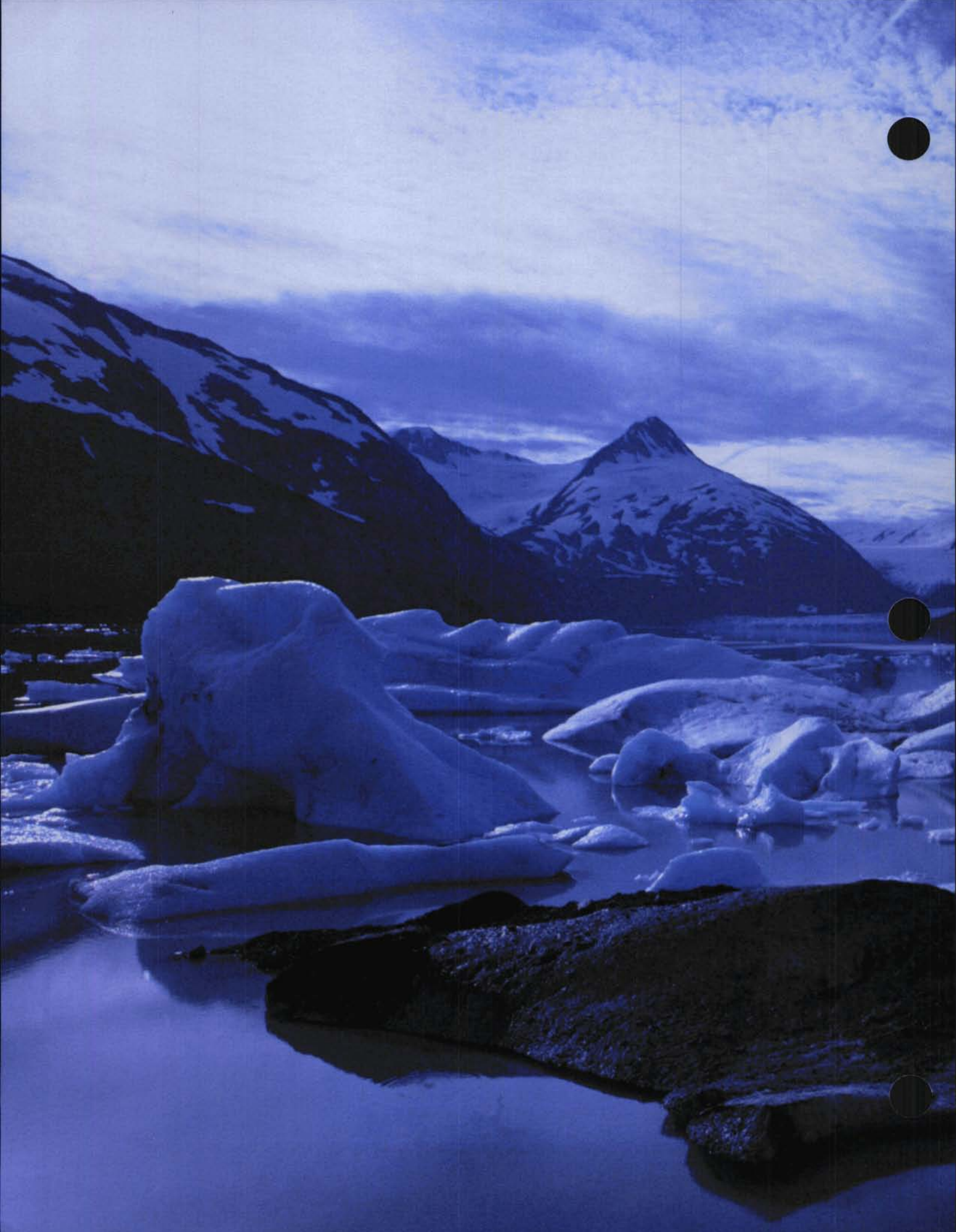
- Harmony in the landscape generally increases scenic beauty. The public will normally not be aware of action taken to maintain visual harmony; it generally sees only discordant elements. Landscape harmony will lead to an increased level of public acceptance.
- However, management activities are not always aligned with landscape harmony; activities to manage other resources may destroy the harmony of a landscape. Land managers must weigh such activities against their possible negative effects upon landscape harmony.

18. Special places are important.

- Special places are locations in the landscape with unique importance and meaning. At times, special places are isolated, small areas or spots; at other times, they are large areas of land.
- Special places often have "place names" indicating local or regional significance. Special places may be merited strictly because of scenic attributes.
- Large special places of scenic value include areas such as Mt. Rogers in Virginia, Shining Rock in North Carolina, Redfish Lake in Idaho, and the Columbia River Gorge in Oregon and Washington.
- They may also be small areas, such as a rocky grotto, a grove of unique trees, a special camp spot, a small pond or bog, or an isolated rock outcrop. Special places may be remnant vegetative communities or vegetative communities that exist far removed from their normal range.

19. Variations in cultures

- Though the ability to appreciate beauty is strongly linked to culture and varies from individual to individual and group to group, there are cross-human commonalities in the perception of beauty. In other words, beauty is not totally in the "eye of the beholder"; there are some cross-cultural physiological bases of aesthetics.



Chapter 1
Landscape Character

Landscape Character descriptions are a combination of the objective information contained within ecological unit descriptions and the cultural values that people assign to landscapes. Together they help define the meaning of "place", and its scenic expression.

Landscape Character

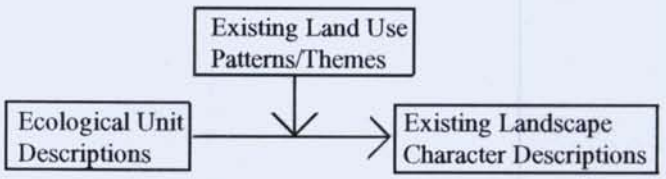
Landscape character is an overall visual and cultural impression of landscape attributes—the physical appearance and cultural context of a landscape that gives it an identity and "sense of place."

Purpose

Landscape character gives a geographic area its visual and cultural image, and consists of the combination of physical, biological and cultural attributes that make each landscape identifiable or unique. Landscape character embodies distinct landscape attributes that exist throughout an area.

Discussion

Develop landscape character descriptions using base information from ecological unit descriptions supplemented with existing land use patterns or themes as illustrated in the diagram below.



Existing landscape character may range from predominantly natural landscapes to those that are heavily culturally influenced. The Existing Landscape Character description includes the natural scenic attributes of the landscape in combination with the existing land use pattern (or landscape character theme). Identifying some negative features such as mines or powerlines may help define the positive attributes valued by people.

The term Landscape Character Theme refers to images of the landscape that can be defined with a list of scenic attributes. For instance, naturally evolving, natural appearing, pastoral, agricultural, or even urban landscapes all can have scenic attributes that can be described within the context of a general theme. This image or theme becomes a key component in combination with the natural scenic attributes of land form, rock form, water form, and vegetation to describe landscape character.

At very broad scale planning (i.e. Province or River Basin scales) a spectrum of existing land use patterns or themes can be used to assess human use on the landscape as illustrated in the two examples below:

Columbia River Basin Assessment	Southern Appalachian Assessment
Natural Evolving Forest and Shrub/Grassland	Natural Evolving
Natural Appearing Forest Lands	Natural Appearing
Natural Appearing Shrub/Grassland	Rural - Forested
Agricultural Lands	Rural - Pastoral/Agricultural
Developed Lands	Transitional - Mixed Use
	Suburban
	Urban

A description of landscape character normally will include:

- How the landscape has developed over time using information from archeologists, historians, ecologists, and others familiar with the landscape being studied.
- Potential landscape character... i.e. information from potential vegetation inventories.
- The existing landscape attributes such as landform, vegetative pattern, water characteristics, and cultural features.
- Existing landscape attributes which affect the senses of the aesthetic experience other than sight i.e.: sound, smell, taste, touch include:
  - Habitat of native wildlife that has particularly colorful sounds
  - Native vegetation that has a uniquely fragrant spring flower
  - Mix of vegetative species that have both course and fine textures adding a tactile dimension
  - Vegetative species that add both sound and sight (i.e., quaking aspens)

The purposes of existing landscape character descriptions are:

- to establish the current overall visual impression of a landscape, the physical appearance of the landscape that contributes to an identity and a "sense of place."
- to provide a reference from which to compare existing landscape character to desired landscape character.
- to provide a reference for changes in landscape character as the landscape progressed toward the character goal.
- to establish a baseline from which to measure scenic integrity.

Attributes

Following are examples of landscape character attributes in national forests.



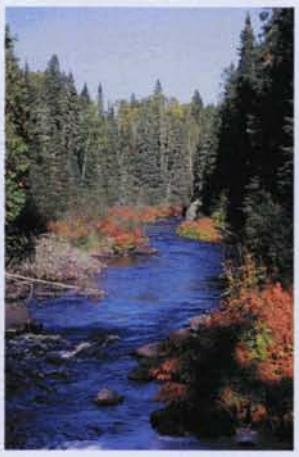
Groves and clumps of trees and shrubs intermixed with natural-appearing openings.



A uniform closed canopy of overstory vegetation.



Openings in the canopy of overstory vegetation.




Drifts of hardwoods and shrubs in drainages in predominantly coniferous forests that further define topography.


Unique rock formations.

Bluffs, rock outcrops, or other unique landforms.

Balds.

Bodies of water

Structures that have positive cultural connotations and are recognized as scenic attributes.

Scattered groups of conifers in a hardwood forest to accentuate color and texture in all seasons.

Variations in depth of view and spatial character.

Body of water.

Mixture of open forest and dense undergrowth beneath tall trees, and multistory forests.

- **Existing landscape character** may be identical in a number of widely scattered areas if those areas have similar attributes.

Wetland in Huron-Manistee National Forest
State of Michigan

Wetland in Wenatchee National Forest
State of Washington

State of Alaska
Coastal Hill Landscape Province

State of Washington
Northeast Cascades Landscape Province

- As stated previously, **natural landscape character** originates from natural disturbances, succession of plants, or indirect activities of humans (see p. 1 - 3). The existing landscape character continues to change gradually over time by natural processes unless affected by drastic natural forces or indirect human activities. An example of a drastic natural force is a volcanic eruption.

Mt. St. Helens, Gifford-Pinchot National Forest
Volcanic eruption, May 1981

- In a **natural-appearing landscape**, the existing landscape character has resulted from both direct and indirect human activities. Landscape character may have changed gradually over decades or centuries by plant succession unless a concerted effort was made to preserve and maintain cultural elements through processes such as prescribed fires or cultural activities such as farming.

- The following examples of **existing landscape character** in National Forest System lands differ widely from each other, yet fall within the context of **natural** or **natural-appearing landscape character**. View each landscape in terms of landform, rockform, waterform, vegetation, or positive cultural elements—log cabins, split rail fences, or orchards.

Oregon Dunes, Siuslaw National Forest

Broad Valley Rockies

Sonoran Desert

Green River, Bridger-Teton National Forest

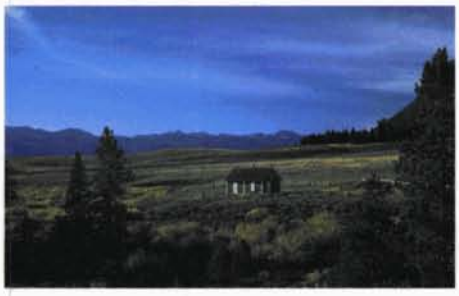
San Juan Mountains, Colorado

Bighorn National Forest, Wyoming

Superior Uplands

Superior National Forest

East Mexican Highlands



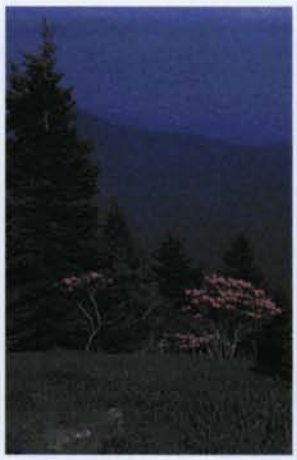
Malheur National Forest

Sawtooth National Forest

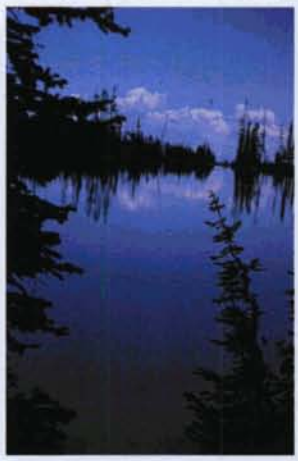
Hood River, Oregon

Glacier Bay, Alaska

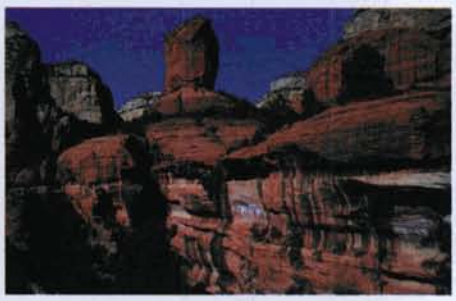
Caribbean National Forest



Pisgah National Forest



Strawberry Wilderness
Malheur National Forest



The Pillar, Coconino National Forest

Sierra National Forest

Punchbowl Lake, Tongass National Forest

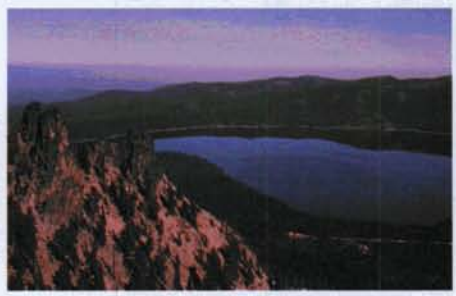
Bitterroot National Forest

Middle Missouri River

Byron Glacier, Chugach National Forest

Rita Blanca High Plains, New Mexico

Mt. Adams, Gifford Pinchot National Forest



Paulina Lake, Deschutes National Forest

Ecosystem Framework

The landscape character description should be developed within an ecological framework similar to the one described below.

Ecosystems

The concept of ecosystems brings the physical, biological, and human dimensions together into a holistic framework within which ecological systems can be described, evaluated, and managed (Rowe 1992). In order to provide a scientific basis for evaluating ecosystems and implementing ecosystem management at national, regional, and forest planning levels, the National Hierarchical Framework of Ecological Units (Framework) was developed in 1994 (ECOMAP 1993). It is a "classification and mapping system for stratifying the Earth into progressively smaller areas of increasingly uniform ecological potentials for use in ecosystem management."(Ibid : 1).

Ecosystems exist at many spatial scales. They can be conceptualized as occurring in a nested geographic arrangement with many smaller ecosystems embedded in larger ones (Allen and Starr 1982, O'Neill et al. 1986, Alvert et al. 1986 as cited in ECOMAP 1993). This nested arrangement forms a hierarchy of ecological units that are organized in decreasing order of scale and increasing amount of detail.

Ecological Units

Ecological units are the mapped landscape analysis units used for ecosystem planning and management. They enable planners to assess resource conditions at multiple scales and time periods. Ecological units are delineated by the spatial distribution of natural associations of dominant ecological (abiotic and biotic) factors that affect the structural and functional attributes of ecosystems. In addition ecological unit descriptions also include pertinent social and cultural factors. Ecological factors used in ecological unit descriptions include the following:

Geomorphology
Lithology and Stratigraphy
Soil Types
Vegetation Associations (Communities)
Habitat Types
Fauna
Climate
Slope/Aspect/Elevation
Surface Water Characteristics
Disturbance Regimes
Land Use
Cultural Ecology

The visual image created by the physical, biological, and cultural factors included in the unit descriptions helps define the landscape character of an ecological unit or geographic area. This includes past, existing, and future landscape character.

When the Framework was established, it was recognized that as the system was applied and new information was incorporated, adjustments would be necessary. New hierarchies have been developed as the Framework has been used in an ever-widening variety of planning and resource analysis applications, but they all use the same concept of hierarchical size and scale. They differ in the combinations of ecological factors and objectives used to delineate and describe the ecological units.

The most common hierarchies are shown in the chart on the following page. The planning team on a Forest will choose which hierarchy to use. This information is presented here to help you understand the relationships between the many terms used in ecosystem management.

Hierarchical Levels	Planning & Analysis Ecological Units	Terrestrial Ecological Units	Aquatic Units
Regional	Domain --- Division --- Province	Domain --- Division --- Province	River Basin
Subregional	Section --- Subsection	Section --- Subsection	Subbasin
Landscape	Physiographic Area	Landtype Association	Watershed
Site	Ecological Land Unit (ELU) --- Community --- Stand	Landtype --- Landtype Phase --- Site	Valley Section --- Stream Reach --- Channel Unit

Most ecosystem management projects focus their analysis on two or three scales of ecological units rather than an entire hierarchy. Forest-level projects generally use the Landscape and Subregional scales, with finer Site scales included where greater detail is needed. The Landscape scale consists of ecological units generally between 100's to 1000's of acres. The Subregional scale includes units which range in size from 10's up to 1,000's of square miles.

In general, the Scenery Management System uses the same ecological units for visual analysis. On some projects, however, it may be necessary to develop analysis area boundaries which differ from ecological unit boundaries. Ecological units can be aggregated or divided in order to focus on relevant issues and concerns. In these cases it is especially important to refer to the ecological unit descriptions for the scales both above and below that of the analysis area.

Mapping Process

Landscape character is described for an identifiable area of a national forest or a region.

For broad-scale planning, landscape character is described for sections or subsections in the National Hierarchy of Ecological Units. For forest planning, and landscape analysis purposes, it may be beneficial to describe landscape character for a smaller unit such as a Land Type Association (LTA) or an Ecological Land Unit (ELU), or aggregations of units that might form a larger geographic area such as a watershed, a viewshed, or other administrative units.

Each description focuses on key attributes found consistently throughout the mapped unit. The description succinctly conveys "word-pictures" to the reader to create an image of the landscape. The narrative includes a concise description of landscape character for landform patterns, water characteristics, vegetation patterns, and cultural elements. Greater emphasis is usually placed on description of vegetation than on description of other attributes, because vegetation is more easily changed than other attributes in a national forest setting.

The existing landscape character may be a result of a major natural disturbance such as a large-scale, high-intensity wild fire. It should be described exactly how it appears including a fire created vegetative mosaic at the large scale and blackened trees at the small scale.

The narrative may be brief, as in the first example below, or may contain more detail, as in the second. The amount of detail depends on landscape complexity, level of planning, and management needs.

In both examples the emphasis is on a description of the existing vegetation, landforms, and water characteristics. Information on appropriate ecological units might come from Ecological Subregions of the United States by McNab and Avers. How landscape character has developed over time may come from personal interview and publications from ecologists, archaeologists, historians and others. Potential character may be taken, in part, from potential vegetation inventories.

Brief Example:

Existing Landscape Character
Northern Hardwoods on Flat Terrain

The flat to gently rolling landform of the landscape is blanketed by an almost continuous canopy of soft-textured, rounded treeforms, creating a natural-appearing landscape character. The tree canopy is broken only slightly by stream courses, small lakes, wetland vegetation, and scattered patches of coniferous evergreen trees. There are no major rockforms visible from aerial views or from on-the-ground views. Scattered glacial boulders are visible amidst understory shrubs in immediate foreground views. Although there is a diversity of deciduous tree and shrub species, they are intermixed to the point that there is an overall similarity of scenic effect from aerial and on-the-ground views. Vegetation density prevents most views beyond immediate foreground. Just out of this view, occasional pine plantations break up some of the sameness of the vegetation. However, the highly contrasting geometric forms of the plantations visually clash with the patterns of the natural-appearing landscape character.

Detailed Example:

Existing Landscape Character
Coastal Flats in Florida

The existing landscape character of "Coastal Flats" is scattered throughout several different areas of various sizes in Florida. In general, the landform surface is a young marine plain with sand hills and swamps. The terrain is nearly level to gently rolling, a tilting plain, ranging in elevation from sea level to 150 feet, having a few isolated hills up to 250 feet high. About one-fourth of a typical coastal plain is forest; the remainder is saw-palmetto, gallberry, Southern wax myrtle, and fetterbush. Longleaf pine, slash pine, and wiregrass are the dominant vegetative species.

The viewer perceives a predominantly natural landscape having some evidence of human disturbance. Natural disturbances (including fires, storms, insects, and diseases) and recovery processes have the greatest influence on vegetation patterns. Yet, here and there, the observer notices small openings in the forest where vegetation has been modified to enhance recreation pursuits, such as hiking, nature photography, and wildlife viewing. In addition, the landscape may occasionally be interrupted by a narrow road corridor, plowed fireline, or a small campground having rustic facilities.

Pine forests are relatively open. The openness is interrupted by dense vegetation in wetlands, small hardwood patches, and patches of pine saplings. While trees occur in various sizes, the majority are very large—with heights of 85-to-95 feet respectively for longleaf and slash pine, diameters of 29-to-32 inches, and ages reaching 175-to-275 years. Some very old longleaf pine trees having distinctive flat tops are dispersed throughout the coastal plains. Generally, at least two distinct age-classes of trees are found growing together. Proximity of trees ranges from 10-to-40 feet. Dead trees, both standing and fallen, are present, as are old pine stumps. Most of the tree trunks are blackened to various degrees. Plowed firelines around some recent wildfires may be seen, but there is no evidence of firelines elsewhere.

In most of the pine forests, understory is low—only 3 feet tall. Some areas are dominated by shrubs such as gallberry and palmetto, while others are dominated by a mixture of grasses and herbs. In drier areas, a small number of plant species are found in the understory. Moister forests may have understories where more than 150 plant species grow.

Wetland forest inclusions may be dominated by a mixture of hardwood and pond cypress or by a mixture of hardwood and pine. Canopy trees are generally evergreen species, and the understory may be densely covered with saplings of canopy species and a mixture of evergreen shrubs and vines. Few herbs grow in these areas.

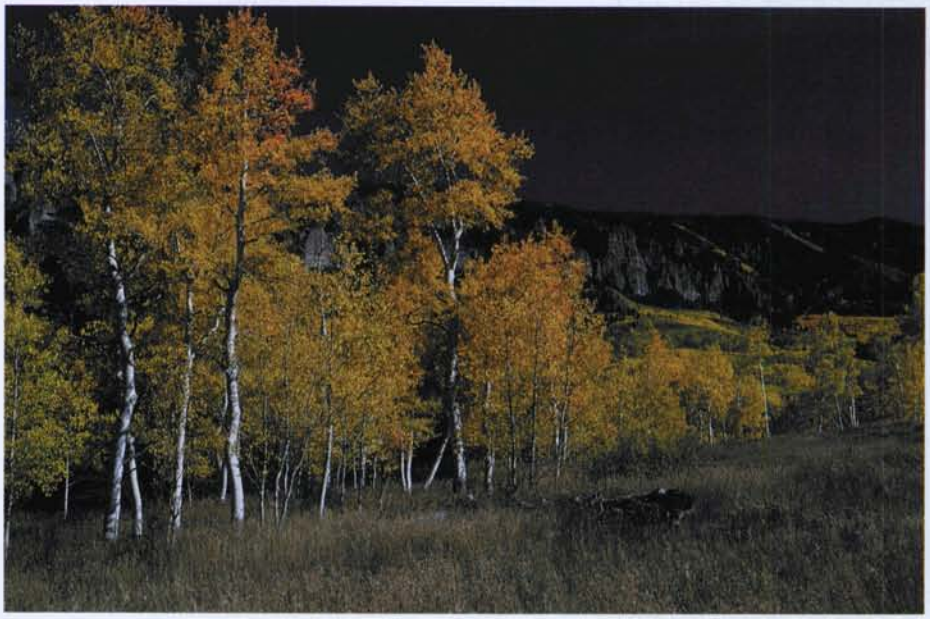
Naturally treeless or nearly treeless areas are present. Most often, these are dominated by a herbaceous community of mixed grasses and other flowering plants. In some areas, the herbaceous community may contain only a few species; in other areas, over 150 different kinds of herbs may be found. Hardwood forests adjacent to the rivers have a continuous canopy of trees of mixed species. There are saplings in the understory, small trees in the subcanopy, and large trees in the canopy. They grow in height to 87 feet, in diameter to 29 inches, and in age to 200 years. The distance between trees can exceed 50 feet or more. Within these forests, the understory is somewhat open and consists of shrubs, forbs, and saplings.

While walking in coastal flats, a visitor often experiences isolation from the sights and sounds of other people. Coastal flats are usually relatively large areas, encompassing at least 2,500 acres. (Other areas, including the scenic free-flowing rivers, are smaller because of particular physical features that enhance the feeling of isolation.) A visitor encounters few other people while passing through a typical coastal flats area. Rivers, streams, and a small number of primitive trails and roads provide the only access into the area. People using these travelways are most likely to be canoeists, hikers, equestrians, and hunters. No facilities exist except for limited signing, sanitary and safety needs, and boat pull-ups along rivers. On-site controls are not often present. In rare instances, artificial features, such as power lines, may be seen connecting private lands within the area.

Roads are seldom seen. On the few roads that exist, traffic is seldom encountered and consists of administrative and timber-harvesting vehicles. Roads have native-earth surfaces and conform in height to surrounding terrain. The roads on uplands generally do not have ditches, while those in low areas do. A few low drainage points—bay crossings and streams—have low-water rock crossings. Road closures exist at entrances to coastal flats. Roads are rough and irregular; travel using a low-clearance vehicle is very difficult. A few remnants of roads, which lead from permanent roads to occasional small openings, are visible.

Scenic Attractiveness

Scenic attractiveness measures the scenic importance of a landscape based on human perceptions of the intrinsic beauty of landform, water characteristics, vegetation pattern, and cultural land use.



Purpose

Scenic attractiveness is the primary indicator of the intrinsic scenic beauty of a landscape and of the positive responses it evokes in people. It helps determine landscapes that are important for scenic beauty, based on commonly held perceptions of the beauty of landform, vegetation pattern, composition, surface water characteristics, and land use patterns and cultural features.

Discussion

- The existing landscape character description, generally at the Section scale, is the frame of reference for scenic attractiveness.

- Each landscape expresses unique scenic qualities. Scenic attractiveness indicates the potential of a landscape to produce varying degrees of satisfaction, of positive physiological responses; such as reduced stress; positive psychological responses; and a general feeling of well-being.

- Cognizant of commonly held perceptions of intrinsic beauty and constituent preferences, classes of scenic attractiveness are mapped for all national forest landscapes.

- Scenic attractiveness, in its purest definition, exhibits the combined effects of the natural and cultural forces in the landscape. People value all landscapes, but they regard those having the most positive combinations of variety, vividness, mystery, intactness, coherence, harmony, uniqueness, pattern, and balance as having the greatest potential for high scenic attractiveness.

- Scenic attractiveness indicates varying levels of long-term beauty of the **landscape character**. Scenic attractiveness is ordinarily very stable.

- However, *in rare instances,* scenic attractiveness may change because of natural disasters or because of extreme human alteration of the landscape. Changes may increase the potential for a "typical or common" landscape to become "distinctive." An example of changed scenic attractiveness is a landscape having a new recreational reservoir that has provided improved scenic quality and recreational opportunities.

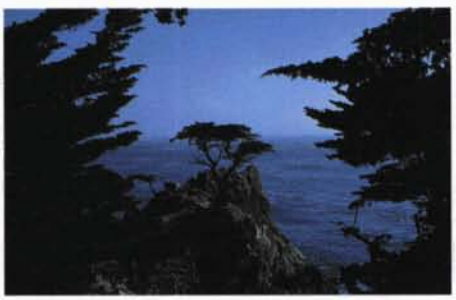
1• Variety in the landscape creates added interest when present in moderation.

5• Intactness is related to unity and also indicates wholeness—few or no missing parts in a landscape.

9• Pattern includes pleasing repetitions and configurations of line, form, color, or texture, as well as harmony.

2• Unity in a landscape provides a sense of order that translates into a feeling of well-being.

6• Coherence describes the ability of a landscape to be seen as intelligible, rather than chaotic.



3• Vividness is related to variety as well as contrast, adding clearly defined visual interest and memorability.

7• Harmony is related to unity. It exhibits a pleasant arrangement of landscape attributes.

10• Balance in some ways reflects unity and harmony, but even more it displays a state of equilibrium that creates a sense of well-being and permanence.

4• Mystery arouses curiosity and adds interest to a landscape.

8••Uniqueness of a landscape also arouses curiosity and often signifies scarcity, rarity, and greater value.

The combination of valued landscape elements such as landform, water characteristics, vegetation, and cultural features, are used in determining the measure of Scenic Attractiveness.

1. Landform Patterns and Features:
   Includes characteristic landforms, rock features, and their juxtaposition to one another.

2. Surface Water Characteristics:
   The relative occurrence and distinguishing characteristics of rivers, streams, lakes, and wetlands. Includes features such as waterfalls and coastal areas.

3. Vegetation Patterns:
   Relative occurrence and distinguishing characteristics of potential vegetative communities and the patterns formed by them.

4. Land Use Patterns and Cultural Features:
   Visible elements of historic and present land use which contribute to the image and sense of place.

In many landscapes temporal, variable, cultural, and other visual elements that may change in appearance over time are scenic attributes that often contribute significantly to, or even dominate the scenic quality and character of the landscape. Though the visual character and scenic value of these elements may vary through time, the change is usually slow and not detectable for several planning cycles or even human life spans, unless manipulated. It is often places that possess high quality temporal or culturally influenced scenic attributes, that visitors consider "Special Places". It is primarily through influence on the management and manipulation of these elements that SMS attempts to protect, conserve and enhance the scenic resource. These elements may be rated at various levels of scenic value or attractiveness.

Scenic attractiveness classifications are:

Class A—Distinctive.
Class B—Typical.
Class C—Indistinctive.

Class A—Distinctive
Areas where landform, vegetation patterns, water characteristics, and cultural features combine to provide unusual, unique, or outstanding scenic quality. These landscapes have strong positive attributes of variety, unity, vividness, mystery, intactness, order, harmony, uniqueness, pattern, and balance.

Class B—Typical
Areas where landform, vegetation patterns, water characteristics, and cultural features use combine to provide ordinary or common scenic quality. These landscapes have generally positive, yet common, attributes of variety, unity, vividness, mystery, intactness, order, harmony, uniqueness, pattern, and balance. Normally they would form the basic matrix within the ecological unit.

Class C—Indistinctive
Areas where landform, vegetation patterns, water characteristics, and cultural land use have low scenic quality. Often water and rockform of any consequence are missing in class C landscapes. These landscapes have weak or missing attributes of variety, unity, vividness, mystery, intactness, order, harmony, uniqueness, pattern, and balance.

Mapping Process

Scenic Attractiveness does not necessarily fall into three distinct classes, but ranges from Distinctive to Indistinctive. In some situations it may be desirable to create sub-classes. Map scenic attractiveness **class A** lands first. The areas of outstanding scenic quality are generally well-known and are easiest to identify. If not completely familiar with the area being inventoried, learn more about such distinctive areas from longtime residents of the area and other resource specialists.

Verify potential class A areas using aerial reconnaissance, ground reconnaissance, and aerial photographs.

To ensure continuity when preparing a draft map of class A landscapes, include both National Forest System lands and other ownerships.

Next, map scenic attractiveness **class C** landscapes. Ordinarily, class C landscapes are not as well-known as class A landscapes. For the most part, they consist of large areas of undifferentiated landscapes that are discernible on aerial photographs and topographic maps. .

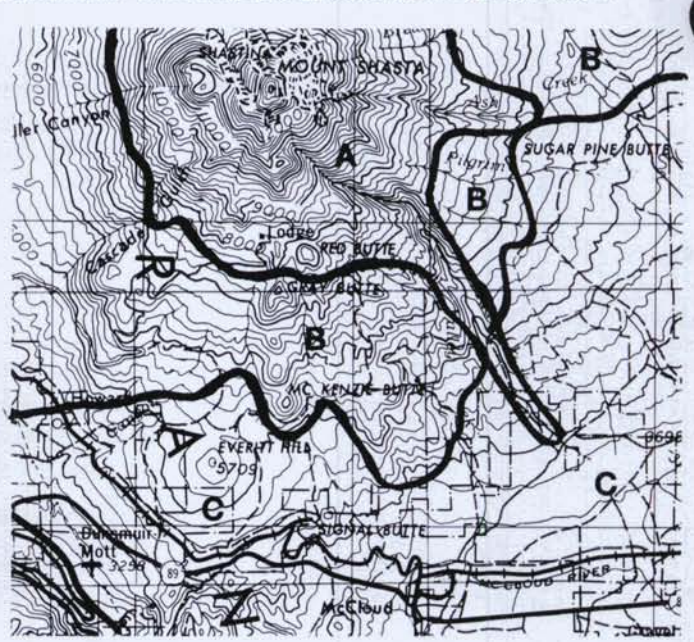
Prepare detailed maps on orthophoto quadrangles, when available, or on U.S. Geological Survey (USGS) 7-1/2 minute or 15 topographic maps using stereo pairs of color resource aerial photographs and ground observations for verification. On the final maps, avoid delineating classes of scenic attractiveness for other ownerships. However, remember that information on scenic attractiveness for other ownerships, retained on work maps, is often valuable for future needs, such as land acquisitions, land-exchange evaluations, or local agency planning coordination.

Upon completion of detailed mapping of class A and class C landscapes, the remaining landscape matrix is initially assumed to be **class B**. As a final check, scan class B areas using aerial-photo stereo pairs. Field check to ascertain whether any less definitive islands of class A or C exist within.

As directed by the Visual Management System inventory process, **variety classes** A, B, and C were mapped. Because three classes worked quite well, the Scenery Management System continues to use these classes for **scenic attractiveness**. There is no need to map scenic attractiveness a second time if variety classes are mapped correctly.

The landscape below illustrates the three classes of inherent scenic attractiveness.

Mt. Shasta, California
Class A / B / C



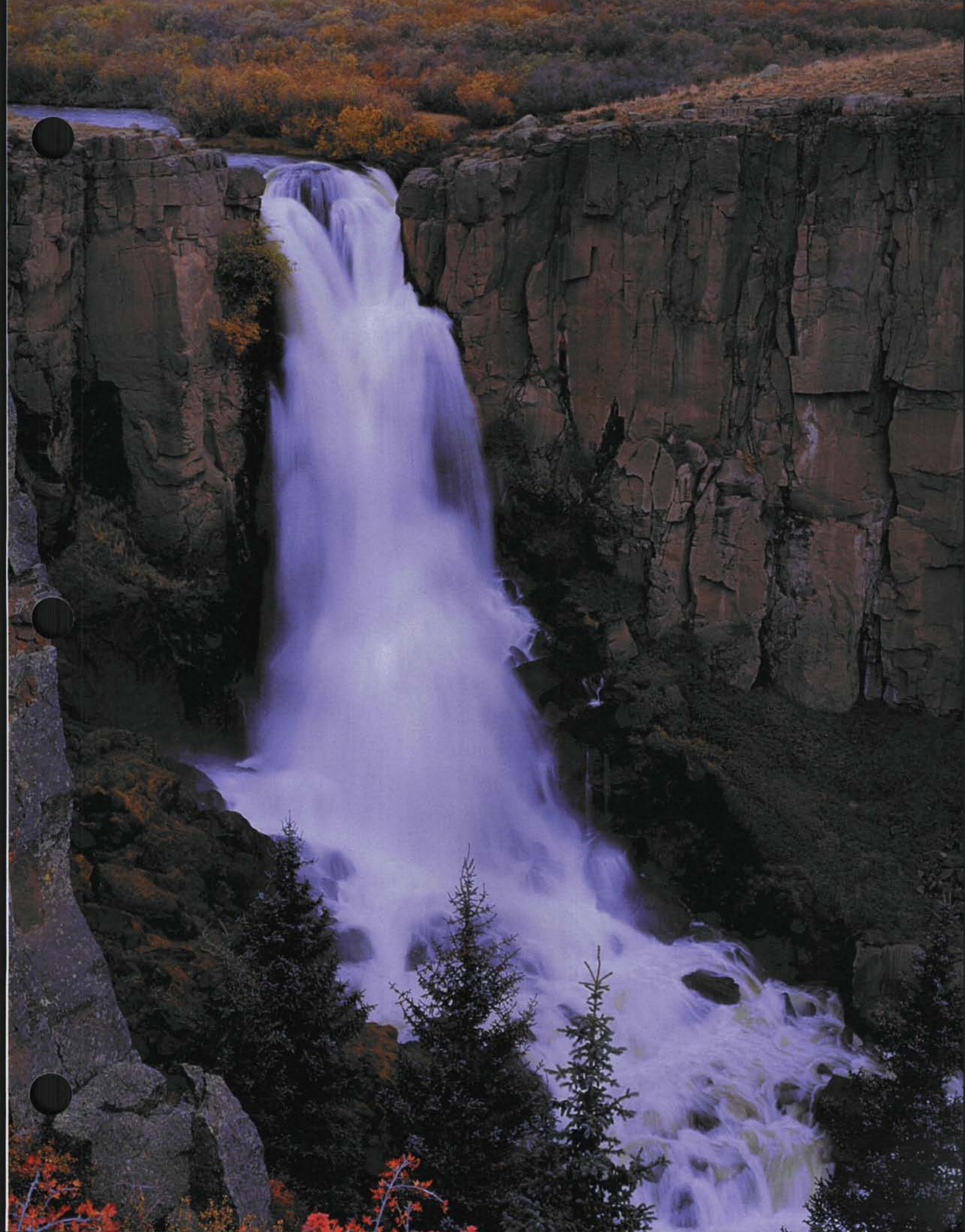
Topographic map of same area
Class A / B / C

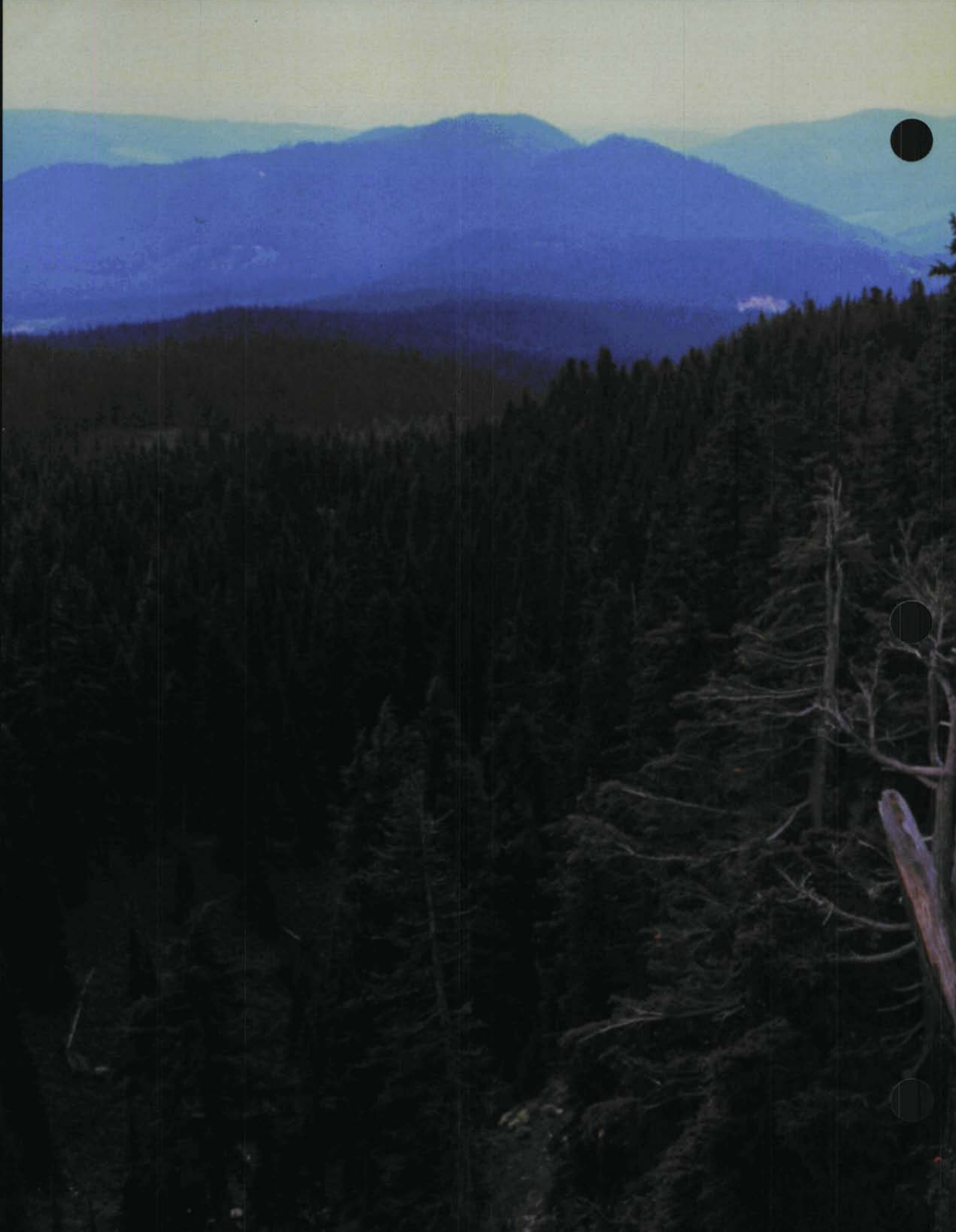
Inherent scenic attractiveness must also consider seasonal effects, such as spring color, fall color, and winter snow.

North Carolina

Oregon

Colorado





Chapter 2
Scenic Integrity

Scenic Integrity is a measure of the degree to which a landscape is visually perceived to be "complete." The highest scenic integrity ratings are given to those landscapes which have little or no deviation from the character valued by constituents for its aesthetic appeal. Scenic Integrity is used to describe an existing situation, standard for management, or desired future conditions.

Scenic Integrity

Scenic Integrity indicates the degree of intactness and wholeness of the landscape character. Human alterations can sometimes raise or maintain integrity. More often it is lowered depending on the degree of deviation from the character valued for its aesthetic appeal.

Definition

Most dictionaries have three definitions of integrity of which two are applied to managing scenery (1) the state of being whole, complete, entire or unbroken and (2) a sound unimpaired or perfect "condition." Landscape character with a high degree of integrity has a sense of wholeness, intactness, or being complete. Its scenic condition is near-perfect with no evident discordant elements or deviation from the existing character valued for its aesthetic appeal. For example, the landscape character in this photo is a natural-appearing continuous textured landform with no evident timber harvest, power line, roads, or other human alterations.

In the photo on the left, landscape character includes a positive cultural element of a historical cabin. Its structural form, color, texture, pattern, and scale of materials, supporting rock walls and steps are in concert with architectural style of the period and meets the publics psychological expectations for such elements. Most constituents accept the cabin as having a high degree of integrity.

Scenic integrity as used in ecosystem assessment and planning may include:

1. A historic or past state of integrity.

2. An existing or current state of integrity. The existing integrity is the baseline from which to develop number three.

3 An interim or short-term minimum level necessary to reach a long-term character goal.

4. A long-term level of integrity achievable when the long-term goal is reached. The character goal must be an integral part of a sustainable "Desired Condition."

Discussion

In its purest definition, "integrity" means perfect condition. However, in managing scenery degrees of integrity are defined as very high to very low.

Integrity in this handbook is limited to the deviations from or alterations of the existing landscape character that is valued for its aesthetic appeal.

Integrity could also be used to define the wholeness or condition of the ecosystem but it is assumed that will take place as part of the overall integrated ecosystem management process. However, a landscape character goal of high scenic integrity should also be one of high ecosystem integrity. One does not necessarily ensure the other.

In some situations, preferred scenic conditions such as absence of downed woody debris from timber harvest may run counter to the need for woody debris to provide wildlife food and cover, nutrient recycling, etc. Providing a high level of scenic integrity may in some cases have to be achieved through establishing an "ecological aesthetic," over time through knowledge and appreciation of how a healthy ecosystem functions and how we as humans fit into it.

Integrity could also be used to manage the attributes of landscape character: i.e. vegetative, pattern, form, line, color, texture, and scale; and other senses of aesthetic, such as sound, tough, smell, and taste. It is recommended these be handled through development of a landscape character goal.

Integrity levels as a measurement tool is highly dependent on a complete and accurate description of the positive attributes of the existing landscape character. This is the baseline from which to judge deviations. It should be drawn from credible research, i.e., Floyd Newby's findings that "people expect to see natural or natural-appearing scenery," or from Stanley White...architecture must be... "becoming to the (landscape) form as well as the completion of the meadows, woods, and slopes we presume to compliment...Landscape character should be intensified (by the architecture) not obliterated." Constituent preferences and expectations can also be drawn from professionally designed constituent surveys, interviews, observation of behavior, etc. See chapter on constituent information.

A complete and accurate description of character is also essential when a cultural element such as a historic structure is involved. Structures are usually valued by constituents when they have been accepted and valued over time i.e., covered bridges, split rail fences, old barns, and farmhouses. We recommend soliciting the help of professional historians and cultural ecologists in developing character statements for cultural features. Values to be considered should include traditional (community, family, individual), spiritual (visual quest), historic, experiential (i.e., Recreation), religious, cultural, etc.

Scenic integrity is a continuum ranging over five levels of integrity from very high to very low. Corresponding levels of existing scenic conditions and visual quality levels from the original Visual Management System are shown to the right of each level.

Scenic Integrity Levels

Frame of Reference

The frame of reference for measuring achievement of scenic integrity levels is the valued attributes of the "EXISTING" landscape character "BEING VIEWED". In Natural or Natural appearing character this is limited to natural or natural appearing vegetative patterns and features, water, rock and landforms. Direct human alterations may be included if they have become accepted over time as positive landscape character attributes.

The scenic integrity levels are shown below.

VERY HIGH (Unaltered)..... preservation

VERY HIGH scenic integrity refers to landscapes where the valued landscape character "is" intact with only minute if any deviations. The existing landscape character and sense of place is expressed at the highest possible level.

HIGH (Appears Unaltered)..... retention

HIGH scenic integrity refers to landscapes where the valued landscape character "appears" intact. Deviations may be present but must repeat the form, line, color, texture, and pattern common to the landscape character so completely and at such scale that they are not evident.

MODERATE (Slightly Altered)..... partial retention

MODERATE scenic integrity refers to landscapes where the valued landscape character "appears slightly altered." Noticeable deviations must remain visually subordinate to the landscape character being viewed. See section below on meeting integrity levels.

LOW (Moderately Altered)..... modification

LOW scenic integrity refers to landscapes where the valued landscape character "appears moderately altered." Deviations begin to dominate the valued landscape character being viewed but they borrow valued attributes such as size, shape, edge effect and pattern of natural openings, vegetative type changes or architectural styles outside the landscape being viewed. They should not only appear as valued character outside the landscape being viewed but compatible or complimentary to the character within.

VERY LOW (Heavily Altered)..... maximum modification

VERY LOW scenic integrity refers to landscapes where the valued landscape character "appears heavily altered." Deviations may strongly dominate the valued landscape character. They may not borrow from valued attributes such as size, shape, edge effect and pattern of natural openings, vegetative type changes or architectural styles within or outside the landscape being viewed. However deviations must be shaped and blended with the natural terrain (landforms) so that elements such as unnatural edges, roads, landings, and structures do not dominate the composition.

UNACCEPTABLY LOW scenic integrity refers to landscapes where the valued landscape character being viewed appears extremely altered. Deviations are extremely dominant and borrow little if any form, line, color, texture, pattern or scale from the landscape character. Landscapes at this level of integrity need rehabilitation. This level should only be used to inventory existing integrity. It must not be used as a management objective.

Meeting Integrity Levels

In general a specific integrity level can be achieved by decreasing the visual contrast of the deviation being viewed. Several approaches may meet integrity levels:

1. Usually the most effective way is to repeat form, line, color, texture, pattern and scale common to the valued landscape character being viewed. For example, in natural or natural appearing landscapes such deviations as created openings can sometimes be added by repeating size, shape, edge effect, surface color and pattern from natural openings common to the landscape character. Adding structures or structure additions to cultural landscapes can sometimes be done by repeating architectural form, line, color, texture, pattern, and scale. If repetition is accurate and well designed the deviation may blend so well the change is not evident (HIGH). It may only borrow well enough to be noticeable but visually subordinate (MODERATE).

2. Another approach is to borrow form, line, color, texture, pattern and scale from similar but different valued landscapes outside that being viewed. For example, it may be possible to borrow the size, shape, edge effect, surface color, and pattern of natural openings and repeat them in continuous textured landscapes where they do not presently exist. For structures in cultural landscapes it may be effective to borrow the dominance elements of different but compatible architectural styles from outside the landscape being viewed. Because these are introduced elements from landscape character outside the one being viewed these are usually evident (MODERATE) if not dominant (LOW).

3. An approach used for the VERY LOW level is to shape and blend only with the land forms. Harvest unit boundaries, for example, would follow draws where low branched trees and brush exist over ridge or hill tops to avoid dominance of unnatural appearing edges. Roads and landings would conform to folds and ridge lines in the landscape to avoid dominance. Harvest boundaries would normally utilize all breaks in topography to avoid excessive unit size.

