



**Giant Sequoia  
National Monument  
Specialist Report  
Scenery  
Management**

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# **SCENERY MANAGEMENT REPORT**

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# Introduction

Scenery is the valued visual expressions (sights) people enjoy within places and influences the quality of recreation experiences. Driving to enjoy the scenery has been the top national recreation activity for over a decade. Viewing scenery is the single most popular recreation activity nationwide (USDA Forest Service 2008f). Visitors in the Sequoia National Forest identified viewing natural features as the most popular recreation activity, with 83.6 percent participation (USDA Forest Service 2007). The report and recommendations to the president of the United States (President's Commission on Americans Outdoors 1986) state that America's most important attribute for a recreation area is natural beauty.

Regulations governing National Forest System land and resource management planning includes requirements for consideration, treatment, and protection of intangible resources such as scenery and aesthetics. The Forest Service uses the Scenery Management System (SMS) to fulfill these requirements. The SMS provides a systematic approach for determining the relative value of scenery on National Forest System lands and was used in this analysis to inventory and evaluate socially valued scenery. This system of analysis supports conservation of other ecosystem values including recreation setting, sense of place, and quality of life.

## Current Management Direction

### National and Regional Direction

National Forest System land and resource management planning includes requirements for consideration, treatment, and protection of intangible resources such as scenery and aesthetics. The 1988 Sequoia National Forest Land and Resource Management Plan (Forest Plan) used the visual management system (VMS), developed in 1973 to fulfill these requirements of federal law and agency policy.

The VMS was revised and replaced in December 1995 with a new system, scenery management system (SMS) described in Agriculture Handbook 701, Landscape Aesthetics, A Handbook for Scenery Management. The VMS and SMS are both structured to emphasize natural appearing scenery, but SMS more broadly recognizes scenery as the visible expression of dynamic ecosystems functioning within "places" that have unique aesthetic and social values. In 2007, several refinements to the SMS were distributed for application, as Recommended SMS Refinements Appendix J to the Handbook for Scenery Management.

### 1988 Sequoia National Forest Land Management and Resource Management Plan (Forest Plan)

The Forest Plan used the VMS to analyze alternatives and develop management direction for scenic resources. This forest-wide direction is in the form of visual quality objectives (VQO) and specific management area direction. In the development of the Forest Plan, the visual resources were inventoried to determine the landscape's scenic attractiveness (variety class inventory) and the public's visual expectations (sensitivity level inventory). The visual standards and guidelines in the Forest Plan applicable to the Monument include the following:

## Forest Wide Standards and Guidelines, 2 Recreation. Visual Resources

- Maintain visual quality to the VQO level specified. Consider these a minimum, but strive for higher visual quality whenever practical and when compatible with other resource objectives.
- Accept occasional short-term departure from adopted VQOs that will lead to long-term desired visual character. Require a documented decision, based on an environmental analysis, whenever a proposed activity or development reduces the visual quality below the adopted VQO.
- Manage Highway 180, Highway 190, Highway 178, Sierra Way (SM99), the Western Divide from Quaking Aspen to the Ponderosa, the Generals Highway, the PCT, and heavily used trails that lead directly into wildernesses as Sensitivity Level 1.
- Manage about 270 miles of roads and 200 miles of trail as Sensitivity Level 2.
- Manage the following viewsheds as Sensitivity Level 1: Monache Meadows, Sherman Pass and Salmon Creek/Big Meadow.
- Manage the remainder of the forested lands as either Sensitivity Level 2 or 3. Exceptions occur in the following Recreation Opportunity Spectrum (ROS) classes where the greatest visual impact allowed is: Semi-Primitive Non-Motorized (SPNM) - Partial Retention, Semi Primitive Motorized (SPM) – Modification, Roaded Natural (RN) areas and Rural (R) areas – Maximum Modification with Modification as the primary VQO.
- Manage the remainder of the non-forested lands according to ROS classes. The recommended maximum visual impact allowed will be: Semi-Primitive Non-Motorized (SPNM) – Retention, Semi Primitive Motorized (SPM) - Partial Retention, Roaded Natural (RN) and Rural (R) – Maximum Modification, with Modification as the primary VQO.
- Initiate corrective action to meet adopted VQO when landscape rehabilitation is needed.
- Consider visual concerns of individual landowners and agencies within and adjacent to National Forest System lands when planning National Forest management activities.
- Manage activities to reflect, wherever possible, the form, line, color, texture of natural occurrences when viewed from middleground and background distances (USDA Forest Service 1988a, p. 4-23).

## **1990 Sequoia National Forest Land Management Plan Mediated Settlement Agreement (MSA)**

- "The Freeman Creek Trail from North Road to the Lloyd Meadow Road shall be designated as Sensitivity Level One" (MSA, p. 18).
- "Big Meadows area on the Hume Lake District (as shown on a map attached as Exhibit M): the Forest Plan shall be amended to change the land use designation from CF 7 to CF 1. The management emphasis shall be dispersed recreation. Timber will be harvested on a Regulation Class II basis, with careful attention to protecting visual values" (MSA, p. 75).
- "Future VQOs from roads and trails shall be Retention or Partial Retention. All Trails entering the Jennie
- Lakes Wilderness shall be Sensitivity Level 1 and shall have a Foreground Retention VQO" (MSA, p. 76).

All other direction for scenery management in the MSA was for lands outside of the Giant Sequoia National Monument (Monument).

## **2001 Sierra Nevada Forest Plan Amendment (2001 SNFPA)**

"The objective of Forest Service scenery management is to manage all National Forest System lands to attain the highest possible scenic quality commensurate with other appropriate public uses, costs, and benefits. In the Sierra Nevada, important management objectives are to sustain ecological function and achieve a fire-safe landscape for human populations, while meeting scenic integrity objectives and maintaining or restoring valued attributes of landscape character" (2001 SNFPA, p. 501).

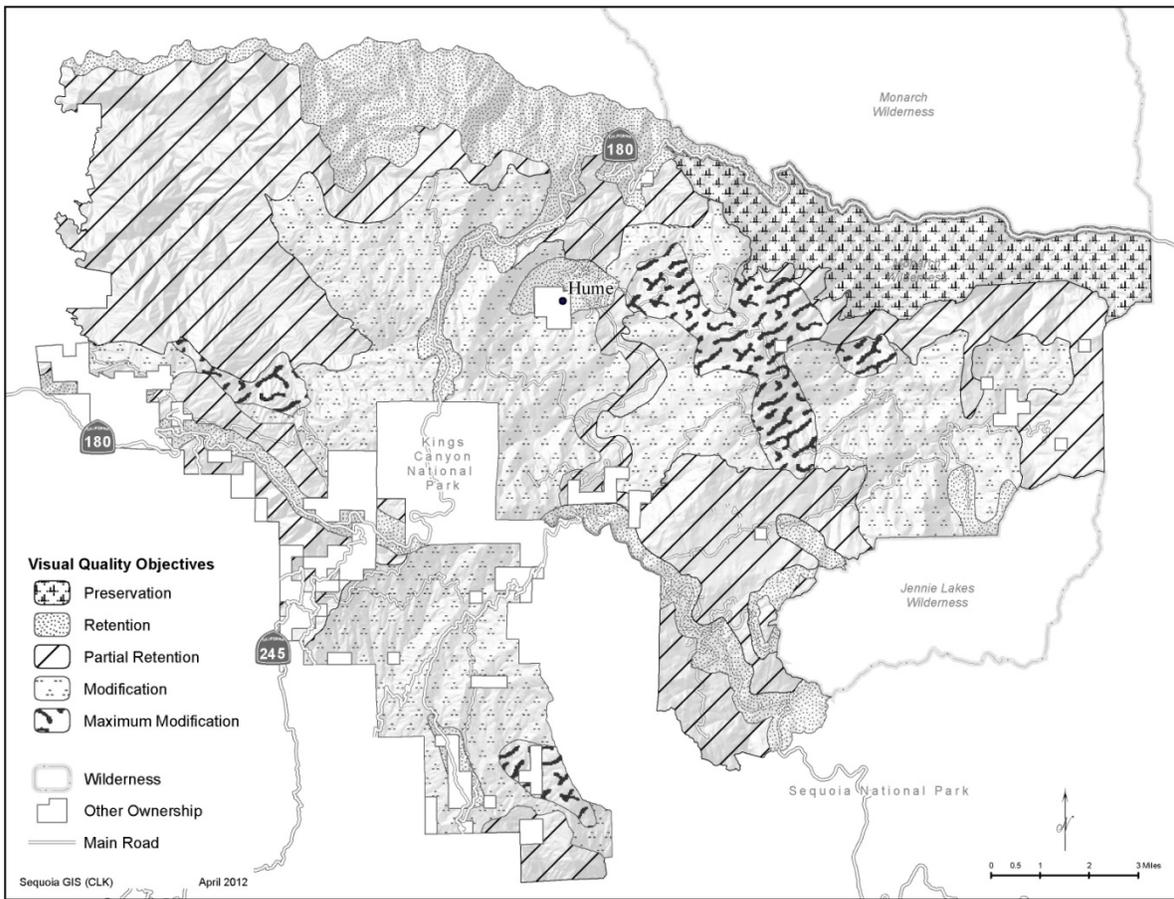
## **2000 President William J. Clinton Proclamation (Clinton proclamation)**

The creation of the Monument focused greater national and international attention on the natural beauty within the area. Language used in the Clinton proclamation identifies "rich and varied landscapes ...Groves of towering giant sequoias, ... a great belt of coniferous forest, jeweled with mountain meadows. Bold granite domes, spires, and plunging gorges... for the purpose of protecting the objects identified in the above preceding paragraphs..." (Clinton 2000, p. 24095). The above mentioned objects are some of the attributes of the valued scenic character within the Monument boundaries.