4. The most difficult situation is where proposed deviations are in direct opposition to the dominance elements of valued landscape character being viewed. Examples include a horizontal road (line) in an otherwise vertical landscape above tree line or... a metal lattice work utility tower in the middle of a highly valued historic village. The first approach should be to relocate such deviations so they are not evident or can be subdued to be visually subordinate. Utility structures are often geometric, forceful, and large. In addition to careful location they can often be designed in simpler form to blend better with the setting or be more compatible with architectural styles of a cultural landscape. See USDA Handbook 478 Utilities; inside cover and pages 26, 34, and 85.

5. The evaluations of deviations in the Very High Scenic Integrity Level is based on a viewer wandering through any part of the area. The evaluation of deviations in the other scenic integrity categories is based on views from identified viewing locations.

The following matrix provides a quick summary of these integrity level descriptions. The first line, labeled DOMINANCE, indicates which element has the strongest visual weight (or stands out visually over the other); the landscape character or the deviation from it. The second line describes the DEGREE OF DEVIATION from the Landscape character in terms of dominance. The third line describes the degree of INTACTNESS of the Landscape character. Reading down each column gives a summary word picture of each level of integrity.

Scenic Integrity Summary

Criteria for Scenic Integrity of the L.C. Image/Sense of Place	(VH) Very High	(H) High	(M) Moderate	(L) Low	(VL) Very Low	(UL) Unacceptably Low
Dominance Landscape Character vs. Deviation	Landscape Character	Landscape Character	Landscape Character	Deviation	Deviation	Deviation
Degree of Deviation From the Landscape Character	None	Not Evident	Evident but not dominant	Dominant	Very Dominant	Extremely Dominant
Intactness of the Landscape Character	Landscape Character Fully Expressed	Landscape Character Largely Expressed	Slightly Altered and Character Expression Moderate	Altered and Low Expression of Character	Heavily Altered and Very Low Expression of Character	Extremely Altered

Scenic Integrity: Past, Present, and Future

As stated earlier, the concept of scenic integrity can be used to describe varying degrees of wholeness or completeness and levels of scenic condition from very high to unacceptably low...and it can be used to describe the level integrity in landscapes in the past, present, and predicted for the future. Past integrity can be drawn from existing books on historical landscapes. A general description may be written for each ecological unit from these photos and captions. For those ecological or landscape units that are missing in the literature, interpolations can often be made from photos of surrounding units. Past integrity may trends and help identify alternative character options within the range of variability. Existing integrity of the landscape being viewed may be described using one or a combination of two of the methods below:

1. As viewed from the air, which is most revealing

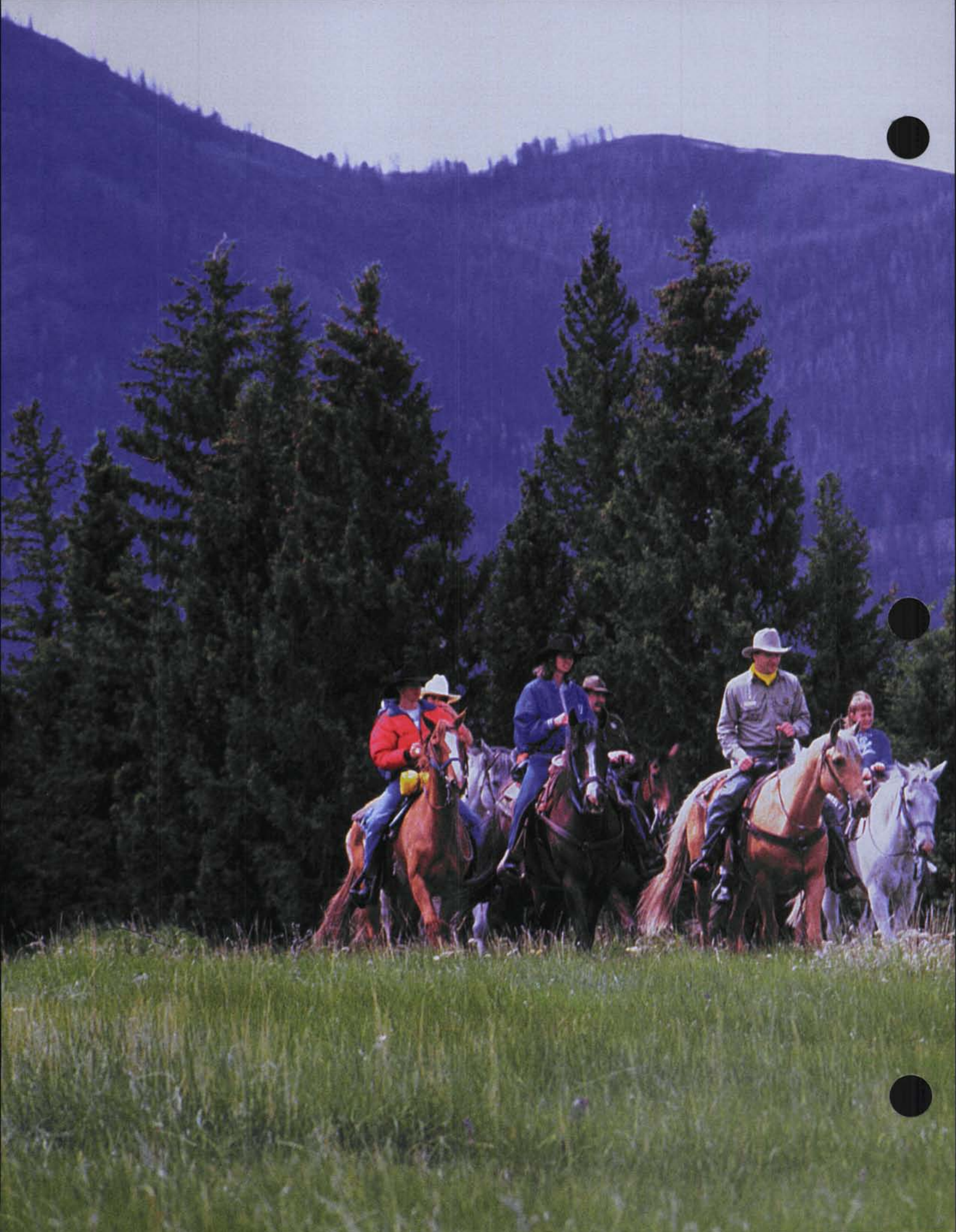
2. As viewed from existing travelways and use areas, using typical on-the-ground observer positions

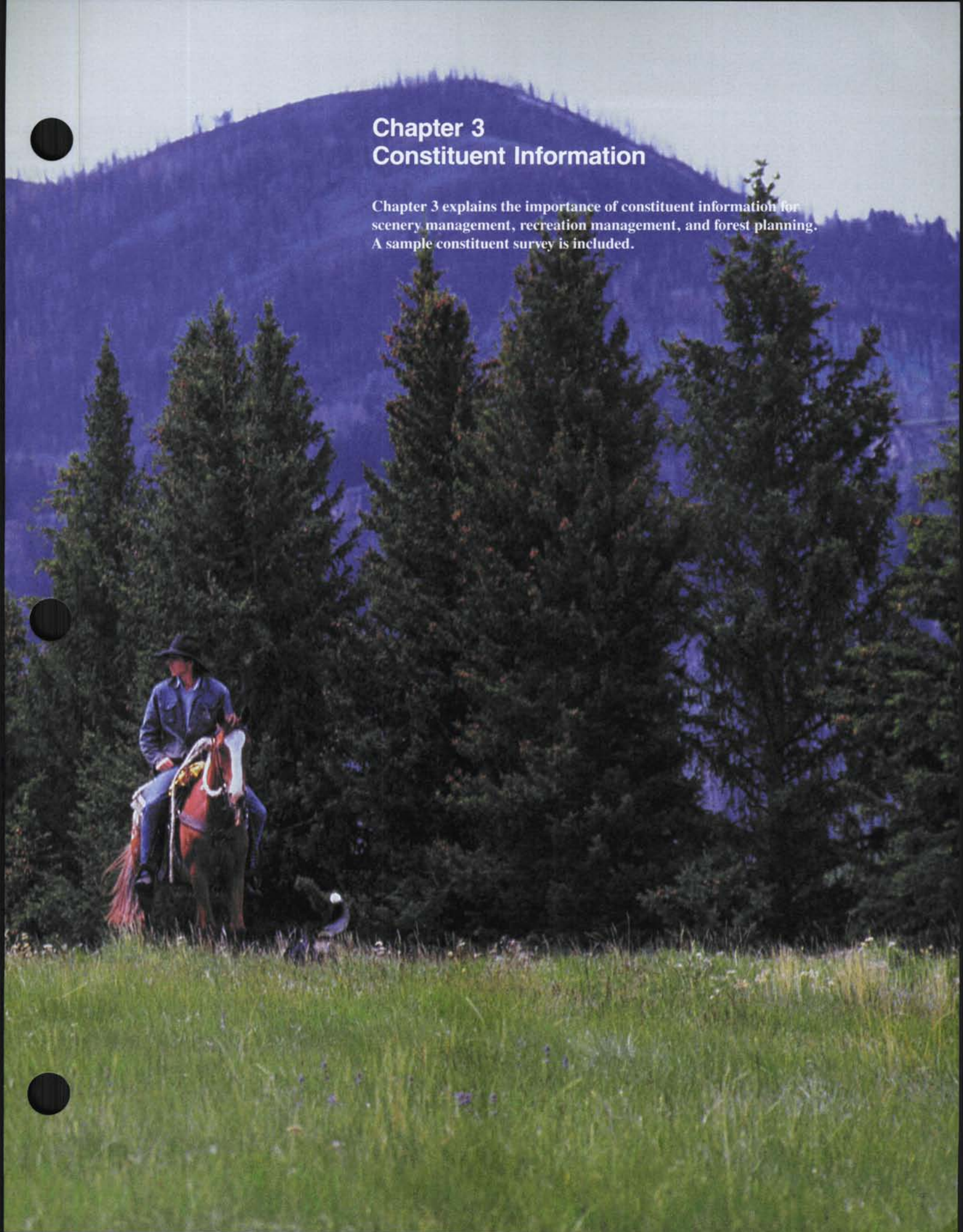
3. As viewed from unusual and more unpredictable on-the-ground observer positions, while the observer wanders through the National Forest.

These examples are described in more detail in Appendix E . An inventory of existing scenic integrity serves multiple purposes of forest planning, project implementation, and monitoring, as follows:

- It provides important benchmarks.
- It serves as a historical record of the degree, location, and extent of physical alteration of the landscape at given points in time.
- When Combined with past integrity levels, it is used to develop scenic integrity trends during Forest Planning.
- It helps determine the location, cost, and extent of rehabilitation required to achieve the desired scenic integrity levels.
- Once the Forest Plan is adopted, an inventory of existing scenic integrity is used to determine prioritization, location, and extent of rehabilitation required during plan implementation.
- Combined with visual absorption capability, type, and intensity of planned activities anticipated during the planning period, existing scenic integrity will assist in predicting future scenic integrity levels for alternatives.
- Existing scenic integrity and its trends assist managers in monitoring progress toward meeting predicted future scenic integrity levels in a Forest Plan.

The existing scenic integrity inventory will result in a map that may be stored in a GIS format.





Chapter 3
Constituent Information

Chapter 3 explains the importance of constituent information for scenery management, recreation management, and forest planning. A sample constituent survey is included.

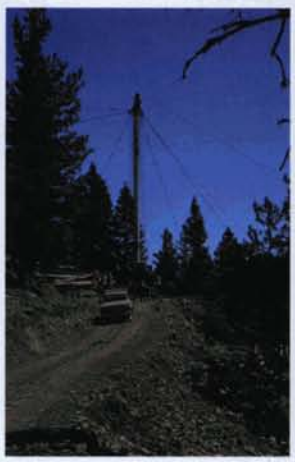













Constituent Information

Constituent information—expectations, desires, preferences, acceptable levels of quality, behaviors, and values—is essential to Forest Service managers.

CONSTITUENT INFORMATION: examines the significance of scenic quality and aesthetic experience to people:

- to visitors of a National Forest;
- to people as part of the local setting in which they live;
- to people living a far distance from the Forest;

Purpose

It is important to understand how aesthetic, specifically scenic qualities of a National Forest are significant to people whether they are visitors to the Forest, residents of the local area or nearby communities, or part of a broader constituency who may either occasionally visit the Forest or simply have an interest in the aesthetic qualities of National Forests.

Context:

The importance of constituent information as a foundation for understanding and identifying valued landscape attributes, landscape character, and scenic integrity can not be over emphasized especially from a "cultural" landscape perspective. Constituent information is an essential ingredient in all phases of the Scenery Management System. See Chapter 5, Application of the Scenery Management System and the SMS Process Flow Diagram for additional information.

Technical Involvement:

Sociologists, cultural anthropologist, social psychologists, landscape architects, public information officers, and other professionals need to assess the ways in which such significance is expressed through attitudes, values, desires and preferences of individuals; and how it reflects in peoples' behavior both as visitors to the Forest and as participants in other social activities and processes which may impinge on the demands for scenic management and the ability to design and implement scenery management practices.

Constituency Composition

The scenic qualities of National Forests, other public lands and surrounding private lands are important to people in a variety of ways and social contexts. As individuals, people value landscapes in connection to sensory response, and culturally who they are and how they perceive their relationship to the world.

The aesthetic characteristics of landscapes are also an integral part of community life, forming the "sense of place" in which people live and interact with one another. Even those who live at great distances from that landscape (and may have never visited the forest) may take an active interest in scenic management activities from a natural and cultural landscape perspective. In this light, the constituency of scenery management includes:

- ***individual visitor constituent***:- Individuals who visit the Forest to experience its "natural appearing" and/or "cultural" landscape qualities. Visitors may be of local, regional, national or international in origin.

- ***local constituency***:- People living in the local area and/or surrounding communities who interpret the significance of the Forest and its scenic amenities in terms of defining the "sense of place" where they live and interact with others; these people may include 'average' residents and members of groups to whom the Forest is important in different ways.

- ***broader constituency***:- People living a far distance from the Forest who may visit or who may have never visited the Forest but, value the knowledge that it is being managed for scenic and aesthetic qualities as part of their National Forest System. Again such people may include 'average' citizens, members of groups with different orientations to National Forests and public land management, opinion leaders, etc.

Although the scope of the constituency of scenery management varies significantly, for practical purposes constituent assessments will likely have to focus most closely on visitors to the National Forest.

Although, information on the significance of aesthetic experience and scenic management both to people living in the local area and to broader regional, national, international constituencies, as well as information on the broader social processes can not be ignored. Much information on these broader levels of constituency will have to be acquired from existing data sources or by incorporating questions concerned with scenery management within broader social survey instruments.

Content and Form

Two important initial concerns with respect to constituent information include what is the information about -- its *content* -- and how is it expressed or conveyed -- its *form*.

Content- some of the most useful information for scenery management concerns 1) how constituents use an area and 2) what visitors and other constituents feel, value, desire, prefer, and expect to encounter in terms of landscape character and scenic integrity. These latter concerns extend beyond those who actually visit the Forest to include how it and its scenic and other aesthetic attributes are interpreted by those living in the local area and surrounding communities as part of the fabric of social

life in the area. Also, how are the aesthetic experiences interpreted by people living far away from the area who may be more concerned with the provision of scenery and other amenities as part of the mission of the National Forest System.

Form- in which constituent information is obtained, two basic kinds of information are important for understanding each level of constituency for scenery management:

1) *Verbal expressions* of the significance or importance of scenic and other aesthetic qualities of the Forest and/or special places within the Forest. These may include:

- *Feelings* -- Sensory responses such as sight, sound, touch, taste and smell;
- *Values* -- The importance or worth of aesthetic and other outputs of the Forest;
- *Expectations* -- What constituents anticipate encountering in National Forests;
- *Desires* -- What constituents would like to have if they were unconstrained;
- *Preferences* -- What constituents would choose from among a set of available options;
- *Acceptable levels of quality* -- The lowest constituent standards permissible

2) *Actions or behaviors* of people, either as part of directly experiencing the scenic quality of the Forest landscape or as patterns of social behavior which may directly or indirectly affect the provision of opportunities for such experiences via scenic management activities.

Given the diverse constituency for scenery management, it will be necessary to use various strategies and/or techniques for collecting the relevant information, or to seek different kinds of information from various constituent groups. Thus, for example, the kind of information likely to be most immediately applicable to scenic management activities will be that pertaining to the smallest geographic area feasible. Visitors would be the prime source of such information -- both verbal and behavioral -- although some information might also be obtained from studies focusing primarily on the significance of the Forest's scenic and aesthetic resources to the lives of people such as members of their local communities, or elements defining the nature of "sense of place" in which they live.

A great deal of this latter information would pertain more to the overall pattern of scenery management for the Forest as part of a broader scheme in which other resource uses and their management are included. This is also true of much information obtained from broader regional or national constituencies. The latter, in particular, may well have little or no experience or perhaps even knowledge, for example, particular viewsheds, landscape units, and so on; but would rather be concerned with whether the overall emphasis and pattern of scenic management on the Forest contributes to or hinders achieving the appropriate emphasis on the provision of these outputs within the National Forest System as part of an overall management program for which they and all Americans are constituents.

Constituent Assessment

A constituent assessment is a compilation of information about individuals and groups and how they experience the aesthetic and scenic dimensions of the Forest, whether visiting or merely contemplating from afar. Since visitors actively demonstrate their interest via their actions, and are also the most accessible group within the constituency for scenery management, their behaviors and verbal expressions comprise a central focus of a constituent assessment.

As noted above, other important elements of the constituency for scenery management include residents of the local area and surrounding communities, as well as those living a far distance from the Forest to whom it is significant either as a potential place to visit or as part of the nation's natural heritage. Both verbal expressions of how these groups interpret the significance of the Forest and its aesthetic qualities, as well as manifestations of behavior as reflected in broader social processes with implications for scenery management, would form part of the ideal constituent assessment.

A constituent assessment should involve a cooperative effort among social scientists, landscape architects, forest planners, and land managers in determining the kinds of scenery management information to be obtained from or about constituents. Such a partnership also serves to insure that issues perceived important to each cooperating group will be incorporated within the overall effort.

A constituent assessment should yield information useful in developing statements about desired or preferred landscape character and scenic integrity. Ideally, the constituent assessment also produces information useful for delineating important travel routes and use areas, viewsheds, and special places in the scenic inventory.

One or more social scientists should play an important role in the formulation of a plan for the constituent assessment and analysis. Such a plan should specify questions to be answered, methods of data collection, methods of analysis, and desired results from the assessment.

A constituent assessment for landscape aesthetics is a form of public participation in forest planning. As with any form of public participation, multiple methods for data collection and analysis will be most effective at acquiring the broadest range of relevant information. Questions will vary for different types of desired information. Kinds of methods and some sample questions will be considered.

Finding out how constituents envision and value landscape character, the kinds of scenic integrity they prefer, may involve studying user behavior, talking directly with users, conducting a survey or public involvement workshop, utilizing personal observations of Forest Service personnel, and the perusal of other information sources, including information from previous scenic analyses, recreation and broader forest planning activities.

Money, time, and workforce constraints may not permit a complete or ideal constituent analysis. This budgetary fact of life is taken for granted in the following discussion. For many National Forests, existing constituent information is marginal because it has been difficult for the Forest Service to obtain this kind of information in the past. It may even be the case that for some Forests constrained in the above ways, land managers might continue to use personal observations and judgments for constituent data

until the Forest Service performs a more thorough and scientific constituent assessment and analysis.

Combining a constituent assessment for scenery management with other resource inventories should be done when ever possible. At a minimum, constituent assessments for scenery management and recreation management should be combined. This chapter on constituent information is written with a joint assessment for scenery and recreation management in mind.

Assessment Components

An ideal assessment of the constituency for scenery management would involve the set of components found in the table below. As discussed above, management constraints will strongly affect the ability of a National forest to incorporate any or all of these components within an overall assessment effort. The rest of this chapter looks briefly at each component, and also includes several examples of the kinds of questions that might be included in a constituent survey for, in this case, visitors to a National Forest.

---------- Constituency for Scenery Management ----------

Assessment Components	Visitors to Forest	Local area residents	Regional and/or Constituents
1. Constituent surveys	X	X	X**
2. Visitor observations	X		
3. Constituent interviews	X*	X	
4. Public participation [1]		X	
5. Additional information sources	X	X	X

[1] Formally organized groups, events or activities -- e.g., workshops, meetings, task forces, etc.

* Interviews likely to occur post-visit, via either telephone or in-person

** Scenic management questions incorporated within surveys of broader purpose and scope

1. *Constituent Surveys*

The survey is an important tool for obtaining constituent information. Any public opinion survey conducted by an agency of the U.S. Government requires approval of the Office of Management and Budget (OMB). Many factors -- including the landscape issue being addressed, the identity of constituents, and the importance of preferences of various constituent groups -- influence the decision of which people to survey. The collaboration of social scientists, area managers, recreation and forest planners, and landscape architects usually offers the best opportunity for linking the issues and concerns at hand with the identification of survey recipients.

In constructing a survey, the population of constituents should be clearly identified. The framework depicted above suggests that, in general, surveys may be designed for visitors to a National Forest, for people living in the local area or surrounding communities, and for people living at some distance from the Forest. The above is also significant as members of a broader economic, social, cultural and political communities -- e.g., state or national residents, members of groups concerned with certain outputs and/or management activities of National Forests in general.

Visitor surveys are concerned with those who visit the Forest from whatever origin (e.g., the local area or some distance away). These surveys seek to obtain information on how visitors experience the scenic and aesthetic aspects of the Forest. When combined with information about visitor behavior, such survey information can sometimes be applied to a specific landscape unit or viewshed.

While it is desirable to obtain survey results that capture visitor experiences of individual viewsheds, in many situations it may not be possible to do so at a detailed geographic level. In these situations, the smallest geographical area that is practical should be utilized. Every effort can then be made to coordinate the survey area with viewshed boundaries. Where specific constituent information cannot be gained for a single viewsh, some assumptions about the applicability of more generalized information may have to be made.

It is also important to obtain information about scenic quality outside of travelways and use area viewsheds. Areas outside viewsheds offer opportunities for recreation experiences reflected in the primitive and semi-primitive end of the ROS. These areas are particularly important because Forest Service activities may create changes in landscape character and scenic integrity and may also affect the quality of recreation settings and peoples' experiences in such settings.

Surveys of **residents in the local area** surrounding a National Forest, including towns and communities in relative proximity to the Forest, provide a means of obtaining information about another important segment of the constituency for scenery management. Of course, many local residents will likely visit the Forest either periodically or on a regular basis; and in so doing they may be 'captured' as part of visitor surveys designed to solicit information on peoples' direct experiences of the Forest's scenic and aesthetic attributes, perhaps with respect to particular viewsheds, travel corridors, and so on.

But many local area residents may value the Forest and its aesthetic qualities as a more or less defining characteristic of "sense of place" where they live and interact with others as members of a local area or community, regardless of whether and how often they actually visit the Forest. They may value such things, not so much with reference to themselves but how such qualities contribute to the setting for community life. Local area residents may belong to various groups to which the aesthetic attributes of the Forest are more or less important -- for example, scouting groups, bird watchers societies, etc. They may spend as much or more time interacting with one another as members of these groups as they do in actually visiting the Forest. Hence the Forest -- and, of particular concern here, its aesthetic characteristics -- is significant to people not merely as a source of immediate aesthetic experience -- a key focus of visitor surveys -- but as a central element contributing to a sense of community and social solidarity of people living in a particular place or natural setting.

Thus while the individual and his/her direct aesthetic experience is the primary frame of reference for visitor surveys, it is the community of people living in an area, and the significance of the aesthetic character of the Forest as a valued setting for such a community, that is the principal focus. Questions related to this aspect of community life might also be included in surveys which address other facets of the Forest in the life of the community as well, or perhaps as part of broader social surveys conducted by academic or research organizations.

This piggyback mode of obtaining information about the constituents of scenery management is even more necessary in obtaining information about the **broader regional, and national, constituency** for scenery management. These surveys may be of specific or general populations in a region or for the nation.

A **specific population survey** could, for example, include members of a variety of regional or national interest groups with particular interests in the management of National Forests -- e.g., environmental groups, industry associations, etc. -- to whom aesthetics and scenery management would be more or less important. These are the groups most likely to have information and opinions relevant to scenery management in a National Forest.

A **general population survey** on a regional or national level may be designed to solicit information about how people in general view the importance of aesthetic qualities and/or scenery management on National Forests, thus providing a sketch of the social climate and a context for the use of more specific information gathering exercises for individual National Forests, specific landscape units, viewsheds, and so on.

Obviously a particular National Forest could not conduct efforts of so large a scope, but the Forest could be a source of specific kinds of questions that could be 'plugged in' to a more comprehensive survey instrument constructed by, for example, the Forest Service (i.e. Eastside Assessment), academic institutions, or public opinion organizations. And even if not a source of input for such surveys, the latter represent one important source of information regarding the broader social climate within which scenery management is conducted (see item 5: Additional Information Sources).

2. *Visitor Observations*

Systematic observations by social scientists, landscape architects, and resource managers of what constituents *do* when they visit a National Forest -- including the extent to which scenic or other aesthetic aspects of the Forest are part of their activities; the kinds of landscapes people especially like; whether they generally observe or also walk across or into the scenic areas; and so on -- may yield a great deal of information useful for scenery management. Such observations can enhance understanding of the context of constituent expectations, values, desires, preferences, etc., for landscape character and scenic integrity. Information from such observations may also provide a basis for inferences about how constituents might respond to changes in any of the scenic or aesthetic variables relevant to scenery management.

Observations need to be made in a systematic fashion and recorded in a uniform manner -- standard response forms are effective here -- to ensure that a true picture of behavior is obtained. Direct observation by agency personnel, participant observation methods, and soliciting evaluations of photography in lieu of (or better, in conjunction with) visitor observations of particular sites, are all useful techniques for obtaining behavioral information. The key is to ensure that observations are systematic, unrestricted, and representative so that any conscious or unconscious biases of the observer are minimized.

Observations of visitor behavior are also useful in delineating travel routes and use areas such as corridors, areas, or features. Such observations shed

light on how visitors use a viewshed, or particular land area as reflected in such variables as mode of transportation, time of use, travel frequency and pattern, and so on. Observational data is frequently acquired in recreation studies, which may be broadened (as assumed in this chapter) to encompass aesthetic qualities and scenic characteristics of the Forest. Finally, understanding how visitors use a landscape is obviously an important asset to accurate estimates of the potential consequences of alternative scenic management activities.

3. *Constituent Interviews*

The conversation is perhaps the most direct verbal means of understanding the significance -- aesthetic or otherwise -- of the Forest to an individual. While the topic of discussion is guided, the form and manner of expression are free of artificial constraints imposed by scales and categories selected not by the individual but by the data gatherer. The respondent is free to express how he or she experiences the aesthetic aspects of the Forest as it relates to that individual as a person with a life history in which senses and tastes have evolved as part of a narrative of who one is. In this light, the extended conversation or interview should be an important component of constituent assessment for scenery management.

All of the topics discussed above under constituent surveys could be explored in greater depth and within a context of much greater significance to the respondent when interviewed as part of a constituent assessment. The primary instrument here is the **semistructured interview**, in which the bulk of the conversation is guided by a protocol of written questions that are asked aloud. Such questions would be developed with the input of members of the assessment team skilled in the various specialties as described earlier. The questions would encourage paragraph-length rather than word- or sentence-length responses, and respondents would be given leeway to elaborate or even bring up new topics they consider relevant. A social scientist trained in interpretive analysis should conduct the interview.

The obvious drawback of interview techniques is that they are time consuming and impractical for large groups or samples of respondents. While visitors may indeed be willing to participate in an extended interview, it is unrealistic to expect most to do so on site. Interviews are also impractical for broader regional and national constituencies. It is likely that the greatest potential for this technique as an element of a constituent assessment for scenery management lies at the level of residents in the local area surrounding the National Forest.

The selection of residents to be interviewed may proceed along a number of lines. As with surveys, a sample of the general area population could be taken, as could a sample of members from a variety of groups encompassing a wide spectrum of forest uses. A more selective strategy might involve identifying opinion leaders from not only these groups, but also to include civic and political officials, educators, religious leaders, etc., whose views are influential within the community or local area. A set of interview respondents reflecting a combination of the above strategies is another alternative.

Such interviews could of course obtain personal information on whether and how often respondents actually visit the Forest, on how they view its aesthetic and scenic attributes.

An important additional focus would center on the group activities in which respondents are involved and in which the Forest -- and in particular its aesthetic characteristics -- plays a more or less important role. For opinion leaders in particular, another key concern would be how they perceive whether social activities in the community that are centered around the aesthetic aspects of the Forest strengthen (or weaken) bonds among people as members of their community; as well as those factors (including management practices) which they see as affecting these bonds. This will begin to tap the shared sense of the Forest as one of the defining elements of ***sense of place*** in which people live and relate to one another, and the importance of the scenic and aesthetic characteristics of the Forest to that process.

4. *Public Participation*

In many ways, public participation lies at the heart of effective management of a Forest's aesthetic and scenic resources. If the interdisciplinary team of managers, landscape architects, and resource and social scientists represents the core of specialized expertise for scenery management, it is the public for whom such services are being provided-- a public with diverse values and expectations regarding the role of the Forest in their individual and social lives.

In this light, the team of skilled specialists doesn't just need to 'hear back' from the public as to the acceptability of a particular program for scenic and aesthetic management once it is developed, but to have the public involved throughout the entire process. If mechanisms are established whereby the public may communicate with the interdisciplinary teams, this may facilitate an interactive process in which resource specialists and the public both teach and learn from each other. By contributing to the process which produced the outcomes, the public can be expected to take an active interest in the shape of those outcomes. In this way, an interactive learning-based process may lead to a synthesis of perspectives and knowledge in which both resource professions and the public develop a sense of mutual interest and understanding regarding the nature and significance of aesthetic and other dimensions of forest management.

There are a variety of modes of public participation through which such a shared understanding may be developed. Among these are workshops, meetings, response forms, and task forces in which both the public and resource professionals participate. Although, constituents participating in workshops and meetings are often self-selected and thus not representative of an overall constituent population, they frequently represent the most interested and involved local constituents. Extensive literature exists on methods and techniques of public participation; therefore, details are not included here. Several important references: Blahna & Yonts-Shepard (1989); Utton et al. (1976); and Heberlein (1976); may be found in the following subsection.

5. *Additional Information Sources*

Information obtained for reasons other than scenery management, and by organizations other than the Forest Service, may be useful not only in identifying characteristics of constituents; but also in providing a better understanding of those social activities and processes in which constituents are involved that may have important implications for landscape aesthetics and scenery management.

The first general kind of potential information sources are those which might provide ***information about the actual constituency of scenery management for a National Forest***. As we have seen, this constituency may be viewed at three levels: visitors to the Forest; local area/community residents; and the broader regional and national constituency. Two important sources for information about these segments of a Forest's scenery management constituency include:

a) Previous or ongoing natural resource-related studies or assessments, including -- but not limited to -- those concerned with recreation and/or scenery management. Statewide Comprehensive Outdoor Recreation Plan (SCORP) surveys exemplify one external source of landscape assessment information. Moreover, information from previous scenery assessments, such as that regarding concern levels, can be used. Thus, it is not always absolutely necessary to collect new constituent information for an analysis.

b) Studies or assessments of patterns of social activities or processes which, while not directly related to scenery management, either provide additional information on its importance to different constituency groups or may have significant implications for the demand for and the ability of the Forest to provide opportunities for aesthetic and scenic experiences.

The first of the above kinds of information is particularly relevant to assessments of visitor experiences and behaviors; while the second kind of information may be especially helpful in understanding experiences and behaviors relevant to scenery management of people as members of the local area/community and of broader regional and national population(s). With respect to this latter kind of information, studies such as the ones described below may be important information sources.

Social-geographic assessments: National, regional, or local area information on patterns of social behavior with direct implications for management of a National Forest, including the demand for and provision of scenic and aesthetic experiences. Interpretations of data provided by the U.S. Census may be particularly useful here (e.g., Case 1994) For example, with respect to migration patterns: Are people moving closer to or farther away from the Forest? Why? What are they like in terms of social characteristics? In what ways is the Forest significant to them --e.g., as a source of aesthetic experience? Also, what cultural characteristics are shared by people in certain places? How is the significance of scenic aspects of place interpreted by people with such cultural characteristics? Since Census and similar kinds of information (e.g., some community, county and multi-county regional surveys done for planning or economic development) are linked to geographic locality, such data may also be incorporated within with geographic information systems for scenery management and/or additional aspects of forest and ecosystem management. This highlights the aforementioned desirability of linking scenic management

information acquisition with that for more inclusive management practices.

Social dynamics: Other kinds of information-gathering frameworks attempt to account for the dynamics of regional, local area, or community social processes and their relationship to peoples' movements across and relationships to the landscape. The demand for, and consumption (and provision) of, opportunities for aesthetic experience on a National Forest are influenced by these processes, and more specifically through the interrelationships among economic, political, associational, and cultural aspects of these activities over different geographical areas (e.g., Lewis 1994). Sorting out these influences, and looking at how they work interdependently in a regional or local setting may provide important contextual information for scenery management.

At this point in time this latter approach is closer to a second general kind of information source for scenery management -- those which provide ***models for constructing constituency assessments***. These include overall frameworks, foci for investigation, methods, types of questions, and so on. Some of these sources may also provide information on (usually) broader regional or national constituencies for scenery management. Most of these studies or assessments will have been conducted in other geographical areas from that of a particular National Forest. But many will suggest potential frameworks for structuring a constituent assessment or parts thereof.

For example, a social assessment of the significance of forest management activities to residents of the Bitterroot Valley in western Montana (Bitterroot Social Research Institute 1994) provides an excellent example of an ethnographic regional assessment -- one in which the principal mode of data collection was via the use of semistructured interviews. In this case, 51 opinion leaders from seven communities in the Bitterroot Valley served as informants. Another exemplary study, conducted by Kempton et al. (1995), used semistructured interviews to solicit peoples' understandings of a wide range of environmental values, and then extracted quotations from interview transcripts in constructing a survey to investigate how widely distributed those individual understandings were. The scope of this work was national, and several items in the survey instrument focused explicitly on aesthetic experiences of forests and natural resources. Studies and assessments of this nature frequently provide valuable information on how to go about constructing an effective constituent assessment for scenery management. They also represent the kinds of efforts to which a National Forest might want to contribute questions relevant to aesthetics and scenery management as part of a broader information-gathering effort.

In summary, information about constituents for scenery management and about how to conduct constituent assessments represent two general kinds of information from sources other than a particular National Forest that may be important for scenery management. They are also important channels for linking the collection of information relevant to scenery management to broader natural resource focused perspectives (and their information-gathering activities) such as ecosystem management.

Sample Items for a Visitor Constituent Survey

Constituent surveys come in all shapes and sizes. They may involve any of the three levels of constituency described earlier. The following focuses on visitors to a National forest and provides a very brief sample of the kinds of questions that might be included within a visitor survey. Any such instrument should have as its goal the acquisition of infomration that will lead to a better understanding of visitors' aesthetic experiences of the Forest landscape, including, of course, its visual and scenic qualities. And as we shall see, surveys may incorporate items which solicit responses not only on the significance of aesthetic qualities to visitors, but also regarding their behaviors when visiting the Forest as well.

One useful type of survey question -- designed to yield information on the ***values***, ***desires***, and/or ***expectations*** of visitors with respect to the Forest **landscape character** involves presenting respondents with a set of photographs depicting scences of different landscape character, and asking them to respond to different questions about the landscapes depicted in those photographs.

For example, visitors could be presented with a row of photographs (a-f) depicting the following types of landscape character:

a) continuous canopied forest
b) forest having a mosaic of created openings
c) farm pastures and coniferous forest intermixed
d) single species coniferous forest
e) mixed forest of conifers and hardwoods
f) (as many options as needed for the area).

A variety of questions -- some with particular kinds of scales for expressing responses -- may then be posed to visitors. Several examples are given below.

---

1. Please indicate on the scale next to each photograph of the National Forest how much you like or dislike the landscapes depicted in the photograph . A very high rating on the scale (for example, 7) means that you like the landscape very much, while a very low rating (for example, 1) means that you strongly dislike that type of landscape. A middle rating means you don't feel much either way about that particular landscape.

```
 1      2      3      4      5      6      7
 ------------------------------------------------------------ [Photograph]
 Dislike                    Neutral                 Like
 very much                                          very much
```

One scale (without the words provided in the general example) should be placed next to each photograph.

This kind of question may be modified to solicit visitor responses regarding ***acceptable levels of quality*** of aesthetic and scenic attributes of the Forest. The 'degrees of quality' --which again would be represented in the set of photographs -- might be of the following kinds:

a) natural forests with no human activities present

b) natural-appearing forests with no human alterations evident
c) managed forests with human alterations evident, but subordinate to the natural or natural-appearing landscape character
d) managed forests with human alterations evident and somewhat dominating the natural or natural-appearing landscape character
e) managed forests with human alterations strongly evident and strongly dominating the natural or natural-appearing landscape character
f) managed forests with human alterations strongly evident and obliterating the natural or natural-appearing landscape character.

A typical survey question exemplifying the above might be phrased as:

---

2. Please indicate the degree to which you would accept the following kinds of scenic quality on the _____ National Forest?

1 2 3 4 5 6 7

---------- [Photograph]

Not at all acceptable — Neutral — Very acceptable

Again a general example of the evaluation scale would be presented, and one scale (without the words provided in the general example) would be placed next to each photograph.

It should also be noted that a less informative, but still useful, way of obtaining the above kind of information would entail having visitors simply identify which photographs they find accepatble from a scenic-aesthetic perspective and which they do not. Ths would involve a dichotomous (yes/no) response to the following question

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2A. Which of the following levels of scenic quality would you be willing to accept when visiting _____ National Forest?

Another important type of question for a constituent survey, which again employs photographs to represent various aesthetic characteristcis of the Forest (or a lack thereof), is one in which respondents are asked to evaluate different scenic attributes -- as reflected in separate photographs -- not individually (that is, one-at-a-time), but in relation to one another. The most common of these kinds of questions solicits visitor ***preferences*** from among a set of possible landscape characters, scenic integrity levels, and so on. Such preferences are expressed by respondents' ranking the set of photographs in order from 'most preferred' to 'least preferred.' With minor alterations, these questions could be modified to more explicitly solicit, values, desires, expectations, or acceptable levels of quality. A typical question soliciting visitor preferences regarding, in this case, landscape character, might be phrased as follows:

3. A variety of landscape characters could be seen when visiting _____ National Forest, depending on the management practices used. Among the possibilities shown in the accompanying photographs, please rank the options in order from that you most prefer to that you least prefer.

Questions similar to the above could be asked about **scenic integrity, travel routes, use areas, viewsheds, landscape units**, or other local landscape management issues.

The kinds of survey questions suggested thus far have all involved the use of photographs as aids to representing particular aspects of aesthetic and/or scenery management to be evaluated by the visitor. Another kind of question involves presenting a thought or 'picture in words' and asks visitors to evaluate it. By using words, moreover, the questions need not refer only to descriptions or concepts of the landscape that are of direct concern to scenic management (e.g., scenic integrity, use areas, travel corridors, etc.). They also may refer to broader, more genral ways in which visitors experience the aesthetic qualities of the Forest -- sights, sounds, smells, and so on. These in turn will likely affect their preferences for landscape character, scenic integrity, etc.

For this type of survey item, a statement related to aesthetic experience of the Forest is provided, and visitors are asked to indicate the intensity with which they agree or disagree with that statement. In the example below, a five-point scale encompassing a range of responses from "strongly agree" to "strongly disagree" is provided.

4. Please indicate the extent to which you agree, disagree, or are undecided or uncertain with respect to the following statements.

a) Nature is inherently beautiful. When we see ugliness in the environment, it's usually caused by humans.

1	2	3	4	5
Strongly Disagree	Somewhat Disagree	Uncertain	Somewhat Agree	Strongly Agree

b) There are actual rythms of the Forest that are more in tune with who I am than the hectic pace of day-to-day life.

1	2	3	4	5
Strongly Disagree	Somewhat Disagree	Uncertain	Somewhat Agree	Strongly Agree

Each of the above items taps subtly different aspects of aesthetic experience which, while not expressed in the form of direct evaluations of scenic (or other aesthetic) attributes of the Forest, are expressions of motivations that may strongly influence visitor preferences for different emphases of scenery management. This also highlights the aforementioned value of constituent interviews as a source of possible items for inclusion within survey instruments. Question 4a, for example, is taken from Kempton et al. (1995:105), who included this statement from one of the respondents in the interview segment of their study as part of their survey to be undertaken with reference to a much broader set of respondents.

Another kind of survey item -- one which has been used extensively in previous studies, but in recent years has come under increasing criticism -- is that in which respondents are asked to provide ***monetary estimates of value*** for different scenic attributes of the Forest (for example, various kinds of landscape character, scenic integrity, and so on). In this scenario, visitors are asked to indicate how much more or less they would be willing to pay for the availability of, for example, different kinds of landscape character. The latter, as in earlier examples, could be depicted with the aid of a series of photographs.

Questions of this sort should be used with extreme caution as part of constituent surveys. Visitors often react with puzzlement or resentment to being asked to place dollar values on 'opportunities to expereience' different aspects of aesthetic or other amenity resources of the Forest. If such questions are used, the following format is probably less intrusive than direct 'willingness-to-pay' kinds of questions.

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5. If you had a budget of $100 which you could allocate to managing the Forest to preserve different kinds of landscapes, how would you distribute that $100 to managing for the following kinds of landscapes?

a) _____
b) _____
c) _____
d) _____
e) _____
Total: $100

[*Include photographs of a -- e, representing different kinds of landscape character, scenic integrity, etc.*]

A final focus of visitor surveys to be discussed here is that of the ***behaviors*** of visitors to a Forest, and particularly with respect to their experiences of aesthetic and scenic aspects of the Forest. Answers to questions on behavior provide information about what visitors do, where they do it, and when they do it. This information will be useful in delineating travel corridors, use areas, and special places. Including a map in the survey will assist visitors in identifying where and when they engage in particular activities.

6a. On the map, please trace the route you usually follow when passing through _____ National Forest.

6b. On the map, please outline areas that you commonly use for recreation when visiting _____ National Forest.

6c. In what season(s) of the year do you see _____ National Forest? For what activities? On the map, please show us where you usually go. Please show us any areas that you consider to be "special places."

Two final points meriting attention pertain to the ordering of items in a visitor survey and to the usefulness of different kinds of responses and response scales for such a survey. With respect to the order of survey items: to keep responses accurate, visitors should first be asked about their unconstrained ***desires*** for scenic quality and recreation opportunities. To further narrow the choices, the survey can include additional information and then ask respondents for their ***preferences*** under certain constraints. For example, in the description of each option, production costs, commodity outputs, amenity outputs, or other pertinent information could be provided int the second round of questions. This additional information could then be taken into account as respondents express their desires and then preferences.

With respect to scales, there are a number of techniques for analyzing the results produced by visitors' rating or ranking items in expressing their values, desires, expectations, etc, for aesthetic and scenery management. When scales are used, the nature of the interval between points on the scale -- as reflected in, for example, ordinal, interval, and ratio scales -- determines the degree of precision that can be expected for responses using that scale.

Questions of the nature described above, when designed and applied appropriately, need not be utilized only in visitor surveys, but may also be included in questionnaires, on workshop response forms, or posed in workshops or at public meetings. As with virtually all aspects of constituent information discussed in this chapter, an interdisciplinary team in which the social scientist is a key member, and with whom the public interacts as an informed participant throughout the entire process, will enhance the likelihood of generating results that are accurate, understandable, and accepted by the constituents of aesthetic and scenery management.


perception
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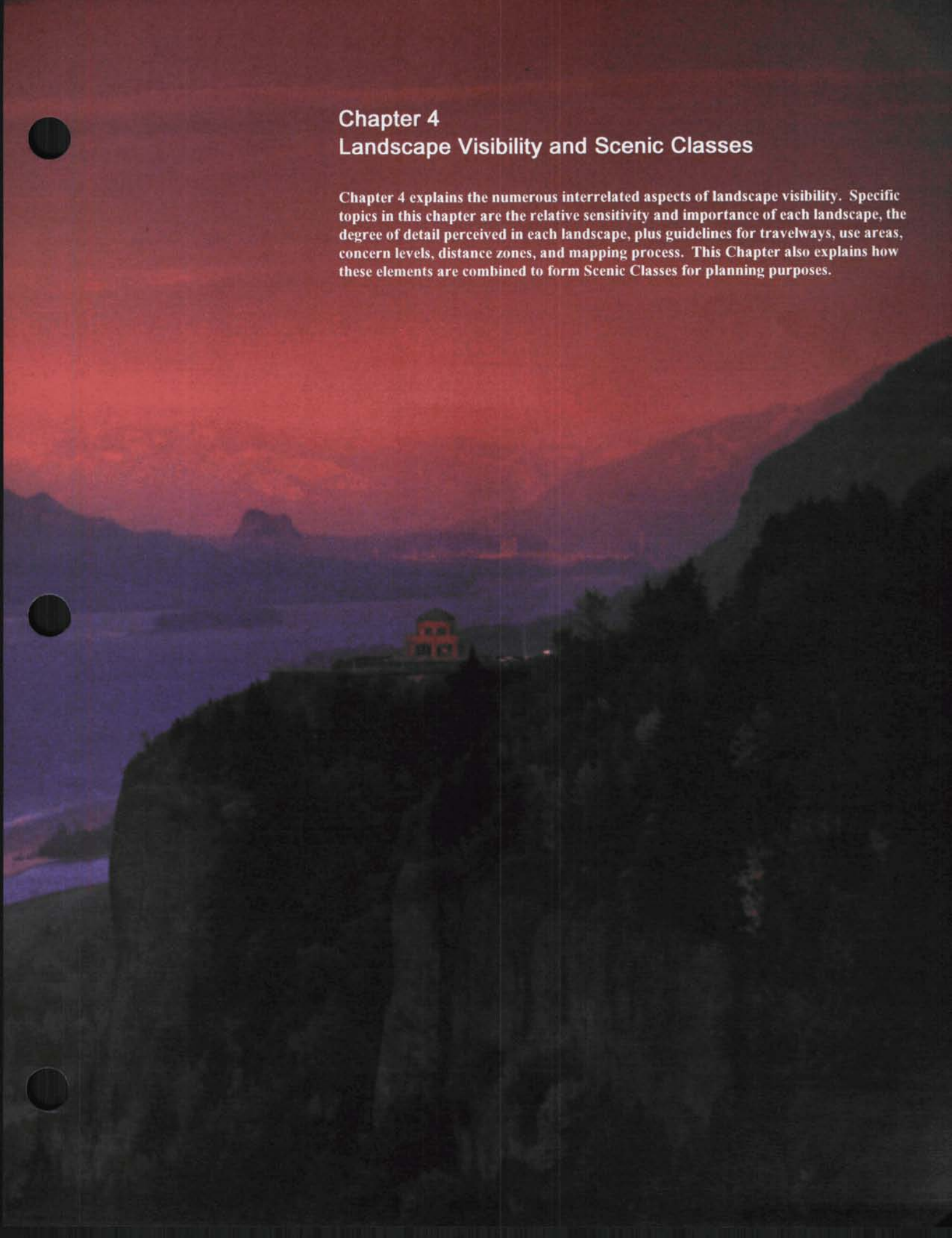


Chapter 4
Landscape Visibility and Scenic Classes

Chapter 4 explains the numerous interrelated aspects of landscape visibility. Specific topics in this chapter are the relative sensitivity and importance of each landscape, the degree of detail perceived in each landscape, plus guidelines for travelways, use areas, concern levels, distance zones, and mapping process. This Chapter also explains how these elements are combined to form Scenic Classes for planning purposes.

Landscape Visibility

Landscape visibility is a function of many essential, interconnected considerations, including:
(1) context of viewers,
(2) duration of view,
(3) degree of discernible detail,
(4) seasonal variations, and
(5) number of viewers.

Purpose

Landscape visibility addresses the relative importance and sensitivity of what is seen and perceived in the landscape.

Discussion

- People see virtually all national forest lands from somewhere at some time; therefore, all national forest landscapes have value as scenery.
- People are likely to view national forest lands from travelways and use areas.
- A large number of viewers with high concern for scenery, who view a landscape in detail for a long period of time, may substantially increase scenic importance of that landscape.
- Conversely, a small number of viewers with low concern for scenery, who view a landscape fleetingly, may substantially decrease scenic importance of that landscape.
- **Landscape visibility** is a function of many essential, interconnected considerations, including the following: (1) context of viewers, (2) duration of view, (3) degree of discernible detail, (4) seasonal variations, and (5) number of viewers.
- The degree of discernible detail is determined relative to the position or location of the observer.

- Examples of **landscape visibility** considerations are:

(1) Context of viewers.