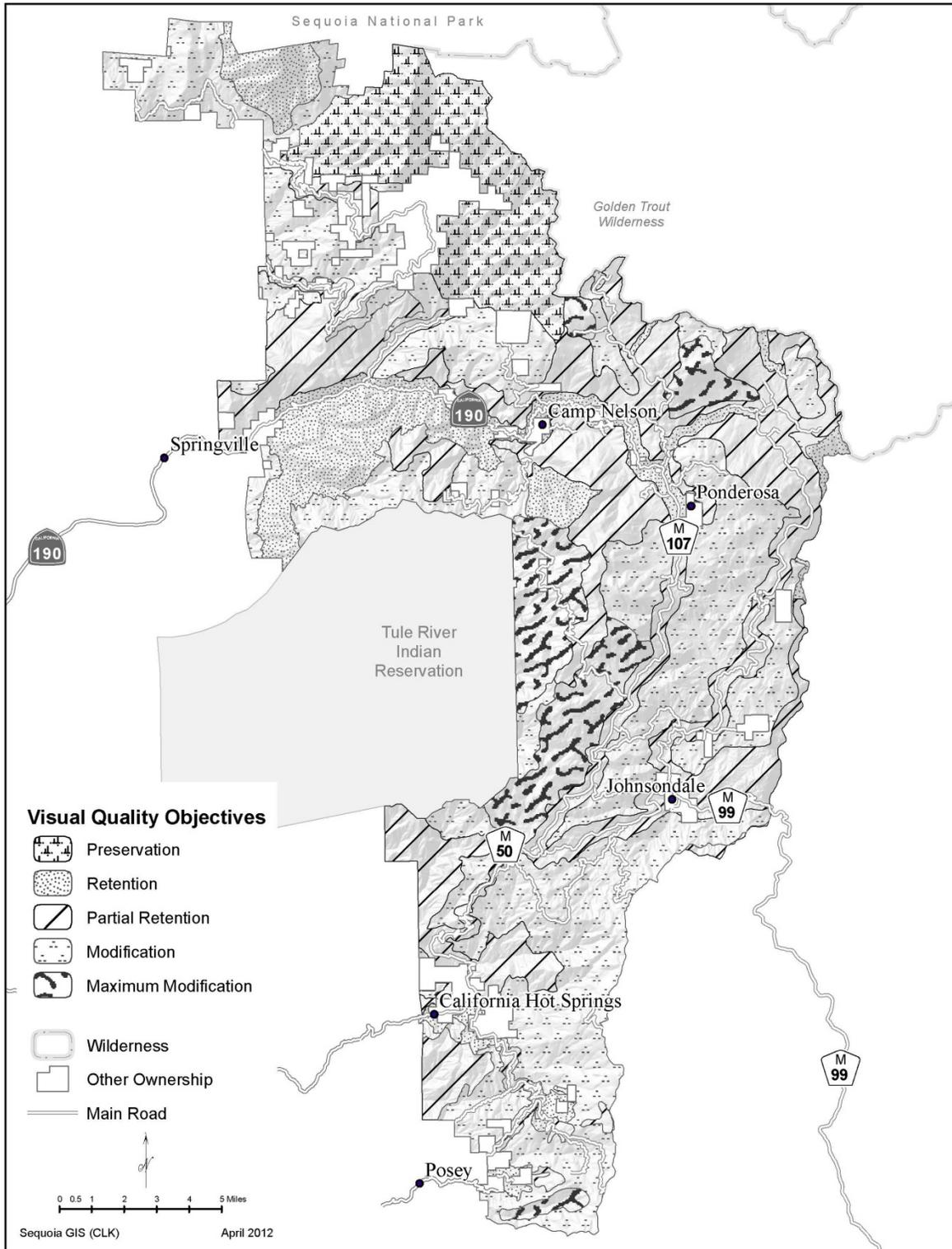
## **Visual Quality Objective to Scenic Indicators Objective**

The VMS used visual quality objectives as the measurable standards for the visual management of landscapes. Visual quality objectives were then assigned in the Monument, see the two following maps. These objectives describe the degrees of acceptable alteration of the natural landscape. The degree of alteration is measured in terms of visual contrast with the surrounding natural landscape. There are five possible objectives: preservation, retention, partial retention, modification, and maximum modification.

**Map 1 Visual Quality Objectives for the Northern Portion of the Monument**



**Map 2 Visual Quality Objectives for the Southern Portion of the Monument**



The visual quality objectives assigned by the Forest Plan, and specific to the Monument, are shown in the following table.

**Table 1 Visual Quality Objective Acreage**

VQO/SIO	Acreage
Preservation/Very High	28,361
Retention/High	43,475
Partial Retention/Moderate	106,541
Modification/Low	124,958
Maximum Modification/Very Low	24,980

The visual quality objectives are roughly equivalent to the scenic management system scenic integrity levels as follows: preservation = very high; retention = high; partial retention = moderate; modification = low; and maximum modification = very low (shown in the following table).

**Table 2 Visual Quality Objectives and Scenic Integrity Objective**

VQO	Explanation	SIO
Preservation	The valued scenery "appears natural or unaltered." Only minute visual disturbances to the valued scenery, if any, are present.	Very High
Retention	The valued scenery "appears natural or unaltered, "yet visual disturbances are present; however, they remain unnoticed.	High
Partial Retention	The valued scenery "appears slightly altered." Noticeable disturbances are minor and visually subordinated to the valued scenery.	Moderate
Modification	The valued scenery "appears moderately altered." Visual disturbances are co-dominant with the valued scenery.	Low
Maximum Modification	The valued scenery "appears heavily altered." Disturbances dominate the valued scenery being viewed.	Very Low

The MSA calls special attention to managing scenery resources in the Big Meadows area on the Hume Lake District. VQOs from roads and trails became retention or partial retention and all trails leading into the Jennie Lakes Wilderness were assigned a foreground retention VQO.

Under the Forest Plan, a large portion of the conifer forests within the monument boundary had a sawtimber management emphasis and were assigned modification and maximum modification visual quality objectives. In modification and maximum modification classifications, management activities may dominate the original characteristic landscape. These activities contrast with and detract from the "natural appearing" landscape of which scenic quality is measured.

The SNFPA 2001 converted established visual quality objectives (VQOs) to the scenic integrity objectives (SIOs), as shown in the table above. Scenic integrity is the indicator used at the programmatic level and in this analysis. Since this plan does not contain an implementation schedule for actions on the ground such as treating vegetation, scenic stability is not a consideration for this analysis but will be considered at the project level.

The Clinton proclamation and 2001 SNFPA removed all lands within the Monument boundary from a timber production emphasis. The Clinton Proclamation also called for new emphasis in recreation and public enjoyment. With the Monument designation, there is a greater public expectation of "natural appearing" landscapes. The report of the President's Commission on America's Outdoors (Alexander et al. 1986) states that America's most important attribute for a recreation area is natural beauty. The Modification and Maximum Modification VQOs within the Monument boundary conflict with this change in management emphasis and the area was managed with greater concern for scenery.

## Description of Proposal

### Desired Conditions

The desired conditions are broad, overarching descriptions of management goals and objectives and the Forest Plan provides these for scenic resources. With the Clinton proclamation the creation of the Monument changed management focus calling greater national and international attention to the natural beauty in this portion of the southern Sierra Nevada. In response to the Clinton proclamation, the desired conditions and management direction are expected to include greater emphasis on place-based recreation and public access protecting objects of interest, while providing key resources and opportunities for public enjoyment.

Scenery is a fundamental element of recreation experiences through which a majority of the public enjoy the Monument. Viewing scenery is the single most popular recreation activity nationwide (USDA Forest Service 2008f). Visitors in the Sequoia National Forest identified viewing natural features as the most popular recreation activity with 83.6 percent participation (USDA Forest Service 2007).

A review of the research on forest aesthetics shows considerable consensus about what the public considers to be a scenic forest (Kaplan and Kaplan 1989, Gobster 1994 [cited in Ryan 2005]). People prefer natural appearing landscapes and forests that have large, mature trees, open structure with visual access through the under-story, little downed wood, herbaceous, smooth groundcover, vistas with distant views, high topographic relief, and landscapes that are more visually complex (Ryan 2005). People do not find landscapes having the following elements or conditions scenic: Uniform or monotonous vegetation, dense vegetation at eye level, rapid tree regeneration resulting in many small trees and shrubs, black landscapes, charred trees, severe natural disturbances, tree stumps, piles of dead wood, overstocked vegetation, large amounts of dead wood, and extensive areas of dead or dying trees (Ryan 2005). The desired condition for scenery within the Monument was developed based on the above human preferences.

The desired condition for scenery within the Monument includes a wide variety of visually appealing landscapes for the public to enjoy within the places they like to visit from oak woodlands, chaparral, a variety of mix-conifer forests and giant sequoia groves. Woodlands are dominated by open, park-like conditions with large trees (greater than 16 inches diameter at breast height), have a variety of age classes,

and species with a mid-story that is open with high visual penetration. Chaparral and other shrublands are seen as heterogeneous landscapes with random mosaics of varying: density, species, age classes and distributions. Scenic routes and areas of high public concern offer vistas with distant views of distinctive ridge-lines, river canyons, and outstanding geologic features with high topographic relief. These landscapes are ecologically stable and display minimal visual disruption resulting from disturbance events.

## **Scenery Indicators**

The indicators used to evaluate scenery resources using the Scenery Management System are Scenic Integrity and Scenic Stability.

**Scenic Integrity:** Scenery viewed from roadways, public recreation areas, trails and urban centers predominately displays diverse, natural-appearing landscapes including a variety of oak woodlands, chaparral and shrublands, mixed conifer forests, giant sequoia groves, meadows, mountains, and riparian areas. Development, where visible, appears subordinate to and harmonious with the surrounding setting.

**Scenic Stability:** The desired scenic attributes creating the sense of "place" are ecologically stable and display minimal visual disruption resulting from disturbance events. Landscape alterations complement and blend with the identified scenic character. Vegetation treatments are designed to produce natural-appearing, diverse recreation settings.

## **Strategies for Scenery Management**

Maintain or create scenic vistas as necessary to meet the needs of the public and improve scenery in areas of high public concern.

In all vegetation treatment and fuels reduction projects consider improving scenery resources especially in areas that do not meet established SIOs. This can be accomplished by increasing visual penetration of overstocked areas or forests with extremely dense under-story vegetation, managing for retention of large, mature trees, protecting the foreground in visually sensitive areas from scenery effects from fire and management activities such as fire scarring, accumulation of woody debris, and exposed stumps, and perpetuate diversity to insure visually interesting landscapes.

## **Affected Environment**

The creation of the Monument focused greater national and international attention on the natural beauty and the scenery resources in this portion of the southern Sierra Nevada. The Clinton proclamation which established the Monument increased the emphasis on recreation and public enjoyment and protection of the objects of interest.

Scenic quality is a fundamental element of recreation experiences. Viewing scenery is the single most popular recreation activity nationwide (USDA Forest Service 2008f). In the report and recommendations to the president of the United States (President's Commission on Americans Outdoors 1986) states that America's most important attribute for a recreation area is natural beauty. Driving to enjoy the scenery has been the top national recreation activity for over a decade.

Viewing scenery has always been a highly valued activity for visitors to the Sequoia National Forest and the Monument. In the 2003 National Visitor Use Monitoring (NVUM) survey, Sequoia National Forest visitors identified viewing natural features as the second leading recreation activity following relaxing (66.38 percent participation) (Kocis et al. 2004).

Scenery is the valued visual expressions (sights) people enjoy within places. Many landscape preference studies have shown striking uniformity in the type and composition of landscapes people find visually appealing. There are four common aspects of visually preferred settings:

- Large trees
- Herbaceous, smooth groundcover
- Open midstory canopy with high visual penetration
- Vistas with distant views and high topographic relief

"Landscapes usually considered less visually appealing are wide-open areas with uniform or monotonous vegetation" (Ryan 2005, p. 13). All landscapes have a definable character and those with the greatest variety or diversity have the greatest potential for high scenic value (USDA Forest Service 1974). Visitors to the Sequoia National Forest expect to see and value natural appearing landscapes.