(2) Duration of view.

(3) Degree of discernible detail.

(4) Seasonal variations.

(5) Number of viewers.

A large number of viewers
with high concern for scenery.

A small number of viewers
with low concern for scenery.

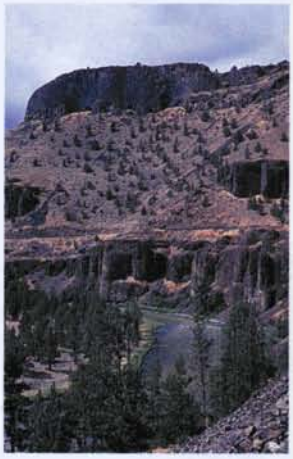
A small number of viewers
with high concern for scenery.

Seen from nearby in closer detail.

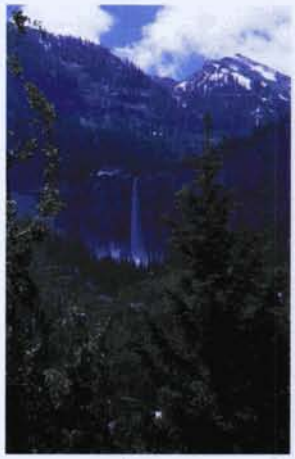
- Sometimes only a small number of people view certain landscapes, but these people have high concern for scenic quality and high expectations of outstanding scenic beauty. When associated with **other related experience-opportunities** such as spiritual quests, introspection, and so on, these landscapes have even higher scenic importance and value. The importance of these landscapes is even greater if these other related experience-opportunities are available only occasionally.

- **Other natural resource values**, such as wilderness, wildlife, or old-growth, may create needs for natural-appearing landscapes and ultimately may raise the importance of maintaining high levels of scenic quality and landscape settings. These other natural resource values relate to viewer context.

- Landscapes seen close-up are more visually sensitive than those seen in muted detail from greater distances.



- When people view landscape surfaces from angles of approximately 90 degrees, they generally subject those landscapes to more visual scrutiny than those viewed at relatively flat angles.



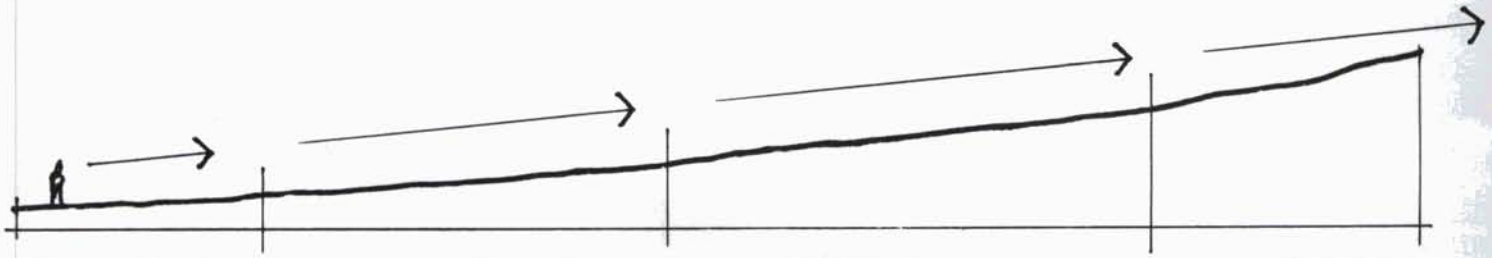
- When people see landscapes in the foreground of, or adjacent to, focal points, they subject that particular landscape to more visual scrutiny.

- When people view landscapes at middleground distances, they often view them more coherently and in better context with their surroundings than they do foreground landscapes.

- Many middleground national forest landscapes are evenly textured, and human activities that dominate natural form, line, or texture will contrast strongly. This may make some middleground landscapes more sensitive to visual scrutiny than some foreground landscapes.

- Scenic values increase as the terrain allows people to have longer views and as clear air allows them to observe crisp detail.

- Landscape viewing can be subdivided into distance zones for classification, analysis, and simplification of inventory data.



- Distance zone categorization can be strengthened by relating it to perceivable landscape details that people relate to universally, such as leaf texture, tree limb patterns, landform configuration, and so on.

- Seasonal differences may affect the sensitivity of landscape visibility evaluations. "Leaf-on" and "leaf-off" conditions in deciduous forests will modify landscape visibility. Likewise, persistent summer fog in some coastal locations will decrease landscape visibility. As a general rule, determine **landscape visibility** for the most sensitive situation.

- Vegetative screening, being dynamic, is important for short-term, detailed planning. Normally, vegetative screening is inappropriate to consider in long-term, broad-scale planning, such as forest planning.

Elements of Landscape Visibility

Portions of landscapes visible from travelways and use areas are important to constituents for their scenic quality, aesthetic values, and landscape merits.

Landscape Visibility consists of three elements:

1.) Travelways and Use Areas
2.) Concern Levels
3.) Distance Zones

Travelways and Use Areas

Existing travelways and use areas are identified and classified in order to determine which existing observer positions to use in the landscape visibility analysis. Inventory procedures for landscape visibility, including concern levels, and distance zones, are discussed in detail later in this chapter.

- People utilize **travelways and use areas** throughout the national forests. In addition, they utilize travelways and use areas located outside of national forest boundaries that provide views into national forests.

- **Travelways** represent linear concentrations of public-viewing, including freeways, highways, roads, railroads, trails, commercial flight paths, rivers, canals, and other waterways.

- **Use areas** are spots that receive concentrated public-viewing use. They include national forest visitor centers, vista points, trailheads, campgrounds, picnic grounds, swim beaches, marinas, resorts, ski areas, and other recreation sites. Use areas also include urban and suburban areas, towns and villages, subdivisions, parks and golf courses on private lands, or other public lands within or adjacent to national forests.

- Portions of landscapes visible from travelways and use areas are important to constituents for their scenic quality, aesthetic values, and landscape merits.

- Portions of landscapes seldom seen from travelways and use areas are also important to constituents for their aesthetic and scenic values. They may be of even greater importance as special recreation settings and as opportunities for people seeking solitude.

On-the-ground view of Mt. Hood shows careful scenery management.

- Travelways that lead to important scenic features, residential areas, resorts, recreation areas, unique natural phenomena, wilderness trailheads, national parks, State and county parks, and other areas attract a higher percentage of users having high concern for scenic quality, thus increasing the importance of those travelways.

Aerial view of Mt. Hood reveals an overview with a different scenic effect.

- The public is becoming more concerned about aerial views of National Forest System lands from commercial and private aircraft. Foregrounds and middlegrounds of travelways and use areas have historically been protected. Outside of these viewsheds, the General Forest Zone has often been neglected from a scenery management standpoint.

Concern Levels

Landscape are viewed to varying degrees from different locations and subsequently differ in their importance. To assist scenic inventory and analysis, this importance can be ranked by concern levels.

Concern levels are a measure of the degree of public importance placed on landscapes viewed from travelways and use areas. Divide concern levels into three categories: levels 1, 2, and 3. At the inventory stage, the type of area and its level of use is an adequate indicator of the level of interest that people are likely to have in the surrounding landscape. Base concern levels on past experience and existing planning data. Supplement this data as new constituent information becomes available.

The following matrix is a guide for determining concern levels. It can be tailored to fit local conditions.

HIERARCHY OF CONCERN LEVELS

	Interest in Scenery		
	High	Moderate	Low
Primary Travelway/Use Area High Use	1	2	2
Primary Travelway/Use Area Moderate Use	1	2	2
Primary Travelway/Use Area Low Use	1	2	3
Secondary Travelway/Use Area High Use	1	2	2
Secondary Travelway/Use Area Moderate Use	1	2	3
Secondary Travelway/Use Area Low Use	1	2	3

Primary Travelways and Use Areas

National and/or regionally important locations largely associated with recreation and tourism use. Examples include:

- Primary roads, trails, areas used by motorists, hikers, bicyclists, and equestrians within national forests, national parks, national recreation areas, wildernesses, wild and scenic rivers, scenic highways, Forest Service scenic byways, and other special designation areas.
- All public transportation systems of national importance, including interstate highways, waterways, and railways.
- Primary areas of fishing, swimming, boating, and other active or passive water recreation.
- Primary recreation areas (vista points, campgrounds, picnic grounds, beaches, visitor centers, trail camps, and others).

- Primary resorts and winter sports areas.
- Highly sensitive communities.
- Primary summer home tracts.
- Primary geological areas.
- Designated scenic areas.
- Primary botanical or forest demonstration areas.
- Primary historical sites and areas.
- Areas of primary importance for wildlife observation.
- Special places of local or regional importance.
- Areas of primitive, semi-primitive non-motorized and semi-primitive motorized recreation opportunities, identified as important by constituents.

Secondary Travelways and Use Areas

Locally important locations associated with all types of use including recreation and tourism.

- All Federal, State, and primary county or forest system roads and highways not listed under primary areas.
- Communities not listed under primary areas.
- Other primary uses not included under primary areas.
- Areas of semi-primitive non-motorized and semi-primitive motorized recreation opportunities identified as important by constituents and not listed under primary areas.
- Secondary county and forest system roads that fit the above definition.
- Secondary trail systems.
- All roads leading directly to secondary areas of interest and recreation composites.
- Secondary recreation areas (vista points, campgrounds, picnic grounds, etc.).
- Secondary uses of fishing, swimming, boating, and other active or passive recreation on or adjacent to water bodies, such as streams or lakes.
- Secondary geological areas.
- Secondary botanical or forest demonstration areas.
- Secondary summer home tracts.
- Secondary historic sites.

- Areas of secondary importance for wildlife observations.

Visibility analysis is a continuous process. The scenery analysis may need to be refined as new information is received from constituents, as new travelways and use areas are developed, or as public use patterns and travel patterns change.

Distance Zones Plus Seldom-Seen Areas

Generally three distance zones, plus seldom-seen areas, are identified for forest planning and four distance zones, plus seldom-seen areas, are identified for project level planning. The fourth zone is immediate foreground. Because of its limited depth, immediate foreground should never be used as a separate zone in broad-scale forest planning but rather combined with the balance of the foreground area. All four distance zones and seldom-seen areas are defined and described in the following section.

Immediate Foreground (ifg): 0 to 300 feet

At an immediate foreground distance, people can distinguish individual leaves, flowers, twigs, bark texture, small animals (chipmunks and songbirds), and can notice movement of leaves and grasses in light winds.

They can also receive other sensory messages at an immediate foreground distance, such as sounds of small animals, birdcalls, wind whispering through leaves and grasses, and pungent odors or sweet smells. Texture is made up of individual leaves, needle clusters, bark patterns, and twig patterns. Details are important.

Foreground (fg): 0 - 1/2 mile

At a foreground distance, people can distinguish small boughs of leaf clusters, tree trunks and large branches, individual shrubs, clumps of wildflowers, medium-sized animals (squirrels and rabbits), and medium-to-large birds (hawks, geese, and ducks). At this distance, people can also distinguish movement of tree boughs and treetops in moderate winds.

At a foreground distance, people receive other sensory messages, such as sounds of medium-sized animals, birdcalls, a moderate wind whistling through branches, and smells of the forest. Texture is largely made up of boughs, large branches, and visible portions of trunks. Individual forms are dominant.

Middleground (mg): 1/2 to 4 miles

Middleground is usually the predominant distance zone at which national forest landscapes are seen, except for regions of flat lands or tall, dense vegetation. At this distance, people can distinguish individual treeforms, large boulders, flower fields, small openings in the forest, and small rock outcrops. Treeforms typically stand out vividly in silhouetted situations. Form, texture, and color remain dominant, and pattern is important. Texture is often made up of repetitive treeforms.

In steeper topography, a middleground landscape perspective is similar to an aerial one. Because the viewer is able to see human activities from this perspective in context with the overall landscape, a middleground landscape having steep topography is often the most critical of all distance zones for scenery management.

Background (bg): 4 miles to horizon

At a background distance, people can distinguish groves or stands of trees, large openings in the forest, and large rock outcrops. Texture has disappeared and color has flattened, but large patterns of vegetation or rock are still distinguishable, and landform ridgelines and horizon lines are the dominant visual characteristics. As a result, the landscape has been simplified. The role of background in providing scenic quality lies mainly in its capacity as a contrasting and softened backdrop, a pleasantly distant vista, or a strikingly beautiful focal point.

Seldom-Seen Areas (ss)

Topography sometimes prevents portions of landscapes from being viewed at any distance from the selected travelways or use areas. These landscapes, not visible in the foreground, middleground, or background from any of the selected travelways or use areas, are considered seldom-seen (ss) since we know they may be seen, at a minimum, from aircraft and by the occasional viewer wandering through the forest.

Distance zones of travelways and use areas are delineated as part of the scenery visibility mapping and analysis process described below.

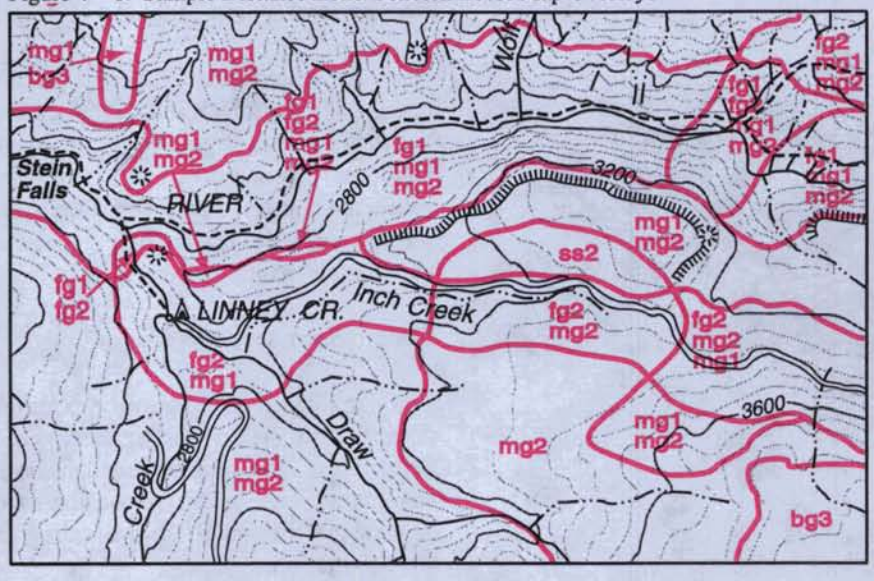
Visibility Mapping Process

The first step in broad-scale inventory mapping is to select and locate on a map the travelways and use areas, which will be used to identify landscape visibility. These travelways and use areas may be on, traversing, or have potential views of national forests and grasslands.

The second step is to determine the importance of scenery to viewers, and to assign one of the three concern levels to all these travelways and use areas. Different portions of a single travelway or use area may have different concern levels.

The third step is to map the visibility and distance zones of the selected travelways and use areas. For broad-scale planning such as forest planning, use topography, rather than vegetation, to determine and delineate potentially visible areas in the foreground (fg), middleground (mg), and background (bg) distance zones. All areas not identified as potentially visible from the selected travelways and use areas are mapped and identified as seldom-seen (ss) areas. See Figure 4-1. Two different methods for determining visibility and distance zones are described later in this chapter.

Figure 4 – 1. Sample Distance Zone/Concern Level Map Overlays.



Mapping distance zones in a **flat landscape** suggests a slightly differenct approach because of the lack of topographic relief. For foregrounds, map a corridor extending a minimum of 1,320 feet (1/4 mile) from each side of a travelway or from the boundaries of a use area. The area beyond this foreground zone is mapped as middleground for topographic features that protrude above the surrounding terrain. The rest of the middleground, which is essentially flat, is normally mapped as middleground at one concern level lower than the travelway or use area in question.

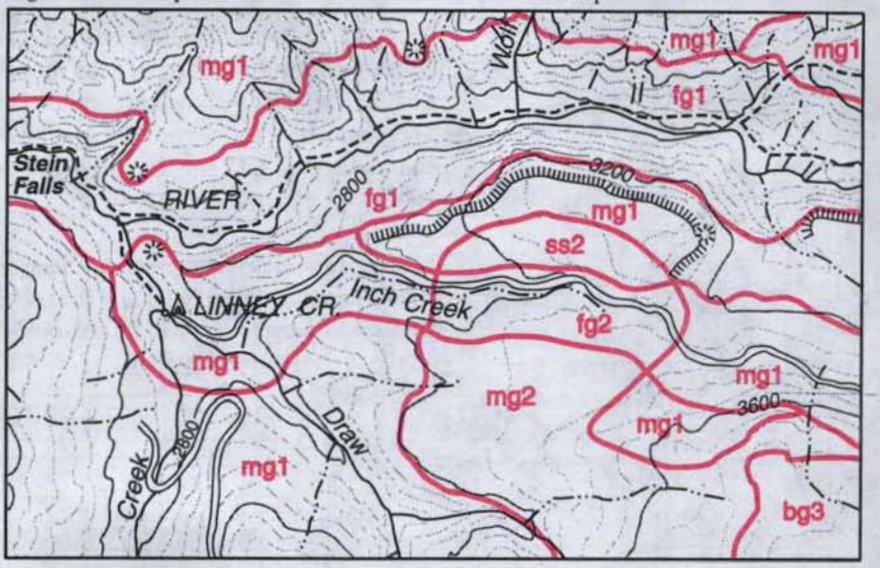
The fourth step in broad-scale planning is to combine the information gathered so far and, using the matrix in Table 4-1 below, produce a map that assigns a single concern level and distance zone to all "seen" areas. Areas that have not been identified as "seen" are labeled "seldom-seen" and are assigned a concern level based on constituency analysis. Even though an area is "seldom-seen" and is not easily accessible, there may be concern for its aesthetic and scenic values. See Figure 4-2 for sample map.

Table 4 - 1. Distance Zone/Concern Level Matrix.

	fg1	mg1	bg1	fg2	mg2	bg2	fg3	mg3	bg3
bg3	fg1	mg1	bg1	fg2	mg2	bg2	fg3	mg3	bg3
mg3	fg1	mg1	bg1	fg2	mg2	bg2	fg3	mg3	
fg3	fg1	mg1	bg1	fg2	mg2	fg3	fg3		
bg2	fg1	mg1	bg1	fg2	mg2	bg2			
mg2	fg1	mg1	bg1	fg2	mg2				
fg2	fg1	mg1	fg2	fg2					
bg1	fg1	mg1	bg1						
mg1	fg1	mg1							
fg1	fg1								

The most restrictive distance zone/concern level can be easily determined by use of this matrix. If an area has been identified as both middleground-concern level 2 (mg2) and foreground-concern level 2 (fg2), these can be compared—mg2 in the left column versus fg2 in the top row to determine that fg2 is usually the proper distance zone/concern level for that area. In some cases, a middleground landscape may be more sensitive to visual scrutiny than a foreground landscape—constituency analysis will help to make that determination.

Figure 4–2. Sample Distance Zone/Concern Level Final Map.



For project-level planning, identify seen areas in greater detail than in forest planning by mapping seen areas from numerous observer positions along existing travelways and in use areas. Observer positions and seen areas may also be mapped from proposed or planned travelways and use areas.

Also for project-level planning, use both topographic and vegetative screening to assess visibility; use the most sensitive situation, such as any "leaf-off" condition, clear air period, or season of high color contrast.

There are two methods of mapping visibility and the distance zones of seen areas and of mapping seldom-seen areas: manual and computerized.

You may wish to map the distance zones for each concern level on separate base maps. The base maps should be identical in scale to allow overlays to facilitate consolidation of the information, application of the matrix, and the next steps in the inventory process.

Manual Seen Area Mapping

Utilize **manual seen area mapping** where computerized systems or usable digital terrain data are not available. Manual methods can be cumbersome and time-consuming, and lack the accuracy of computerized methods.

A coarse map of seen areas and seldom-seen areas can be developed by driving, walking, or boating the selected travelways and use areas with a topographic base map or, preferably, an orthophoto quadrangle. Similarly, seen areas of separate viewpoints and occupancy sites can be mapped on-the-ground. Viewshed limits can be estimated and delineated on the base map.

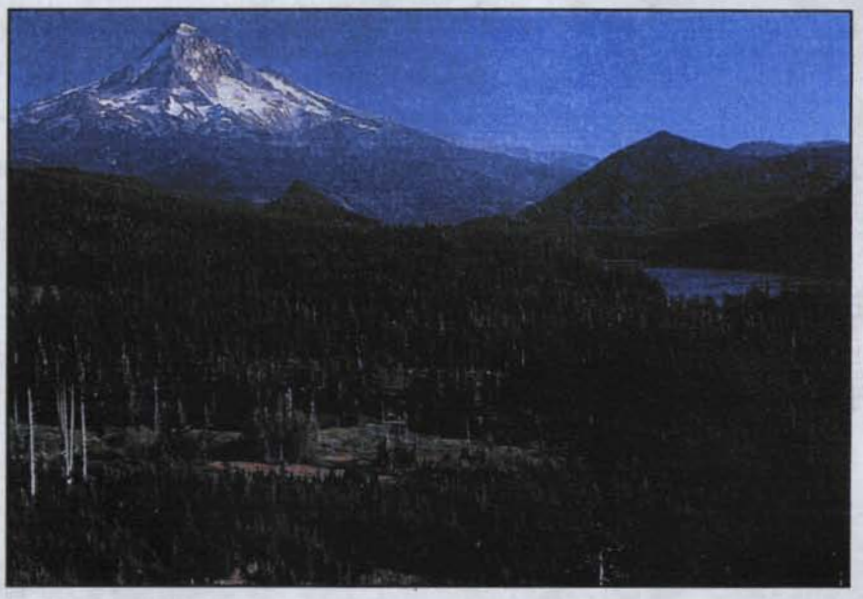
Computerized Seen Area Mapping

Computer software developers and landscape architects have worked together to develop **computerized seen area mapping** techniques. Software programs now exist that accurately develop seen area maps based on topographic screening. There may be a further proliferation of these programs in future years. Most comprehensive GIS software packages include similar visibility analysis programs.

In order to utilize a computerized seen area mapping process, suitable digital terrain data must be available. The relative degree of accuracy for seen area maps produced by computer will be determined by the degree of detail in, and accuracy of, the digital terrain data. Some on-site visits to spot-check for accuracy are advisable.

Scenic Classes

Scenic classes measure the relative importance, or value, of discrete landscape areas having similar characteristics of scenic attractiveness and landscape visibility.



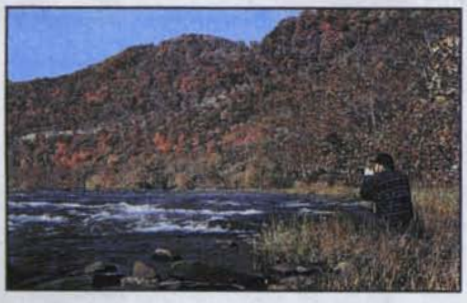
Purpose

All national forest landscapes have **value** as scenery—some more than others. **Scenic classes** are used as a measure of the value of scenery in a national forest.

Scenic classes measure the **relative** importance, or value, of discrete landscape areas having similar characteristics of scenic attractiveness and landscape visibility. Scenic classes are used during forest planning to compare the **value of scenery** with the **value of other resources**, such as timber, wildlife, old growth, or minerals. The higher the scenic class, the more important it is to maintain the highest scenic value.

Discussion

The components of Scenic Classes are **Scenic Attractiveness** and **Landscape Visibility.** As discussed in Chapter 1, Scenic Attractiveness measures the scenic importance of a landscape based on human perceptions of the intrinsic beauty of landform, water characteristics, vegetation pattern, and cultural land use. It is the primary indicator of the scenic beauty of a forest or wildland landscape and of the positive responses scenic beauty evokes in humans. Scenic Attractiveness is divided into three classes: A—distinctive, B—typical or common, and C—indistinctive. As discussed earlier in this chapter, Landscape Visibility uses the four visibility/distance zones of foreground (fg), middleground (mg), background (bg), and seldom-seen (ss), along with three concern levels for scenery (1 - high, 2 - moderate, and 3 - low).



- **Scenic classes** are determined and mapped by combining the three classes of scenic attractiveness with the distance zones and concern levels of landscape visibility. (See Table 4 - 2 and Figure 4 - 3.) Scenic classes are a product of the inventory process that is used for analysis and planning purposes.

- As discussed earlier, scenic classes are used during the forest planning process to compare the value of scenery to other resource values. Generally, Scenic Classes 1 and 2 have high public value, Classes 3 through 5 have moderate value, and Classes 6 and 7 have low value.

Table 4—2. Scenic Class Matrix

		Distance Zones/Seldom-Seen & Concern Levels											
		fg1	mg1	bg1	fg2	mg2	bg2	fg3	mg3	bg3	ss1	ss2	ss3
Scenic Attractiveness	A	1	1	1	2	2	2	2	3	3	1	2	3
	B	1	2	2	2	3	4	3	5	5	2	3	5
	C	1	2	3	2	4	5	5	6	7	3	5	7

Figure 4 – 3. Typical Landscape Value Icon for the Scenery Inventory Map.

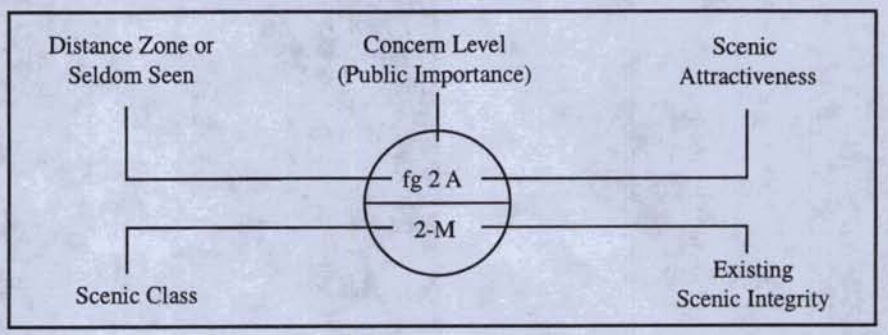
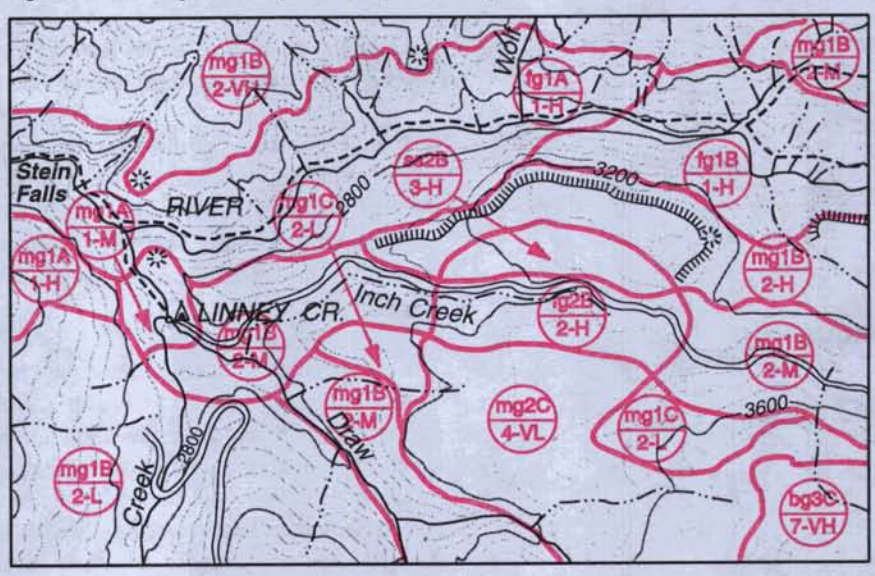
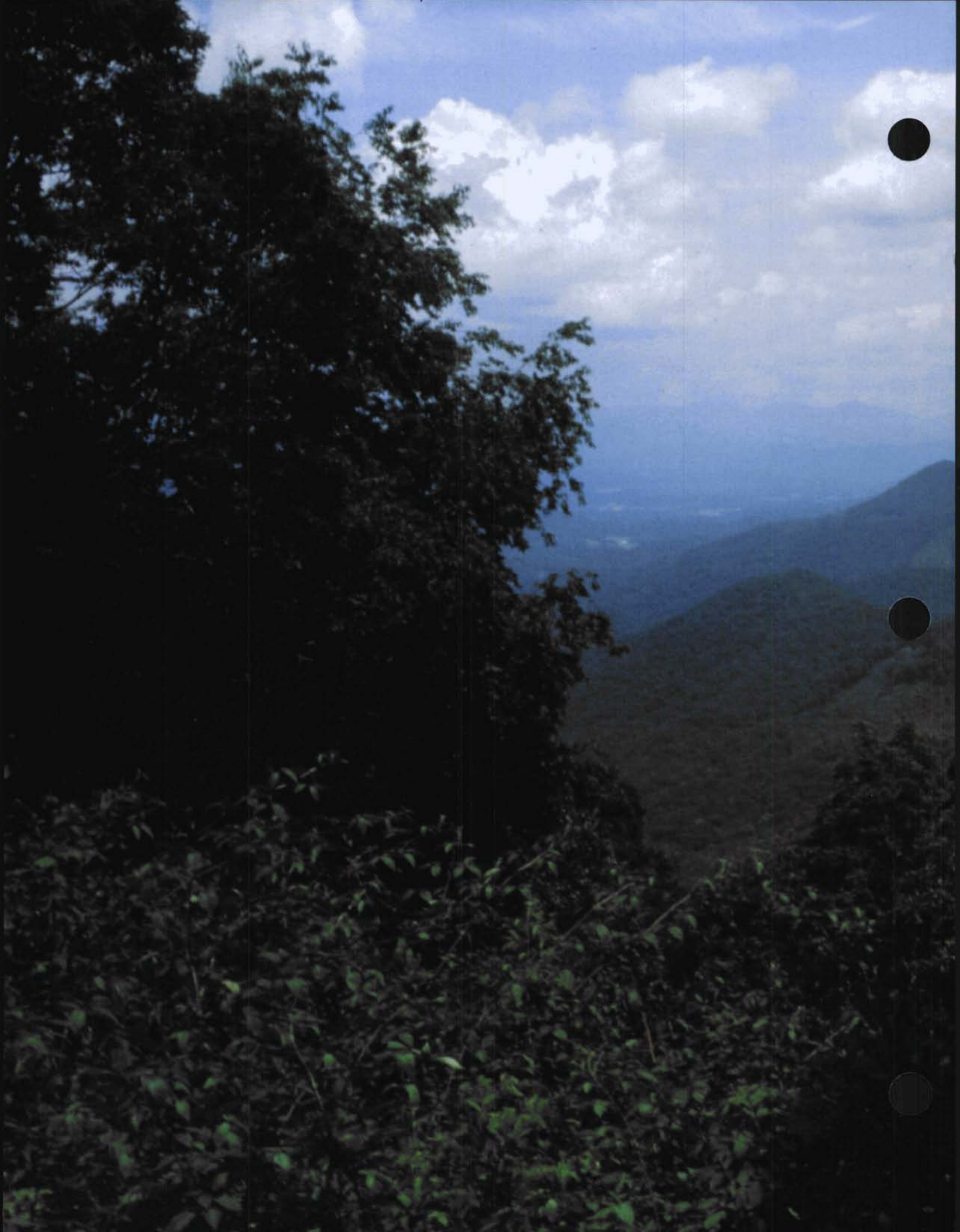


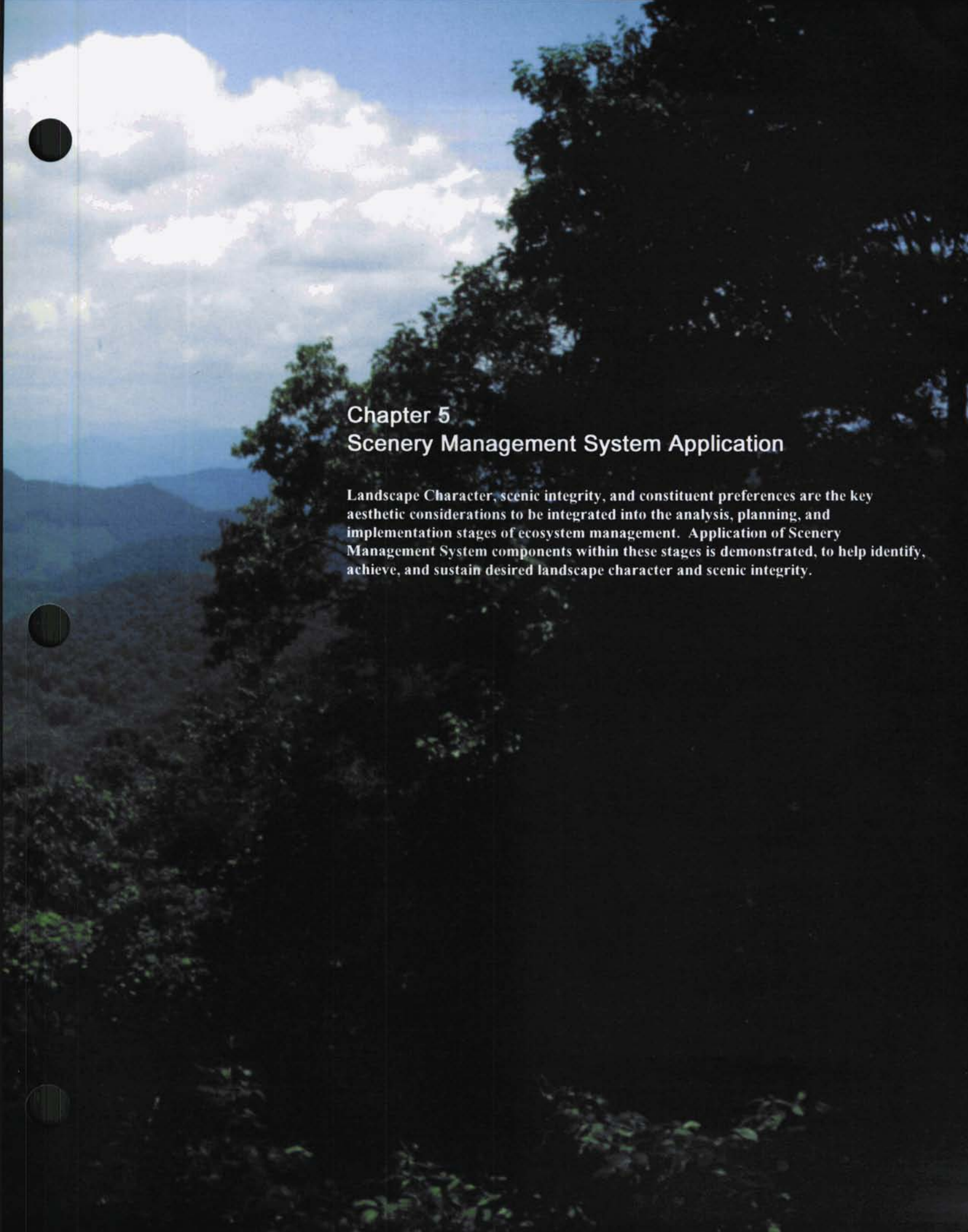
Figure 4 - 4. Sample Scenery Inventory Final Map



Existing scenic integrity is **not** used to determine scenic classes. Although existing scenic integrity does affect the **current value of scenery**, heavily altered landscapes can be reclaimed through future management activities and natural regeneration of vegetation. Because of this, it is suggested that existing scenic integrity be included in the icon when mapping scenic classes during the inventory process.

Using the information in the scenery inventory icon as guidance, Scenic Integrity Levels are discussed and proposed for all National Forest System acres during the forest planning process. The assignment of integrity levels is dependent on the theme (desired future condition) of each alternative. Once a final plan alternative is adopted, the Scenic Integrity Levels become Scenic Integrity Objectives that are used to manage the scenery resource. This is discussed in more detail in Chapter 5.





Chapter 5
Scenery Management System Application

Landscape Character, scenic integrity, and constituent preferences are the key aesthetic considerations to be integrated into the analysis, planning, and implementation stages of ecosystem management. Application of Scenery Management System components within these stages is demonstrated, to help identify, achieve, and sustain desired landscape character and scenic integrity.

Purpose

This Chapter demonstrates the integration of the Scenery Management System with ecological concepts and resource planning processes.

Discussion

Basic understanding of landscape ecology establishes the environmental context for aesthetics and scenery. Ecological systems contain three everchanging and interrelated dimensions: physical, biological and social. All three relate to the aesthetics of ecosystems.

Land and resource planning, along with the resulting administrative actions on the land, determine how ecosystems and their aesthetics are evaluated and managed. While these processes vary greatly, their form is controlled by public laws such as the National Environmental Policy Act (NEPA) or the National Forest Management Act (NFMA).

The application of the Scenery Management System to the forest planning process is identified below.

Forest Planning Process	Scenery Management System
Inventory	Ecological Unit Description - GIS Map Existing Land Uses Landscape Character Description
Inventory	Landscape Visibility (Distance Zones, Concern Levels) - GIS Map Existing Scenic Integrity (Conditions) - GIS Map Scenic Attractiveness - GIS Map Scenic Classes - GIS Map
Analysis and Planning	Alternative Development and Evaluation • Proposed Landscape Character Description • Proposed Scenic Integrity Levels Alternative Selection • Landscape Character Goals • Scenic Integrity Objectives - GIS Map
Implementation	Standards and Guidelines for S.I. Objectives Mitigation Implementation Techniques
Monitoring and Evaluation	Monitor accomplishment of Landscape Character goals and scenic integrity objectives

Ecosystems: The Environmental Context for Aesthetics

An ecosystem is a place where life and environment interact. They function and evolve through time, and include people, either directly or indirectly. Ecosystems can be described within a wide range of scales that potentially link global issues to site specific conditions, allowing considerations at multiple ecosystem scales as necessary.

Ecosystem management broadens understandings of environments by its holistic consideration of the physical, biological and social dimensions of ecosystems. The social dimension can be further subdivided for analysis purposes into cultural, community, economics, and politics. Interactions among the physical, biological, and social dimensions, with their many parts, patterns, and processes, result in their collective function as integrated systems. Within each dimension, key ecosystem elements can be measured, tracked, and managed by use of environmental indicators which help achieve desired conditions for the landscape.

The social dimension has many aspects, but one of importance for public lands is recreation. Ecosystems as recreational settings greatly affect the quality and effectiveness of the recreation experience. A key attribute of recreation settings is the quality of aesthetics. Direct contact with natural appearing settings and attractive cultural features that offer a sense diversity, order, and wholeness are highly valued for their ability to stimulate the senses and nurture the mind.

The following planning discussion will include ecosystem inventory and analysis, alternative development and evaluation, alternative selection, and monitoring the results. Landscape character goals and scenic integrity objectives should normally be within the limits of a sustainable ecosystem; but, not all sustainable conditions will achieve desired levels of aesthetics. It will be important to examine the full range of sustainable conditions, use the landscape design arts to mitigate negative effects, and shape and blend management activities with the natural patterns of the land. As people gain more knowledge and appreciation of how ecosystems function and their role in them, there may be greater acceptance of certain conditions such as down woody debris, etc..

Ecosystem Inventory and Analysis

The physical, biological, and social components of ecosystems are inventoried and analyzed. This information provides an understanding of the existing condition of the ecosystem and its inherent potential.

When ecosystems are analyzed, a common structure or process for organizing information about their parts, patterns and processes is useful. Since no single nationally recognized ecosystem analysis structure exists, use or adaptation of existing regional or local structures is recommended. A basic ecosystem analysis approach is presented in this section along with a discussion of the integration of scenery components. Application of the components may vary by scope, complexity, and sensitivity of the analysis undertaken.

Interdisciplinary Collaborative Learning

Identify and discuss issues with the public. Through dialogue with an interdisciplinary team, form questions or scenarios about the issues. Discuss ecosystem components, relationships, and processes. Preliminary information about the natural range of key ecosystem elements is also discussed.

A complete scenery inventory, as described in previous chapters of this Handbook, would make the following information available for discussion with the interdisciplinary team:

Constituent Input

- Scenery related attitudes, beliefs, meaning, associations, and values for landscapes expressed in terms of expectations and preferences

Landscape Character

- existing landscape character that people relate to as a significant element in "sense of place", including positive cultural features

- landscape character evolution, trends and possibilities

Scenic Attractiveness
- A - Distinctive, B - Common, C - Indistinctive

Existing Scenic Integrity
- Very High, High, Moderate, Low, and Very Low

Place Attachment
- location, meaning, and importance of specific areas largely derived from constituent input

Concern Levels
- 1 - High, 2 - Moderate, 3 - Low, representing degree of scenery importance for specific viewing locations such as communities, recreation areas, roads, and trails

Distance Zones
- Immediate Foreground, Foreground, Middleground, and Background for locations assigned Concern Levels

Scenic Classes
- Represents relative landscape value by combining Distance Zone, Concern Level, and Scenic Attractiveness. The Scenic Class is supplemented with Existing Scenic Integrity information, and documented in map form with scenic class icon descriptors.

An analysis of ecosystem components, structures, processes, and functions provides a working understanding of the ecosystem necessary to test its ability to retain, achieve, and sustain desired conditions. Ecosystem analysis generally includes the following exercises:

- Identification of relationships and interactions among ecosystem elements, including their influences relative to location in the ecosystem

- Description of trends and ranges of variability for ecosystem elements

- Determination of sustainability for key ecosystem elements and their combinations

Landscape Aesthetics factors of key importance to ecosystem analyses are:

- Landscape Character evolution, its dynamics, potential options and variations, both biophysical and social (landscape meanings, values, preferences, thresholds, and benefits)

- Landscape Value (concern level, scenic attractiveness, distance zone, scenic class, plus existing scenic integrity)

- Potential for improving Scenic Integrity and Scenic Attractiveness

Alternative Development and Evaluation

This stage of planning establishes alternatives that contribute to the resolution of key issues. Development of alternative ways to achieve desired conditions generally occurs in the following manner:

- Relationships of key ecosystem components and processes identified in the ecosystem analysis phase are further tested for their compatibility within a particular scenario or alternative.

- Combinations of these ecosystem components and processes that achieve some desirable conditions are then expanded to comprehensively describe complete, functional ecosystems that can achieve and sustain more desired conditions organized around a specific theme or scenario. Such "preliminary alternatives" or opportunities include management area descriptions. The desired Landscape Character and Scenic Integrity are included within the management area desired condition and standards and guidelines. Scenic classes and constituent information about landscape values are used here to determine the extent, quality, and location of desired scenery conditions. Generally a Very High or High Scenic Integrity level is assigned to Wilderness and other congressionally designated areas. Other management areas will be assigned a scenic integrity level that is consistent with the desired condition.

- Adjustments to alternatives are made to achieve desired values and benefits, while sustaining ecosystems. This develops into a formal "Alternative" way to achieve desired conditions.

Desired Landscape Character

Selection of a desired landscape character for an alternative must take into consideration ecosystem dynamics and trends. Due to the wide variety of ecosystems and possible alternative themes, there are many possibilities for changing landscape character.. These possibilities should be directed towards a more complete, attractive, and sustainable expression of landscape character.

Changes from existing landscape character should normally be within historic ranges, for which ecosystem sustainability has been demonstrated. The following examples describe possibilities for desired landscape character and long range scenic integrity objectives.

- "Naturally Evolving" landscape character expressing the natural evolution of biophysical features and processes, with very limited human intervention

- "Natural Appearing" landscape character that expresses predominantly natural evolution, but also human intervention including cultural features and processes

- "Cultural" landscape character expressing built structures and landscape features that display the dominant attitudes and beliefs of specific human cultures

- "Pastoral" landscape character expressing dominant human created pastures, "meadows", and associated structures, reflecting valued historic land uses and lifestyles

- "Agricultural" landscape character expressing dominant human agricultural land uses producing food crops and domestic products

- "Historic" landscape character expressing valued historic features that represent events and period of human activity in the landscape

- "Urban" landscape character expressing concentrations of human activity, primarily in the form of commercial, cultural, education, residential, transportation structures, and supporting infrastructure

For most National Forest System lands, decision makers will usually select some form of Natural, or Natural Appearing landscape character, because the majority of these lands have purposely been conserved in such conditions as a function of the National Forest character and mission. The cultural themes may be most useful to conserve expressions of valued human associations with landscapes of mixed ownership. Generally these areas are within a context of surrounding lands that express natural or predominantly natural appearing landscape character. The attractiveness of these landscapes may be highly dependent on each other particularly when the contrast between them is great.

Variations within Landscape Character

Within each general landscape character, there are infinite possibilities for specific landscape character variations, such as changes in vegetative species mixtures or their patterns, that can also create significant departures from existing landscape character. Landscape character variations are often expressed in terms of creating, or maintaining by design, specific plant-successional stages, large tree character, diversity of age classes, or natural-appearing open spaces.

Variations must be consciously designed and must be an integral part of any desired future condition of an ecosystem The economic and technological feasibility of the transition from existing landscape character to a desired landscape character must also be considered. Interdisciplinary teams must determine whether sufficient budgets and technology exist to achieve and maintain a desired landscape character.

Variations for a **natural-appearing landscape character** could include the three combinations shown below. Ideally, a highway corridor would contain several different variations of each landscape character present.

Emphasis on maintaining character of large trees with distinctive bark texture, having adequate replacement trees of different ages to maintain this character over time.

Emphasis on smaller tree character with replacement trees of adequate stocking levels to maintain rapid growth. The saplings and poles in this photo need to be thinned to meet the objective.

Emphasis on increasing diversity of vegetation species with openings emphasizing natural meadows.

- When resource managers move plant communities from one successional stage to another, variations may also include a change in species mixture as shown in the two photographs below. In *National Forest Landscape Management, Volume 2, Chapter 5—Timber,* landscape architects, siviculturists, and other professionals illustrate how an existing plant community of lodgepole pine and larch can be moved to climax subalpine fir, Engleman spruce, Douglas-fir, larch, and lodgepole pine. The landscape character variation on the right has considerably more scenic quality than the one on the left.

- In the first scene below, left, the trees could be thinned to move the stand toward a park-like setting of large trees throughout the highway corridor. However, the new stand of thinned trees would lack desirable horizontal diversity and would lack replacement trees as described under concepts for ponderosa pine in *Chapter 5—Timber.* The two scenes, left and middle, on the bottom of the previous page illustrate two of these variations from the Timber Chapter. The scene below, right, on this page illustrates still another variation. The number of large trees has been reduced in density to 12-to-15 trees per acre, allowing younger trees to regenerate and grow. Still another variation would have the number of large trees reduced to 4-to-5 trees per acre, allowing saplings to grow to black bark poles. These same concepts could be applied over time to the pole stand on the left.

Alternative Evaluation

Alternative evaluation includes a description of predicted changes to key ecosystem elements. These predictions and outcomes are developed in relation to key issues and desired conditions, and is then communicated to decision makers and constituents.

Evaluation of an alternative generally includes the following information:

- Direct, indirect, and cumulative effects.
- Magnitude, duration, and significance of effects.
- Mitigation measures for reducing unavoidable effects
- Irreversible or irretrievable commitment of resources

Scenery effects are focussed upon changes determined by the following indicators:

Landscape Character changes:

- Determine if existing Landscape Character will be sustained or changed.
- Determine if changes to Landscape Character exceed the limits of its historic range, as well as what influences that may have upon its sustainability.
- Determine if opportunities for enhancement of existing Landscape Character and Scenic Attractiveness were achieved, and to what degree they were achieved.

Scenic Integrity effects:

- Determine if areas of Very High and High Existing scenic integrity would be significantly or irreversibly altered.
- Determine if areas of high Scenic Class are altered.
- Determine if opportunities for restoration of Scenic Integrity were achieved, and to what degree they were achieved.
- Determine changes relative to cumulative effects thresholds for scenery.

Scenic Benefits:

- Conservation of Scenic Heritage
- Quality of Life
- Identity and Self Image of Communities and Individuals
- Recreation and Tourism settings

Alternative Selection

This stage of planning focuses upon the development and formalization of an alternative "selected" as the desired condition for management of the ecosystem.

The "desired condition" of a national forest is described in a forest plan and an accompanying environmental impact statement. More specific project plans apply similar planning and documentation processes. Desired condition statements for both types of plans are the result of preceding planning stages. Landscape character information, scenic classes, and constituent preferences all help determine desired condition for scenic quality. For scenery management, desired condition has two components: landscape character goals and scenic integrity objectives.

Landscape Character goals and Scenic Integrity objectives are described for each forest plan management area. Scenic integrity objectives are defined by minimally acceptable levels and the direct intent to achieve the highest scenic integrity possible.

Achievement of Landscape Character Goals

Maintaining an Existing Landscape Character

When existing landscape character is the same as a landscape character goal, interdisciplinary teams should develop management strategies to perpetuate the desired attributes of the existing character. Every landscape changes over time. Even those that evolve through natural processes change in landscape character. Specific locations of scenic attributes may also change over time.

The overall landscape character goal is maintained through time by proper management of scenic attributes. For example, a scenic view from a specific location on a highway to a stand of colorful aspen tress may disappear over time as pine trees grow and block the view. The landscape character goal may indicate the need to create similar scenic viewing opportunities elsewhere along that same read, within the same landscape unit, when vegetation grows and the current vista disappears.

Transition from Existing to Desired Landscape Character

When there are considerable differences between existing and desired landscape character, it may be necessary to design a transition strategy. The design should include a reasonable time line for reaching the goal. It should exclude excessive increments of change. Scenic integrity objectives define the degrees of deviation in form, line, color, scale and texture that may occur at any given time, thus defining a transition strategy.

Monitoring

Monitoring and evaluation efforts provide information to:

- detect magnitude and duration of changes in conditions including scenic integrity and landscape character.
- formulate and test hypotheses as to cause of the changes.
- help better understand these causes and predict impacts.

Monitoring Types

There are three types of monitoring: implementation, effectiveness, and validation.

Implementation monitoring determines whether the standards and guidelines were followed. Some agencies call it "compliance" monitoring . . . or said another way "Did we do what we said we would do?"

Effectiveness monitoring determines if the application of the management plan achieved or is headed in the right direction to achieve the desired future condition (DFC) . . . in other words did the management practice or activity do what was intended. Did the standards and guides function as intended or were they not effective?

Validation monitoring determines if new information exists which alters the validity of the assumptions upon which the plan was based. Such considerations might include changes in resource conditions, changes in constituent values and expectations or changes in legal requirements.

Monitoring Landscape Character

The objective of Landscape Character **Implementation and Effectiveness monitoring** is to determine if the landscape character goal is being met or is moving toward the desired character over time. For example, the goal may be to maintain open, park-like stands of large ponderosa pine with yellow-plated bark with 20% in seedling/saplings, 40% in a black bark stage, and 20% in small saw timber.

Objective: To determine if the landscape character is moving in the direction of the landscape character goal.

Method: Identify through field review the percentage of vegetation (or other elements in the landscape character) that is moving towards the landscape character goal.

Unit of Measure: Percent of acres.

Landscape Character **Validation** is addressed through a continual constituent analysis process determining such things as the landscape character preferred by people.

Monitoring Scenic Integrity

Implementation monitoring is usually done through spot checking the scenic integrity level of activities one year after completion to see if they are in compliance with the Forest Plan.

Objective: To determine if the scenic integrity levels for projects adopted in the Forest Plan by Management Area are being achieved.

Method: Identify through field review a stratified sample of projects in high, moderate, and low integrity levels. Sampling intensity should increase with the level of scenic integrity objective.

Unit of Measure Identify total projects within each viewshed or geographic area, including how many and what percent were monitored. Of those monitored, how many and what percent met the scenic integrity standard for the area.

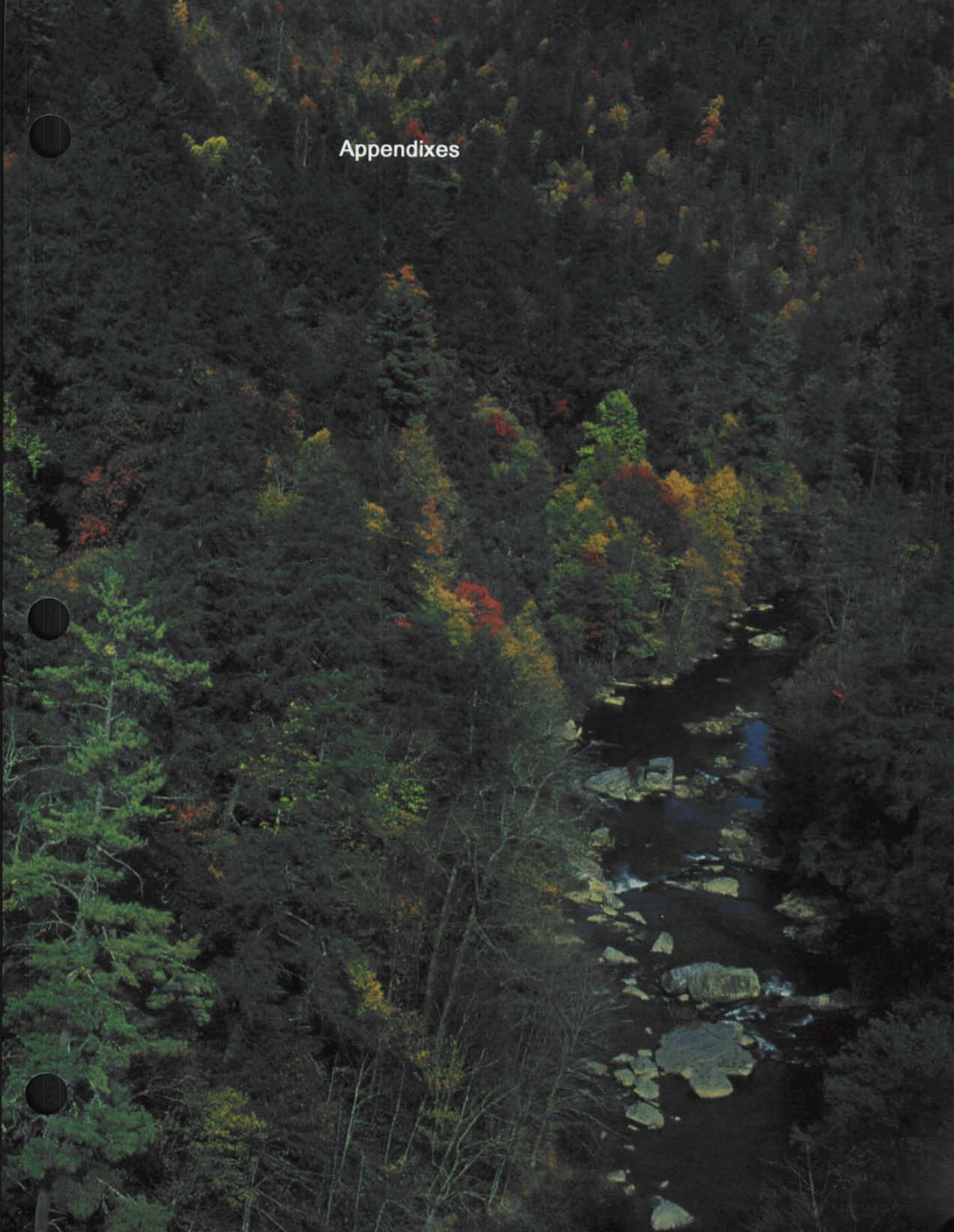
Effectiveness can be checked by summarizing the existing scenic integrity levels for each viewshed or geographic area.

Objective: Are the cumulative effects of all resource activities within a viewshed meeting the integrity level standards.

Method: Determine the percentages of each integrity level being met within each viewshed. Determine if the percentages are consistent with the Forest Plan.

Unit of Measure: Total acres in each viewshed that are consistent with Forest Plan standards.

Validation is addressed through a continual constituent analysis process, determining such things as the lowest level of scenic quality acceptable to people.


Appendixes

Appendix A
Terminology and Component Changes

Numerous changes in terminology were made when *The Visual Management Sys-tem* was updated. Following are lists of terminology changes in the Scenery Management System from *The Visual Management System.*

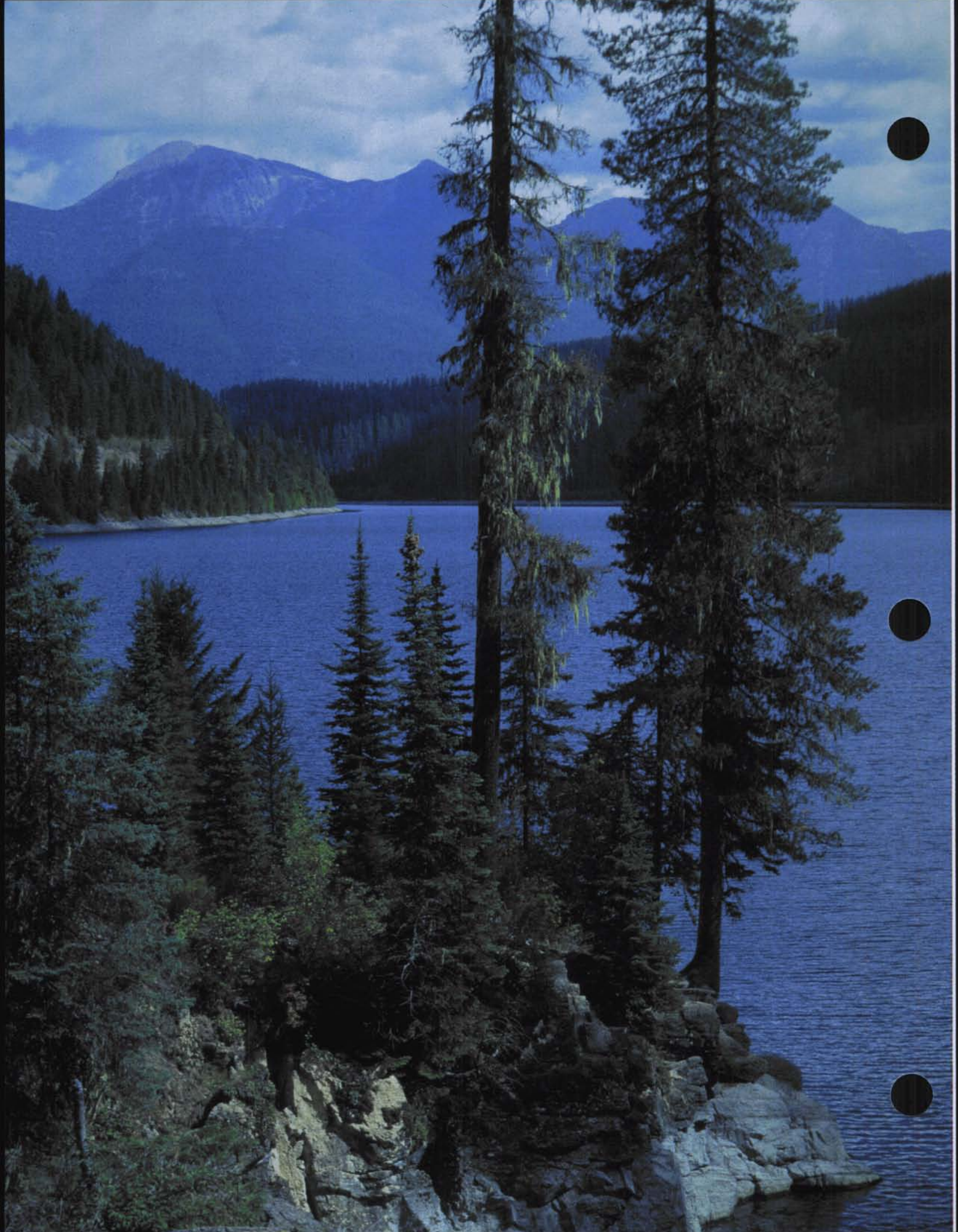
Scenery Management System	*The Visual Management System*
Concern levels	Concern levels
Constituent information	Sensitivity levels
Distance zones	Distance zones
Scenic attractiveness	Variety class
Landscape character	Characteristic landscape
Section	Landscape character type
Very Low Scenic Integrity	Maximum modification
Low Scenic Integriy	Modification
Moderate Scenic Integrity	Partial retention
Very High Scenic Integrity	Preservation
High Scenic Integrity	Retention
Scenic integrity objective	Visual quality objective
Travelways and use areas	Travelways and use areas
Unacceptably Low	Unacceptable modification

Some components of the Scenery Management System are from **subsystems** developed after 1974, when *The Visual Management System* was published. Here is a list of components with new and old terminology from subsystems.

Scenery Management System	Original Subsystem Terminology
Corridor viewshed	Corridor viewshed
Desired landscape character	Desired character
Existing scenic integrity	Existing visual condition
Visual absorption capability	Visual absorption capability
Visual magnitude	Visual magnitude

Some terminology and components of the Scenery Management System are new, having never been part of *The Visual Management System* or any previous sub-system, as follows:

Basin or feature viewshed
Existing landscape character
Ecological land unit
Landscape character goal
Landscape character theme
Scenic class
Scenic integrity level
Scenic viewing opportunity



Appendix B
Legislation and Directives

Numerous Federal laws require all Federal land management agencies to consider scenery and aesthetic resources in land management planning, resource planning, and project design, implementation, and monitoring. These Federal laws include the following:

- Wilderness Act of 1964.
- Wild and Scenic Rivers Act of 1968.
- National Trails System Act of 1968.
- National Environmental Policy Act of 1969.
- Environmental Quality Act of 1970.
- Forest and Rangeland Renewable Resources Planning Act of 1974.
- National Forest Management Act of 1976.
- Surface Mining Control and Reclamation Act of 1977.
- Public Rangelands Improvement Act of 1978.

In addition, the Forest Service has routinely included both scenery and recreation as part of the 1960 Multiple Use-Sustained Yield Act. The following are summaries of these Federal statutes referring to aesthetic, scenic, and visual resources.

Wilderness Act

The Wilderness Act of 1964 established a National Wilderness Preservation System of federally owned lands: "[These lands] shall be administered for the use and enjoyment of the American people... so as to provide for the protection of these areas, the preservation of their **wilderness character**..." *(Emphasis added.)*

"...wilderness, in contrast with those areas where **man and his own works dominate the landscape**, is hereby recognized as a area where the earth and its community of life are **untrammeled by man**, where man himself is a visitor who does not remain. *(Emphasis added.)*

"Wilderness... is an area of Federal land retaining its primeval **character and influence,** without permanent improvement or human habitation, which is protected and managed so as to preserve its **natural condition** and which generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable..." *(Emphasis added.)*

Wild and Scenic Rivers Act

The Wild and Scenic Rivers Act of 1968 declared: "...certain selected rivers of the Nation which, with their immediate environments, possess **outstandingly remarkable scenic**, recreation, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition." A river within the system may be classified, designated, and administered as one of the following: wild river, scenic river, or recreational river. **Scenic rivers** are "...those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads." *(Emphasis added.)*

National Trails System Act

The National Trails System Act of 1968 provides "for the ever-increasing outdoor recreation needs of an expanding population and in order to promote the preservation of public access to, travel within, and enjoyment and appreciation of the open-air, outdoor areas and historic resources of the Nation, trails should be established (1) primarily, near the urban areas of the Nation, and (2) secondarily, within scenic areas and along historic travel routes of the Nation, which are often more remotely located." *(Emphasis added.)*

National Environmental Policy Act (NEPA)

NEPA is the National Environmental Policy Act of 1969. NEPA covers procedures for considering all resources and values and documenting Federal land management decisions. It gives general direction for management of scenic and aesthetic resources.

NEPA states that it is the "continuing responsibility of the Federal Government to use all **practicable** means to... assure for all Americans safe, healthy, productive, and **aesthetically and culturally pleasing surroundings**." *(Emphasis added.)*

There is a difference between the words practicable and practical. **Practicable** deals with methodologies that are possible to practice or perform. **Practicable** concentrates on methods that are workable, feasible, or capable of being put into practice. Practicable methods may not be in practice currently, even though they are technically possible to put into practice.

Conversely, **practical** deals with methodologies that are actually being used, or are commonly engaged in practice or actual use. Therefore, NEPA mandates agencies to develop methodologies for scenery management of "**aesthetically and culturally pleasing surroundings**" that are capable of being put into practice, even if they are not currently in use.

NEPA also requires "a systematic and interdisciplinary approach which will insure the integrated use of the natural and social sciences and the **environmental design arts** in planning and decision-making which may have an impact on man's environment." *(Emphasis added.)*

NEPA requires federal land management agencies to "identify and develop methods and procedures... which will insure that presently unquantified **environmental amenities and values** may be given appropriate consideration in decisionmaking along with economic and technical considerations." *(Emphasis added.)*

Environmental Quality Act

The Environmental Quality Act of 1970 "declares that there is a national policy for the environment which provides for the **enhancement of environmental quality**. This policy is evidenced by statutes heretofore enacted relating to the prevention, abatement, and control of environmental pollution, water and land resources, transportation, and economic and regional development." *(Emphasis added.)*

Resources Planning Act (RPA)

RPA is the Forest and Rangeland Renewable Resources Planning Act of 1974. RPA states that "the **Forest Service**, by virtue of its statutory authority for management of the National Forest System, research and cooperative programs, and its role as an agency in the Department of Agriculture, has both a responsibility and an **opportunity to be a leader** in assuring that the Nation maintains a **natural resource conservation posture** that will meet the requirements of our people in perpetuity..." *(Emphasis added.)*

Regarding timber harvesting and scenery management, RPA states the following: "cuts designed to regenerate an even-aged stand of timber will be used as a cutting method on National Forest System lands only where... the interdisciplinary review has been completed and the potential... **aesthetic**... **impacts** have been assessed; [and where] cut blocks, patches, or strips are shaped to the extent practicable with the natural terrain; [and where] such cuts are carried out in a manner consistent with the protection of... recreation and **aesthetic resources**..." *(Emphasis added.)*

RPA requires that "Program benefits shall include, but not be limited to, **environmental quality factors** such as **aesthetics**, public access, wildlife habitat, recreational and wilderness use, and economic factors such as the excess of cost savings over the value of foregone benefits and the rate of return on renewable resources." *(Emphasis added.)*

National Forest Management Act (NFMA)

NFMA is the National Forest Management Act of 1976. Identical language to all of the above language in RPA concerning regeneration timber cutting is found also in NFMA. In addition, the following excerpts are taken from the most recent Code of Federal Regulations (CFR) dated Sept. 30, 1982. 36CFR Part 219 concerns implementation of NFMA.

36CFR Part 219.5 directs the Forest Service to use an "Interdisciplinary approach... Through interactions among its members, the team shall integrate knowledge of the physical, biological, economic and social sciences, and **the environmental design arts in the planning process**. *(Emphasis added.)*

Regarding "Estimated effects of alternatives. The physical, biological, economic, and social effects of implementing each alternative... shall be estimated...
(1) The expected outputs for the planning periods, including appropriate marketable goods and services, as well as nonmarket items, such as recreation and wilderness use, wildlife and fish, protection and enhancement of soil, water, and air, and **preservation of aesthetic** and cultural **resource values**; *(Emphasis added.)*

"During formulations and evaluation of each alternative... combinations of resource management prescriptions shall be defined to meet management objectives for the various multiple uses including outdoor recreation, timber, watershed, range, wildlife and fish, and wilderness.

"Forest planning shall identify,
(1) The physical and biological characteristics that make land suitable for recreation opportunities;
(2) The recreational **preferences of user groups** and the **settings needed** to provide quality recreation opportunities; and
(3) Recreation opportunities on the National Forest System lands. *(Emphasis added.)*

Part 219.21(f) requires: **"The visual resource shall be inventoried and evaluated as an integrated part of evaluating alternatives in the forest panning** (sic) **process, addressing both the landscape's visual attractiveness and the public's visual expectation. Management prescriptions for definitive land areas of the forest shall include visual quality objectives.** *(Emphasis added.)*

"All management prescriptions shall...
(7) Be assessed prior to project implementation for potential physical, biological, **aesthetic**, cultural, engineering, and economic impacts and for consistency with multiple uses planned for the general area; *(Emphasis added.)*

Regarding vegetative manipulation, Part 219.27 states:
"(b) Vegetative manipulation.
Management prescriptions that involve vegetative manipulation of tree cover for any purpose shall,
(1) Be best suited to the multiple-use goals established for the area with potential environmental, biological, cultural resource, **aesthetic**, engineering, and economic impacts, as stated in the regional guides and forest plans, being considered in this determination;

(2) Assure that lands can be adequately restocked as provided in paragraph (c)(3) of this section, except where permanent openings are created for wildlife habitat improvement, **vistas, recreation uses** and similar practices;...
(6) Provide the desired effects on water quantity and quality, wildlife and fish habitat, **regeneration of desired tree species**, forage production, recreation uses, **aesthetic values**, and other resource yields;... *(Emphasis added.)*

"(6) Timber harvest cuts designed to regenerate an even-aged stand of timber shall be carried out in a manner consistent with the protection of soil, watershed, fish and wildlife, **recreation, and aesthetic resources**, and the regeneration of the timber resource. *(Emphasis added.)*

Regarding even-aged management of timber: "When openings are created in the forest... (1) Openings shall be located to achieve the desired combination of multiple-use objectives. The **blocks or strips cut shall be shaped and blended with the natural terrain, to the extent practicable, to achieve aesthetic**, wildlife habitat, or other objectives established in the plan... As a minimum, openings in forest stands are no longer considered openings once a new forest is established... Regional guides shall provide guidance for determining variations to this minimum in the forest plan, based on requirements for watershed, wildlife habitat, **scenery** or other resource protection needs, or other factors. *(Emphasis added.)*

"The following factors shall be considered in evaluating harvest cuts of various sizes and shapes to determine size limits by geographic areas and forest types: Topography; relationship of units to other natural or artificial openings and proximity of units; coordination and consistency with adjacent forests and regions; effect on water quality; **visual absorption capability**... *(Emphasis added.)*

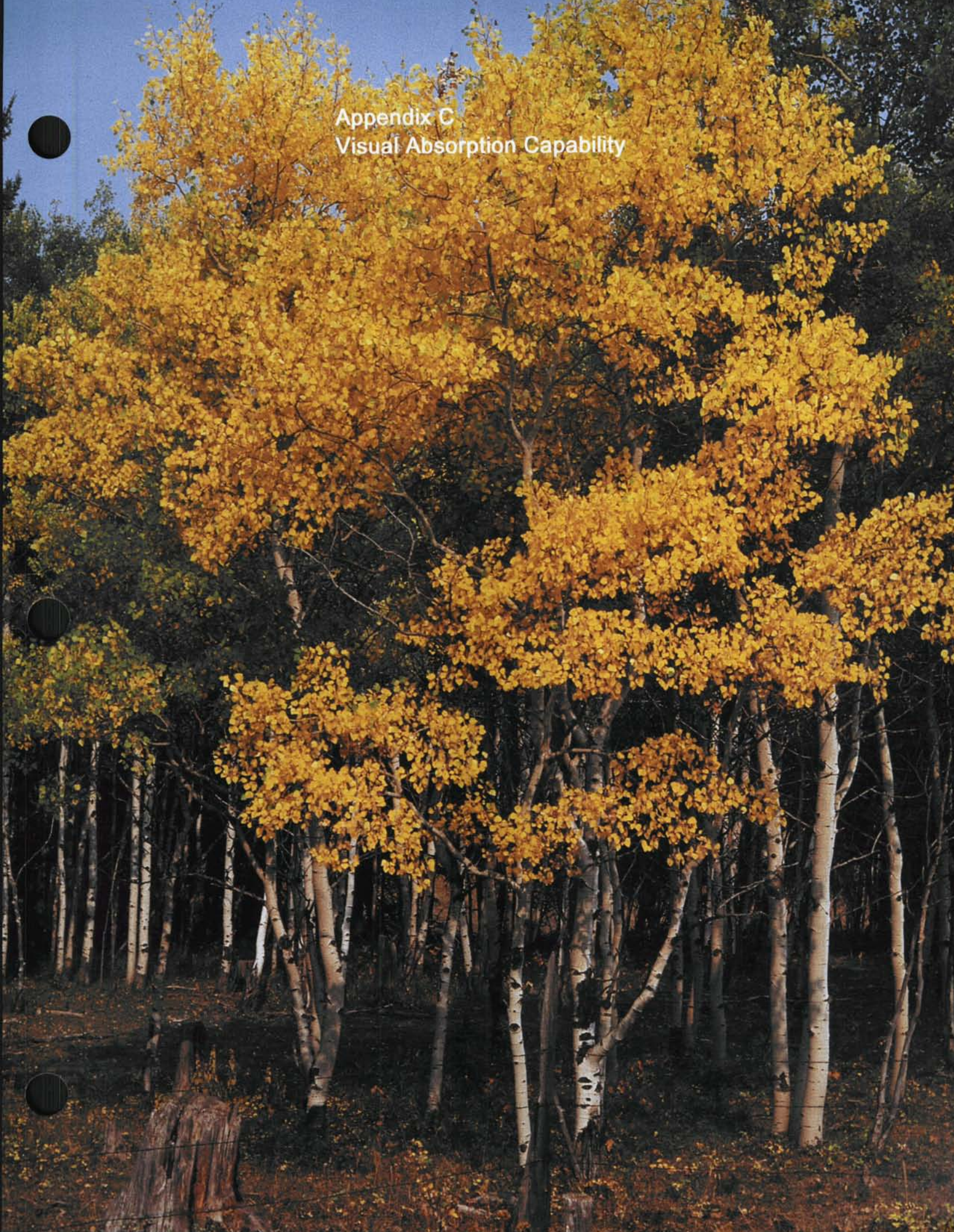
Surface Mining Control and Reclamation Act

The Surface Mining Control and Reclamation Act of 1977 "establishes a nationwide program to protect society and the environment from the adverse effects of surface coal mining operations..." *(Emphasis added.)*

The act states that "a surface area may be designated unsuitable for certain types of surface coal mining operations if such operations will... result in significant damage to important... **aesthetic values** and natural systems..." *(Emphasis added.)*

Public Rangelands Improvement Act

The Public Rangelands Improvement Act of 1978 declares that "unsatisfactory conditions on public rangelands... reduce the value of such lands for recreational and **aesthetic purposes**..." *(Emphasis added.)*



Appendix C
Visual Absorption Capability

Visual Absorption Capability

Visual absorption capability indicates the relative ability of any landscape to accept human alteration without loss of landscape character or scenic condition.

Background

Since the late 1960's, landscape architects have recognized visual absorption capability as a pertinent part of a scenery inventory on land of diverse topography. Visual absorption capability has also been referred to as "visual vulnerability" or "landscape fragility."

Landscape visibility, as a "perceptual factor," is dynamic. It varies dramatically depending upon the location of the observer. Although many may think landscape visibility part of visual absorption capability because it is associated with perceptual aspects of scenery management, it is not. In this handbook, visual absorption capability is associated only with "physical factors" of the landscape in scenery management. For discussion of perceptual factors of landscape visibility, also known as visual magnitude, see Appendix E.

Visual absorption capability relates to physical characteristics of the landscape that are often inherent and often quite static in the long term.

Purpose

Visual absorption capability is a classification system used to indicate the relative ability of any landscape to accept human alteration without loss of landscape character or scenic condition. Visual absorption capability is a relative indicator of the potential difficulty, and thus the potential cost, of producing or maintaining acceptable degrees of scenic quality. It can be used to predict **achievable scenic condition levels** resulting from known management activities in a landscape.

Thus, visual absorption capability is a useful tool in forest planning and in modifying management activities to meet landscape character goals and scenic condition objectives. It may be used to specify the most efficient location for a human alteration or structure on the landscape, so that a project will be accomplished easily, at low cost, and with minimal reduction in scenic quality.







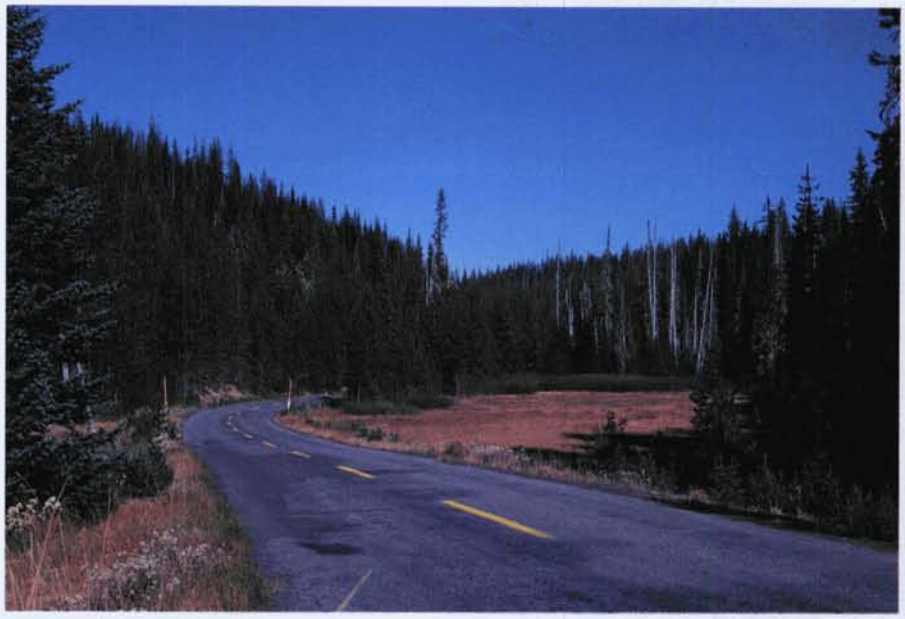




Discussion

- The degree of visual screening provided by landform, rockform, or vegetative cover affects visual absorption capability.
- Variety or diversity of landscape pattern—particularly the amount and extent provided by landform, rockform, waterform, or vegetative cover—affects visual absorption capability.
- Heavily dissected landform and rockform partially screen and break up the visual continuity of landscape alterations, while smooth landform does not.
- Tall vegetation, such as trees, screen and break up the visual continuity of landscape alterations. Short vegetation, such as grasses and low shrubs, does not.
- Heavily patterned and diverse, dense vegetative cover, especially if mixed with waterforms, break up the perceived continuity of landscape alterations. Homogeneous vegetative cover and lack of waterforms do not.
- Dense vegetation on flatter slopes provides more screening of landscape alterations than the same vegetative cover on steep slopes.
- Vegetative regeneration potential affects visual absorption capability. A landscape with good soil productivity and favorable climate quickly reproduces vegetative cover. This "greening-up" tends to screen and blend human alterations into the landscape matrix more quickly. A landscape with poor soil and climate takes longer to recover.
- Soil color contrasts to the normal vegetative cover affect visual absorption capability. Darker soil tends to reduce visual contrast of landscape alterations. Light-colored soil—tan, white, yellow, and red—tends to visually emphasize landscape alterations in heavily vegetated areas.
- Geologic stability, soil stability, and potential of erosion of a landscape affect its visual absorption capability. A landscape prone to landslide, soil slippage, and erosion exacerbates the visual impact of landscape alterations. A stable landscape does not.

Slope



Vegetative cover

Recommended Inventory Factors

1. Slope

On steep mountainous terrain, **slope** is the most important visual absorption capability factor. Slope includes factors relating to landform screening, vegetation screening, geologic stability, soil depth, and soil stability. Therefore, scenery managers generally consider it to be the best single physical factor of relative visual absorption capability. Since it is not likely to change, slope is the most constant inventory factor of visual absorption capability. Slope is usually not an appropriate visual absorption capability factor for flat landscapes.

Many other resource professionals consider slope to be important, and it is often a basic inventory factor in forest planning. With the increased availability of computerized GIS with digitized data for topographic maps, it is becoming easier to obtain and customize slope-class maps for forest planning.

2. Vegetative cover

On gently rolling landscapes, **vegetative cover** is the most important visual absorption capability factor. It is also a key factor on hilly or mountainous landscapes. Vegetative cover is largely dependent upon climate, landform, waterform, and soils of an area. Vegetative cover is the end product of these environmental processes that determine regeneration potential.

Vegetative cover is innately able to produce a certain level of visual absorption capability, but it is the least stable factor. Natural disasters and human activities can easily modify vegetation, thus altering a factor of visual absorption capability.

Vegetative cover is often a basic inventory element in forest planning. Rapidly advancing technology in remote sensing is expected to improve the capacity to gather more detailed and uniform data on several attributes of vegetative cover.

Vegetative screening capability is primarily a function of the height and physical structure of the leaves, branches, and stems of individual plants, including trees, shrubs, and herbaceous layers. Inventories of vegetation type, density, and age-class will normally capture information needed for vegetative screening ability.

Vegetative patterns and diversity are a complex function of soils, micro-climates, and past management activities. Inventories of vegetation type, density, and age-class will often provide information needed for pattern and diversity, but may need to be supplemented by a more visually oriented approach to the vegetation inventory.

3. Soils and Geology

Soils and geology are very important factors when determining visual absorption capability. However, because soils fertility is aligned with vegetation, its effect on visual absorption capability may already be considered in the vegetation inventory. Other soils factors, such as mass stability, erosion hazard, and soil color contrast, would also need to be analyzed.

Geologic formations—such as rock outcrops, slides, and cliffs—can effect visual absorption capability by providing natural openings from which to borrow when designing human alterations.

Soils are important to many other resources, and soils information is often a basic inventory factor in forest planning. Rapidly advancing technology in remote sensing may improve the ability to gather more detailed and uniform data on several attributes of soils that affect visual absorption capability. Soil-type mapping will normally capture information needed to assess effects of stability, erosion hazard, and soil color contrast.

Mapping Process

Determining Pertinent Map Scale

The inventory of visual absorption capability can be most efficiently used if it is mapped at the same scale as other components of the scenery inventory.

Determining Pertinent Visual Absorption Capability Factors

Because all landscapes vary, the factors used to inventory visual absorption capability also vary. Although **slope** is often the most important single factor in steep mountainous landscapes, there is little value in developing slope information for flat terrain. The exception is where one area having flat terrain is compared to another having steep terrain.

Similarly, if **vegetative cover** or **soils** are quite homogeneous throughout a planning area, there is little value in analyzing and mapping these factors for visual absorption capability.

Therefore, the first step in the mapping process is to analyze which physical factors affect the visual absorption capability of a landscape.

Determining Data Sources

Next, landscape architects determine the availability of existing inventories for other resources or other purposes that could assist the visual absorption capability inventory. In certain cases, it may be necessary to interpret another discipline's existing inventory for visual absorption capability. The author of the other inventory may be able to assist with interpretations, or have the ability to develop an efficient process to make such interpretations. Various disciplines, including landscape architects, can share existing data or join in the effort to obtain them.

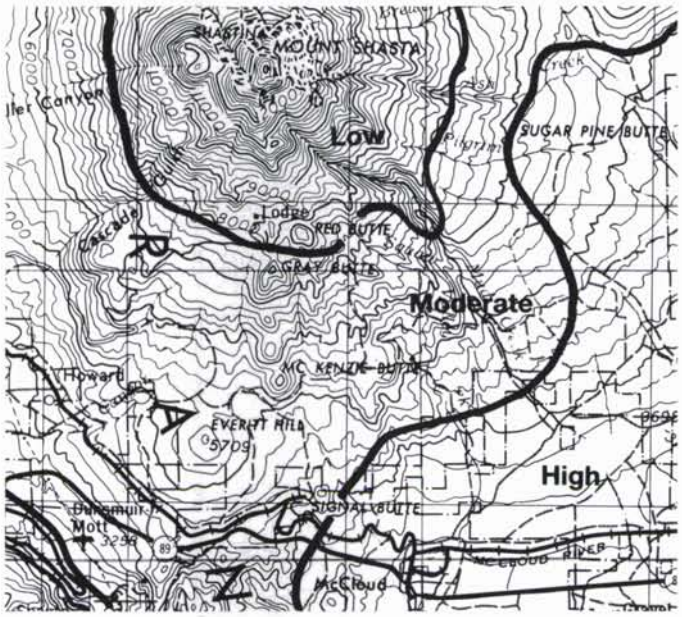
Ranking Visual Absorption Capability Factors

Landscape architects must determine whether to "rank" or "weigh" visual absorption capability factors. This will depend upon which factors have been selected, analyzed, and mapped.

A general rule is that all factors should be ranked equally, unless there is evidence that one or more factors are clearly more important. Some previous studies in mountainous terrain have determined that slope is the most important factor, and have ranked it three times higher than the least important factor, site recoverability. Forest Service Manual Supplements should be prepared by each region to establish visual absorption capability factors and ranking values, preferably for each **landscape province**.

Classifications of Visual Absorption Capability

Normally, three classes of visual absorption capability are adequate—high, moderate, and low. With increased use of computerized GIS, it may be appropriate to increase the number of classes.



Utilization

In both forest planning and project planning, landscape architects may utilize visual absorption capability to determine **achievable scenic condition levels**. They may use it in either of two modes, "proactive" or "reactive."

Proactive

In a proactive mode, a landscape architect supplies visual absorption capability information to other resource management specialists. Visual absorption capability information is then used as a guide in determining appropriate types of management activities commensurate with the following:

- Theme and variations of each alternative of the forest plan.
- Relative value of the other (non-scenery) resources.
- Relative value of scenery and closely related resources, such as recreation.

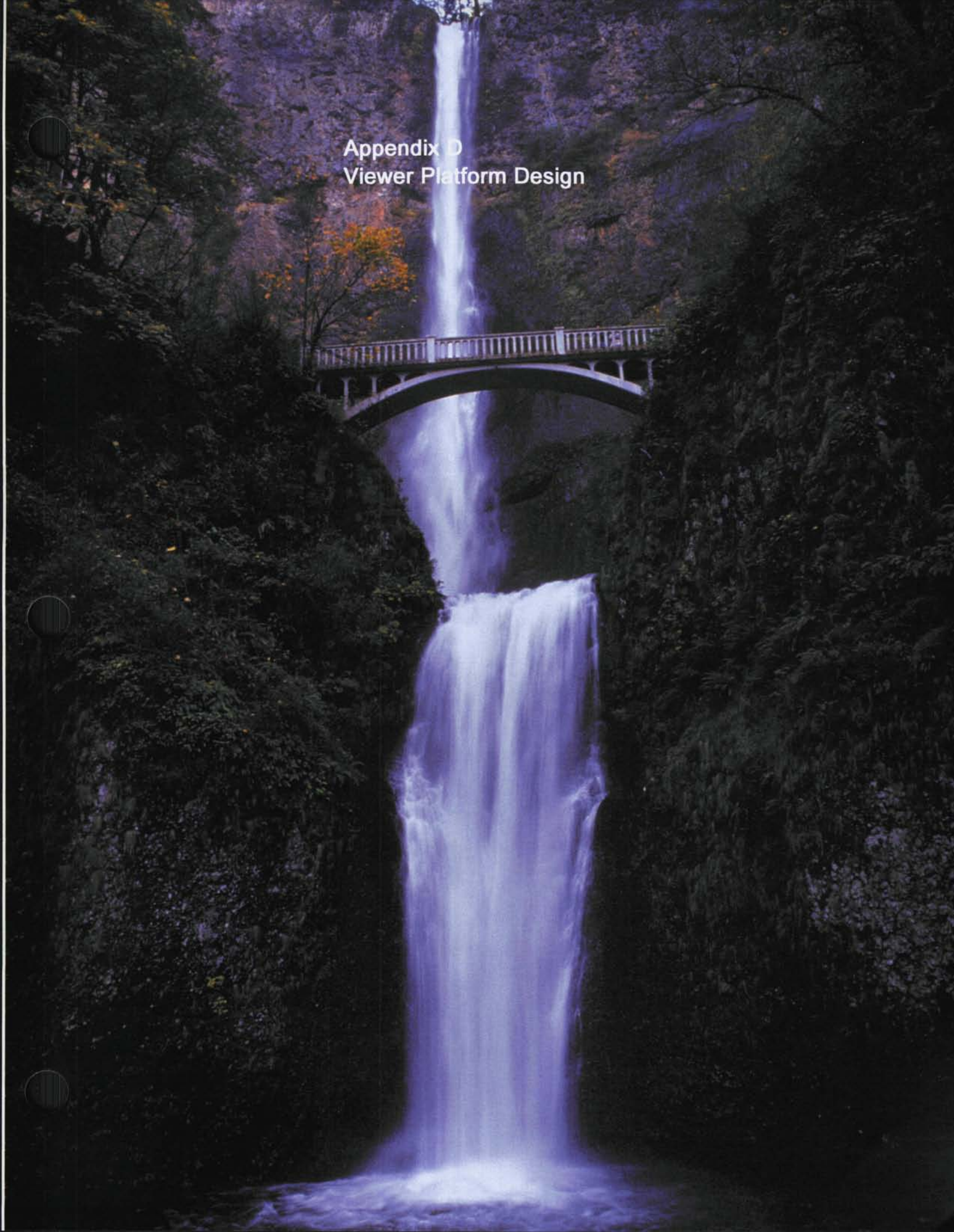
Reactive

In a reactive mode, a landscape architect uses visual absorption capability information to determine:

- The predicted achievable scenic condition level of others' management activities, without benefit of design input for scenic quality.
- Potential adjustments in other management activities that would improve the achievable scenic condition level and integrate the activities with scenic values.
- Modifications of other resource management activities and prescriptions to better meet landscape character goals and scenic condition objectives.

In reality, usually both modes are employed. First, other resource disciplines use visual absorption capability information to help determine types and intensities of management activities for each alternative (proactive).

Then, the proposed management activities and intensities are analyzed to determine the achievable scenic condition level (reactive).



Appendix D
Viewer Platform Design

Viewer Platform Design

To be functional, facilities in immediate foregrounds must be visible and ordinarily create more contrast than will be acceptable in areas designated for retention and partial retention scenic condition objectives. However, they are actually a part of the expected image of the public being served.

Purpose

Structures in **immediate foregrounds** of important national forest travelways and recreation areas often require special consideration in meeting scenic condition objectives.

Discussion

- When travelers move through a landscape, while in a somewhat modified setting, they should obtain impressions that they are viewing a natural-appearing landscape outside the immediate foreground. The somewhat modified immediate foreground setting of their own viewer platform (a road, for instance) is accepted as a necessary component allowing them to experience the greater landscape. Thus, expected images of naturalness exist for the foreground, middleground, and background that do not exist for the immediate foreground.

- Scenery management strives for excellence in design of all structures to be viewed. Not only should they blend sufficiently with the backdrop at greater distances to meet strict definitions of scenic condition objectives, but they should be positive additions to landscapes when viewed in immediate foreground.

- Those structures serving purposes other than scenic viewing and recreation should ordinarily be located at sufficient distances from such routes and use areas that they can meet the definitions of the scenic condition objectives. Obviously, an alternative is to completely screen them from view from such routes and areas. Another alternative is to design them to effectively mimic positive cultural elements identified for landscape character goals. A further alternative is to incorporate and conceal them in a structure that serves scenic and recreation purposes.

- Where structures must also meet ROS setting needs, it is necessary to identify the recreation opportunity class of an area and determine if uses and structures are consistent with settings. If not, structures should be designed and located in an appropriate ROS setting or denied as an inconsistency.

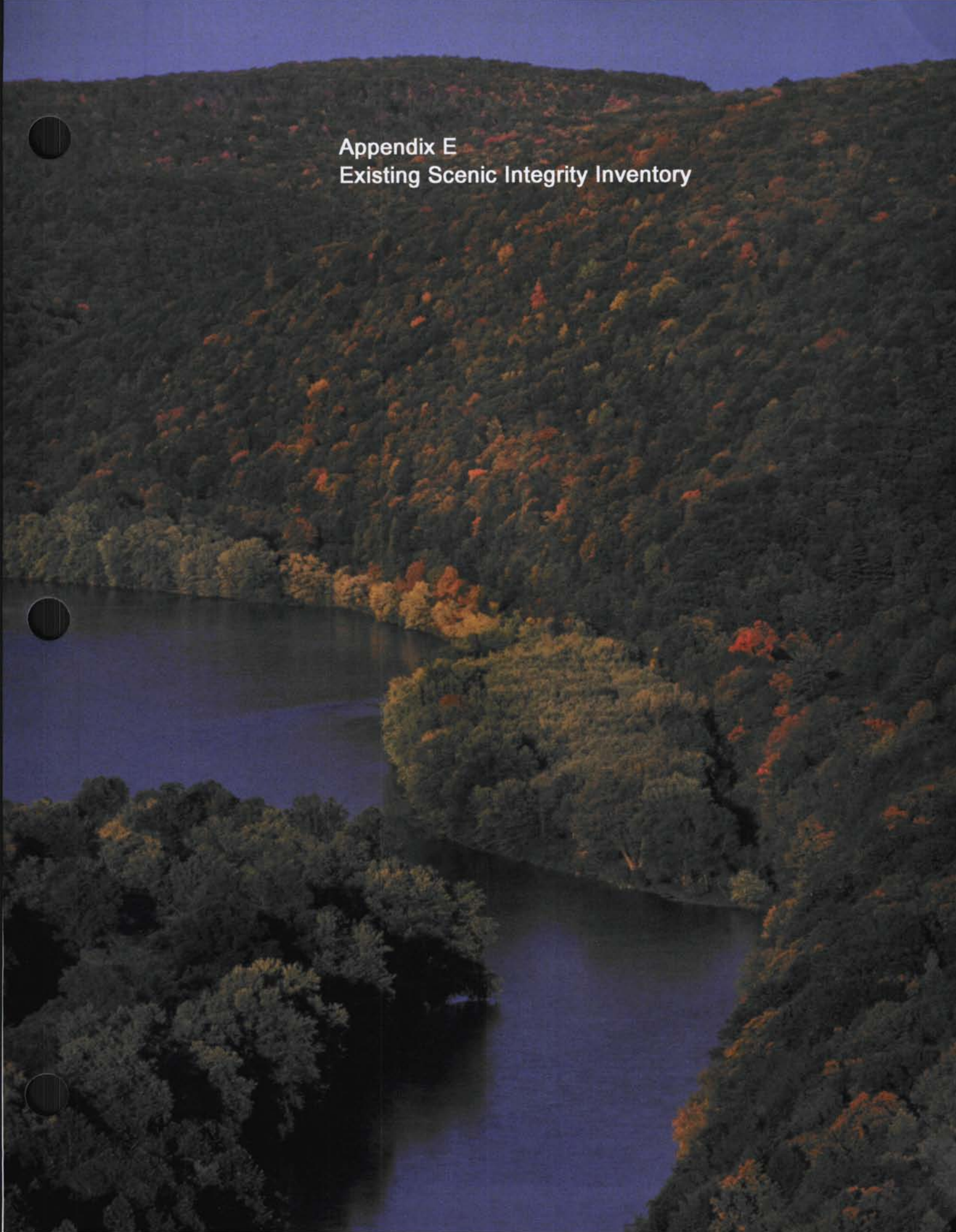
- Structures required for serving public use of scenic and recreation resources include viewing platforms, such as roads, parking areas, trails, trail heads, buildings, decks, observation points, ski lifts, and so on. To be functional, these facilities are normally visible in immediate foregrounds and often create more contrast than will be acceptable in areas designated for retention and partial retention scenic condition objectives.

- They are actually a part of the expected image of the public being served. However, allowable limits of contrasts only go to the extent that functions of structures are served. They should also reflect design excellence. Such structures should be a positive element of the built environment that does not detract from scenic experiences. Structures should blend into the landscape while still retaining their function. They should be an indicator of sensitive land stewardship.

- Travel route structures need to be clearly distinguishable for a distance commensurate with normal speeds or intended use of such routes. For functional and safety purposes, a road and its safety markers and signs need not be distinguishable in middleground distances. Therefore, more distant portions of a road and its appurtenant structures should meet scenic condition objectives and be judged on that basis. Appurtenant structures exempted from meeting scenic condition objectives in immediate foregrounds may include those associated with roadways as well as other structures, such as an interpretive sign or kiosk, visitor center, observation point, resort or winter sports complex, or similar recreation and tourist facilities.

- However, utility structures along travelways and in recreation sites, such as storage tanks, communication structures, or electrical transmission facilities, that are not directly used by the public and do not need to be distinguished by them should be judged as structures serving purposes other than scenery and recreation. They should meet scenic condition objectives, even when viewed in foreground.


National Forest
Forest Heritage Scenic Byway



Appendix E
Existing Scenic Integrity Inventory

Appendix E
Existing Scenic Integrity Inventory

In National Forest System lands, existing scenic integrity indicates the current status of a landscape. It indicates existing degrees of alteration from the attributes—form, line, color, and texture—of the landscape character.

Purpose

Existing scenic integrity represents the current status of a landscape. It is determined on the basis of visual changes that detract from the scenic quality of the area. An inventory of existing scenic integrity serves multiple purposes throughout forest planning, continuing on into project implementation and monitoring, as follows:

- It provides important benchmarks for prudent decision-making.
- It serves as a historical record of the degree, location, and extent of physical alteration of the landscape at given points in time.
- It is used to develop **trends** during forest planning.
- It helps determine the location, cost, and extent of **rehabilitation** required to achieve the desired scenic integrity levels of alternative forest plans. These rehabilitation needs are described in environmental documents.
- Once the forest plan is adopted, an inventory of existing scenic integrity is used to determine prioritization, location, and extent of rehabilitation required during forest plan implementation.
- Combined with visual absorption capability, type and intensity of planned activities anticipated during the forest planning period, existing scenic integrity will assist landscape architects in predicting **future scenic integrity levels** for alternative forest plans.
- Existing scenic integrity and its trends assist managers in monitoring progress toward meeting predicted future scenic integrity levels in a forest plan.

Discussion

- In National Forest System lands, existing scenic integrity indicates the current status of the landscape. It indicates existing degrees of alteration from the attributes—form, line, color, and texture—of the existing landscape character. Harsh alterations decrease the existing scenic integrity of a national forest landscape, while subtle alterations do not.

Description

Existing scenic integrity may be described using three viewing situations, either separately or in combination.

(1) As viewed from the air, which is most revealing (above left).