Important management objectives include sustaining ecological function and achieving a fire-safe landscape for human populations while meeting and exceeding scenic integrity objectives and maintaining or restoring valued attributes of landscape character.

The Forest Plan used the visual management system (VMS) developed in 1973 to inventory, analyze, and set objectives for scenery resources. In December 1995, the scenery management system (SMS) replaced VMS. The VMS and SMS are both structured to emphasize "natural appearing" scenery, but the SMS more broadly recognizes scenery as the visible expression of dynamic ecosystems functioning within "places" that have unique aesthetic and social values.

The 2001 SNFPA replaced VMS with SMS. All national forests are directed to convert to SMS as part of the forest plan revision. The Sequoia National Forest initiated the Monument planning effort before forest plan revision. To use the best science available for the scenery resources, the Sequoia National Forest converted to SMS with the new scenery inventory and analysis completed for this planning effort, incorporating the direction described in the 1990 MSA, Clinton proclamation (2000), and the 2001 SNFPA.

Identifying "places" and describing the landscape character of these places is the initial step of an SMS inventory. Places for the Sequoia National Forest were first identified in the forest interpretive plan (USDA Forest Service 2008a). In the SMS analysis, the unique physical, biological, and cultural images, a listing of valued scenic attributes, and the ecosystem context for each "place" is described in the landscape character description. Desired conditions and desired landscape character are developed from an analysis of the landscape character description.

## **Overview of Scenery Management System**

The scenery management system process involves identifying scenic components, mapping these components, and assigning a value for aesthetics. These maps are useful for site-specific project level environmental analysis and in determining the trade-offs related to forest plan management scenarios.

The primary units for the Region 5 SMS inventory are **places** based on people's commonly shared image of specific geographic areas. Places focus on the aesthetic, recreational, and social values reflecting the history, culture, social meaning, and human attachments to the land as well as the biophysical attributes of an area. Places are approximately 75,000-100,000 acres in size, with roughly 7-25 places occurring within each forest (USDA Forest Service 1995d).

Each place is described in the **landscape character description** section. The description includes the valued attributes of the landscape, important elements of the social environment, environmental regimes, and disturbance regimes creating a “sense of place.” By protecting the existing or enhancing the valued scenic attributes in the landscape character descriptions, scenery is expected to be protected or improved. An objective description of the biological and physical elements is drawn from data available for ecological or planning units, which provides the frame of reference for defining the scenic attractiveness classes.

The landscape character description is used as a reference for the existing scenic integrity of all lands. Existing scenic integrity (ESI) indicates the degree of intactness and wholeness of the landscape character. Conversely, ESI 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 ESI. Those landscapes having increasingly discordant relationships among scenic attributes are viewed as having diminished ESI. Existing scenic integrity is expressed and mapped in terms of very high, high, moderate, low, very low, and unacceptably low.

**Scenic Attractiveness Classes** are developed to determine the relative scenic value of lands within a particular landscape character. The three scenic attractiveness classes are: Class A - distinctive; Class B - typical; and Class C - indistinctive. The landscape elements of landform, vegetation, rocks, cultural features, and water features are considered when determining each of these classes.

**Landscape Visibility** is composed of two parts: 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. Constituent analysis also helps to identify special places, and helps to define the meaning people give to the 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.

**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 distance zones are identified as:

- Foreground – up to 1/2 mile from observer
- Middleground – 1/2 to 4 miles from the observer
- Background – 4 miles from the observer to the horizon

**Seldom seen areas** are areas not seen from travel routes or identified use points. These areas are assigned a concern level 1, 2, or 3, based on concern for a specific area and may occur in any distance zone or scenic attractiveness class.

**Scenic classes** use the data gathered and mapped for scenic attractiveness and landscape visibility (seen areas/distance zones) to assign a numerical scenic class value to forest lands. The ratings 1-7 indicate the

scenic value of landscape areas irrespective of existing scenic integrity. Mapped scenic class values are used during forest planning and project planning to compare the value of scenery with the value of other resources.

**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 objectives are defined by minimally acceptable levels and the direct intent to achieve the highest scenic integrity possible.

**Landscape character goals** and **scenic integrity objectives** are described for each forest plan management area. The goals describe the actions necessary to achieve and perpetuate desired landscape character and desired condition in each "place." (1)