(2) As viewed from existing travelways and use areas, using typical on-the-ground observer positions (above center).

(3) As viewed from unusual and more unpredictable on-the-ground observer positions, while the observer wanders through the national forest (above right).

Situations (1) and (3) are physical inventories that are detailed and specific.

Situations (2) is more experiential, relating to a space-sequence, as it is a generalization of the experiences gained along an entire travelway or series of use areas.

Process

Regardless of the viewing situation that is used, the following background knowledge, resources, and data should be available:

- Familiarity with the land base, resource activities, and their effects from ground-based observer positions.
- Recent low-level aerial photographs covering the entire land base.
- Study of recent orthophoto quadrangles, color aerial photography, or stereo pairs of color aerial photos.
- GIS inventories of vegetation and other data where available.

Review aerial photographs to gain a better perspective of how they relate to personal knowledge of on-the-ground situations.

Identify and delineate the existing landscape integrity on transparent overlays of orthophotos or on overlays of aerial photographs if the former is not available. Steps *a)* through *g)* below develop an inventory of existing scenic integrity for the entire landscape, called existing landscape integrity.

a) Map all classified wilderness, research natural areas, and previously inventoried but unaltered roadless areas. Identify them as **Very High**, unless there are some portions of these areas that appear to be in a landscape condition other than Very High.

b) Move some portions of previously inventoried roadless areas into **High** scenic integrity if, from aerial views, they obviously have vehicular routes crossing them or if they have other low-impact scenic deviations.

c) Identify all areas of **Unacceptably Low** scenic integrity. Such areas are generally readily apparent, well-known, and easily corroborated from aerial photographs or other sources.

d) Delineate all **Very High** areas of 100 acres or more not identified above in steps *a)* and *b)* above.

e) Identify and map all **High Scenic** integrity areas.

f) Identify all **Low** and **Very Low** areas in a sequence that best facilitates stratification.

g) Identify all remaining areas as **Moderate** scenic integrity.

Spot-check and develop systematic translations of aerial views to on-the-ground views. This refines the delineation of existing landscape integrity either from specific viewing locations or within entire viewsheds.

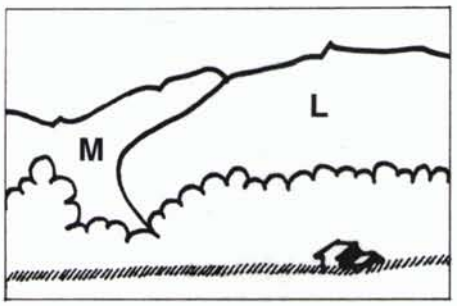
Spot-check reliability of the translated classifications with one or more landscape architects, preferably someone from an adjacent national forest, to improve the uniformity of classifications.

Related Recommendations

Inventory the entire landscape base inside the national forest boundary, including non-Federal inholdings, when such inclusion simplifies and expedites the preliminary mapping process. Thus, continuity of mapping is enhanced. However, when completing the final version of the maps, document existing landscape integrity for National Forest System lands only.

Human-caused alterations are often located in small clusters of spots, patches, or linear patterns. These are scattered within large areas of unaltered landscape matrix, as shown below. Conversely, there is often a large matrix containing human-caused alterations interspersed with small spots, patches, or corridors of unaltered landscape. In such cases, the entire landscape should be inventoried and mapped as a single aggregate level. This recognizes impressions generally perceived by constituents and also simplifies the mapping and recording process.

Mapping existing landscape condition.



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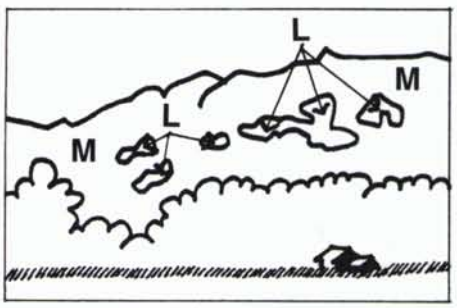
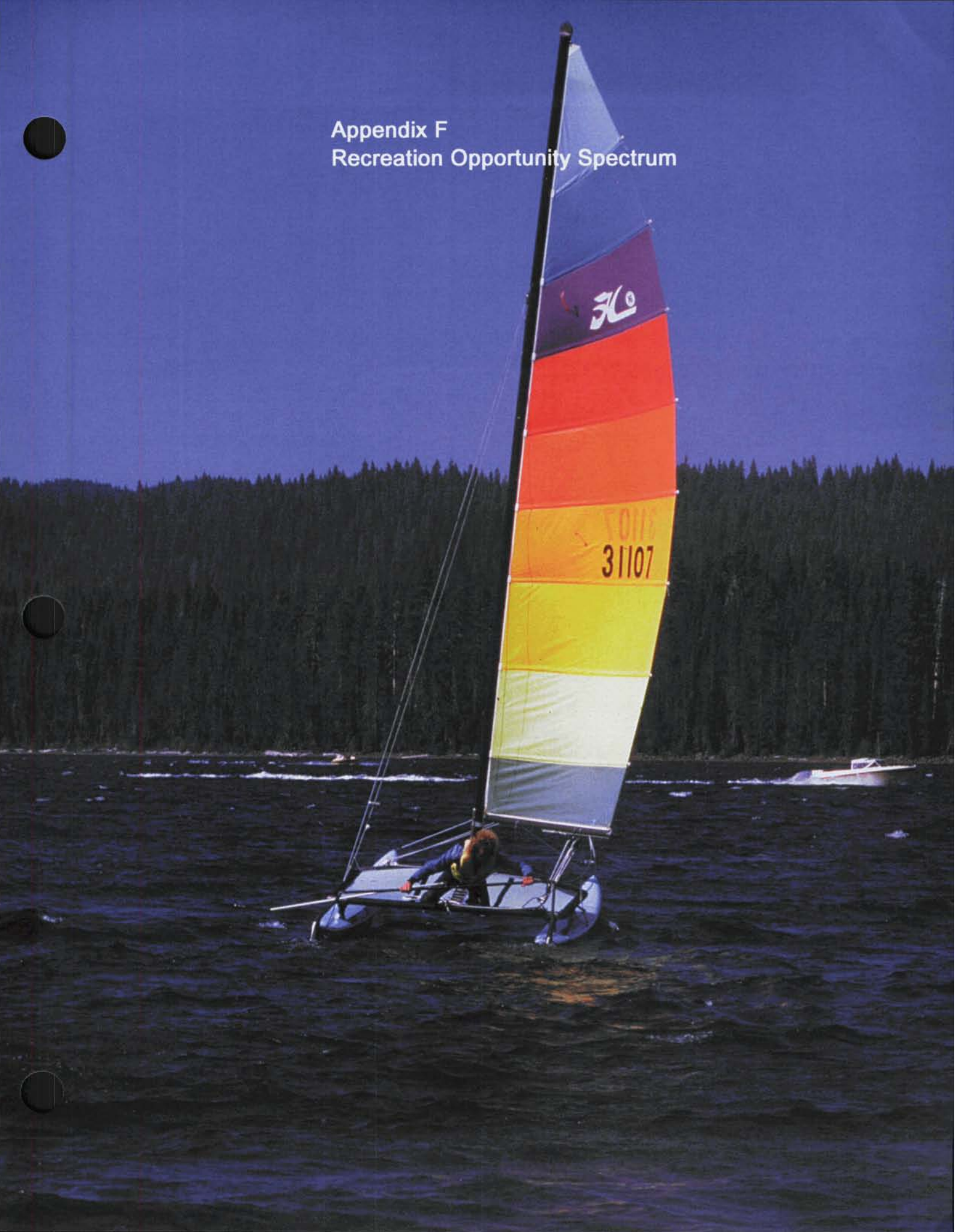


Not this.

Appendix F
Recreation Opportunity Spectrum



Recreation Opportunity Spectrum

The Recreation Opportunity Spectrum has matured to become a very useful planning and management tool in the Forest Service.

Purpose

Recreation planners, landscape architects, and other Forest Service resource managers are interested in providing high quality recreation settings, experiences, and benefits for their constituents. This is accomplished, in part, by linking the Scenery Management System and the Recreation Opportunity Spectrum (ROS) System. In addition, providing a single constituent inventory and analysis for both systems is helpful in coordinating management practices.

Discussion

- The ROS System was developed in the late 1970's. The Forest Service issued guidelines for implementing the ROS System in 1980, almost a decade after implementing *The Visual Management System*. Since 1980, the Recreation Opportunity Spectrum has matured to become a very useful planning and management tool in the Forest Service. It has been adopted for use in several States, the first two being Oregon and Washington, where it is linked to the State Comprehensive Outdoor Recreation Plan (SCORP).

Esthetic value is an important consideration in the management of recreation settings. This is especially so in National Forest settings where most people expect a natural appearing landscape with limited evidence of "unnatural" disturbance of landscape features. It is important to use the SMS and ROS system as complementary systems for the following reasons:

- The Scenery Management System measures the degree of deviation from the existing landscape character (Scenic Integrity), the relative importance of scenery (Concern Levels), and the scenic attractiveness for specific land areas; all of which are factors important to the management of recreation settings.

- The information gathered for the "evidence of humans" inventory for the ROS system will also serve as a measure of deviations from existing landscape character for determining scenic integrity for the Scenery Management System.

- The constituent analysis information used to determine concern levels for scenery can also be used to determine peoples concern for specific recreation settings and setting characteristics.

- Alernative Landscape Character Variations and Scenic Integrity Levels will have varying effects on Recreation Setting characteristics.
- Alternative Recreation Setting Variations will likewise have varying effects on Landscape Character and on Scenic Integrity.

Mapping Existing ROS Classes

In order to establish and map existing ROS classes, three "settings" are inventoried: physical, social, and managerial. Figure F - 1 shows some different attributes of the three ROS settings.

Figure F - 1

Physical Setting	Social Setting	Managerial Setting
Size	Number of Encounters	Regimentation
Remoteness	Type of Encounters	Control
Evidence of Humans		Facilities

Based upon combinations of these attributes, all National Forest System lands are categorized into one of six different ROS classes shown below. (See *ROS User's Guide* for details of inventory process.)

Primitive (P)
Semi-Primitive Non-Motorized (SPNM)
Semi-Primitive Motorized (SPM)
Roaded Natural-Appearing (RN)
Rural (R)
Urban (U)

Recreation Value

Although the *ROS User's Guide* mentions the need for establishing a **value** for different landscapes and recreation opportunities within a single ROS class in the attractiveness overlay, there is currently no systematic approach to do so. For instance, in most ROS inventories, all lands that are classified semi-primitive non-motorized are valued equally. Some semi-primitive non-motorized lands are more valuable than others because of **existing scenic integrity** or **scenic attractiveness**. The Scenery Management System provides indicators of importance for these in all ROS settings. Attractiveness for outdoor recreation also varies by the variety and type of activities, experience, and benefits possible in each setting. A systematic process is needed to inventory and rate all of these recreation attributes for each setting with the character and condition data coming from the Scenery Management System.

Scenic Integrity Objectives

There are obviously some combinations of **scenic integrity objectives** and Recreation Opportunity Spectrum classes that are more compatible than others. For instance, it would be inconceivable to have a scenic integrity objective of low in a primitive ROS class, because there should be no roads or on-site developments within 3 miles (or equivalent screening) of an area designated for primitive recreation opportunities. The *Recreation Opportunity Spectrum Primer and Field Guide* has addressed this issue.

On page 10 of the *Primer*, there is a chart of naturalness linking ROS classes to scenic condition objectives (from the VMS), repeated here in Figure F - 2 with changes that reflect the change in terminology from the VMS to the SMS.

Figure F - 2

Scenic Integrity Objectives

ROS Class	Very High	High	Moderate	Low	Very Low
Primitive (P)	Norm	Inconsistent	Unacceptable	Unacceptable	Unacceptable
Semi-Primitive Non-Motorized (SPNM)	Fully Compatible	Norm	Inconsistent	Unacceptable	Unacceptable
Semi-Primitive Motorized (SPM)	Fully Compatible	Fully Compatible	Norm (1)	Inconsistent	Unacceptable
Roaded Natural-Appearing (RN)	Fully Compatible	Norm	Norm	Norm (2)	Inconsistent(3)
Rural (R)	Fully Compatible	Fully Compatible	Norm	Norm (2)	Inconsistent(3)
Urban (U)	Fully Compatible	Fully Compatible	Fully Compatible	Fully Compatible	Not Applicable

(1) Norm from sensitive roads and trails.
(2) Norm only in middleground-concern level 2 (Mg-2), where a Roaded Modified subclass is used.
(3) Unacceptable in Roaded Natural-Appearing and Rural where a Roaded Modified subclass is used. It may be the norm in a Roaded Modified subclass.

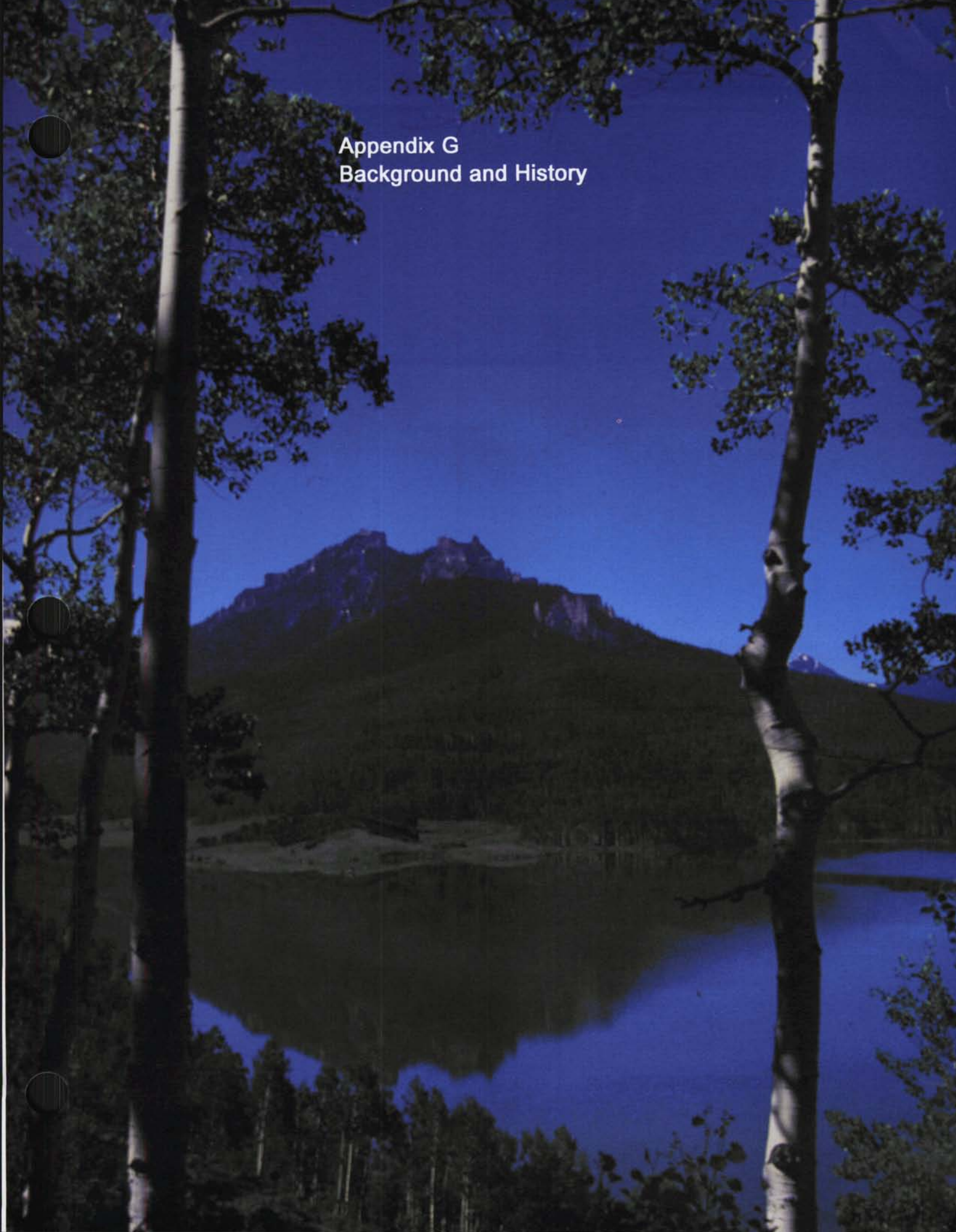
Apparent Conflicts

In the past, there have been apparent conflicts between *The Visual Management System* **sensitivity levels** and ROS **primitive** or **semi-primitive** classes. One apparent conflict has been where an undeveloped area, having little existing recreation use and seldom seen from sensitive travel routes, was inventoried using *The Visual Management System*. The inventory led to a "sensitivity level 3" classification, and thus apparently contradicted ROS inventory classes of primitive or semi-primitive non-motorized or semi-primitive motorized. Using criteria in *The Visual Management System*, in a variety class B landscape with a sensitivity level 3, the initial visual quality objective is "modification" or "maximum modification," depending on surrounding land classification. However, because of factors such as few social encounters, lack of managerial regimentation and control, and feelings of remoteness, the same area having little existing recreation use may establish an ROS primitive, semi-primitive non-motorized, or semi-primitive motorized inventory classification.

There have been concerns over the premise of *The Visual Management System* that the visual impact of management activities become more important as the number of viewers increases; yet The ROS System emphasizes solitude, infrequent social encounters, and naturalness at the primitive end of the spectrum, with frequent social encounters and more evident management activities at the urban end. Value or importance are dependent on more than the number of viewers or users, and the key is that both the Scenery Management System and ROS are first used as inventory tools. Land management objectives are established during, *not before*, development of alternatives. Where there does appear to be a conflict in setting objectives for alternative forest plans, the most restrictive criteria should apply. An example might be an undeveloped land area in a viewshed managed for both middleground partial retention and semi-primitive non-motorized opportunities. Semi-primitive non-motorized criteria are usually the more restrictive.

Recommendations

The Scenery Management System and ROS serve related, but different, purposes that affect management of landscape settings. In some cases, ROS provides stronger protection for landscape settings than does the Scenery Management System. This is similar to landscape setting protection provided by management of other resources, such as cultural resource management, wildlife management, and old-growth management. In all these examples, there may be management directions for other resources that actually provide higher scenic integrity standards than those reached by the Scenery Management System. Different resource values and systems (the Scenery Management System, the ROS System, cultural resource management, wildlife management, and old growth management) are developed for differing needs, but they are all systems that work harmoniously if properly utilized. In all these examples, there are management decisions made for other resources that result in protection and enhancement of landscape settings.



Appendix G
Background and History

National forest lands surrounding Yellowstone, 1991

North Carolina National Forests, 1991

Professor Frank Waugh,
Late 1920's

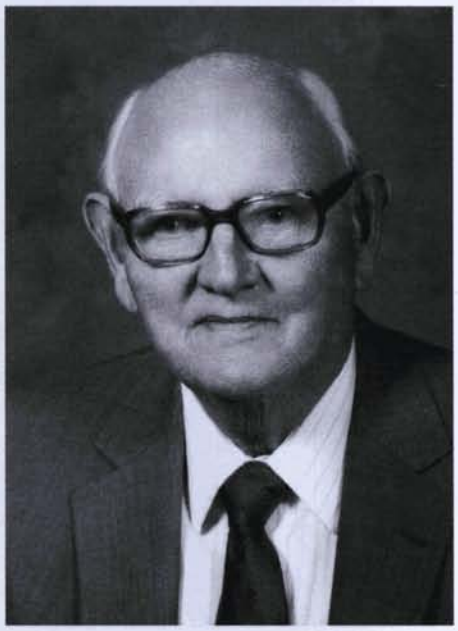
Arthur Carhart,
Superior National Forest, 1921

Early logging practices for scenery management.
"A Sunday drive among the giant Redwoods in the Six Rivers National Forest, California, was a popular diversion in 1913."

Background and History of Scenery Management

Objectives of scenery management (or "landscape management") in the national forests in the United States were not specifically stated, but were implied as far back as 1891 when the first forest reserves were established. The first political evidence of concern for management of landscapes may have occurred as early as 1902, when A. A. Anderson, a New York artist and Wyoming rancher, was appointed Special Superintendent of Forest Reserves surrounding Yellowstone National Park.

The *Annual Report of the Forester* mentioned "beauty" for the first time in 1903. The Forestry Division (predecessor of the U.S. Forest Service) advised a private forest owner in North Carolina to plan a timber harvest so that "the beauty of the forest would not be impaired."



D'Arcy Bonnet, 1988
(Age 82)

The first known, documented application of landscape management in a national forest occurred in May 1908. The timber marking rules for sugar pine areas in California specified light sanitation and salvage timber-cutting in a 100-foot-wide strip along public highways, lake frontages, and river corridors. Regulations were established to preserve the "scenic values" of these highway corridors, lake front areas, and river corridors.

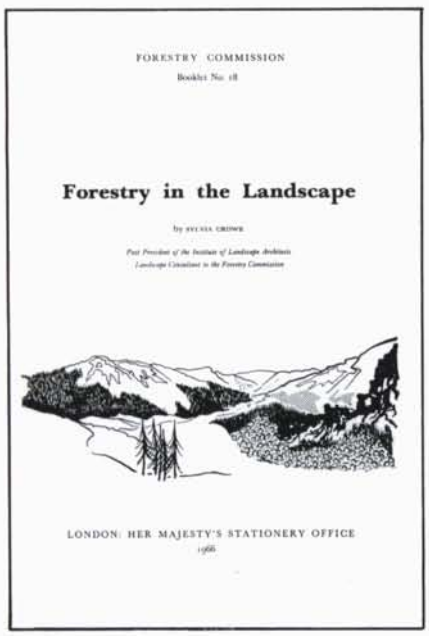
Following establishment of the National Park Service in 1916, the U.S. Forest Service realized the importance of hiring professionals who specialized in landscape management and recreation site design. In 1916, the Forest Service hired a landscape architecture professor, Frank Waugh, as a consultant and collaborator to study the agency's recreation and scenery values. Waugh paved the way for the hiring of the first full-time landscape architect, Arthur Carhart, in 1919.

From his base in the Rocky Mountain Region, Carhart originated new landscape management concepts at Trapper's Lake, Colorado. He soon shared the idea of wilderness preservation with Aldo Leopold. Carhart developed the first broad Forest Service recreation plans that also recognized scenic values.

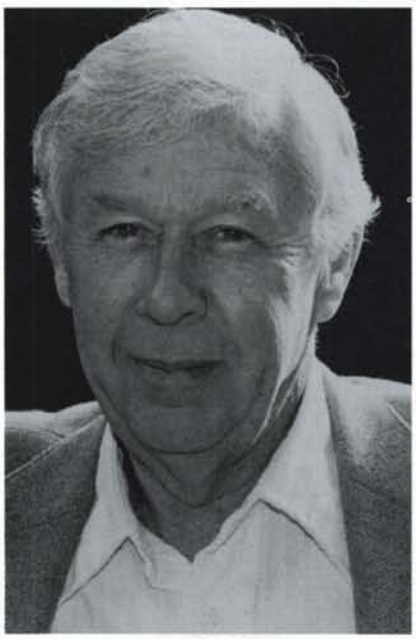
From the time of Carhart's resignation at the end of 1922, until the New Deal Era in 1933, landscape management efforts were limited to occasional summer consulting work by Waugh. Massive public works programs in the 1930's prompted the Forest Service to hire a substantial number of site designers with landscape management abilities. These included Harvard graduate D'Arcy Bonnet, who worked under Bob Marshall in the Washington Office and later became Regional Landscape Architect in California.

World War II decimated the ranks and roles of these professionals. Until the advent of Operation Outdoors in 1957, application of scenery management was spotty. The few remaining landscape architects were each covering about 20 million acres of national forest lands.

Clearcutting in the Olympic National Forest, 1964



Dame Sylvia Crowe's book

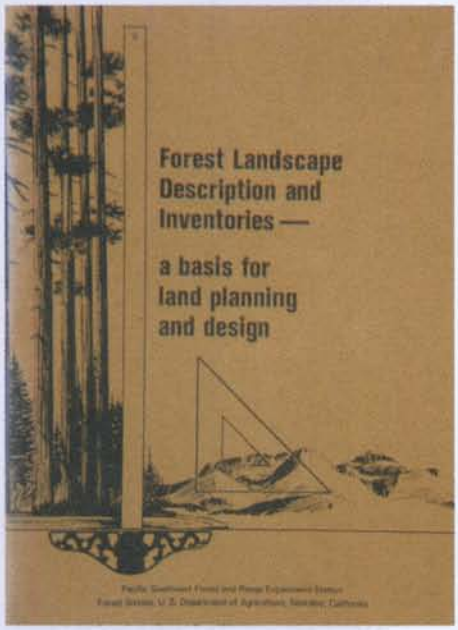


R. Burton Litton, 1975

Edward Stone, 1972

The end of the war had brought about not only the need for massive rehabilitation and construction of long neglected recreation and tourism facilities, but increased demand for timber to meet the needs of the country. By the 1960's, it was evident that the national forests were going to play a major role in supplying timber for growing construction demands in this country. It was becoming clear that a collision of public desires for both high-quality scenery *and* timber products was inevitable.

The newly appointed Chief Forester, Ed Cliff, while in Great Britain in 1962, met with Dame Sylvia Crowe. Her work described how large-scale landscape design could mitigate the adverse scenic effects of timber management.

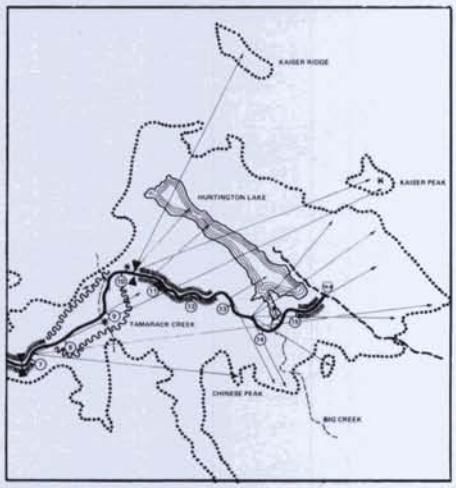


Litton's book

As a result of the interest created by this important meeting in Great Britain, the Forest Service hired a part-time researcher in landscape management, Professor R. Burton Litton, in 1964. By 1965, Forest Service managers could foresee the necessity of clearcutting in national forests. Clearcutting, the most economically efficient silvicultural treatment, was also the most disruptive to scenic quality. Landscape managers in some Forest Service regions began to map near-view and far-view distance zones to differentiate scenic sensitivity for timber harvesting. In a first attempt to apply a systematic approach to landscape management, the Forest Service identified Travel Influence Zones (TIZ) and Water Influence Zones (WIZ).

Also in 1965, the Forest Service employed a landscape management specialist in Washington, DC, in the Chief Forester's Office. Chief Cliff and Recreation Director Dick Costley selected Edward H. Stone II as Chief Landscape Architect. They brought him to Washington from the Rocky Mountain Region to help the agency address the clearcutting dilemma.

In 1968, Ed Stone presented a slide show to Secretary of Agriculture Orville L. Freeman on a new Forest Service program called "environmental architecture." Also in 1968, the U.S. Department of Agriculture published researcher Litton's booklet *Forest Landscape Description and Inventories*.

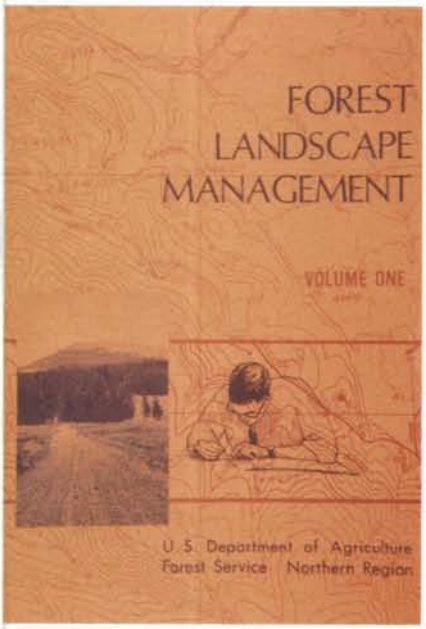


Litton's landscape inventory

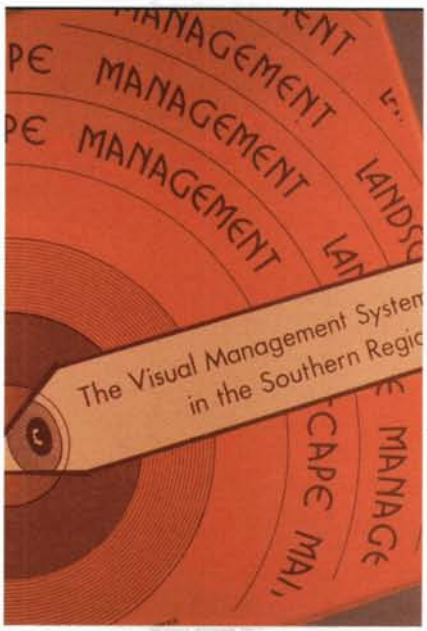
That same year, the timber industry proposed a National Timber Supply Bill, calling for an increase of 7 billion board feet per year in Forest Service timber harvesting—one and one-half times the level of timber harvesting at the time. Although this bill failed in Congress because of strong opposition from environmental concern groups, President Richard Nixon later endorsed a Forest Service report that led to the same result as if the bill had passed.

The conflict between scenery management and clearcutting was getting more evident. Stone and Costley, with Chief Cliff's strong backing, set up an environmental architecture workshop in St. Louis, Missouri, in June 1969. That workshop brought together the regional landscape architects and their assistants with key leaders in other Forest Service disciplines. Jerry Coutant, Wayne Iverson, Howard Orr, and researcher Professor R. Burton Litton assisted Ed Stone in the workshop program. This workshop could rightfully be called the birthplace of the Forest Service's official landscape management program.

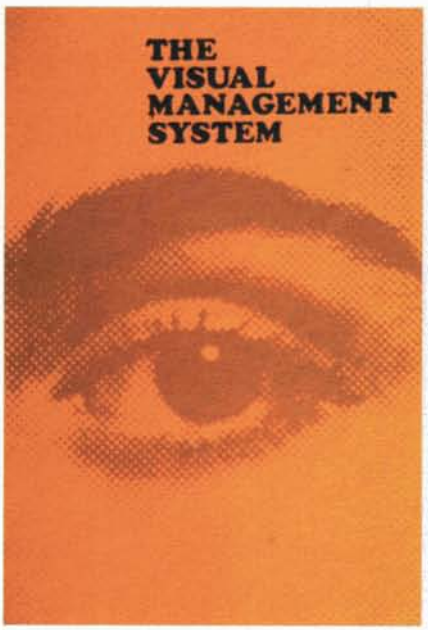
Warren Bacon, Southern Region, 1972



Northern Region's book, 1971



Southern Region's book, 1972



Pacific Northwest Region's book, 1972

Warren Bacon, Steve Galliano, and Robert Ross, 1993

Forest Service leaders determined that a systematic process of landscape management was needed. The workshop laid the groundwork for development of the *National Forest Landscape Management* series of handbooks. Scenery rapidly gained stature in the hierarchy of Forest Service goals for resource planning and commodity/amenity outputs. In 1971, the Forest Service formally recognized scenic quality in the landscape management section of the *Forest Service Manual*. It documented a system of landscape management responsive to both current and future needs. The *Forest Service Manual* declared that the "visual landscape" is a basic resource and is to be "treated as an essential part of and receive equal consideration with the other basic resources of the land."

Jerry Coutant and Rai Behnert of the Northern Region and Howard Orr of the Southern Region initially developed separate landscape management systems in 1971. Orr's assistant, Warren Bacon, was transferred to the Pacific Northwest Region where, from 1970 to 1972, he amplified the work of the other three people and combined it with the work of R. Burton Litton into one systematic approach.

The Pacific Southwest Region began utilizing Bacon's system in late 1972. Ed Stone soon adopted it as the Service-wide approach. Stone's decision resulted eventually in the publication *National Forest Landscape Management, Volume 2—Chapter 1, The Visual Management System*. The Forest Service published it in April 1974, almost 5 years after the workshop in St. Louis.

The Visual Management System

The Forest Service Visual Management System has since gained an international reputation as a basic means of inventorying, planning, and managing scenic resources in wildland settings. Other Federal, State and county agencies have adopted the Visual Management System.

By the early 1980's, Forest Service landscape architects across the Nation had developed seven additional chapters of Volume 2. They had also developed several subsystems, including visual absorption capability, existing visual condition, visual quality index, and visual effect prediction. It was evident that development of these subsystems, along with the advent of new technology and information, was creating a need to update *The Visual Management System*. In response, Chief Landscape Architect Bob Ross arranged for a task force to meet in Milwaukee, Wisconsin in 1984, and in Washington, DC in 1985, to make recommendations regarding feasibility and contents of such an update.

In 1986, the *Report of the President's Commission on America's Outdoors* reported that natural beauty ranked highest among adults as an attribute for a recreation area. This finding reinforced the resolve of Forest Service landscape management specialists to update *The Visual Management System*.

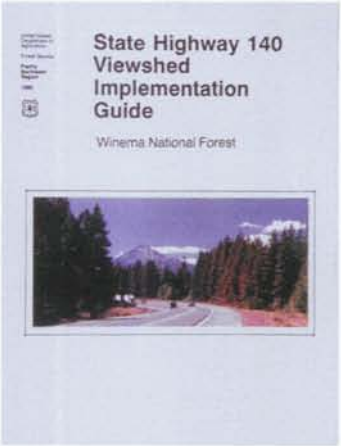
In 1991, Chief Landscape Architect Bob Ross directed Warren Bacon and Steve Galliano to prepare a request for proposals for a contract to update *The Visual Management System*. In October 1991, a contract was awarded to Environmental Consulting, Planning, and Design (ECPD), headed by Lee Roger Anderson. ECPD's team included Lee Anderson, Wayne Iverson, Perry Brown, and others. (See acknowledgements.) This handbook is the product of that contract.

Other handbooks in the landscape management series

Landscape Aesthetics Handbook and
The Visual Management System

During the formulation of this handbook, Forest Service landscape architects began to explore possible new names for the "Visual Management System" and the "visual resource management" program. After perusing historical writings of Leopold, Flader, Callicott, and modern writing by Runte regarding land aesthetics, scenery, scenic beauty, ecosystems management, and landscape ecology, the Forest Service decided to drop *The Visual Management System* as a title and to rename it *Landscape Aesthetics: A Handbook for Scenery Management*. This handbook supersedes Agriculture Handbook Number 463, National Forest Landscape Management, Volume 2, Chapter 1, *The Visual Management System* that was issued in April 1974.

Future of Scenery Management



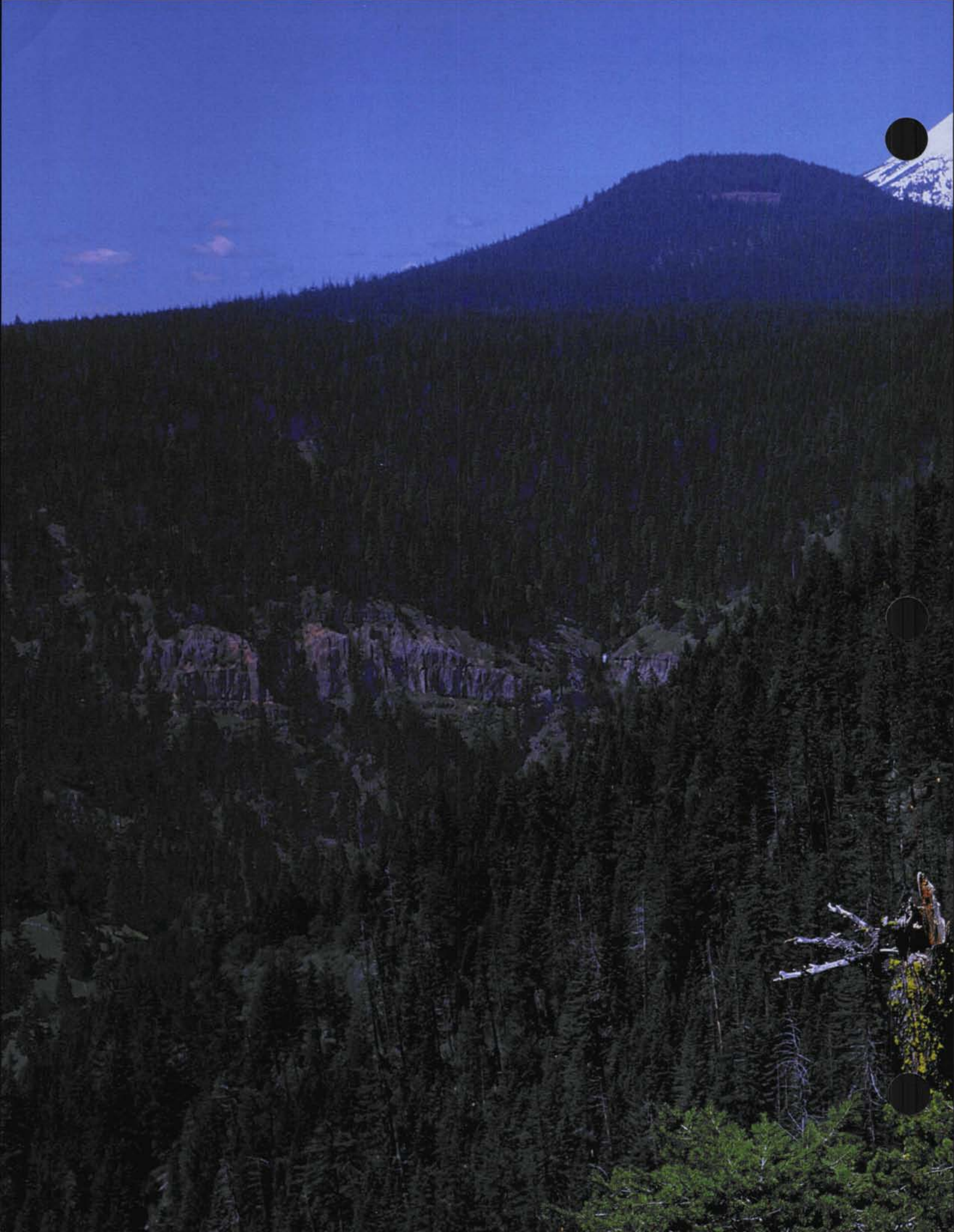
Highway 140 Viewshed
Implementation Guide, 1990

With this wealth of history in scenery management, where is the program likely to go in the future? Land managers and the public are obviously increasingly concerned with landscape aesthetics, scenery management, recreation settings, landscape ecology, and ecosystem management.

In his cover letter entitled "A Vision for the Future" for the *Highway 140 Viewshed Implementation Guide*, written to the employees of the Winema National Forest in Oregon, Anderson looked forward 30 years by looking back 30 years. He cited the legacy of Federal legislation regarding natural resource protection—Multiple Use-Sustained Yield Act (1959), Wilderness Act (1964), Wild and Scenic Rivers Act (1968), National Environmental Policy Act (1970), and others. Plotting a trend in environmental concern and protection, he said, "Where will this line be plotted in the next 30 years, from 1989 to 2019? No one can say for sure, but it is a safe bet that the environmental values of the American public are not likely to drop down to the levels of 1959."

The history of Forest Service scenery management might be summarized as follows:

1900–15:	Limited scenery management in timber cutting along primary highways and lakeshores.
1915–35:	Scattered efforts to preserve scenery in special places of national significance.
1935–60:	Scenery management primarily limited to recreation site design.
1960–70:	Conflict developing between scenic quality and landscape altering activities.
1970–80:	Development of environmental laws and scenery management systems.
1980–90:	Forest plan development with scenic quality targets.
1990's:	Integration of scenery management, recreation settings, benefits of leisure, landscape ecology, and ecosystem management to guide desired future condition and appearance of National Forest System lands.



Appendix H
Examples of
Scenic Integrity Levels

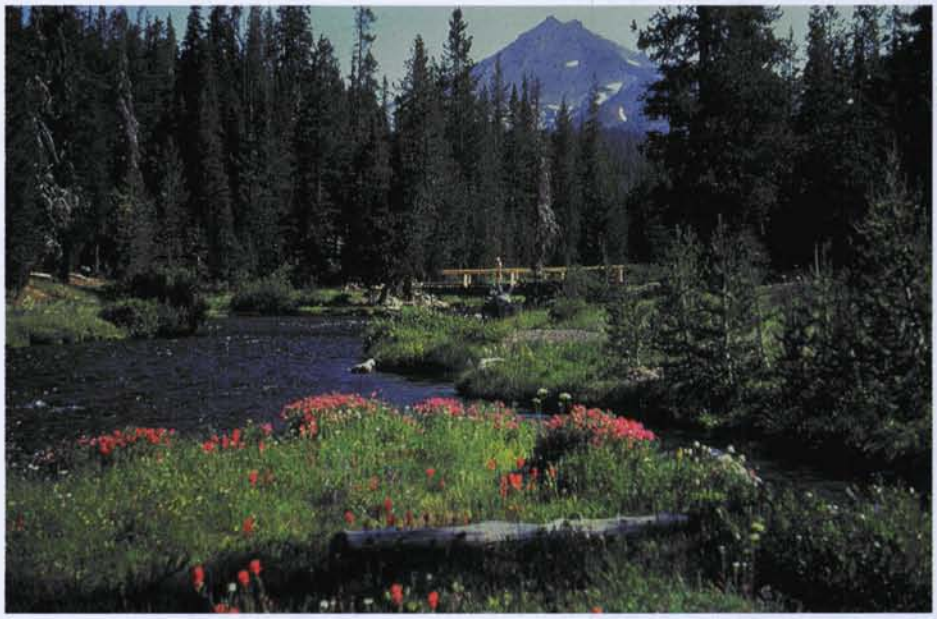
This chapter contains photographs and narrative descriptions of the six scenic integrity levels. As explained in Chapter 2, scenic integrity is a continuum that is subdivided into six levels, from very high to very low. By no means does a single photograph of a landscape provide a complete picture of the scenic effects of a management activity. Therefore, each discussion of the scenic integrity level achieved in the photograph refers only to perceptions gained in the context of that view.

Note to reader: The terms that are used to describe the following examples are from the original Visual Management System. The cross-walk below will assist in making the transition from the old terms to the new terms.

SMS	VMS
Very High	Preservation
High	Retention
Moderate	Partial Retention
Low	Modification
Very Low	Maximum Modification

Preservation

Wilderness
This heavily traveled trail in the Daniel Boone National Forest creates enough contrast to be noticed, but, when viewed from beyond immediate foreground distances, would not be evident in this natural-appearing landscape. This is an excellent example of the **preservation** scenic condition level.



Wilderness
This bridge of native materials and simple design, located in the Three Sisters Wilderness in Oregon, is an appropriate example of low impact recreation development for **preservation**. When the new pole railings weather to a natural grey color, the structure will blend in better than it does in this scene.

Preservation

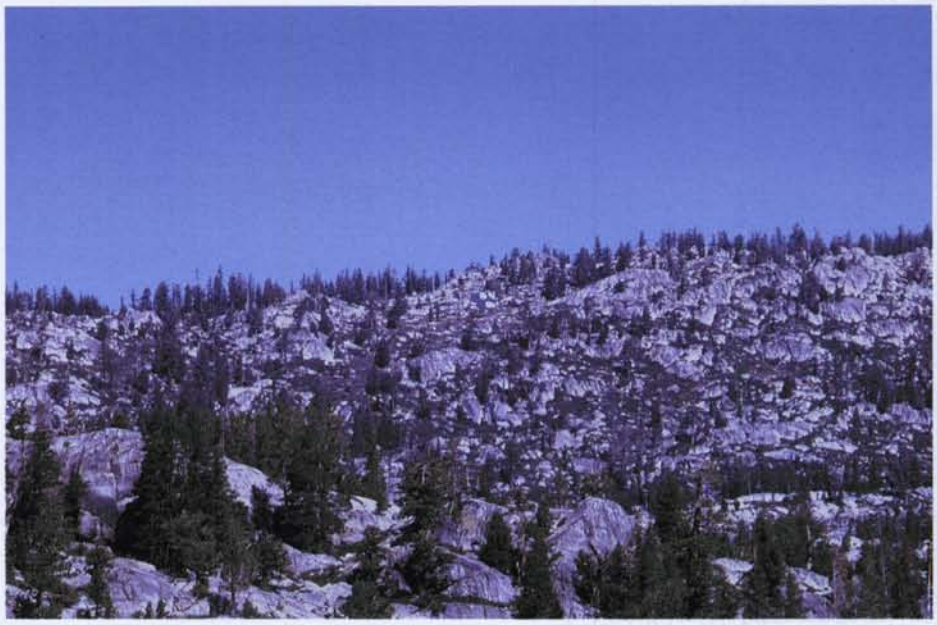
Wilderness

This camping area meets the **preservation** scenic condition level. The evaluation of this site is based upon the path clearing and sign only. There are no controls over the colors of backpacks and tents, although they blend with fall colors at this time of year. It is necessary that a camping area be visible in immediate foreground, but at middleground and background distances, any sign of human occupancy must fade out of view in the natural landscape character.

Special Interest Area

Brice Creek, a coastal stream in the "black water area" of the Croatan National Forest in North Carolina, is an excellent example of management for **preservation** scenic condition level in an area of special interest.

Retention



Passive Relay Electronic Site
This is an outstanding example of siting and camouflage painting of a huge rectangular structure. The paint colors and pattern mimic those of the natural landscape character. The location takes advantage of visual absorption capability and avoids any potential for skyline silhouetting of the structure. The passive relay is on Carson Pass Highway, a State scenic highway in California, passing through the Eldorado National Forest. This structure retains the natural character and condition of the landscape. It is not evident unless attention is directed to it. Even though this is a telephoto view, the scene meets **retention**.

Electronic Site
This series of four photographs, taken in the Coronado National Forest in Arizona, illustrates details of reducing visual impact of large structures through techniques of paint color and pattern. The slim-line tower design keeps it imperceptible at distance zones from far-middleground to background views. As is true for many structures that must be located on ridgetops and are subsequently silhouetted, the site does not achieve **retention** in the foreground, but, from distant-middleground and background, where it is primarily viewed, it remains virtually unnoticed.

Retention

Boat-in Campground
This boat-in campground in the Ottawa National Forest meets **retention**. The evaluation of the scenic condition level of this site is based solely on the path clearing and sign. There are no regulations governing the colors of boats or canoes. It is necessary that the sign be visible in foreground views, but at middleground and background distances the trailhead and sign fade out of view in the existing landscape character. Given the colors of the simple vertical lines of tree trunks, the sign color might have been selected to blend more with the backdrop, yet be clearly visible.

Avalanche Control "Jet Roofs"
Because of their function, "jet roofs" utilized for highway avalanche control must often be seen as silhouetted structures against the skyline. At Carson Pass in the Eldorado National Forest, they are viewed in middleground near the focal point of the scene. The "filtered screen" of structures repeats the line of the mountain ridgeline. From this distance, the "jet roofs" are on the low end of **retention**. Selection of colors from gray-tan to gray instead of the rust color may have reduced the contrast and raised the "jet roofs" to a solid **retention**.

Retention

Stream Improvement
This log across a stream in the Green Mountain National Forest helps create improved conditions for watershed and fisheries. The log has been sensitively placed and appears to be natural. Although it may have caused a tiny waterfall to form, thus deviating from the natural landscape character, a fallen log in a forest stream is a common occurrence. This scene meets **retention**.

Fish Structures
The boulders placed in this stream in the Huron-Manistee National Forest are of such natural sizes and shapes that it is difficult to know for certain if they were placed there by humans. The boulders provide both cover and stream flow rate diversity for aquatic life while maintaining or enhancing the natural scenic beauty of the stream. The uneven distribution, uneven depths, and variable sizes of boulders create an outstanding example of **retention** with structural elements added to the landscape.

Retention

Fish Structures

Placement of fish structures in the Huron-Manistee National Forest may achieve the objectives of fisheries management, but the structures barely meet a high scenic integrity level. If there were some larger boulders in this natural-appearing landscape character, their use as "anchors" for the "islands and peninsulas" of small rock piles would have improved the naturalness.

Wildlife Pond

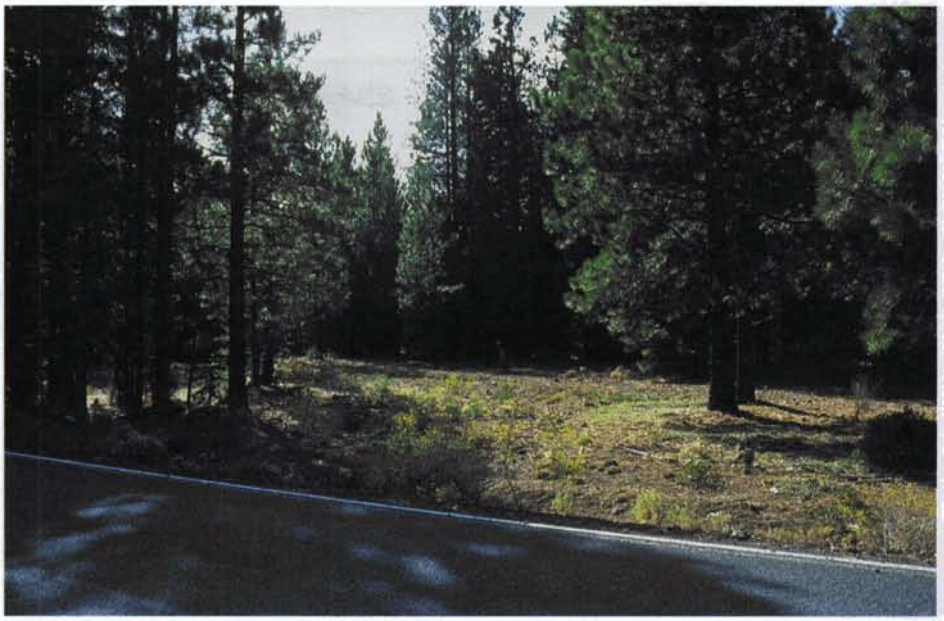
This pond in the Mark Twain National Forest appears to be natural. Close inspection reveals its human-caused origins. The site has outstanding vegetative recovery. The duration of visual impact is expected to be a few months because of the abundance of water and fertile soil. Although this wildlife pond may not have been common to the natural-appearing landscape character, the subtle departure to meet other resource objectives is probably not evident, nor disagreeable, to most people.

Retention

Wildlife Pond
A reclaimed clay pit in the Thunder Basin National Grassland near Upton, Wyoming, is now a bass fishery. The landform shaping and revegetation blend beautifully with the landscape. This pond in the Western plains may not repeat characteristic waterforms, but it probably enhances landscape attractiveness. Such departures from the natural landscape character would not normally be viewed as negative by the public. This wildlife pond meets **retention**.

Range Management
Grazing land in the Mark Twain National Forest is managed in a manner that is natural appearing. The patterns of grasses, wild flowers, shrubs, and trees make this scene difficult to distinguish from a natural landscape. It meets **retention**.

Retention



Fuelbreak/Timber Harvest
This foreground view shows a forest fuelbreak in the Klamath National Forest. The vegetative recovery by grasses, combined with the presence of low stump heights and the absence of debris, makes it difficult to discern whether this is a human-altered roadside. Maintenance of individual trees, together with variations in lower-limb pruning, improves the natural appearance. The project achieves **retention**.

Fuelbreak
This fuelbreak in a forested site is located in the Wenatchee National Forest. It meets the low end of **retention**. It could have been raised to a solid **retention** if the stumps had been somewhat lower (flush-cut), better screened by grasses and groundcovers, or manually covered with duff and needles. The diversity of groundcover, most importantly the inclusion of leave-trees of varying sizes in the opening, improved the natural appearance of the project.

Retention

Timber Harvest
This timber harvest, combining overstory removal/shelterwood/group selection, on a foreground ridge in the Klamath National Forest, was helicopter logged. The only possible evidence of any activity on this ridge—the uneven tree height on the middle section—would probably not be noticed by anyone but forest managers and woods-workers. The mixed species and patterns of this forest landscape do not draw attention to such subtle differences. It meets **retention**.

Timber Management
This roadside scene of a managed timber stand in the Chequamegon National Forest would be considered a natural landscape by most people driving along the highway. However, closer inspection reveals some remaining brush piles and piled cordwood further back in the newly opened stand. When the brush is removed or scattered, and the cordwood is hauled off, this site will meet the upper end of **retention**. This opening in an otherwise dense forest may vary from the natural-appearing landscape character, but it would likely be a positive change associated with a selected landscape character goal.

Retention

Reforestation

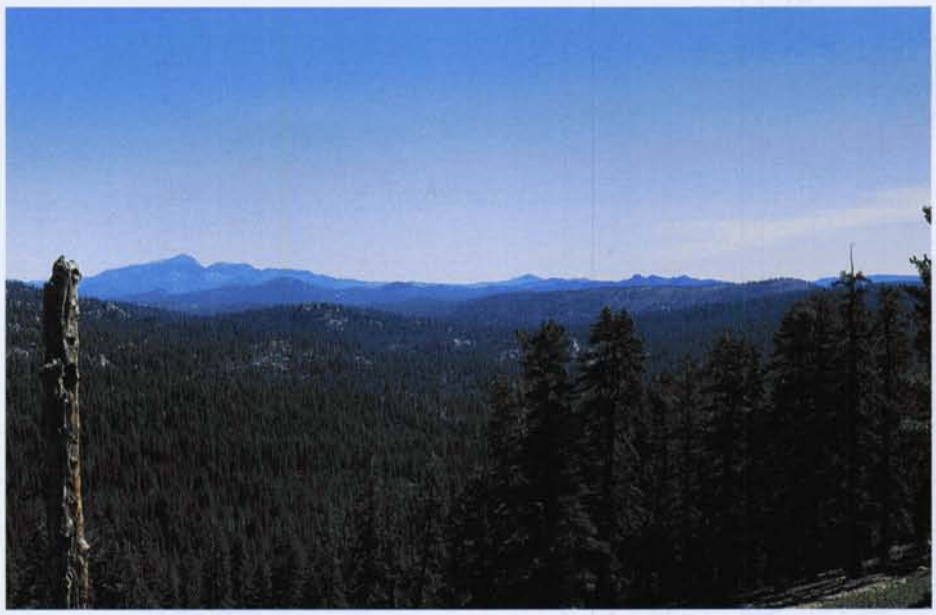
This area in the Wayne-Hoosier National Forest has been planted with yellow poplars in the immediate foreground and with white pine behind. It has the appearance of an abandoned field that will one day be a forest again. The plantings are not evident in the scene. It barely meets **retention** and could be considered to fall between **retention** and **partial retention**. However, it is probably looked upon as a positive deviation from the natural-appearing landscape character.

Cable Logging

A view from U.S. Highway 219 of a uniform textured ridge of timber on the Monongahela National Forest reveals no tell-tale linear vertical pattern of the cable logging that has taken place. This is an excellent example of **retention**, because cable logging in a continuous, even-textured forest ordinarily makes it difficult to achieve **retention**.

Retention

Timber Management
This roadside view into a timber stand in the White Mountain National Forest provides a natural-appearing scene to most people. Forest managers and woods-workers would be able to distinguish this as a managed forest with trees removed. The dense vegetation in the immediate foreground helps to screen off views into the forest that might reveal stumps. It easily meets **retention**.



Timber Harvest
A timber harvest, located in the middleground in the Sequoia National Forest, repeats some of the lighter patterns created by rock outcrops. Since this timber harvest lies on a ridge top and has excellently feathered edges, the open forest appears natural. It is an outstanding example of **retention**, because it borrows so heavily from form, line, color, and texture of the natural landscape character that it appears to be a natural occurrence.

Retention

Timber Harvest

This timber harvest in the Lolo National Forest in Montana is evidenced only by a slight discoloration in some areas. Most people would interpret the timber harvest as an area of subtle soil color changes. As seen from above, the site benefits from considerable vegetative pattern and several natural, barren soil patterns on the left. The major concern of scenery and recreation managers was to meet **retention** from a trail below. **Retention** is met because the harvest is not evident from the trail.

Seed Tree Cut

This seed tree cut was carried out in the Mark Twain National Forest. There is subtle evidence of a reduction in tree crown density on the left near the ridgetop. The photograph was taken from off the roadway so that the reduction in tree crown density is distinguishable. In some sidelighting conditions, the break in the tree-canopy texture may be more pronounced. From this viewpoint, the cut meets the lower end of **retention**.

Retention

Road

The North River Road in the Cherokee National Forest lies lightly on the land. Even when viewed as foreground, the natural-appearing edge effect, reduced cut and fill slopes, and fall colors tend to soften the visual impact of the road. Ordinarily, a long road tangent has a strong negative visual effect. This road blends with the landscape and meets **retention**.

Trail

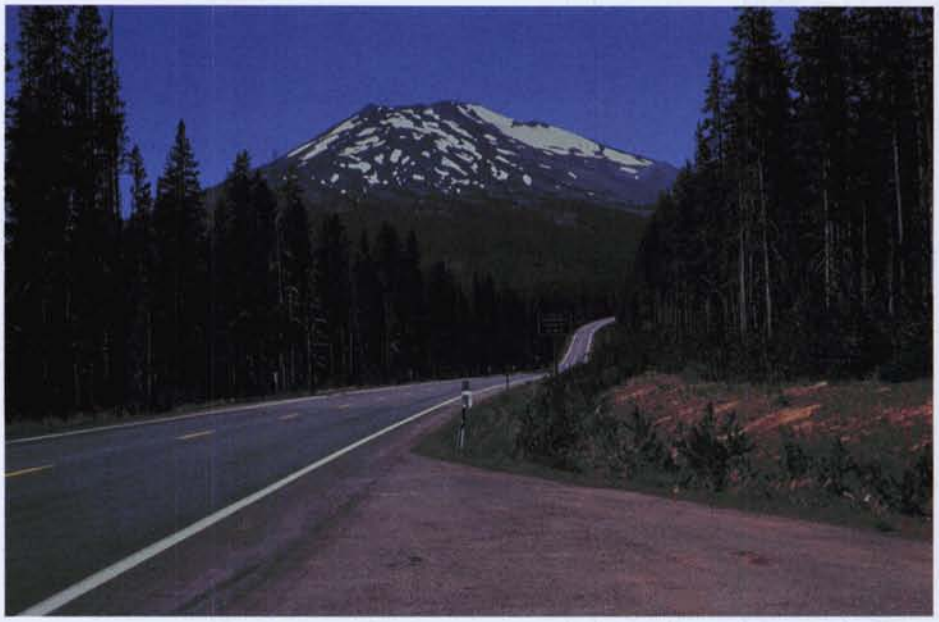
This trail in the Huron-Manistee National Forest in Michigan lies lightly on the land and creates minimal visual impact. Although there is no functional reason to align the trail in a more curvilinear nature, to do so could further improve the scenic condition by making the trail invisible in middleground. The trail meets **retention**.

Retention

Trail

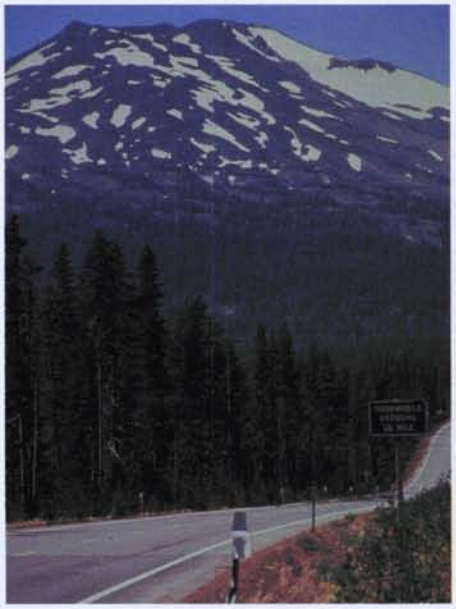
This trail in the Klamath National Forest creates only enough contrast to be noticed. Beyond immediate foreground distances, it would not be evident in this natural landscape character. The rocky trail repeats the appearance of the naturally occurring rocky slope with its scattered groundcover of low shrubs. The sawn log, however, detracts from the natural appearance. The trail itself represents an excellent example of achieving **retention**.

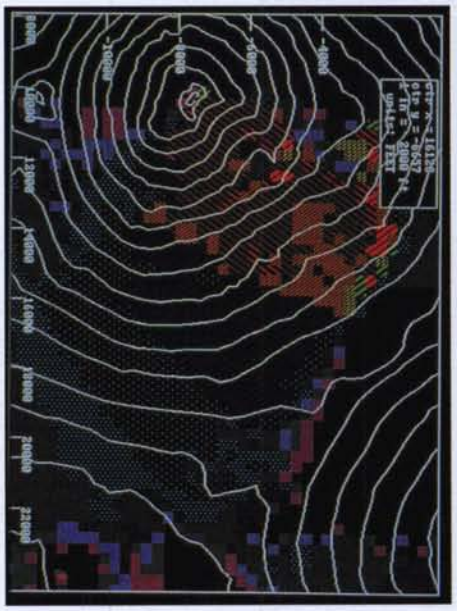
Retention



Winter Sports Site

These two early summer views of Mt. Bachelor Ski Area, located in the Deschutes National Forest in Oregon, exemplify excellent planning, design, and construction of a major ski facility in a landscape with good visual absorption capability. Summer offers the highest visual contrasts, yet the ski area easily meets **retention**. Above is a normal view from Century Drive, a National Forest Scenic Byway, and below left is a telephoto view from the same observer position. Numerous ski runs, chairlifts, maintenance roads, and a day lodge are visible from the highway, yet they remain virtually unnoticed unless pointed out. The computer graphic below, by revealing areas of low visual magnitude, enabled the planning team to decide where the new Pine Marten day lodge would be constructed. Existing ski area facilities are located in the red, orange, and yellow zones that indicate areas of highest visual magnitude.





Retention

Winter Sports Site
With the Three Sisters Wilderness in the background, the Pine Marten Lodge and top terminal of a detachable-quad chairlift at Mt. Bachelor Ski Area are very evident when seen from ski runs above timberline. The ski facilities are located on a barren, rocky topographic bench at timberline. Because of careful landscape architectural design and material selection, the form, line, color, and texture of the lodge borrow from the natural landscape. The lodge and chairlift terminal are quite evident to skiers and are their expected image, yet the structures blend very well and remain virtually unnoticed when seen from Century Drive National Scenic Byway. (See photo on opposite page.) This is an excellent example of recreation structures in the landscape meeting **retention**.

Underburn
This immediate foreground view in the Croatan National Forest in North Carolina shows an area of longleaf pine trees that has been recently underburned. The area has revegetated sufficiently to meet **retention**. Before revegetation, it probably met **partial retention** for one growing season.

Partial Retention

Powerline

It appears that an attempt was made to reduce contrasts of cross-arms for this powerline viewed as foreground in the White River National Forest. The contrast of poles with the lighter backdrop, however, causes the structure to be quite evident. The strong verticals of the conifers naturally dictated that horizontal forms should be minimized. This powerline barely achieves the **partial retention** scenic condition level from this distance, although it may achieve a higher level when viewed from middleground. Use of gray green poles in this particular section of powerline could have possibly moved this project to the high end of **partial retention** from foreground distances.

Powerline

Another section of this powerline achieves the high end of **partial retention** due to the dark-colored poles against a dark backdrop. If it would have been technically feasible to eliminate the short crossarms, the visual evidence of the powerline would have been further reduced. Flat, low reflectivity colors against dark forest vegetation greatly aid the achievement of **partial retention**.

Partial Retention

Created Openings

The created openings in this middleground landscape are evident but do not visually dominate. They are in scale and shaped like natural openings. This scene meets **partial retention.**

Microwave Repeater Station

A microwave installation in the Sequoia National Forest is located on 9,900-foot Sherman Peak. Fortunately, the natural landscape character has a dominant pattern of rock and vegetation. The structures, located on the silhouetted ridgeline in a rocky component of the landscape, have colors that emulate those of the rock. All structures are in scale with those of the natural landscape and generally repeat the horizontality of the rockforms. The station is evident—not enough to be a focal point—and it meets **partial retention**. Use of some camouflaging techniques, such as those illustrated in the passive relay in the **retention** series, could have further blended the structures on the left. Use of a light gray-blue paint on the elevated dish may have been another desirable alternative.

Partial Retention

Overstory Removal

This overstory removal is located along a major highway in the Bitterroot National Forest in Montana. The road and landing at the back of the unit are not evident; however, the activity slash and debris is evident but not visually dominant. This harvest activity meets **partial retention.**

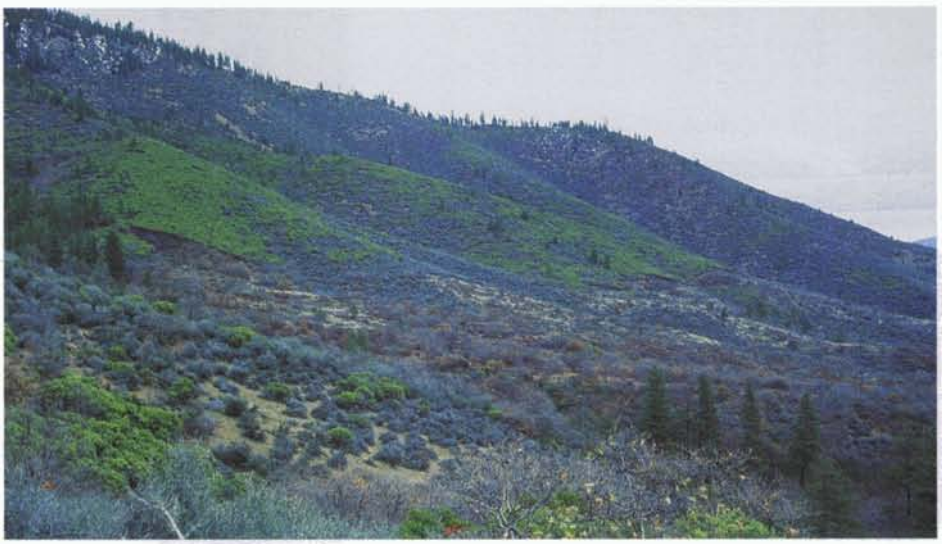
Stream Improvement

A low log dam in the Green Mountain National Forest in Vermont was constructed to improve the stream for aquatic life and watershed purposes. At this distance it is quite visible. Once the decision is made to use log construction, there is little to borrow from the natural-appearing landscape character. The zig-zag form of the logs reduces the impact of a straight line, but in itself creates another unnatural form. The dam achieves a scenic condition level between low **partial retention** and high **modification**. It could have blended better if it were less symmetrical and if the logs had been overlapped rather than butted, thus more closely resembling natural windfall logs in a stream. If the dam had been built with rocks, the dam may have met **retention**.

Partial Retention

Stream Improvement

Log-cover structures, located on the shore of the Paint River in the Ottawa National Forest, provide cover and flow diversity. They borrow from naturally occurring characteristics of down trees in the stream. Although this scene is natural appearing, the uniformity of the nearest structure on the right strongly hints of human intervention. The scene meets **partial retention**. Introducing greater variation in log size, leaving branches on the logs, and creating less uniformity in spacing of the downstream "stringers" might have led to the achievement of **retention**.



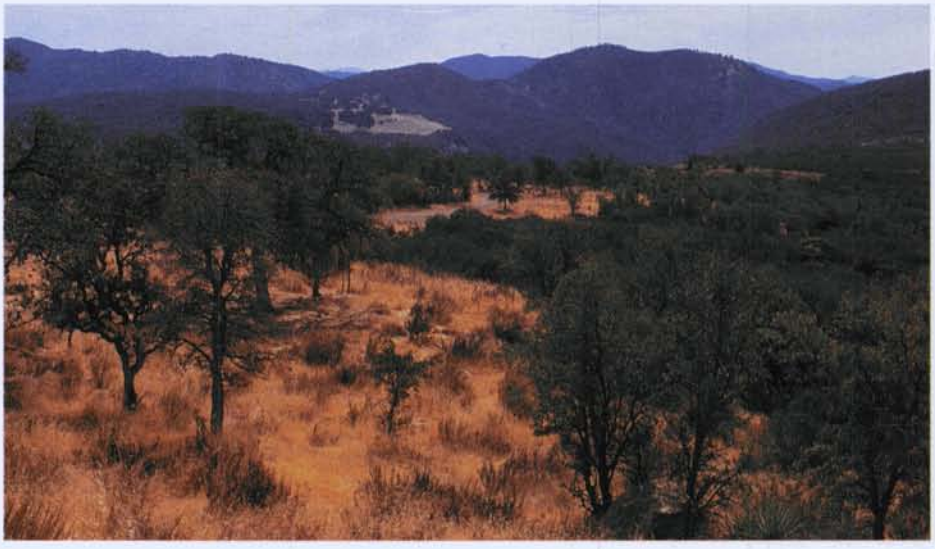
Wildlife Habitat Improvement

A wildlife brush-crushing project in the Klamath National Forest helped create the conversion to a more usable vegetation condition. There are indications of color contrasts in the slope and some rather sharp contrasts of color on the upper edges of the project at mid-slope. This project meets the lower end of **partial retention**. Reduction in the sharper contrasts on the upper edge of the treated area through feathering of brush might have raised its rating to a solid **partial retention**. Because of these sharp upper edges, the project draws attention to artificial, rather than natural, focal points.

Partial Retention

Fuelbreak and Road

A fuelbreak was developed in the Los Padres National Forest. The fuelbreak borrowed from the tendency of the existing landscape character to be more barren on ridgetops having shallow soils. The islands and peninsulas of shrubs allowed to remain in the fuelbreak were key to the reduction of visual contrasts. The road lies lightly on the landscape and is only intermittently visible from this viewpoint. The scene is an outstanding example of **partial retention**, perhaps at the upper end. A bit more feathering of the near ridge could have further improved the quality of the scene.



Fuelbreak and Road

Another fuelbreak, also in the Los Padres National Forest, shows immediate foreground and middleground detail. Again, individual and groups of small trees and shrubs have been retained within the fuelbreak to create a more natural-appearing condition that detracts little or nothing from the effectiveness of the fuelbreak. From this viewpoint, the road is barely discernible in the middle of the photograph through the fuelbreak. The fuelbreak seems to "belong" and clearly meets **partial retention**.

Partial Retention

Created Opening
A created opening viewed as middleground in the White Mountain National Forest creates shadow patterns on the far edge of the opening. That line of shadow, however, emulates the undulating ridgelines above. The lighter color of the regenerating timber attracts considerable attention, but has textural contrast. This project now achieves the lower end of **partial retention**. If there were an opportunity to soften the shadow pattern by selective thinning at the far edge, it is likely that the resulting feathering would have raised this to a solid **partial retention**.

Created Openings and Structure
Another example in the White Mountain National Forest also creates heavy shadow patterns on the far edge. Only the middle of the three vegetative alterations allows a view of the lighter color and smoother texture of the regeneration unit. The patterns formed by these created openings borrow from the upper ridge line and intermediate low ridge. The structure in back of the beach is aided by its linear form and park walls. The reflectivity of the roof creates a color and texture contrast. The scene barely meets **partial retention**. If the lower created openings were separated into two or three units to break up the linearity, and if the roof of the structure were darker, it would have better met **partial retention**.

Partial Retention

Timber Harvest
This two-stage timber harvest in the Pisgah National Forest in North Carolina was carefully designed and implemented to borrow from all the elements found in the natural-appearing landscape. The irregular shape, heavily feathered edges, and carefully selected leave-trees of varying sizes create a natural appearance. Because the timber harvest is a noticeable human activity to forest visitors, it meets the definition of **partial retention**. However, in 1-to-2 growing seasons, the area will "green-up" and probably meet **retention**.

Roadside Opening
Situated in the Allegheny National Forest, a roadside opening, which probably provides some visual and spacial relief along a tunnel effect roadway, has been created. It has recovered with grasses and other low vegetation, but some lopped branches are indicative of a recent project. Possibly, the limbless tree trunk was retained to provide interest and character, but it stands out strongly from the multi-storied edge. This project barely meets **partial retention**.

Partial Retention

Created Opening

These two views of the same scene in the Allegheny National Forest demonstrate the effect of seasons upon achievement of scenic condition levels. The primary scenic factor is the heavy shadow created by the rear edge of the created openings in both summer and winter. As might be expected, the problem is greater in the summer "leaf-on" period when there is less light filtering through the forest. The front edge of the created openings borrows line from the natural-appearing landscape character and blends beautifully in both seasons. The rear shadowed edge borrows from the ridgeline above, but creates a rather heavy contrast. The winter scene is a good example of **partial retention**, but the summer scene barely achieves it. The best means of reducing the contrast of these created openings may have been to thin and feather the rear edge. Incidentally, these scenes also provide a vivid comparison of the effect of seasonal variations on the vegetative screening on the structure in the middle foreground. What meets **retention** in summer would barely meet **modification** in winter.

Partial Retention

Shelterwood Timber Harvest

This foreground view in the Sequoia National Forest resulted from a shelterwood cut. The only evidence of the activity are some stumps and the heavier tree density in the rear. The road near the back is barely distinguishable. Retaining several small fir trees amongst the large red-barked character trees undoubtedly improved the scenic attractiveness of the site. The sensitive cutting and cleanup of this project cause it to meet the high end of **partial retention**.

Partial Retention

Shelterwood Timber Harvest
This middleground view of a project in the Klamath National Forest reveals an area harvested by the shelterwood method. It borrowed from the natural opening on the ridgetop. Its design might have borrowed from the natural light-green opening on the right, but it would have been difficult to emulate the greens of wetter sites. Slight evidence on the left and top of the shelterwood of a skid trail or some other linear disturbance is not sufficient to cause the activity to dominate the scene, but without the surrounding natural openings, it could have become dominant. It barely meets **partial retention**. More feathering of the edges on the two sides and retaining clumps of trees would have created an even higher level of scenic condition.

Shelterwood Timber Harvest
This shelterwood harvest in the Klamath National Forest was carried out by helicopter; thus, roads would not have a potential impact. There were few shapes and patterns from which to borrow in the natural landscape character. However, the excellent transition of the edges into the surrounding forest makes this a good example of **partial retention**.

Partial Retention

Timber Harvest

This is another Sequoia National Forest foreground view where the timber harvest activity appears to have removed all of the larger trees. A linear pattern at mid-slope and at the bottom of the scene would seem to indicate the existence of roadways. Logging debris and fresh stump faces are fairly evident. This project falls into the lower end of **partial retention**. Cleanup of logging debris and a growing season to heal the groundcover could raise it to the upper end of **partial retention**.

Partial Removal Timber Harvest

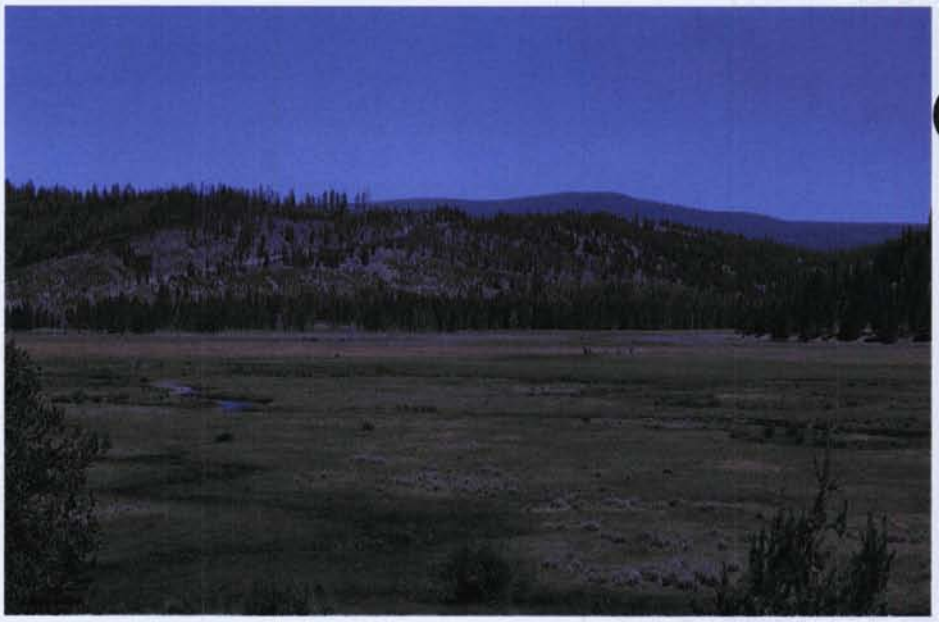
In this foreground view in the Willamette National Forest, a partial removal cut was made to harvest timber. It is virtually impossible to distinguish a landscape alteration, except for some exposure of the ridgetop landform. This scene meets the high end of **partial retention**. Lighter cutting on the ridgetop could have raised the achieved scenic condition level to **retention**.

Partial Retention

Partial Removal Timber Harvest
This foreground view in the same forest illustrates a "clump and randomly spaced" timber removal project. The primary evidence of the activity is the high limbless condition of the larger trees. To most people, it would appear that this forest differs only slightly from the adjacent forest. Conversely, forest managers would immediately see the area as a heavy partial removal cut. Cleanup has been thorough, and the majority of the scene has a natural ground appearance of outstanding quality. Slight evidence of logging debris appears in the upper right. **Partial retention** has been solidly met.

Underburn
The immediate foreground in this photograph, taken in the Deschutes National Forest, shows a forest area that was lightly underburned to improve its visibility and to reduce fuel loading. The color contrast created by the leaf and needle die-off clearly makes it evident that something has happened here. Given some time, the scorched leaves and needles will fall off and significantly reduce color contrasts. At the time of the photograph, the low end of **partial retention** was met.

Partial Retention



Road

This is a middleground view of a road in the Fremont National Forest. The road, rather than the fire scar, is being evaluated in this scene, although both appear to barely meet **partial retention**. The road may have been a solid **partial retention** prior to the fire, which removed some of the vegetative screening. The soil color contrast of the road is a key factor in increasing its visibility. It also appears evident that the lower part of the hill has either burned or has been vegetatively altered in the past, as it lacks the characteristics of the natural cover.

Road

This foreground/middleground summer scene in the Allegheny National Forest is bisected by a road. Summer is probably a more critical season than winter for color and texture contrasts. The slight notch in the treeline silhouetted against the sky, together with the shadow pattern in the right one-third of the scene, creates the only visual evidence of the road. Therefore, it meets **partial retention**.

Partial Retention

Road

This foreground/middleground scene in the Crooked River Valley of the Ochoco National Forest is traversed by a highway. The alignment of the highway and the relationship of its structure to the clearing width mimic the river and its adjacent meadows. The color contrast of the highway is moderate. The highway is evident, but does not form a focal point in this powerful landscape, which has its own strong focal points of the river amidst the meadows, the distinctive silhouetted rockforms on the left, and the convergence of lines in front of the more distant mountain ridge. The dark soil colors in the cut banks on the left greatly enhance the scene. This is an outstanding example of **partial retention**.

Trail and Road

A trail is shown crossing a slope in this national forest in Montana. The trail has little opportunity to borrow from the natural landscape character from this vantage point, but it undulates similarly to the ridgetops, and its dominance is broken up by its intermittent visibility. The road at the bottom of the hill is also intermittently visible. Once again, a powerful landscape draws focus to other points, such as the knob-ridge in the center right, the distant mountain ranges, and the distinctive spire-like trees on the open ridge. The trail and road meet **partial retention**..

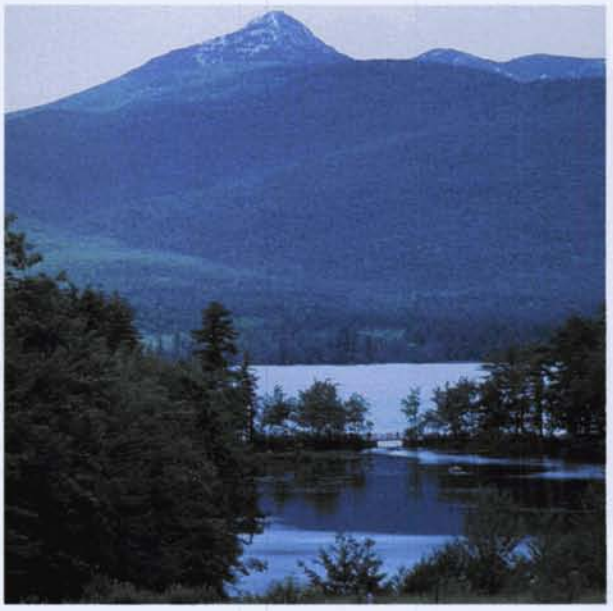
Partial Retention

Trail

A middleground view in the Russian Wilderness of the Klamath National Forest reveals a section of the Pacific Crest Trail on the upper slopes of steep mountains. The trail crosses through drifts of conifers, rocky areas, and brushfields. The greatest visual problems are the soil color contrasts that create an unnatural line in the evenly textured, dark-green brushfields. On the right half of the photograph, the trail is undetectable except for two or three short segments. Where it passes through the rocky areas on the left, it is barely distinguishable. The trail forms a linear pattern that is too smooth to borrow from any part of the natural landscape character other than possibly the background mountain silhouette. Achieving **retention** would have required a longer trail that switched back up the rocky areas, entered conifer stands, then followed more of the rocky areas. The only other way to reduce contrasts in the brushfields would have been to clear brush in patterns, borrowing from the shapes and textures of the rocky areas. This is **not** permissible in wilderness. The trail meets **partial retention** from this viewpoint.

Trail Bridge

A trail bridge connects two promontories on a lake in the White Mountain National Forest. The powerful landscape draws some attention away from the light bridge structure. The structure carries out the horizontal line of the two peninsulas jutting into the lake. It is evident, but does not detract from the scene. It meets **partial retention**.



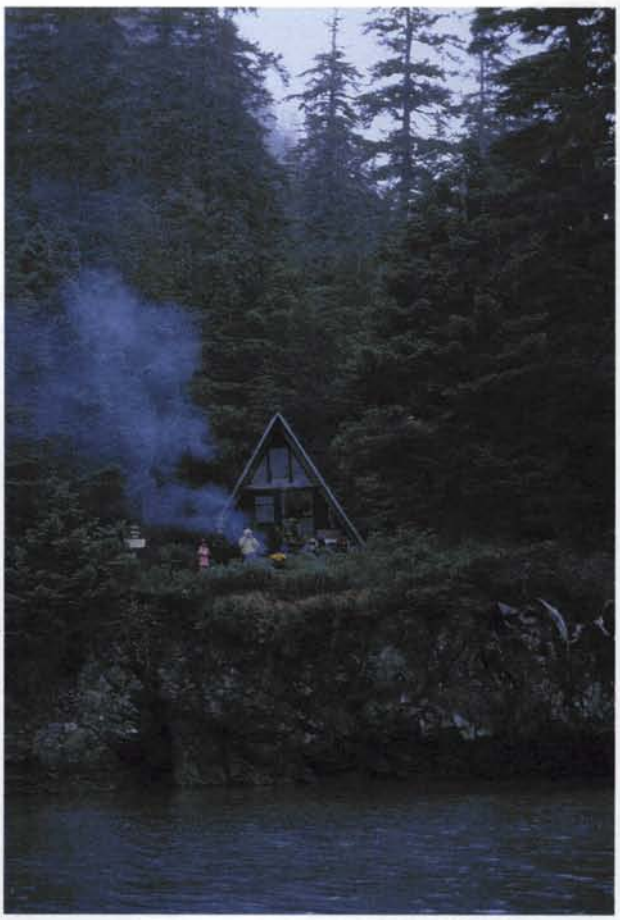
Partial Retention

Structure

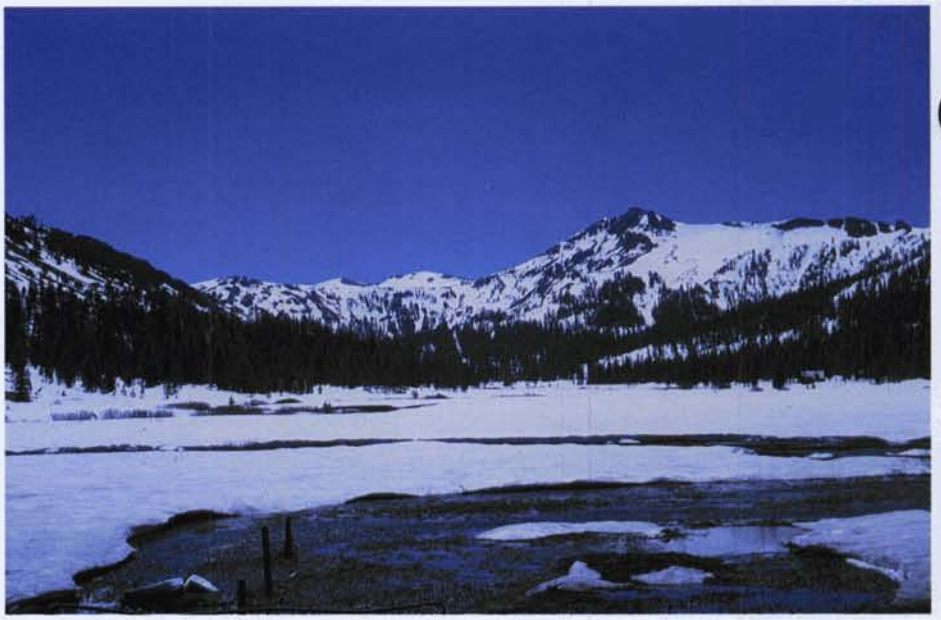
In this scene at Coghill Lake in the Chugach National Forest, a trailhead structure stands out in the immediate foreground. This "stairs trailhead," common in Alaska but not elsewhere in the Forest Service, gives access to people from the shore up a steep, rocky bank. The major visual contrasts are the vertical lines and uniformity of the steps. Time might possibly reduce the color contrast as the wood turns gray. At this distance, the trailhead structure meets **partial retention**. From middleground distances, it is likely to be undetectable and would meet **retention**.

Structure

Another immediate foreground view of a scene in Alaska's Prince William Sound reveals a cabin located just onshore. The shape of the A-frame cabin reflects the shape of the conifers, and its dark color borrows from the shadows. Only the yellow sign and the people in brightly colored clothing draw attention to the site. The cabin structure meets **partial retention**. It might have been simpler to tuck the cabin behind the trees, consequently raising the structure from **partial retention** to **retention**.



Partial Retention



Winter Sports Site

This middleground view in the Eldorado National Forest reveals a major ski area development. The cabin at the right meadow-treeline edge is on private land, while the ski area lies beyond on the right of the mountain backdrop. The primary evidence of the development from this view is the vegetative clearing for the chairlift in mid-photo and a ski run down the forested slope on the right. The ski run design borrows from natural openings in the existing landscape character. The line created by chairlift clearing was too narrow to emulate the existing landscape character. This is an example of **partial retention**. Additional clearing of trees to create a more natural opening for the chairlift could have further improved the scenic condition of the landscape, but could have created unfavorable conditions, such as excessive winds, for people riding the lift.

Winter Sports Site

This is the same ski area viewed with a telephoto lens in the summer a few years later. The resort configuration ties in with the tree patterns, but the roofs create less than desirable reflectivity. The new runs and slope stabilization material colors do not completely blend into the natural landscape character. The reflections off the chairlift are distracting. Yet without a telephoto, the site continues to meet **partial retention**—although at the lower end. Reduction in reflectivity of the structures and feathering the sharp even edge of the new ski run (as seen mid-photo) would help greatly.

Partial Retention

Ski Area Structure

This is an immediate foreground view of a ski patrol hut in the Eldorado National Forest. The hut was built of on-site stone, tied into a natural light to dark gray volcanic rock formation at the crest of the mountain. It successfully borrowed color, texture, and scale from the existing landscape character. The form suffers more than necessary from the human tendency to build with cubes and rectangles. The hut meets **partial retention** despite the small but sharp contrast of the light-gray square corner on the left backed by the dark rock backdrop. A more natural shaping on the left side and a more uneven roof line on top, together with the use of some dark rock in that corner of the structure, might have helped blend it into this unique site. Furthermore, it may have been possible to develop a more natural window shape that did not exhibit the use of traditional window hardware. This hut might have been an excellent example of **retention** if a bit more creativity had been applied in its design and construction.

Modification

Electronics Site
An electronics installation in the Los Padres National Forest is silhouetted against the sky. It is clearly dominant and forms a focal point in foreground views. These structures are of an appropriate scale to repeat the sizes of rock outcrops and are painted in flat tones common to this existing landscape character. Vegetative screening of the lower structures would have been desirable. The scene meets **modification**.

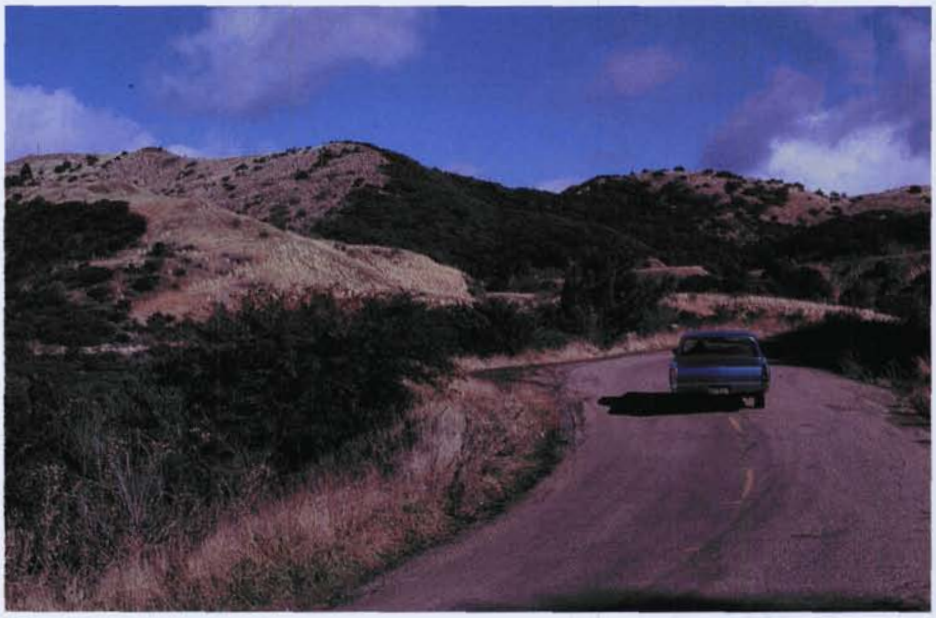
Gas Exploration
An immediate foreground scene in the Monongahela National Forest illustrates the results of gas exploration. The linear scar has been reshaped and seeded. Some rocks protrude to break up the contrast. Neither vegetative debris cleanup nor scattering is sufficient to move this foreground view beyond the **modification** scenic condition level.

Modification

Microwave Installation
A middleground view in the Great Plains of the Nebraska National Grassland shows the difficulty of blending structures into a natural-appearing landscape character that lacks diversity. The steel lattice tower helps reduce visibility, but necessary bulky hardware on the tower top creates a definite focal point. Even the use of light gray-blue, flat paint may not be adequate to reduce the contrasts. The focalization on this tower is greatly increased due to its placement on the lonely knob of wooded landscape in a sea of flat land. The installation meets **modification**.

Stream Improvement
This pleasant setting—an immediate foreground view of a stream improvement structure—is located in the Monongahela National Forest. The evenness and uninterrupted exposure of the log dam is enough to lower this scene barely into the upper end of **modification**. Several large borders in front to break up the exposure of the waterfall over the log would have raised the scene to **partial retention**. Additional use of rocks might have moved it up to **retention**.

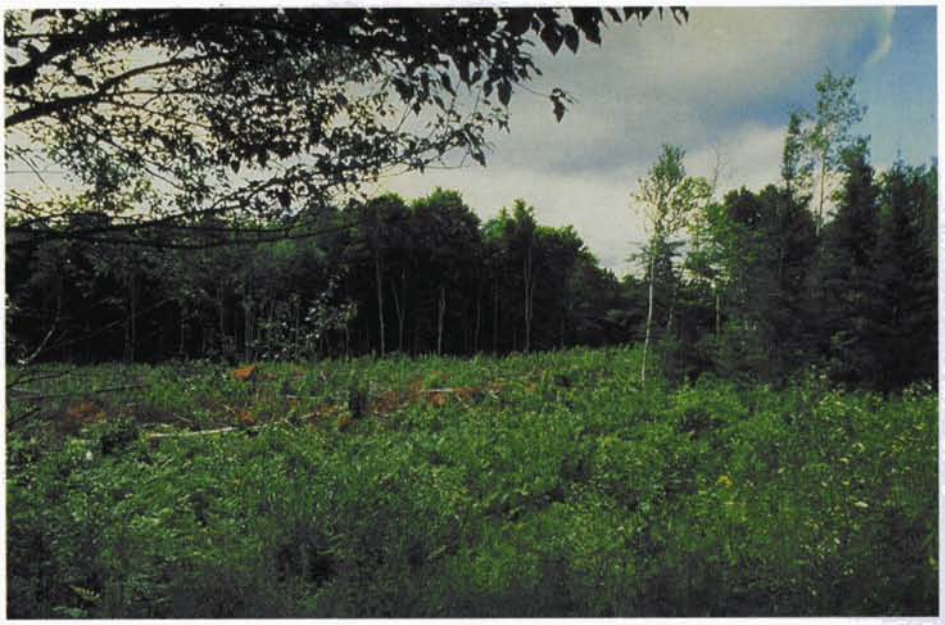
Modification



Fuelbreak and Road
This ridgetop fuelbreak in the Los Padres National Forest borrows forms that resemble natural patterns in this chaparral landscape. Only the sharp edges of grass and brush bring an unnatural element to this scene. The road in the middleground at the right is also dominant, primarily because of the horizontal line it introduces. Both the fuelbreak and road meet **modification**.

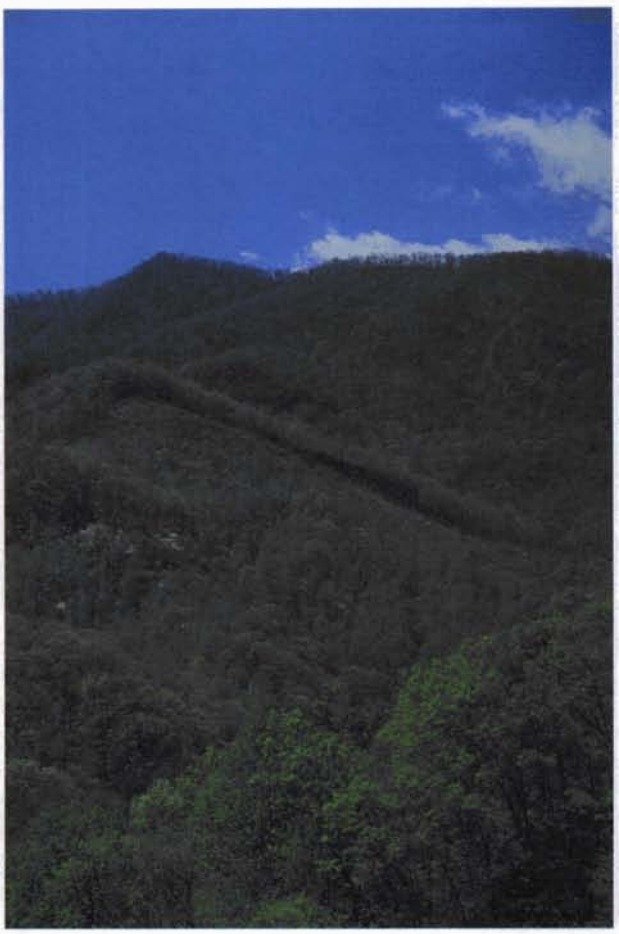
Created Opening
Continuous forest texture, seen in this middleground view in the Pisgah National Forest, makes it difficult to introduce any clearings that do not attract attention. The shape of the opening follows a slight side ridge and borrows diagonal lines from that form. The freshness of the broadcast burn and lack of any regrowth creates high contrast in color and texture. The shadow line stands out on the far edges. The road through the center of the clearing is evident but not a focal point. This project meets the low end of **modification** at the time of this photograph. It would be expected to move up to the high end of **modification** by the end of one growing season. Feathering of the sharp edges could have further reduced their visual contrasts.

Modification



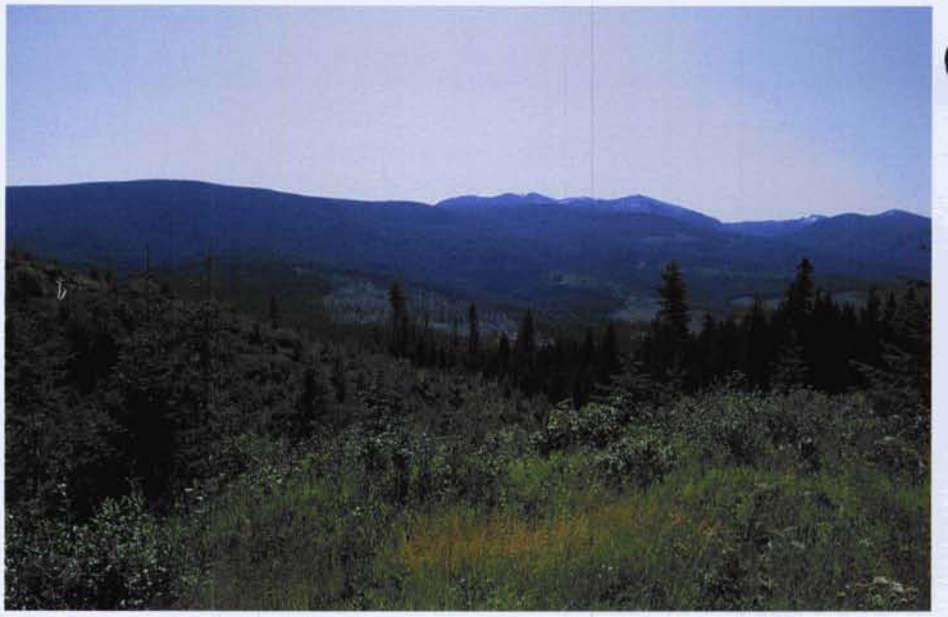
Final Harvest
A foreground view in the Allegheny National Forest reveals a timber harvest area following the last stage of tree removal. Edges are strong in contrast, but logging debris, although visible, is not dominant in this scene. This scene meets the low end of **modification**. Reduction in edge contrast is necessary to bring this landscape up to the middle or high end of **modification**.