## Places

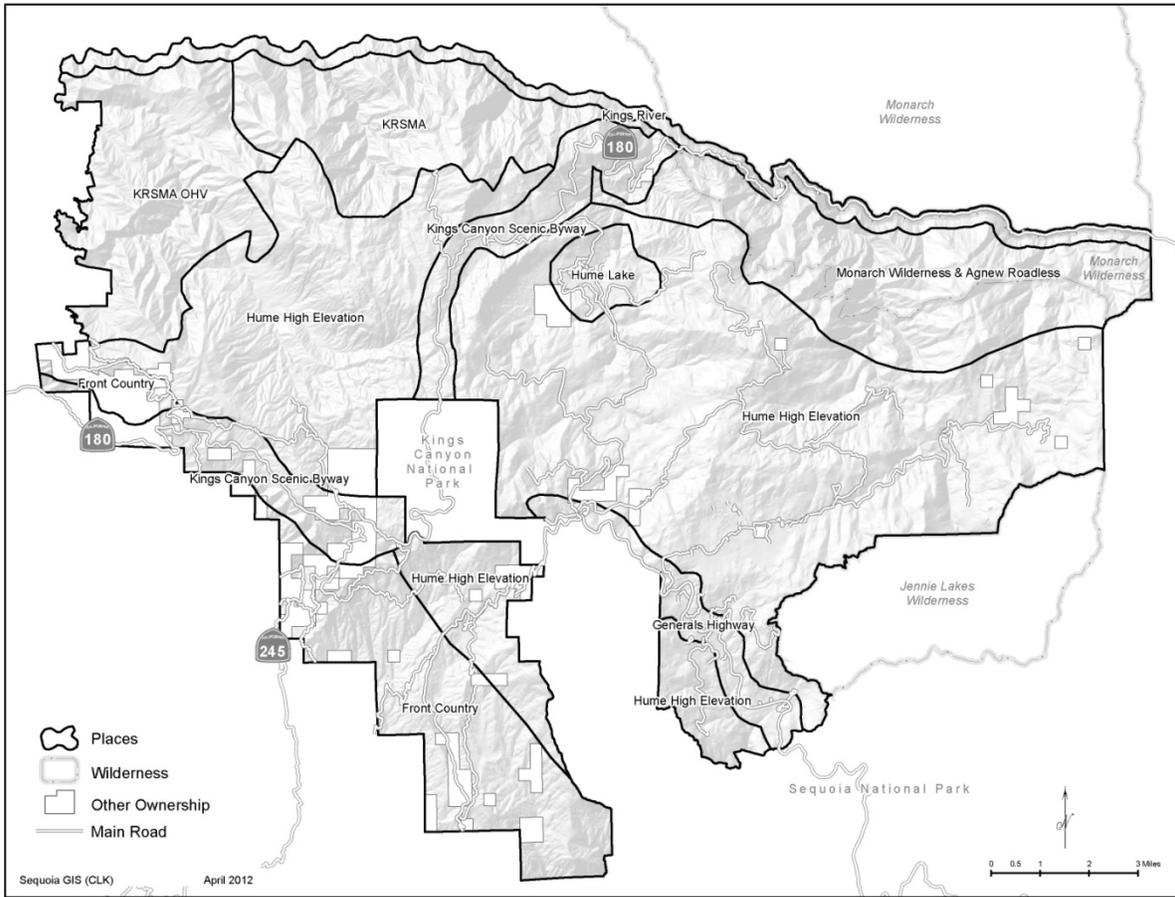
Identifying "places" is the initial step of an SMS inventory. The values that create a "sense of place" and make each place important and unique" are described in the landscape character description section.

Recreation niche settings were first identified for the Sequoia National Forest during the recreation facility analysis process and are described in the recreation affected environment section in this chapter. In the forest interpretive plan (USDA Forest Service 2008a) the recreation niche settings are subdivided into "places." Based on people's commonly shared image of specific geographic areas these places serve as the primary unit for Region 5's Scenery Management System inventory policy and establishes the physical context of recreation settings. The following table identifies the "places" within each recreation setting in the Monument. These "places" are then located on the maps following the table.

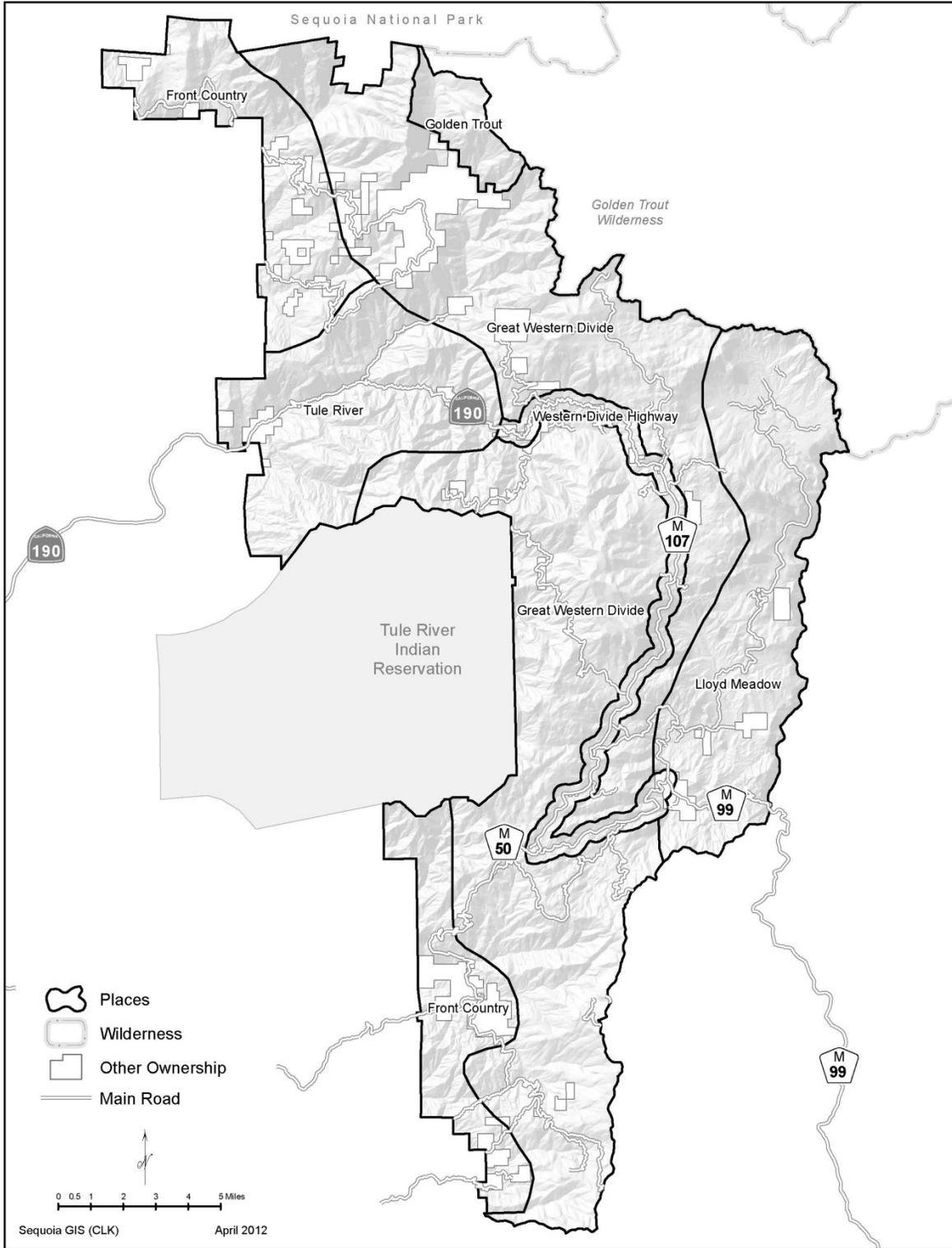
**Table 3 Places within Recreation Settings**