Created Opening
This foreground view of another created opening in the Pisgah National Forest demonstrates high degrees of varying contrasts between the near and far edges of the opening. The near edge blends exceedingly well and appears to be feathered. Typically, the far edges are more critical because of their sharp edges, color and texture contrasts, and prominent shadows. This forest opening repeats the line of the ridge upon which it lies, but is so close that it introduces a heavy linear component. The opening forms a focal point that dominates the scene. It meets **modification**.



Modification

Roadside Timber Harvest
This immediate foreground view in the Allegheny National Forest in Pennsylvania illustrates an opening created by a timber harvest at the roadside. The maintenance of a screen of young trees helps to mute the contrasts. No sharp edges are visible, except for the logging residue at the extreme left. From this viewpoint, the project meets the upper end of **modification**.



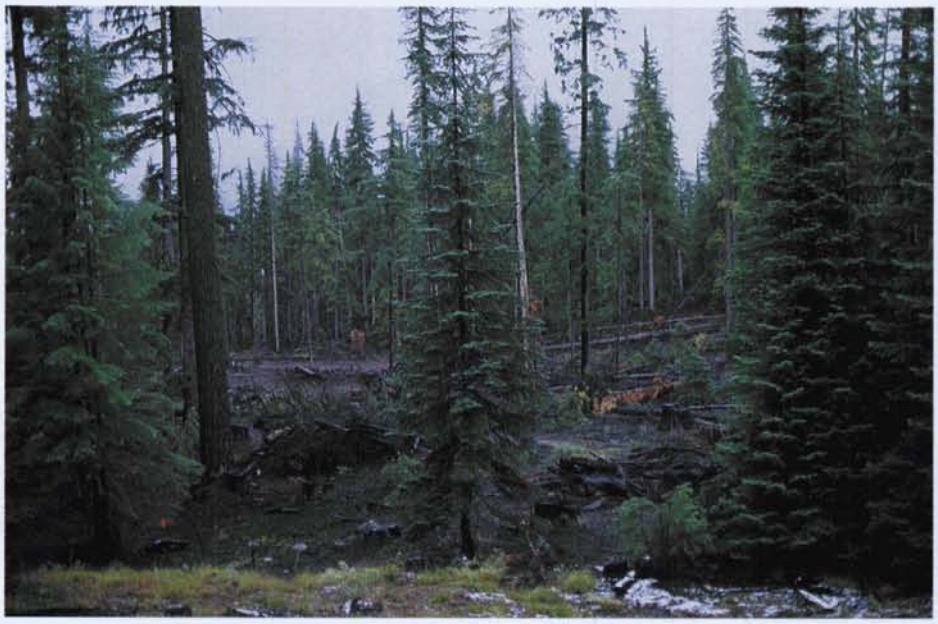
Created Openings and Shelterwood Harvests
This scene in the Northern Region illustrates the effects of several timber harvest openings. The shapes of the openings resemble natural forms in this existing landscape character. One exception is the lowest opening at the middle right, which has far too straight an upper edge. The patterns of the openings relate well to each other, yet they dominate the landscape. With the one exception stated, this is an excellent example of **modification** for multiple timber harvests.

Modification

Created Openings
This middleground view in the Jefferson National Forest in Virginia illustrates the effects of well-designed and skillfully implemented created openings in an extremely sensitive scenic area. The shapes of these openings borrow from the natural ridgelines. Feathering the far edges could have reduced the linear effect of the shadows. This is an excellent example of the high end of **modification**.

Green-Tree Retention
A middleground view in the Mt. Hood National Forest includes this "green-tree retention" timber harvest on the left side of the photograph. The landscape character has some subtle vegetative patterns, including the natural opening on the right. The shape of the introduced opening borrows somewhat from those patterns. The size and color contrast are strong enough to cause the opening to be dominant, drawing attention. This scene meets the high end of **modification**. If a few more full-crowned trees had remained in the harvest area, it would have met **partial retention**.

Modification

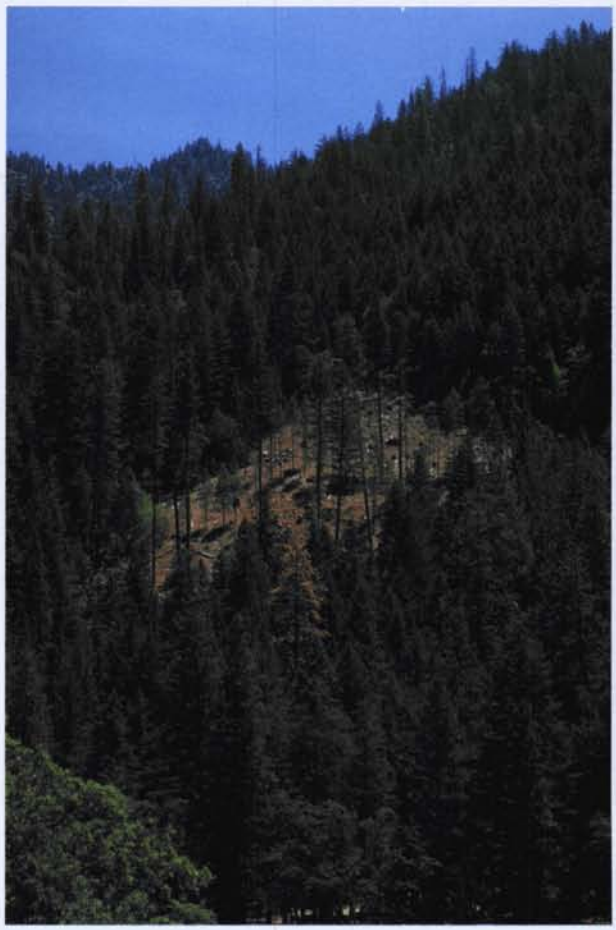


Created Opening

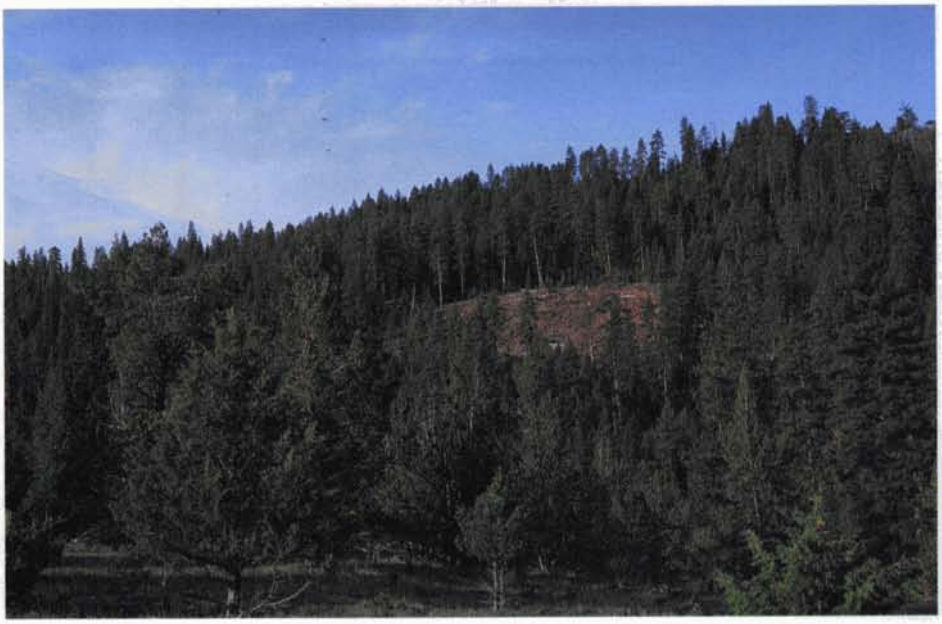
This detailed immediate foreground view in the Willamette National Forest exposes a recently broadcast burned regeneration harvest unit. Color contrasts of the burn are strong. The opening meets foreground **modification**. Upon greening-up of the burn, it may stand out even more until the regeneration reaches a sufficient height for effective screening.

Seed Tree Cut

This Klamath National Forest scene provides a detailed foreground look into a seed tree timber harvest unit. Soil color contrast is high on this recently logged site. Saving seed trees and scattered young trees in the opening helps greatly to soften the visual impact. Logging residue is subordinate to the remainder of the activity, as specified for foreground **modification**.



Modification



Small Created Opening
A small created opening is located mid-slope on a small ridge in the Fremont National Forest. This foreground view indicates that the logging residue is subordinate to the remainder of the activity as it should be. The soil color contrast is quite high at completion of logging. This created opening meets **modification**.

Created Opening
This created opening, seen in the foreground near the skyline in the Fremont National Forest, shows some soil color contrast. It is located at a point that creates focal attention near a small rounded ridgetop. The road on the upper side of the created opening and the logging residue are subordinate to the remainder of the activity. Cable-line scars remain but are not dominant. Islands of small trees are retained in the opening between cable-line corridors. It meets **modification**.

Modification

Timber Thinning

In the Malheur National Forest, a thinning project in the foreground has altered the landscape. Logging residue is heavy and the reflectivity of the slash remains dominant. Once the slash is removed, the project should easily meet **modification**. Retaining a few untreated islands of various sized tree clumps may have allowed it to move up into **partial retention**, following cleanup activities.

Created Openings

A mountainside in the Gifford Pinchot National Forest was altered by a series of created openings after insect infestation. This is a difficult landscape; it is steep and has an even texture of tall conifers. The picturesque ranch competes for attention. There are a few natural rock outcrops at the top right that have color and texture characteristics similar to the exposed soils in the created openings. The created openings borrowed from the natural openings, but perhaps the larger one is out of scale. The harvest included some helicopter logging, which reduced the impact of linear road clearings in this sensitive landscape. This is an example of **modification**.

Modification

Created Opening

In the Malheur National Forest, a middleground created opening emulates natural patterns of the natural landscape character behind it. Its linear form resembles that of the partial opening at the upper right but its apparent size is dominant. Soil color differs little from exposed grasslands in the scene. It easily achieves **modification**. It could have easily met **partial retention** if a few islands and peninsulas of trees had been left in the created opening to resemble the middleground patterns.

Created Opening

In Alaska, a middleground created opening is partially screened by foreground vegetation along the shoreline. Its shape and color are similar to the natural opening on the mountaintop to the left. The shadow pattern on the far side of the created opening produces considerable contrast with the lighter green interior, but that linear pattern undulates with the natural ridgelines. The opening meets the upper end of **modification**.

Modification

Created Opening

Another created opening in Alaska is shaped to a form that could be taken as "natural" in this landscape. Its degree of contrast forms a focal point, but borrows somewhat from the smaller natural openings above. The edge treatment is very well handled and is aided by the presence of dark vegetation intrusions. This is a good example of **modification**.

Created Opening

A created opening in Alaska generally demonstrates an appropriate scale and mimics the shape of the landform upon which it sits. The site has revegetated sufficiently to reduce color contrasts to a minimum, although texture contrast remains. The far edge shadow pattern creates the most dominant contrast but fades out on the right, where a shelterwood harvest has occurred. This project now meets the upper end of **modification**.

Modification

Road

The Moffet Road in the Roosevelt National Forest gracefully winds up the valley. Its alignment borrows from the landforms. Its color contrast creates its dominance. Soil color contrasts at this season are minimal. The cutbank at the upper curve blends exceedingly well, as do the cut and fill slopes on the mountainside above. The strong patterns of the natural landscape character do much to help reduce the dominance of the road. The valley highway is an excellent example of **modification**. The railroad grade across the right middleground slope is at the upper end of **partial retention**.

Road

A scenic road in the Pisgah National Forest traverses a landform having smoothly textured vegetative cover. The light color of the roadway sharply contrasts with the existing landscape character. Shadow patterns of cut slopes create additional attention to the road, yet the scale of the road is such that it meets **modification**. A darkened road surface might move this roadway up to the low end of **partial retention**.

Modification

Road

A road passing through the Coronado National Forest follows rather than fights the contours of the landform. The light color of the road surface sharply conflicts with the grassland cover. Soil color contrast is moderately low. From this viewpoint, the road meets **modification**. A darker colored road surface might have allowed this scene to reach the low end of **partial retention**.

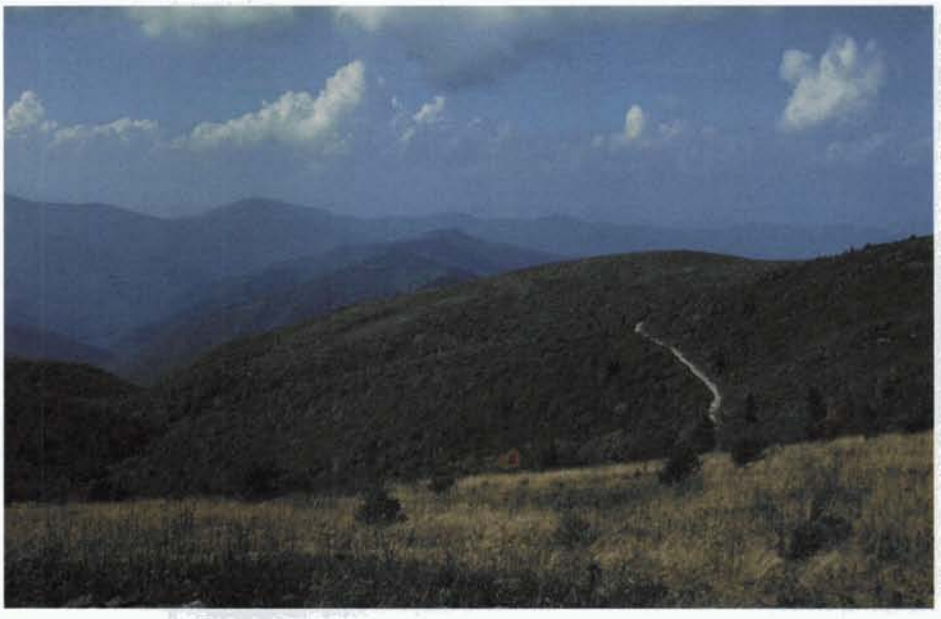
Roads and Recreation Development

This foreground view looks down on a recreation site in the Coronado National Forest. The typical desert vegetation is not sufficient to screen the roads, trails, and structures. The light colors of the loop road and trails are dominant. The color of the structure is not of high contrast, but it could have blended in quite well through a better color choice. From this viewpoint, the entire development meets **modification**.

Modification

Road

Moffet Road at Devil Slide in Colorado cuts across a scenically sensitive landform that has only limited, low vegetation. The straight line of the road borrows little from the natural landscape character. Fortunately, soil color contrast is low; otherwise, the cuts, fills, and slides caused by the road would be overwhelming. The road meets **modification**. With higher soil color contrasts, the scene would probably drop to **unacceptable alteration** scenic condition level.



Trail

This trail in the Pisgah National Forest traverses an evenly textured landform. The surface color of the trail creates an extreme contrast with surrounding vegetation. It meets **modification**. A darker trail surface could possibly move this up to the high end of **partial retention**.

Modification

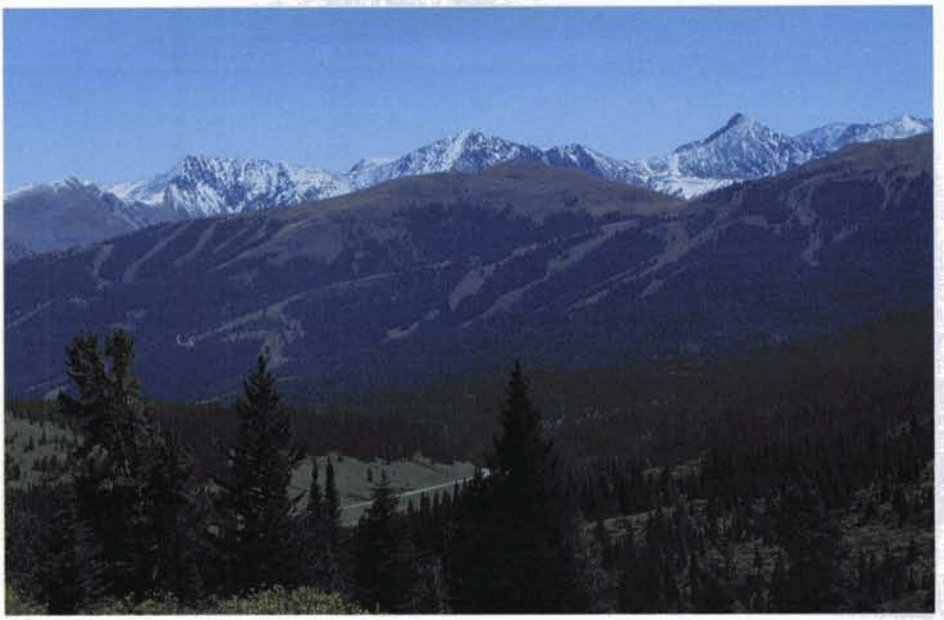
Winter Sports Site

Located in the lightly patterned portion of the natural landscape character, Beaver Creek Ski Area in Colorado is situated on the forested slopes above the valley floor. The barren ridge, on the left and upper right, offers only minimal opportunity to design clearings for chairlifts and ski runs that borrow from nature. The linear needs of ski facilities make it difficult to blend them into this natural landscape character. As the area revegetates, color contrasts of new construction activities will gradually decline but they will remain dominant. The ski area meets **modification**. Only massive feathering of vegetative clearings could raise this scene to **partial retention**.

Winter Sports Site

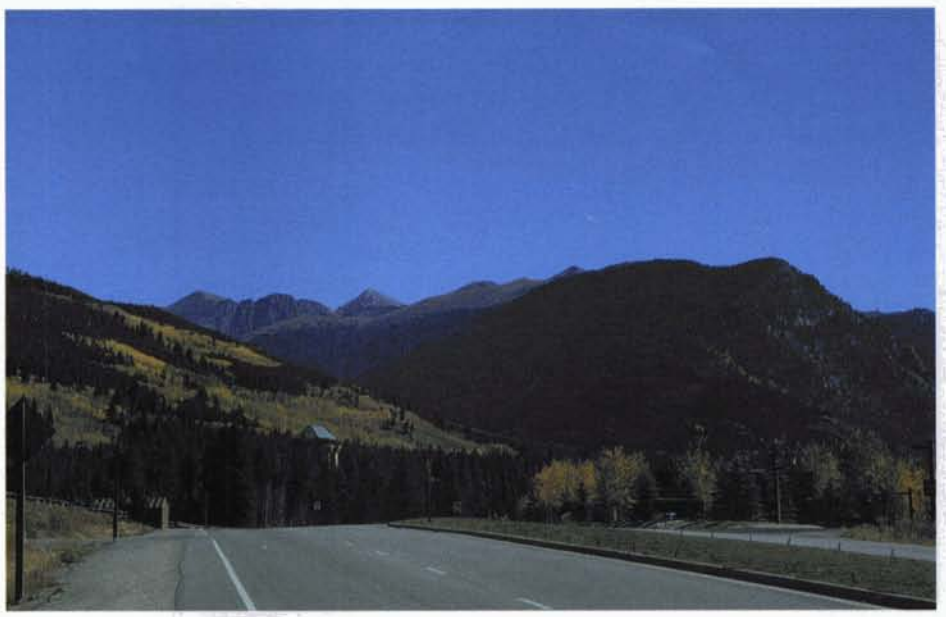
At the same ski area, winter heightens the color contrast between the snow and the dark conifers, reinforcing the conclusion that only massive feathering of the forested areas adjacent to chairlifts and ski runs could effectively improve the scenic condition. In winter, the ski hill development barely achieves **modification**.

Modification



Winter Sports Site

A summer view of Copper Mountain Ski Area reveals similar problems, although variation in run widths has been helpful in reducing their dominance. Joining the runs to the natural mountain ridgetop openings may be another effective mitigation measure. There is an indication that shapes from natural landscape patterns were borrowed to use in the design of this ski area. The project is an excellent example of **modification**.



Lodge Entry

The entry to Keystone Lodge in Colorado illustrates how a structure can be designed to borrow form from the existing natural landscape character. The roof projecting above the tree-tops repeats the form of the mountain peak behind it. Unfortunately, the color selected for the roof contrasts with the yellow aspens in this autumn scene. The entry probably would have barely met **partial retention** when the aspen backdrop was light green. With proper paint color selection, this landscape scene could easily be rehabilitated to move it from **modification** to **partial retention**.

Marginally Acceptable

Powerline

This coastline of the Tongass National Forest in Alaska is paralleled by a major electric transmission line. The clearing width appears to be excessive. Although the clearing repeats the distinctive shoreline, it remains dominant in this natural landscape character of timbered slopes. The high contrast of the towers further emphasizes the clearing. It is rated **marginally acceptable**. In this situation, it may have been possible to minimize clearing limits and paint the towers a drab olive-green to bring the landscape up to **modification**.

Electronic Site

This antenna on Mt. Pisgah in North Carolina is of such scale and color contrast that if forms an obvious focal point that is extremely evident at foreground and middleground distances. Federal Aviation Administration safety regulations provide no options to reduce color contrasts of such tall structures. When viewed as background, the colors become slightly muted and the scale of the antenna is not overwhelming in comparison to surrounding landforms and forest patterns. Although this tower is accepted as a necessary communications facility within this area, it barely achieves the **marginally acceptable** alteration scenic condition level. A less visually impacting structure may have been possible through the use of a slim-line central tower pole and multiple tension cable design or a shorter tower that did not require the alternating red-and-white paint pattern.

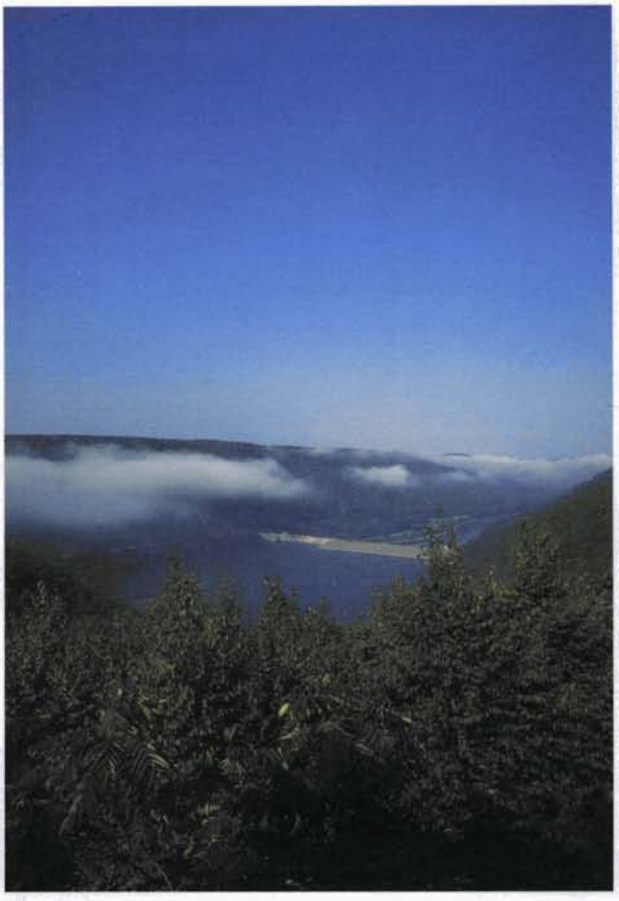
Marginally Acceptable

Mining Operation

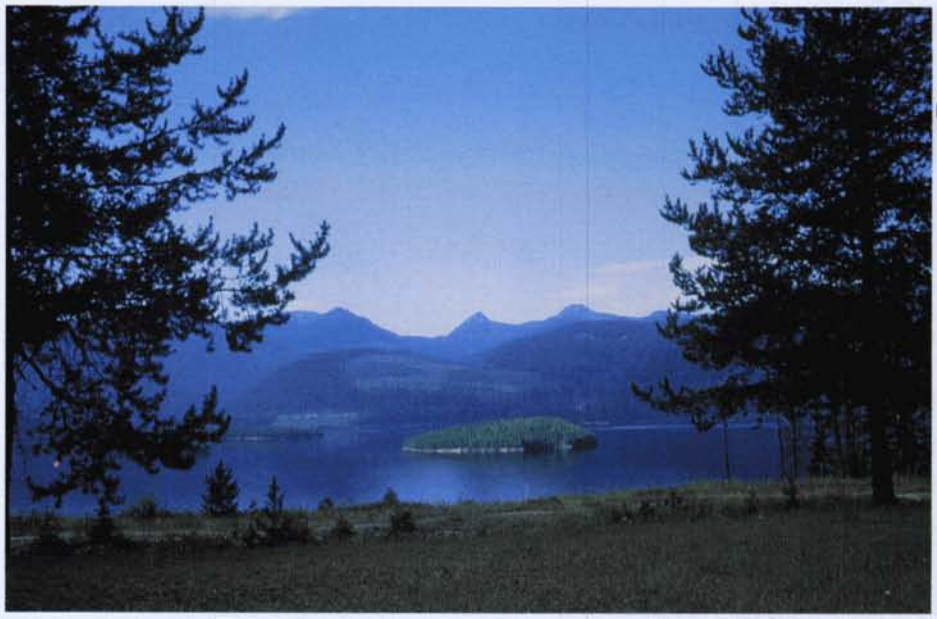
This foreground view of a mining operation in North Carolina represents a very high degree of visual impact caused by color and texture contrasts. It would be visible as a strong focal point from background as well. This is not so much a matter of scale or form as it is contrast. This landscape scene is **marginally acceptable**.

Dam

The Kinzua Dam in the Allegheny National Forest, viewed as middleground, forms a very definite dominance over the natural-appearing landscape character. It would be expected to do so in background as well. Although there are linear patterns on the far ridge and along the river, the sharp color contrast and straight edges of the dam stand out strongly. The linear pattern of the dam does not align with natural linear patterns, but forms a new diagonal line. From this viewpoint, the dam is rated **marginally acceptable**. Staining the structure a mottled, flat olive-drab color would greatly reduce its dominance.



Marginally Acceptable

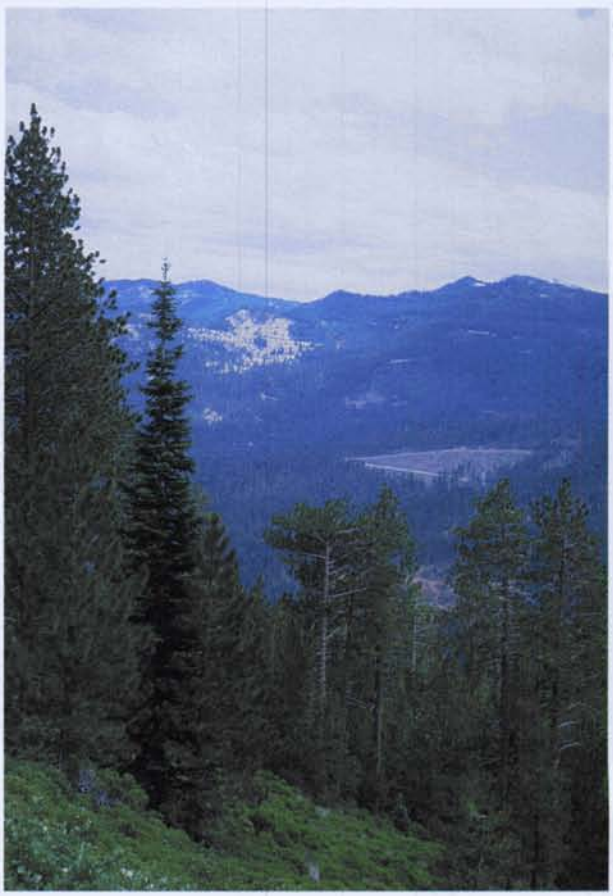


Created Openings

This scene in the Northern Region frames a view of created openings behind an island. The visual impact is heightened by the photo composition. The size of the multi-staged created openings would be dominant in the background. This scene is **marginally acceptable**. The road and rectangular created opening on the shoreline to the left is **unacceptable** because it borrows nothing from the existing landscape character.

Created Openings

A series of created openings in the Klamath National Forest is viewed in middleground. The upper opening takes on a form that seems to borrow from the existing landscape character but contains unnatural horizontal patterns. Scale and color of the openings cause them strongly dominate the scene. They would continue to do so from background distances. Because of the scattered trees and clumps of trees left in the openings, the openings rate at the high end of **marginally acceptable**. The arrow-shaped created opening, fined further by outlining road scars, does not borrow from the natural landscape character and is **unacceptable**.



Marginally Acceptable

Regeneration Harvests
These created openings and shelterwood harvests, in the middleground in this Northern Region scene, borrow only slightly from the natural landscape character. The scale of the harvests and their proximity to one another create a major dominance. They are barely **marginally acceptable**.

Created Openings
This series of three created openings in the Klamath National Forest is located high on a mountain ridge viewed as middleground. The shapes of these created openings borrow somewhat from the natural landscape character; however, their linear arrangement on the mountainside, combined with the linear road pattern on the right, creates an unnatural appearance. They are **marginally acceptable**.

Marginally Acceptable

Created Openings

The size and shape of these created openings in the Northern Region clearly dominate the scene. Although the shapes of the created openings are not rectangular, their long straight edges and narrow strips of leave-trees make them stand out as dominant features from background distances. These created openings are rated at the lower end of **marginally acceptable**.

Created Openings

A series of created openings in the Klamath National Forest borrow somewhat from the natural landscape character, but their similarity in size and shape causes them to dominate the natural landscape character. They would be dominant in background views as well. This set of created openings is at the upper end of **marginally acceptable**.

Marginally Acceptable

Created Opening

Although viewed in a foreground situation, this large created opening, located in the Eastern Region in an evenly textured landscape, causes it to be rated **marginally acceptable**. Saving the lone twin birch did not adequately improve the scenic condition above that level. Evidently there was an opportunity to save many more birch trees and to feature their positive scenic effects.

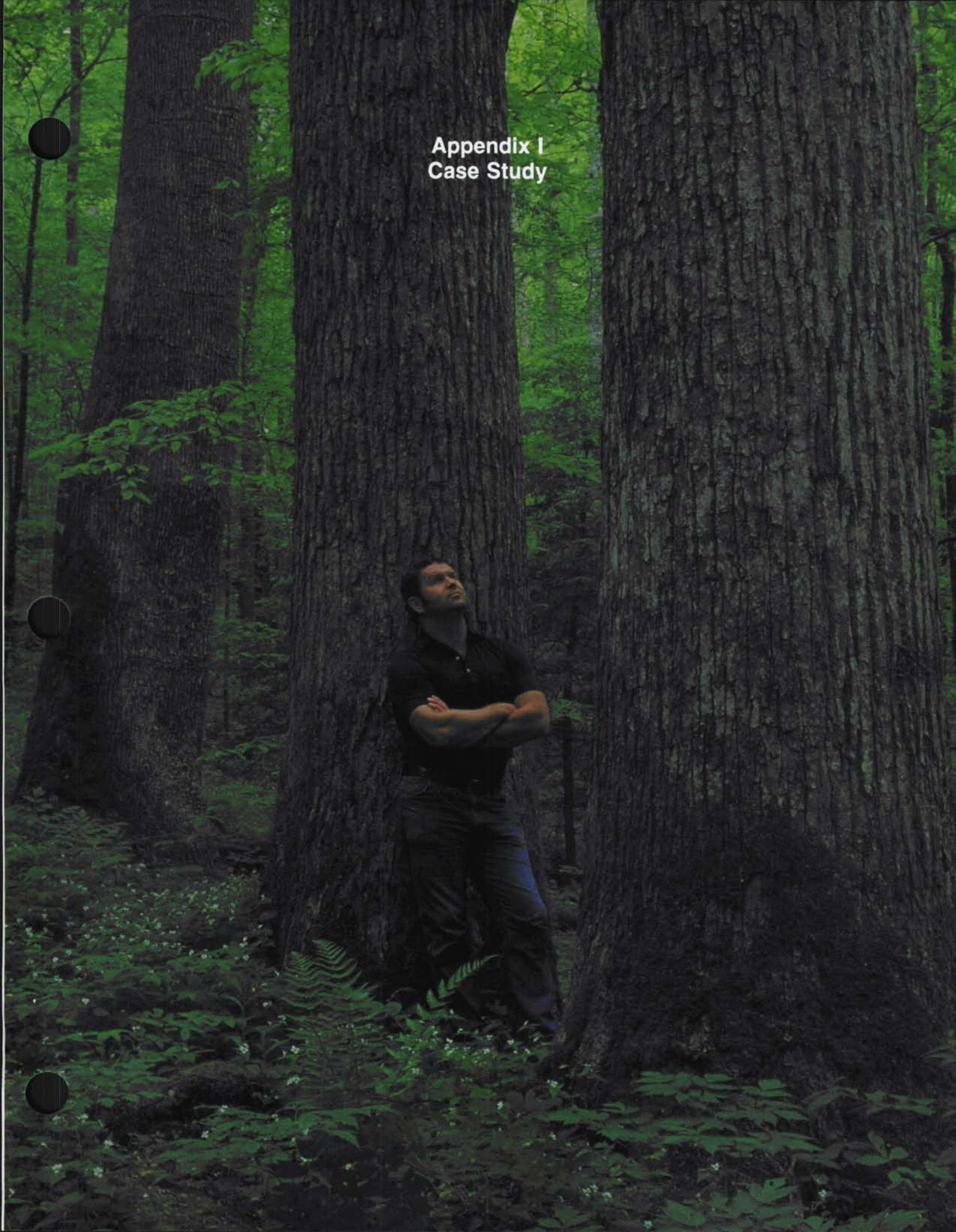
Created Opening

A created opening on South Mitkof Island in Alaska's Tongass National Forest has borrowed heavily from existing landform shapes, yet the extent of this alteration places it in the upper end of **marginally acceptable**. Color and texture contrasts would be dominant even at background distances.

Marginally Acceptable

Created Openings and Roads
These large created openings in the Tongass National Forest attempt to borrow from the natural landscape character. However, the uniformity of the cover on the upper slope creates strong contrasts. The created openings and roads will continue to dominate in background distances because of these contrasts. It is at the low end of **marginally acceptable**.

Winter Sport Site
Copper Mountain Ski Area, when viewed from this foreground view, creates strongly dominating alterations to this landscape. The sharply defined edges and the uniform widths of some of the ski runs reinforce this dominance. Only a massive edge-feathering project could move this up from **marginally acceptable** to **modification**. The ski runs at the far left and right meet **partial retention** in this scene.



Appendix I
Case Study

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Case Study

OVERVIEW

This case study describes the Scenery Management System (SMS) process being implemented by Kisatchie National Forest in the Forest Land and Resource Management Plan (FLRMP) revision. SMS is designed to be implemented as part of the Forest Plan revision process and is basically broken into two phases, the inventory phase and the implementation phase. The inventory phase requires a series of sequential steps to produce a map that displays the Initial Scenic Class Assignments. The implementation phase incorporates SMS into the Forest Planning process from alternative development to monitoring and evaluation. The process presented here goes through the development of FLRMP alternatives. The Kisatchie National Forest relied heavily on the use of GIS capabilities and existing data bases. GIS analysis and mapping is a tremendous time saver, produces a very high quality product, allows great freedom to make revisions and most importantly, insures the management of scenery is fully integrated with the management of other resources.

The Kisatchie National Forest incorporated eight primary components to integrate SMS into the FLRMP process:

INVENTORY:

Determine Landscape Character
Analyze Existing Scenic Integrity
Determine Inherent Scenic Attractiveness
Determine Landscape Visibility
Determine Initial Scenic Class Assignments

IMPLEMENTATION:

Consolidate Scenic Class Assignments
Assign Scenic Integrity Objectives to Management Areas
Produce Scenic Integrity Objective Maps

INVENTORY PHASE

DETERMINE LANDSCAPE CHARACTER
(Product - Narrative Description)

Landscape character descriptions were determined for the forest. Each landscape description focuses on key attributes found consistently throughout the area. Landscape descriptions give an overview of the landform patterns, water characteristics, vegetative patterns, and cultural elements.

Landscape character descriptions were developed within the ecological framework as described in Ecological Subregions of the United States: Section Descriptions July 1994 and based upon the map Ecoregions and Subregions of the United States (Bailey and others 1994). Bailey's publication (Bailey and others 1994), maps the Domain, Division, Province, and Section levels of the United States.

The Kisatchie National Forest is located within 3 provinces and 3 subsections as described by Bailey and others (1994): Southeastern Mixed Forest Province, Mid Coastal Plains, Western Section; Outer Coastal Plain Mixed Forest Province, Coastal Plains and Flatwoods, Western Gulf Section; and the Lower Mississippi Riverine Forest Province, Mississippi Alluvial Basin Section. Some regions are currently in the process of delineating subsections which will aid in Forest Plan analysis. Each forest is responsible for mapping the next lower levels in the hierarchy, Landtype Associations and

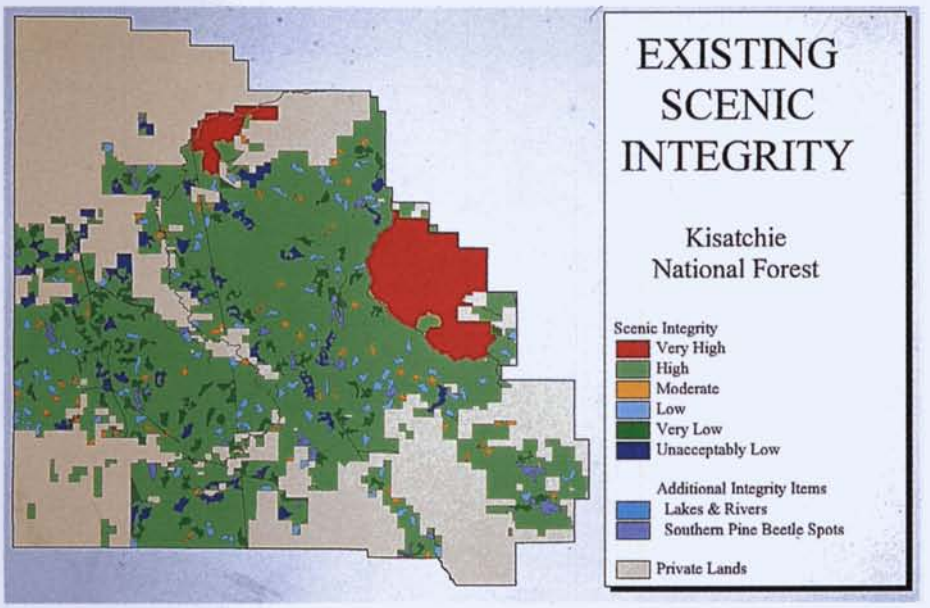
Landtypes. Landtype Associations are considered the appropriate level for forestwide planning and analysis. Landtype Associations were developed by the forest ID Team, which included one or more of the following: soil scientist, an ecologist, forester, hydrologist, botanist and landscape architect.

ANALYZE EXISTING SCENIC INTEGRITY
(Product - Existing Scenic Integrity Maps)

Existing scenic integrity (ESI) is defined as the current state of the landscape, considering previous human alterations. Although ESI is not actually needed to map the final scenic class assignments, it serves multiple purposes in forest planning and provides important benchmarks for decision making. There are several methods referenced in Chapter 2 of the SMS Handbook which could be used to determine ESI, however, the Kisatchie National Forest took another approach. Utilizing GIS, criteria were developed to map ESI based upon the standards and guides in the current Forest Plan.

This process inventories all areas on the forest that currently meet Very High, High, Moderate, Low, Very Low, and Unacceptably Low scenic integrity levels based upon the standards and guides in the current plan. Figure 1 shows the ESI as mapped using the current FLRMP standards and guidelines. The map shows that the majority of the forest meets the criteria for High Scenic Integrity, even though most of the forest is currently assigned a Low Scenic Integrity Objective.

Figure 1. Existing Scenic Integrity Levels



Once the preferred forest plan alternative is developed, a new ESI map can be produced based upon new standards and guidelines. This map will be used to determine the location and extent of rehabilitation required to achieve the assigned Scenic Integrity Objective.

DETERMINE INHERENT SCENIC ATTRACTIVENESS
(Product - Inherent Scenic Attractiveness Maps)

Inherent Scenic Attractiveness (ISA) measures the scenic importance of a landscape based upon human perceptions of the intrinsic beauty of landform, rock form, vegetation patterns, water characteristics, and cultural land use. Forest landscape character descriptions serve as the frame of reference for determining ISA. Landscapes with distinctly different characteristics should be evaluated differently, because each landscape has an inherent ability to produce varying levels of intrinsic beauty. Features such as landform, rock formations, water forms, vegetative patterns, and special areas are compared singularly or in combination with those features found in the landscape character. Through this comparison, an area's overall degree of inherent scenic attractiveness can be determined.

There are 3 ISA classifications: **Class A** - Distinctive; **Class B** - Typical or Common; and **Class C** - Indistinctive. However, based upon an individual forest's needs and conditions, these classes could be broken into one or more levels. These ISA classifications will be used along with distance zones and concern levels to produce Scenic Class Assignments, the final product in the inventory phase of SMS.

Using the landscape character descriptions for the 3 provinces described by Bailey and others (1994) as occurring on the Kisatchie National Forest, criteria were developed for landform (slope), presence of rock formations, vegetation, water form, and special areas. Using existing GIS layers, 30 meter square units of land were awarded points for varying characteristics of landform, rock form, vegetative patterns, water bodies, and special areas. Intermediate maps were produced for landform and rock form, vegetative patterns, and water bodies and special areas (Figures 2-4).

Figure 2. Landform and Rock Form Map

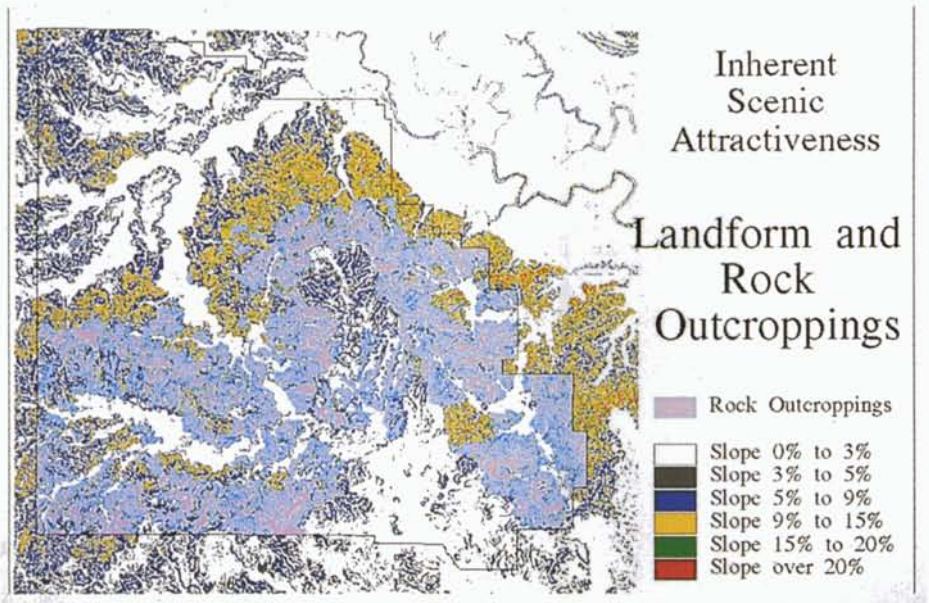


Figure 3. Vegetative Pattern Map

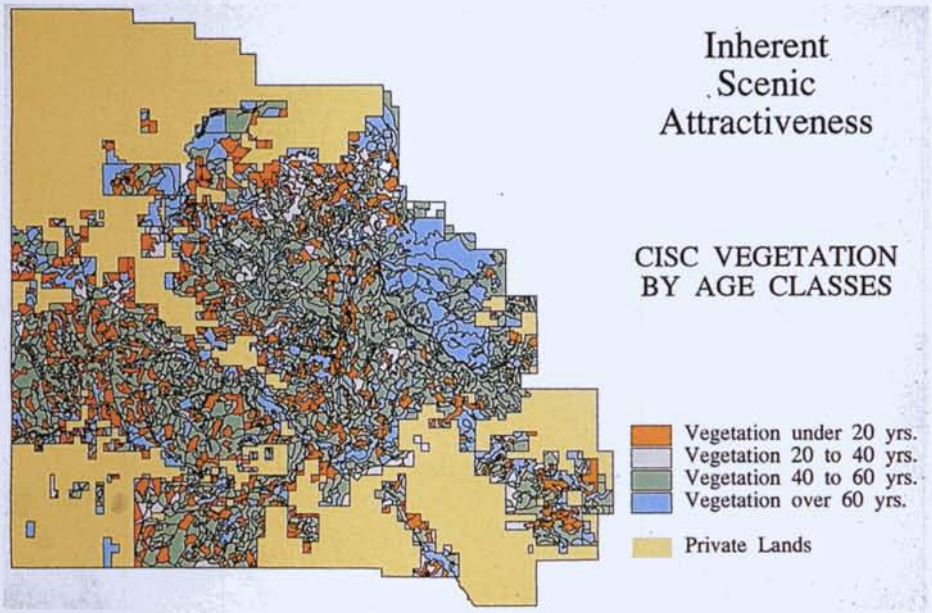
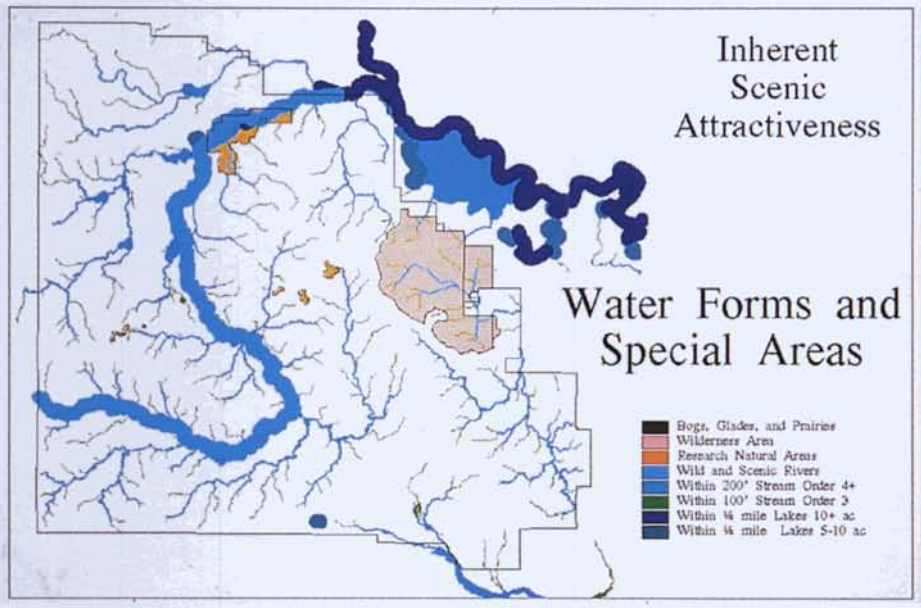
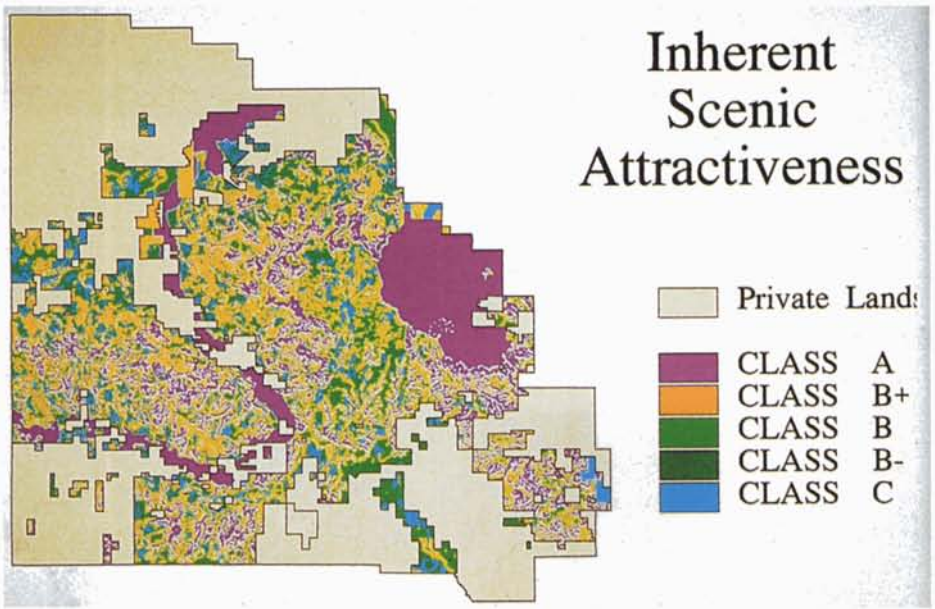


Figure 4. Water Bodies Special Areas



Points awarded to each 30 meter square land unit for each characteristic were totaled and assigned to A, B, or C Classes. However, during field verification it was determined that the inherent scenic attractiveness within the B class varied significantly. We felt that those areas at the higher end of the B class deserved more recognition for ISA than those areas that just barely had enough points to rate in the B class. Therefore the Kisatchie NF divided the B class into 3 subclasses, B+, B, and B-. The subdivision of class B allowed greater refinement and flexibility in Scenic Class assignments. From this new point distribution, the ISA map was produced (Figure 5).

Figure 5. Kisatchie National Forest ISA Map



DETERMINE LANDSCAPE VISIBILITY
(Product - Seen Area and Distance Zone Map)

Landscape visibility is a combination of the seen area in relation to the context and types of viewers that view it. The interconnected elements of landscape visibility include; context of viewers, duration of view, degree of discernible detail, seasonal variation, and number of viewers. In order to determine landscape visibility, it must first be determined which areas are seen from travelways or use areas, known as seen area mapping. The next step is to determine the importance people place on these travelways and use areas, which is known as concern level assignments.

Seen Area Mapping

The first step in seen area mapping is to determine which travelways and use areas will be inventoried for landscape visibility. The Kisatchie NF chose to inventory all roads which are traffic service level (TSL) C or better, canoeable and boatable streams, and recreational lakes.

There are basically two methods for mapping the seen area, either by manual means or by using GIS. GIS can be used efficiently and effectively to analyse both distance zones and viewsheds.

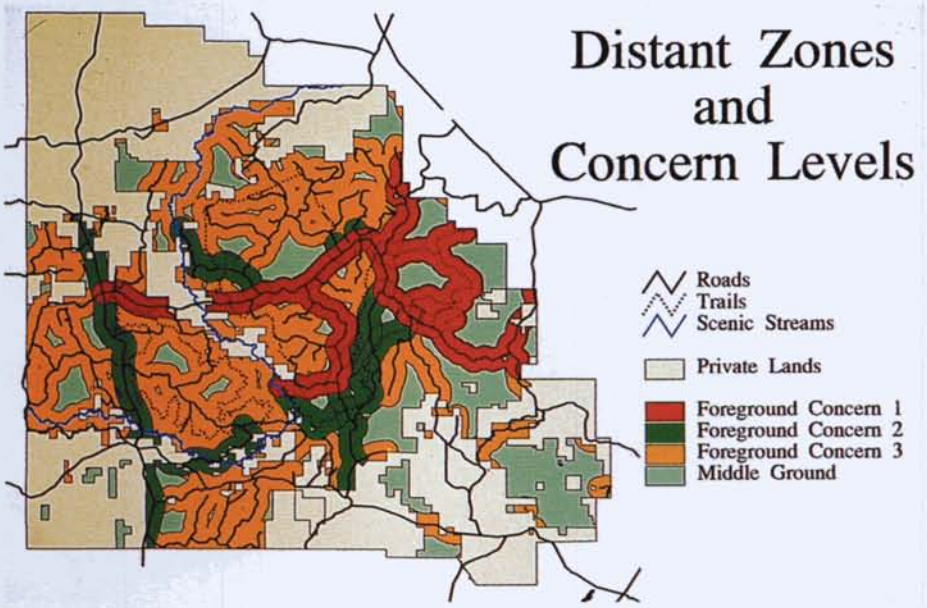
Because the Kisatchie NF is relatively flat, distance zones were used to determine the seen area. Using GIS, all TSL C or better roads, canoeable and boatable streams, and recreational lakes were mapped for foreground, middle ground, and background. Foreground was determined to be 2000 feet (approximately 3/8 mile), middle ground was determined to be from 2001 to 21120 feet (from 3/8 mile to 4 miles), and anything greater than 4 miles was considered background. After GIS ran the distance zone analysis, it was determined that the Kisatchie NF does not have any background. This was expected due to the Kisatchie's high road density.

Concern Level Assignments

The next step is to determine the importance people place on these travelways. Concern levels are a measure of the degree of public importance and can be divided into three categories: levels 1, 2, and 3. The Kisatchie NF assigned concern levels to all travelways and use areas, based upon comments received during the FLRMP scoping process, open houses, and district visits. Constituent analysis was integrated into the scoping process.

Once the concern levels were digitized into our GIS system, they were combined with the distance zone buffers, foreground and middle ground, which produced the landscape visibility map (Figure 6).

Figure 6. Kisatchie National Forest Landscape Visibility Map



DETERMINE INITIAL SCENIC CLASS ASSIGNMENTS
(Product - Initial Scenic Class Maps)

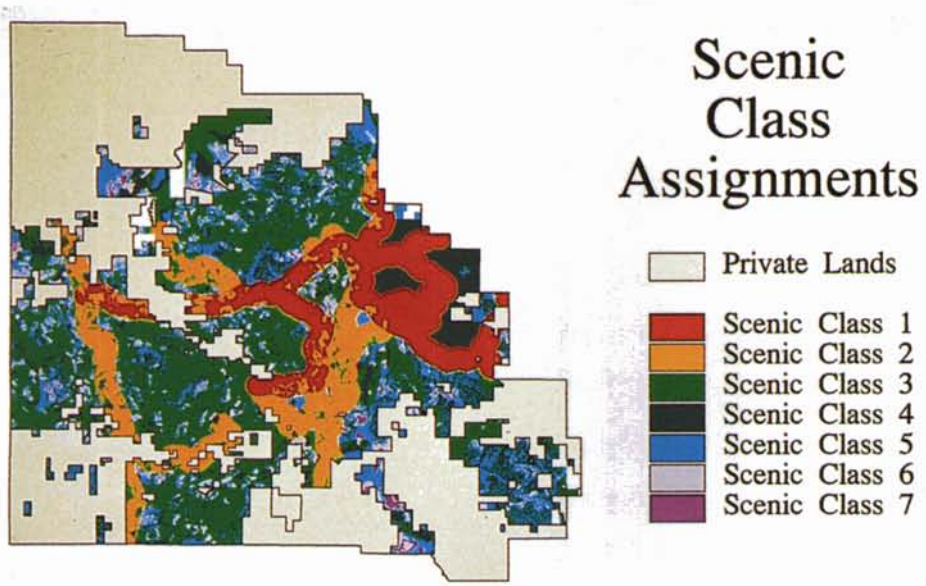
The Initial Scenic Class assignments are the final product in the inventory phase. Scenic classes are determined by combining the inherent scenic attractiveness classes with the distance zones and concern levels of landscape visibility. Scenic classes define the relative value of scenery on all lands and will help determine how scenic resources will be allocated during the FLRMP plan alternative development process. The Kisatchie NF modified the scenic class matrix as outline in the SMS handbook to better fit conditions on the forest (Table 1).

Table 1. Kisatchie National Forest Scenic Class Assignment Matrix

		Landscape Visibility					
		FG1	MG1	FG2	MG2	FG3	MG3
	A	1	3	2	4	3	4
I	B+	1	4	2	4	3	5
S	B	1	4	2	5	4	5
A	B-	2	4	3	6	5	6
	C	2	5	4	7	6	7

Utilizing GIS, both the ISA and landscape visibility maps were merged based upon the above matrix to produce the initial scenic class assignment map (Figure 7).

Figure 7. Kisatchie National Forest Scenic Class Assignment Map



IMPLEMENTATION PHASE

The Kisatchie NF developed Desired Future Conditions (DFCs) based upon the issues and concerns identified during the public scoping process. The next step was to build a set of forest management alternatives that responded in various ways to the issues and concerns. The Kisatchie NF did this by allocating the entire forest area the full range of DFCs varying in proportion and location for each alternative theme. Groups of similar DFCs became Management Areas (MAs). Each FLRMP alternative is built from the same palette of MAs. The Management Areas vary in size and location from alternative to alternative.

CONSOLIDATE SCENIC CLASS ASSIGNMENTS

(Product - Final Scenic Class Maps)

The thin black lines in Figure 11 represent stand boundaries. Many of the stands have two or more Scenic Classes assigned. This resulted, primarily because of the detailed biophysical GIS Inherent Scenic Attractiveness analysis. This was not acceptable because it would result in many stands with multiple Scenic Integrity Objectives, which would greatly complicate implementation and compliance. A process was developed to convert stands with more than one Scenic Class assigned, except those cut by distance zone and desired future condition boundaries, to just one Scenic Class per stand. The process is weighted to give greater value to management areas and consequently FLRMP alternatives that emphasize scenery and other non-commodity values. In other words, the higher the management emphasis for scenery of a management area, the greater the likelihood the whole stand will be converted to a higher (numerically lower) Scenic Class. Final Scenic Class Assignment maps were produced for each FLRMP alternative. Figure 11 shows a sample Scenic Class Map before consolidation and Figure 12 the same area after consolidation. This step is considered a component of the implementation phase because it is management area dependent, consequently Final Scenic Class Maps will vary from FLRMP alternative to alternative.

Figure 8. Detail of Initial Scenic Class Map

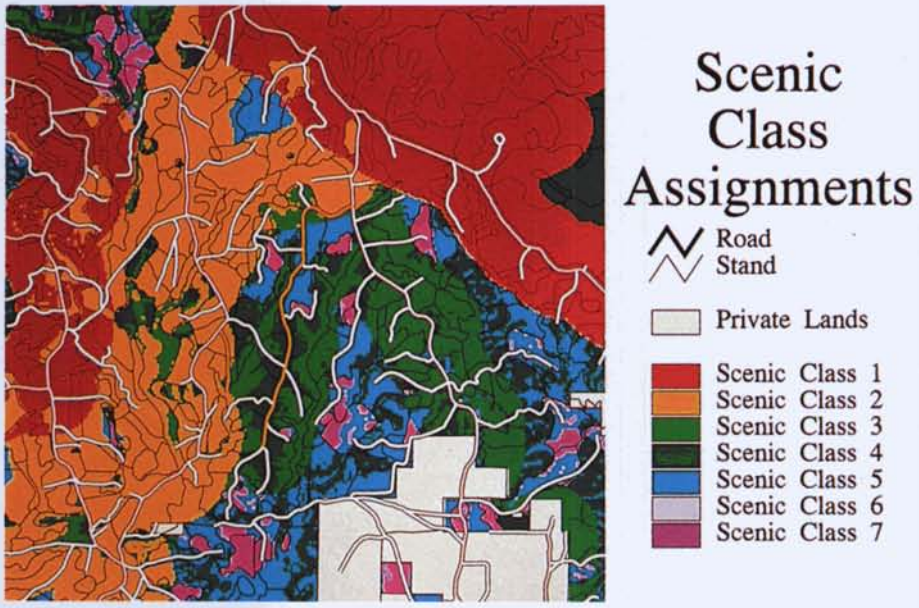
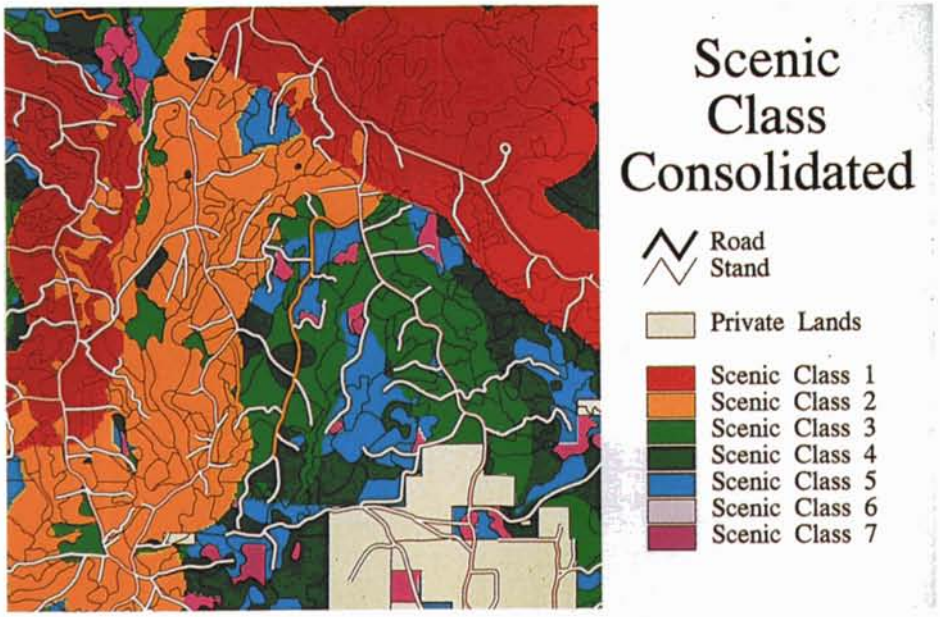


Figure 9. Detail of Consolidated Scenic Class Map



ASSIGN SCENIC INTEGRITY OBJECTIVES TO MANAGEMENT AREAS (Product - Matrix)

The ID team determined how the Scenic Classes would be allocated to each Management Area to yield Scenic Integrity Objective assignments, as Table 2 illustrates. Management Area boundaries are based on the DFC boundaries, and vary by FLRMP Alternative. We felt this was the most logical way of assigning Scenic Integrity Objectives because the relative management concern for scenery is linked closely to assigned DFCs or Management Areas. Other approaches such as simply varying Scenic Class allocation scenarios by FLRMP Alternative would not reflect scenery values or concerns as accurately.

Table 2. Scenic Integrity Objective Assignment Matrix

	MANAGEMENT AREA (MA)								
SCENIC CLASS	1	2	3	4	5	6	7	8	9
1	H	H	H	H	H	L	H	VH	H
2	M	H	H	H	M	L	H	VH	H
3	L	H	L	M	M	L	H	VH	H
4	L	M	L	M	L	L	H	VH	H
5	L	M	L	L	L	L	H	VH	H
6	L	L	L	L	L	L	H	VH	H
7	VL	L	L	L	L	L	H	VH	H

MA 1= Commodity MA 2= Amenity MA 3= Restoration
MA 4= Hardwood MA 5= Wildlife MA 6= Military Use
MA 7= Saline W&SR MA 8= Wilderness MA 9= Rec Sites

VH = Very High SIO H = High SIO M = Moderate SIO L = Low SIO VL = Very Low SI

PRODUCE SCENIC INTEGRITY OBJECTIVE MAPS
(Product - Scenic Integrity Objective Maps for each FLRMP alternative)

Based on the management area assignments Scenic Integrity Objective maps were developed for each FLRMP alternative. Figures 10-12 represent sample Scenic Integrity Objective assignment maps for three of the six FLRMP alternatives on one district. These maps are being used in the analysis of the FLRMP alternatives that will ultimately result in the selection of a preferred alternative. The SIO alternative maps will be included in the draft FLRMP and subject to public review and comment. We consider this a key element of constituent analysis and could result in revisions of the previous steps. We do not consider these products to be final at this stage of the process.

Figure 10. Scenic Integrity Objective Map - Wildlife Alternative

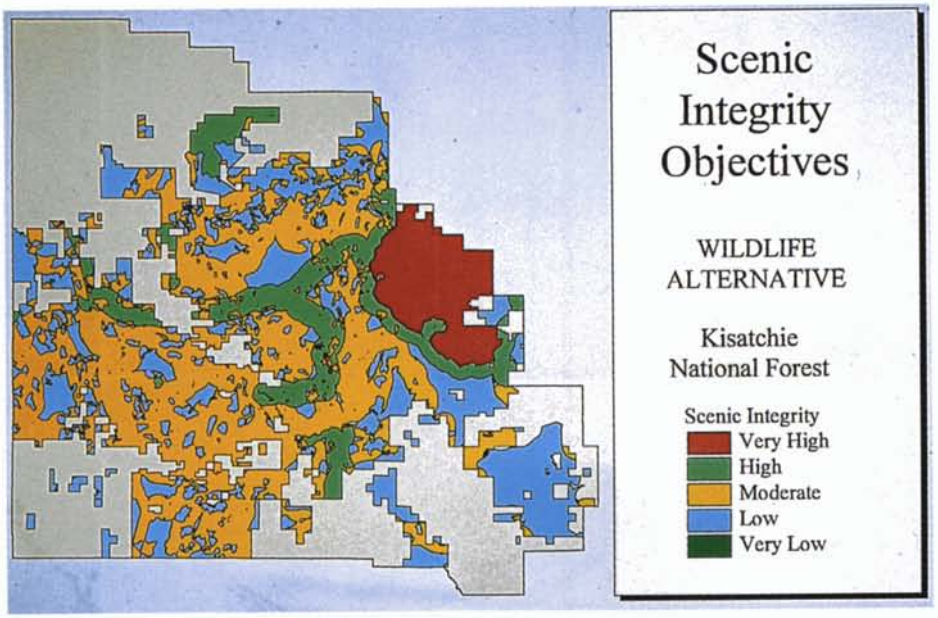


Figure 11. Scenic Integrity Objective Map - Amenity Alternative

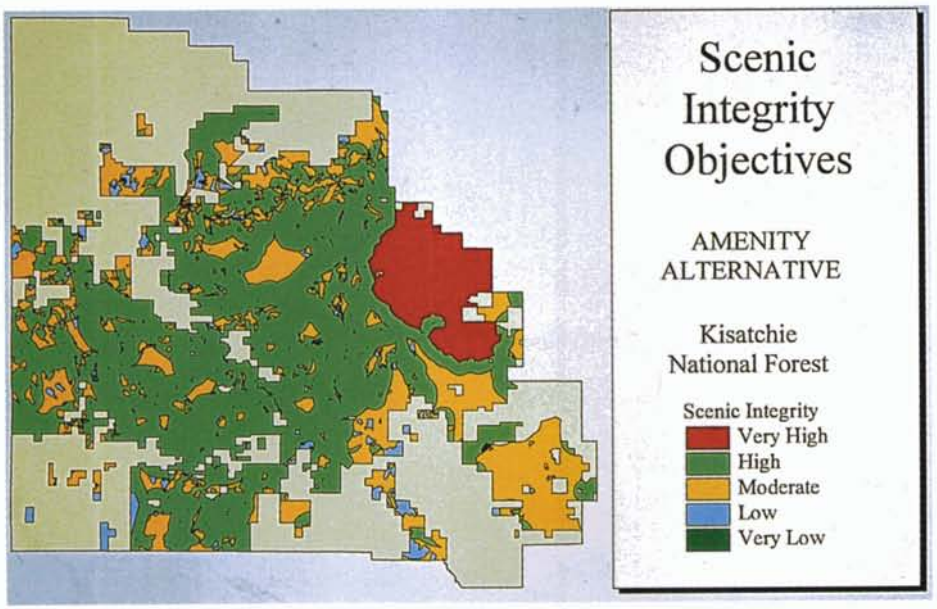
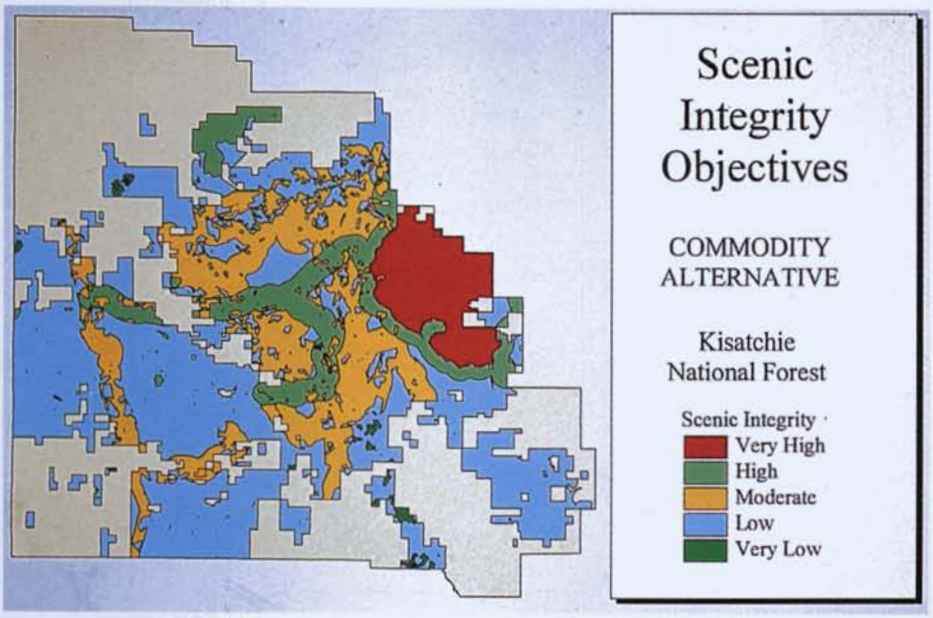
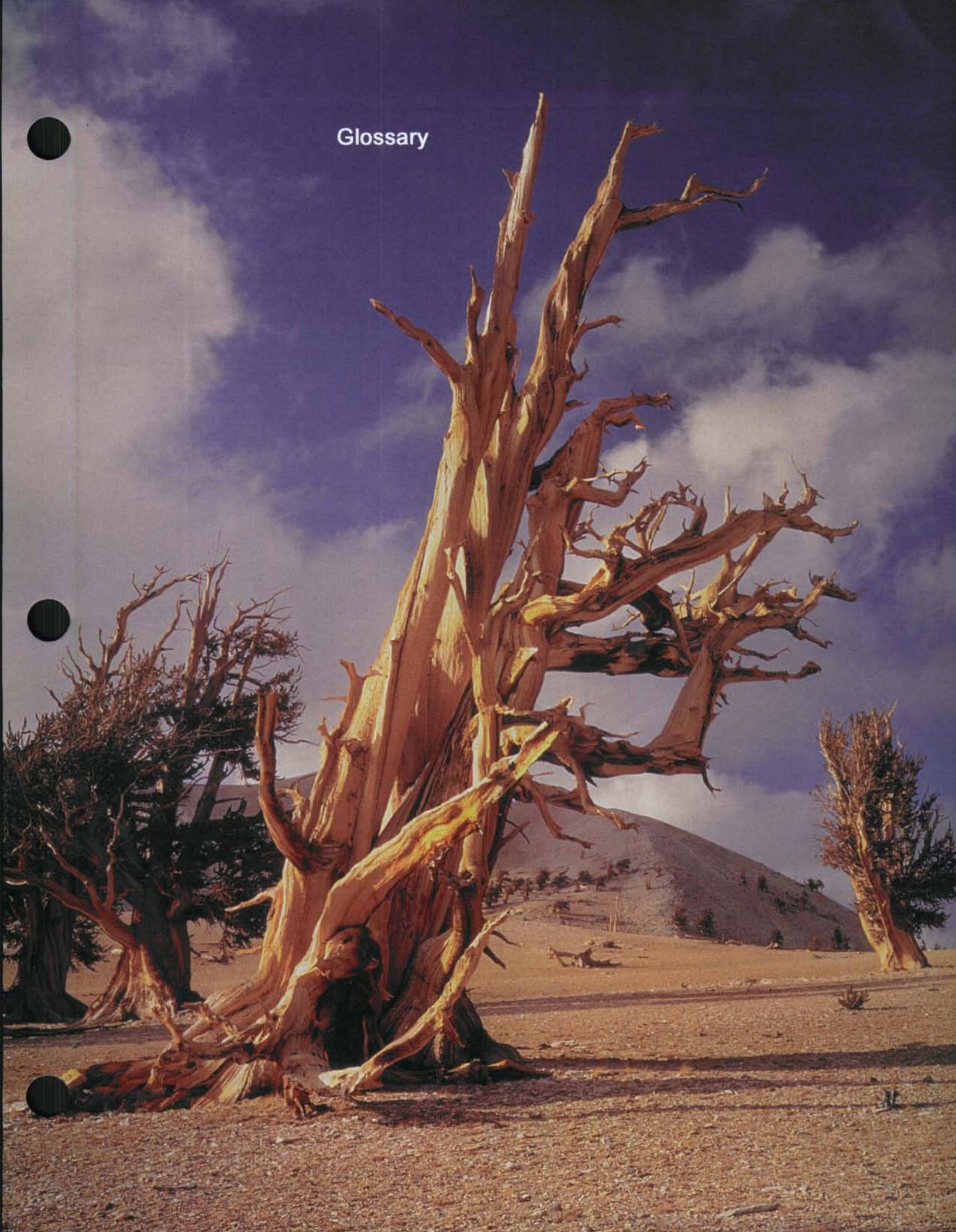


Figure 12. Scenic Integrity Objective Map - Commodity Alternative



Glossary



Glossary

Acceptable Levels of Quality
The lowest standard permissible in the constituents' view.

Aesthetics (Esthetics)
Generally, the study, science, or philosophy dealing with beauty and with judgments concerning beauty. In scenery management, it describes landscapes that give visual and sensory pleasure.

Attribute
An inherent landscape characteristic, trait, or quality.

Background
The distant part of a landscape. The landscape area located from 4 miles to infinity from the viewer.

Balance
A visual stability produced, and an equilibrium established in a landscape, by natural forces or human intervention.

Base Map
The document that graphically records existing physical and administrative features of a given landscape area.

Characteristic
Qualities that constitute a character, that characterize a landscape; a distinguishing trait, feature, or quality; uniqueness; attribute.

Coherence
Quality or state of being united in principles and relationships or to be logically and aesthetically connected.

Color
The property of reflecting light of a particular wavelength that enables the eye to differentiate otherwise indistinguishable objects. A hue (red, green, blue, yellow, and so on), as contrasted with a value (black, white, or gray).

Composition
Assembly and organization of components in a work of art or such organization in a landscape.

Contrast
Diversity or distinction of adjacent parts. Effect of striking differences in form, line, color, or texture of a landscape.

Constituents
People who authorize others to act for them or a body of citizens entitled to elect a representative to act for them. Forest Service personnel manage public lands for their constituents, whether or not they are visitors to the national forest.

Cultural Element
Attributes in a human-altered landscape; scenically positive cultural elements, most of which have historical backgrounds or nostalgic connotations. Examples include split-rail fences, stone walls, barns, orchards, hedgerows, and cabins.

Cultural Landscape
Human-altered landscapes, especially those slowly evolving landscapes with scenic vegetation patterns or scenic structures. Addition of these elements creates a visually pleasing complement to the natural character of a landscape.

Cumulative Effect
The effect on the environment that results from the incremental impact of a proposed action when added to other past, present, and reasonably foreseeable future actions.

Desired
What constituents would like to have if they were unconstrained in their choices.

Desired Future Condition
The combination of desirable attributes to be attained in the future by management of a national forest. For scenery management, desired future condition is comprised of interrelated components, including desired travelways, desired use areas, desired landscape character and desired scenic condition.

Desired Landscape Character
Appearance of the landscape to be retained or created over time, recognizing that a landscape is a dynamic and constantly changing community of plants and animals. Combination of landscape design attributes and opportunities, as well as biological opportunities and constraints.

Deviation
Departure from existing landscape character or from landscape character goals. Deviation from existing landscape character can be positive, negative, or have no effect.

Distance Zones
Landscape areas denoted by specified distances from the observer. Used as a frame of reference in which to discuss landscape attributes or the scenic effect of human activities in a landscape.

Distinctive
Refers to extraordinary and special landscapes. These landscapes are attractive, and they stand out from common landscapes.

Disturbance
A discrete event, either natural or human induced, that causes a change in the existing condition of an ecological system.

Dominance Elements
In scenery management, the dominance elements are form, line, color, and texture. They are the attributes that make up the landscape character.

Dominant Human Alterations
In scenery management, dominant human alterations override the natural character of the landscape and are very noticeable.

Dynamic
Active or changing, marked by continuous activity or change. In a landscape, vegetative screening is dynamic, being subjected to natural forces or human alteration.

Ecological Approach
Natural resource planning and management activities that assure consideration of the relationship among all organisms (including humans) and their environment.

Ecological Classification
A multifactor approach to categorizing and delineating, at different levels of resolution, areas of land and water having similar characteristic combination of the physical environment (such as climate, geomorphic processes, geology, soil, and hydrologic function), biological communities (such as plants, animals, microorganisms, and potential natural communities), and the human dimension (such as social, economic, cultural, and infrastructure).

Ecological Principles
The biological bases for sound ecosystem management through which ecosystem sustainability is ensured.

Ecological Process
The actions or events that link organisms (including humans) and their environment such as disturbance, successional development, nutrient cycling, carbon sequestration, productivity, and decay.

Ecological Unit
An assessment area based on vegetation, soils, geology, and geomorphology.

Ecoregion
A continuous geographic area over which the macroclimate is sufficiently uniform to permit development of similar ecosystems on sites with similar properties. Ecoregions contain multiple landscapes with different spatial patterns of ecosystems.

Ecosystem Function
The process through which the constituent living and nonliving elements of ecosystems change and interact, including biogeochemical processes and succession.

Ecosystem Management
The use of an ecological approach that blends social, physical, economic, and biological needs and values to assure productive, healthy ecosystems.

Ecosystem Structure
The spatial arrangement of the living and nonliving elements of an ecosystem.

Edge
The line where an object or area begins or ends. Edge serves to define borders, limits, or boundaries.

Enhancement
A short-term management prescription with the express purpose of increasing positive scenic attributes where few exist.

Evident
That which is noticeable, apparent, conspicuous, or obvious.

Existing Scenic Integrity
("Existing visual condition") Current state of the landscape, considering previous human alterations.

Expected
What constituents anticipate encountering in the national forests.

Expected Image
A mental picture that a person expects to see in a national forest.

Feature
A visually distinct or outstanding part, quality, or characteristic of a landscape.

Foreground
Detailed landscape generally found from the observer to 1/2 mile away. See also immediate foreground.

Form
Structure, mass, or shape of a landscape or of an object. Landscape form is often defined by edges or outlines of landforms, rockforms, vegetation patterns, or waterforms, or the enclosed spaces created by these attributes.

Frame of Reference
An area or framework against which various parts can be judged or measured.

Harmony
Combination of parts of a landscape into a pleasing or orderly whole. A state of agreement, congruity, or proportionate arrangement of form, line, color, and texture.

Hierarchical Approach
An analysis approach accounting for differences in space and time.

Hierarchy
A sequence of sets composed of smaller subsets.

High Scenic Integrity Level
A scenic integrity level meaning human activities are not visually evident. In high scenic integrity areas, activities may only repeat attributes of form, line, color, and texture found in the existing landscape character.

Historical Ecosystem
An ecosystem at a specified previous time.

Historical Variation
The range of the spatial, structural, compositional, and temporal characteristics of ecosystem elements during a period specified to represent "natural " conditions.

Human Dimension
An integral component of ecosystem management that recognizes people are part of ecosystems, that people's pursuits of past, present, and future desires, needs, and values (including perceptions, beliefs, attitudes, and behaviors) have and will continue to influence ecosystems and that ecosystem management must include consideration of the physical, emotional, mental, spiritual, social, cultural, and economic well-being of people and communities.

Human Impact or Influence
A disturbance or change in ecosystem composition, structure, or function caused by humans.

Immediate Foreground
The detailed feature landscape found within the first few hundred feet of the observer, generally, from the observer to 300 feet away. This distance zone is normally used in project level planning, not broad scale planning.)

Intactness
Untouched or unaltered, especially by anything that harms or diminishes its character.

Landform
One of the attributes or features that make up the Earth's surface, such as a plain, mountain, or valley.

Landscape
An area composed of interacting ecosystems that are repeated because of geology, land for, soils, climate, biota, and human influences throughout the area. Landscapes are generally of a size, shape, and pattern which is determined by interacting ecosystems.

Landscape Character
Particular attributes, qualities, and traits of a landscape that give it an image and make it identifiable or unique.

Landscape Character Goal
A management prescription designed to maintain or modify the existing landscape character to a desired future state. See desired landscape character.

Landscape Fragility
See visual absorption capability.

Landscape Setting
The context and environment in which a landscape is set; a landscape backdrop.

Landscape Unit
A small area of land that, at a micro-scale, has similar existing landscape character attributes— landform, rockform, waterform, and vegetative communities patterns. A geographic area that is useful for inventorying and analyzing scenery.

Landscape Visibility
Accessibility of the landscape to viewers, referring to one's ability to see and perceive landscapes.

Line
An intersection of two planes; a point that has been extended; a silhouette of form. In landscapes—ridges, skylines, structures, changes in vegetation, or individual trees and branches—may be perceived as line.

Low
A scenic integrity level meaning human activities must remain visually subordinate to the attributes of the existing landscape character. Activities may repeat form, line, color, or texture common to these landscape characters, but changes in quality of size, number, intensity, direction, pattern, and so on, must remain visually subordinate to these landscape characters.

Management Activity
An activity humans impose on a landscape for the purpose of managing natural resources.

Middleground
The zone between the foreground and the background in a landscape. The area located from 1/2 mile to 4 miles from the observer.

Mystery
Characteristics in a landscape that excite wonder, curiosity, or surprise.

Natural Disturbance
Periodic impact or natural events such as fire, severe drought, insect or disease attack, or wind.

Natural Ecosystem
An ecosystem that is minimally influenced by humans and that is, in the larger sense, diverse, resilient, and sustainable.

Natural Landscape Character
Landscape character that originated from natural disturbances, such as wildfires, glaciation, succession of plants from pioneer to climax species, or indirect activities of humans, such as inadvertent plant succession through fire prevention.

Natural-Appearing Landscape Character
Landscape character that has resulted from human activities, yet appear natural, such as historic conversion of native forests into farmlands, pastures, and hedgerows that have reverted back to forests through reforestation activities or natural regeneration.

NEPA
The National Environmental Policy Act of 1969. NEPA establishes legal requirements for management of aesthetic resources.

NFMA
The National Forest Management Act of 1976. NFMA establishes legal requirements for scenery management (called "visual resource management" in the Act).

Observer Position
Specific geographic position in the landscape where the viewer is located. Also known as viewer platform.

Pastoral Landscape Character
Landscape character that has resulted from human activities, containing positive cultural elements such as historic conversion of native forests into farmlands, pastures, and hedgerows, plus some remnants of native forests.

Pattern
An arrangement of parts, elements, or details that suggests a design or somewhat orderly distribution.

Perception
Human impression of a landscape. Perception translates and evaluates the landscape that one "sees" in context of previous experiences and expected images.

Positive Cultural Element
Human alterations that are scenically positive attributes, most of which have historical back-grounds or nostalgic connotations. Examples include split-rail fences, stone walls, barns, orchards, hedgerows, and cabins. There may be **nodes, enclaves** or **constellations** of positive cultural elements.

Positive Cultural Landscape
A landscape having human alterations that are positive cultural elements, complementing and improving a particular landscape by adding variety, unity, vividness, intactness, coherence, mystery, balance, uniqueness, harmony, or pattern.

Preferred
What constituents would choose from among a set of available options.

Potential Vegetation
Vegetation that would develop if all successional sequences were completed under present site conditions (e.g., habits type).

Range of Variability
The spectrum of conditions possible in ecosystem composition, structure, and function considering both temporal and spatial factors.

Recreation Visitor
One who is in an area temporarily for refreshment of the body and mind. In the national forests, the visitor usually has a significant conscious or subconscious interest in the scenic qualities of the area.

Reference Conditions
Conditions characterizing ecosystem composition, structure and function, and their variability.

Rehabilitation
A short-term management goal used to return a landscape with existing visual impacts and deviations to a desired level of scenic quality formerly found in the natural landscape.

RPA
The Forest and Rangeland Renewable Resources Planning Act of 1974. RPA establishes legal requirements for scenery management.

Rockform
A significant composition of mineral matter constituting the Earth's crust. One of the attributes or features that make up part of the Earth's surface, such as a mountain, cliff, peak, bluff, valley wall, or bedrock.

Rural/Agricultural Landscape Character
Landscape character that has resulted from extensive human activities, no longer appearing natural, such as conversion of native landscapes into extensively cultivated farmlands, vineyards, pastures, or an area of intensive domestic livestock production.

Scale
The degree of resolution at which ecological processes, structures, and changes across space and time are observed and measured.

Scenery
General appearance of a place, general appearance of a landscape, or features of a landscape.

Scenery Management
The art and science of arranging, planning, and designing landscape attributes relative to the appearance of places and expanses in outdoor settings.

Scenic
Of or relating to landscape scenery; pertaining to natural or natural appearing scenery; constituting or affording pleasant views of natural landscape attributes or positive cultural elements.

Scenic Attractiveness
The scenic importance of a landscape based on human perceptions of the intrinsic beauty of landform, rockform, waterform, and vegetation pattern. Reflects varying visual perception attributes of variety, unity, vividness, intactness, coherence, mystery, uniqueness, harmony, balance, and pattern. It is classified as:

A—Distinctive.
B—Typical or Common.
C—Undistinguished.

Scenic Class
A system of classification describing the importance or value of a particular landscape or portions of that landscape.

Scenic Integrity
State of naturalness or, conversely, the state of disturbance created by human activities or alteration. Integrity is stated in degrees of deviation from the existing landscape character in a national forest.

Scenic Quality
The essential attributes of landscape that when viewed by people, elicit psychological and physiological benefits to individuals and, therefore, to society in general.

Scenic Resource
Attributes, characteristics, and features of landscapes that provide varying responses from, and varying degrees of benefits to, humans.

Seeing
Stimulation of one's sense of sight by reflected light. Seeing is a physiological process.

Seen Area
The total landscape area observed based upon landform screening. Seen-areas may be divided into zones of immediate foreground, foreground, middleground, and background. Some landscapes are seldom seen by the public.

Seldom-Seen
Areas of the landscape that are infrequently viewed by the public.

Shape
Contour, spatial form, or configuration of a figure. Shape is similar to form, but shape is usually considered to be two-dimensional.

Space
A limited extension in one, two, or three dimensions or a volume. Expanse of a landscape, such as the floor, walls, and ceiling of an "outdoor room."

Spatial Scale
The level of resolution in space perceived or considered.

Special Classified Area
Those areas—such as wilderness, historical, biologi-

cal, scenic, or geological sites—that are of such significance that specific management direction is given as part of policy or legislation.

Special Places
Those specific locations and expanses in outdoor settings that have attractions and features that are identified as unique, different, distinctive, and extraordinary to people. Special places may range from a small areas, such as a particular fallen log, to large areas, such as a landscape unit.

Subordinate
Landscape features that are inferior to, or placed below, another in size, importance, brightness, and so on. Features that are secondary in visual impact or importance.

Sustainability
The ability of an ecosystem to maintain ecological processes and functions, biological diversity, and productivity over time.

Texture
Visual interplay of light and shadow created by variations in the surface of an object. Grain or nap of a landscape or a repetitive pattern of tiny forms. Visual texture can range from smooth to coarse.

Theme
The general focus or subject of variations on landscape character settings. Detailed description of desired landscape character. Themes range from a natural landscape to an urban landscape.

Transition
Passing from one state, stage, place, or subject to another, especially without abruptness.

Typical or Common Landscape
Refers to prevalent, usual, or widespread landscapes within a landscape province. It also refers to landscapes with ordinary and routine scenic attractiveness.

Unacceptable Alteration
A scenic integrity level (never an objective) where human activities of vegetative and landform alterations are excessive and totally dominate the natural or natural-appearing landscape character. Unacceptable alterations are "what not to do to any landscape," regardless of the distance from which the management activity may be observed.

Unique
A landscape that is unequalled, very rare, or uncommon.

Unity
Landscape with a quality or state of being made whole or a condition of harmony.

Urban
Landscape character that has resulted from extensive human activities, no longer appearing natural, such as conversion of native landscapes into an extensively altered landscape, such as a town, city, or metropolitan area.

Variety
An intermixture, diversity, or succession of different things, forms, or qualities in the landscape.

Variety Class
Term from *The Visual Management System.*
See scenic attractiveness.

Very High Scenic Integrity Level
A scenic integrity level that generally provides for ecological change only.

Very Low Scenic Integrity Level
A scenic integrity level meaning human activities of vegetative and landform alterations may dominate the original, natural landscape character but should appear as natural occurrences when viewed at background distances,

View
Something that is looked toward or kept in sight, especially a broad landscape or panorama. Act of looking toward this object or scene.

Viewer Platform
Position in the landscape where the viewer is located. (See observer position.)

Viewshed
Total visible area from a single observer position, or the total visible area from multiple observer positions. Viewsheds are accumulated seen-areas from highways, trails, campgrounds, towns, cities, or other viewer locations. Examples are corridor, feature, or basin viewsheds.

Visitor
Temporary occupants of an area. See recreation visitor.

Vista
A confined view, especially one seen through a long passage, as between rows of trees or down a canyon. A vista often focuses upon a specific feature in the landscape. Unlike a view, the vista is sometimes human created and, if it is, thereby subject to design.

Visual
A mental image attained by sight.

Visual Absorption Capability
A classification system used to denote relative ability of a landscape to accept human alterations without loss of character of scenic quality.

Visual Magnitude
A detailed classification system used to denote relative visibility of a landscape, including distance, slope and aspect relative to observer, and number of times seen.

Visual Perception
Human impression of an optical experience; comprehension of an object or a space based on the sense of sight. Perception translates and evaluates what one sees in the context of previous experiences and expected images.

Visual Vulnerability
See visual absorption capability.

Waterform
One of the attributes or features that make up the Earth's surface, such as a pond, lake, stream, river, waterfall, estuary, or ocean.

Watershed
An area of land with a characteristic draining age network that contributes surface or ground water to the flow at that point; a drainage basin or a major subdivision of a drainage basin.

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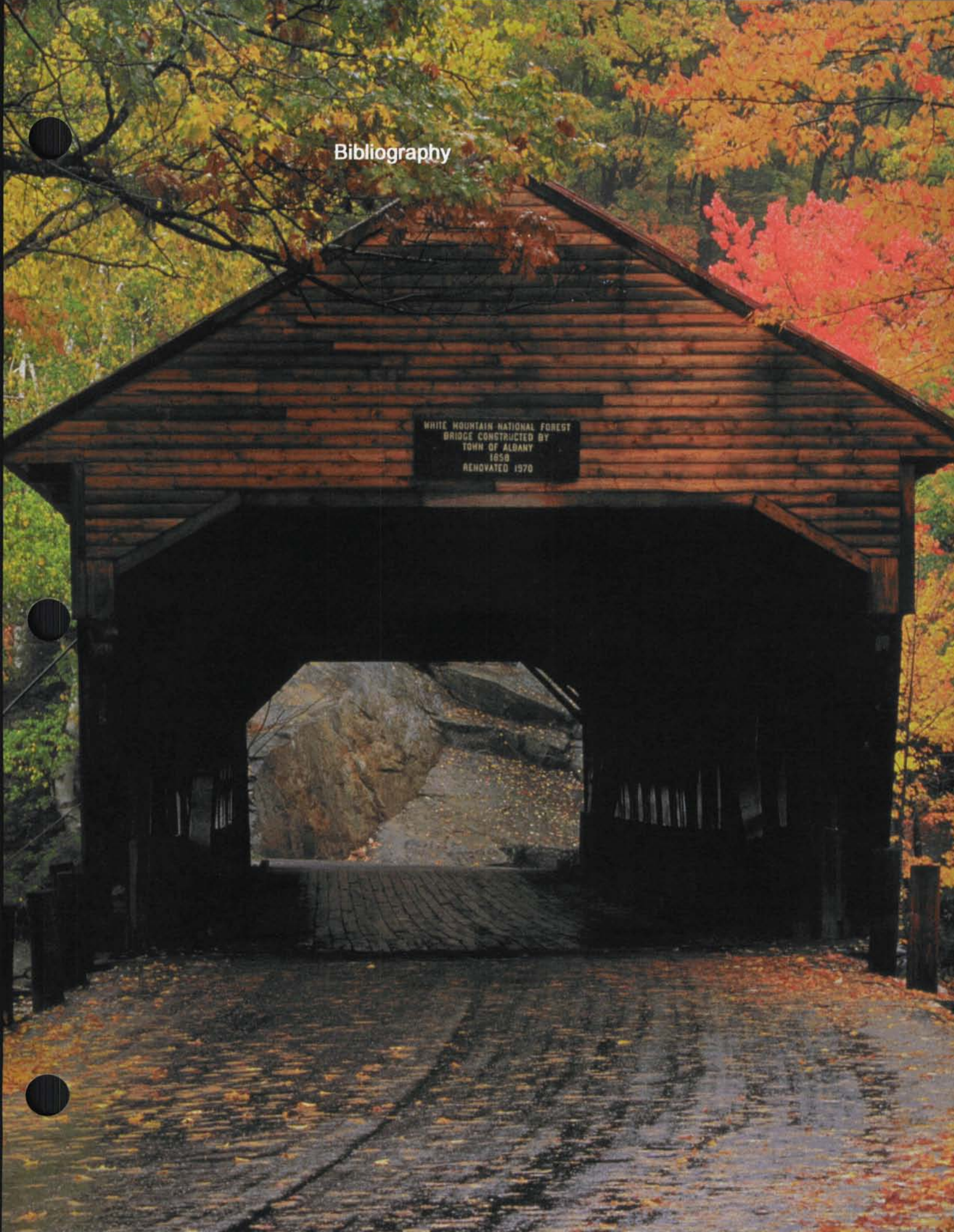

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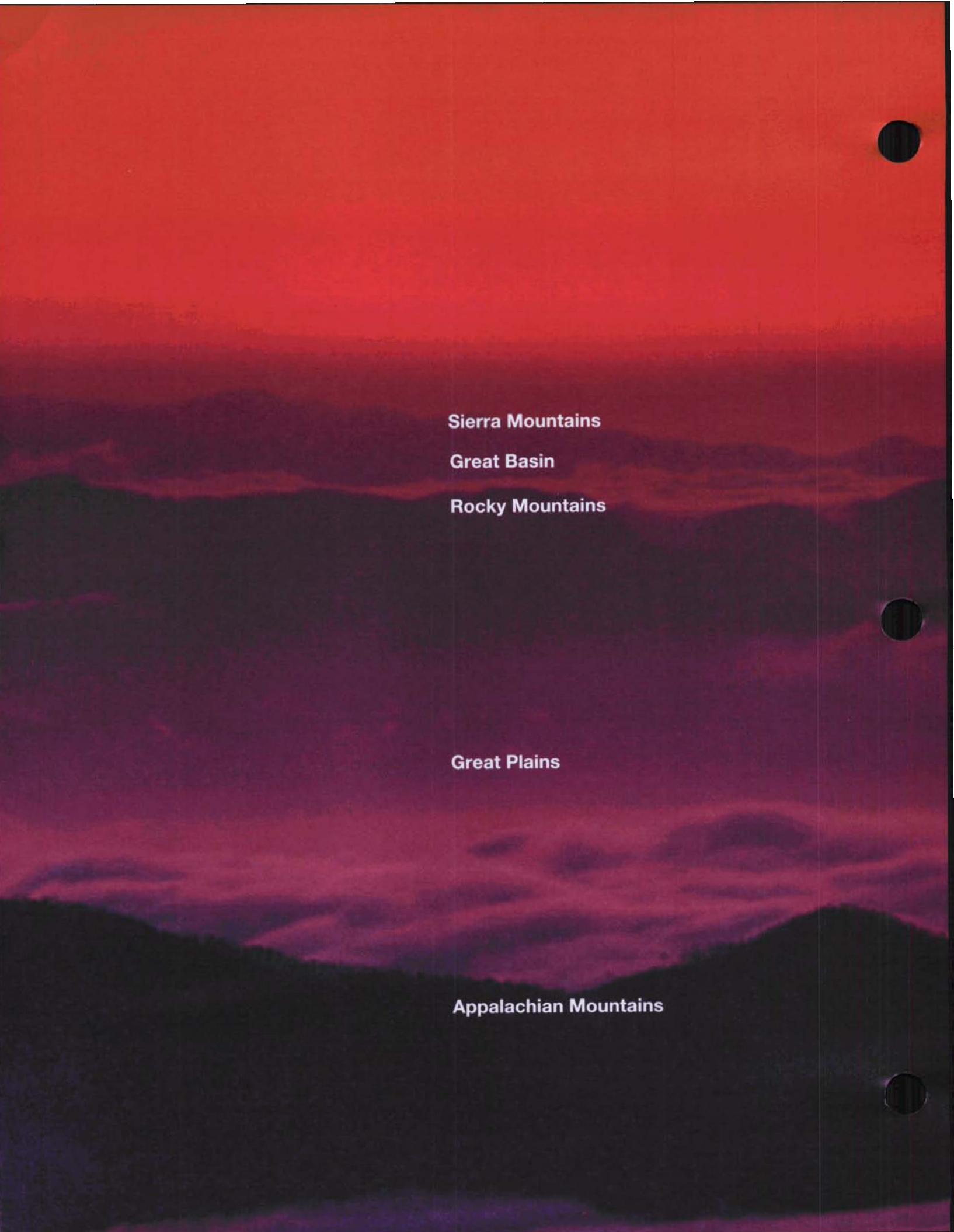
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