<b>Recreation Setting</b>	<b>Places</b>
Rivers and Lakes	Tule River Kings River Hume Lake
Great Western Divide	Great Western Divide
Scenic Routes	Kings Canyon Scenic Byway Generals Highway Western Divide Highway
Lloyd Meadow	Lloyd Meadow
Wildlands	Golden Trout Wilderness Kings River Special Management Area (KRSMA) Monarch Wilderness and Agnew Roadless Area
Hume High Elevation	Hume High Elevation
KRSMA OHV	KRSMA OHV
Front Country	Front Country

**Map 3 Places in the Northern Portion of the Monument.**



**Map 4 Places in the Southern Portion of the Monument**



## Landscape Character Description

This section describes the places identified in the forest interpretive plan (USDA Forest Service 2008a). Each place has a brief description of the social values and human attachments to the area including the scenic attributes and recreation opportunities. The landscape character includes each place's visual and cultural image as well as the ecological context.

The desired landscape character for the Monument includes a wide variety of visually appealing landscapes from oak woodlands, chaparral, a large variety of mixed conifer forests and giant sequoia groves. Chaparral is represented by a mosaic of age classes, and woodlands are dominated by open, park-like conditions with large trees, a variety of age classes, and species with a mid-story canopy that is open with high visual penetration. Scenic routes and areas that are often seen are expected to offer vistas with distant views of distinctive ridge lines, river canyons, and outstanding geologic features. These landscapes display minimal visual disruption resulting from large-scale disturbance events. The landscape character description is an objective description of the biological and physical elements drawn from data available for ecological or planning units, combined with identified landscape character attributes and the human elements of the landscape. 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.

The landscape character description 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. The description includes the valued attributes of the landscape, important elements of the social environment, environmental regimes, and disturbance regimes.

**Ecological Context of Places within the Monument:** To describe the ecological context of each "place" in the Monument, the ecosystem classification framework was used. The USDA Forest Service adopted a policy of ecosystem management on June 4, 1992, that applied to national forests, grasslands and research programs.

The Giant Sequoia National Monument falls into the domain: 200 Humid Temperate, division-260 Mediterranean, province-M261-Sierran Steppe-Mixed Forest-Coniferous Forest Province, section-M261E Sierra Nevada. (USDA Forest Service Website-[www.fs.fed.us/r5/projects/ecoregions/intro\\_main.htm](http://www.fs.fed.us/r5/projects/ecoregions/intro_main.htm)).

Identified "places within the Monument fall within two ecological sections, Section M261F Sierra Nevada Foothills and Section M261E Sierra Nevada. Sections are broken into subsections, and the Monument falls into Subsection M261Fc\_Lower Granitic Foothills and Subsection M261Eq\_Upper Batholith. Subsections are further broken down into ecological units by major vegetative plant communities.

There are nine major vegetative plant communities found in the Monument, and these are ecological units with similar potential natural vegetation, soils, bedrock and surface geology and geomorphology. In addition to physical characteristics, an ecologic unit is composed of areas with similar dominant ecologic processes, such as fire and succession. By stratifying the Monument in this way, it becomes possible to describe trends in these processes and properties over time. The following table identifies the ecological unit by section and subsection for each of the nine major vegetative plant communities found in the Monument.

**Table 5 Ecological Units by Section/Subsection**

Ecological Unit	Section/Subsection
Blue Oak and Interior Live Oak	Section M261F Sierra Nevada Foothills
Chaparral and Live Oak	Subsection M261Fc_ Lower Granitic Foothills
Montane Hardwood and Hardwood-Conifer	Section M261E Sierra Nevada
Mixed Conifer dominated by Ponderosa Pine	Subsection M261Eq_ Upper Batholith
Mixed Conifer including Giant Sequoia	
Mixed Conifer dominated by White Fir and Sugar Pine (with Giant Sequoia inclusions)	
Upper Mixed conifer Forest dominated by Jeffrey Pine (with Giant Sequoia inclusions)	
Red Fir and Jeffrey Pine	
Red Fir and Lodgepole Pine with Meadow inclusions	

**Blue Oak and Interior Live Oak (Blue):** This foothill woodland unit is scattered along the western foot of the Sierra Nevada, generally where moderately steep slopes and open flats mix with steep slopes. The Hot Springs Ranger District office is a point of reference within the unit. The mean annual precipitation is about 18 to 30 inches. It is practically all rain. This unit is entirely within the thermic temperature regime and the mean annual temperature is about 52 to 64 degrees Fahrenheit. All but the larger streams are generally dry during the summer. Soils are largely deep and well drained, supporting a potential natural vegetation of blue oak and annual grasslands variably mixed with tree form interior live oak. Steeper inner gorge slopes with shallow, somewhat excessively drained soils have a potential natural vegetation of chaparral and a shrub form of interior live oak. The mean elevation for this unit is 3,911 feet.

**Chaparral and Live Oak (Chap.):** This unit is at low elevations scattered along the western edge of the Monument in drainages and along steep inner gorges. Slopes in these areas are steep to moderately-steep and include the inner gorge slopes of the Middle Fork Tule River, the Kings River, and the Kern River. This unit is mostly within the thermic temperature regime and the mean annual temperature is about 52 to 64 degrees Fahrenheit. The mean elevation for this unit is 3,859 feet. The mean annual precipitation is about 18 to 30 inches. It is mostly rain and runoff is rapid to the major rivers and their tributaries. There is a complex of deep and shallower soils. Rock outcrops and openings are common and become dominant in steeper areas. The droughty nature of these soils is reflected in sclerophyllus (waxy-leaved) vegetation that dominates this unit. Common shrubs include white leaf manzanita, mountain mahogany, yerba buena, and wedgeleaf ceanothus (buck brush). Interior live oak and canyon live oak are prevalent in the mapping area with interior live oak more abundant on south facing, warm slopes and canyon live oak on north facing, moister slopes and at higher elevations.

**Montane Hardwood and Montane Hardwood-Conifer (Mont.):** This unit is scattered throughout the Monument in eight distinct areas that range in size from 758 to 11,061 acres. The mean elevation of this unit is 4,952 feet. Soils in this unit are often moderately deep and/or rocky. Rock outcrops and openings occur throughout the area. Soils tend to be in the warm mesic temperature classes and have low to moderate available water holding capacities that make them subject to drought in summer months. Mean annual temperature is about 50 to 60 degrees Fahrenheit, and mean annual precipitation is about 25 to 50 inches. It is mostly rain, and runoff is rapid to the major rivers and their tributaries. Potential natural vegetation is forest dominated by montane hardwood species, primarily California black oak with ponderosa pine present on deeper soils. Chaparral is prevalent on rocky, shallow soils and on more xeric, south facing slopes. Slopes in these areas are steep to moderately steep. They are dominated by mass wasting and fluvial landforms where rock falls, rockslides, debris flows, and channel erosion are the

major geomorphic processes. Today, the high amount of disturbance and droughty soils help maintain a high proportion of hardwood species (California black oak, canyon live oak, and interior live oak) in the existing vegetation, even in areas where soils develop strong surface horizons. At higher elevations and on more mesic sites, this unit contains more of the conifer dominated types of potential natural vegetation.

**Mixed Conifer dominated by Ponderosa Pine (Mix/PP):** This unit is scattered throughout the Monument in twelve distinct areas ranging from 1,290 to 27,500 acres in size. The mean elevation is 4,985 feet. Points of reference include the west slope of McKenzie and Pine Ridges in the north and Hatchet and Sugar Loaf Peaks in the south. This unit has slopes that are mostly moderately steep, but gentle and steeper slopes also occur. Soils are deep to moderately deep and are in the mesic temperature regime. Mean annual temperature is about 45 to 55 degrees Fahrenheit, and mean annual precipitation is about 30 to 60 inches. Much of the precipitation falls as snow. Runoff is rapid from most of the area. Maximum flow in these rivers is during the spring when snow is melting rapidly. This unit is mostly composed of relatively productive soils at low elevations in the mixed conifer and ponderosa pine forests. In addition to large areas of ponderosa pine potential natural vegetation, some giant sequoia groves, such as Deer Creek Grove and the most xeric portions of Converse Basin, are also found in this unit.

**Mixed Conifer including Giant Sequoia (Mix/GS):** This unit occurs predominantly in the northern portion of the Monument at a mean elevation of 6,044 feet. Points of reference include the Converse and Evans Complex Groves. This unit is in the mesic temperature regime, but is generally cooler than the ponderosa pine unit. Soils are moderately deep to very deep and have low to moderate available water holding capacities, but are usually not dry in normal precipitation years. Potential natural vegetation is mostly mixed conifer forest: a combination of three or more conifer species, one of which is white fir. Areas of moderately deep or shallow soils will generally support more open mixed conifer forests with higher percentages of pines and hardwoods. Snow line is often found in this unit during the winter months. Giant sequoia groves comprise about 18 percent of the unit. Greater detail concerning giant sequoia ecology can be found in the silviculture report and Chapter 3 of the draft EIS.

**Mixed Conifer dominated by White Fir and Sugar Pine with giant sequoia inclusions (Mix/Fir):** This unit occurs in the southern portion of the Monument scattered in eight areas from Dillonwood Grove to Sunday Peak. It can be found in the North Fork of the Tule River, Bear Creek, Freeman Creek, and Deer Creek, and adjacent to the Tule Indian Reservation on its north and east sides. This unit has slopes that are moderately steep to steep. This unit falls mostly in the mesic temperature regime and has a mean elevation of 6,635 feet. Mean annual precipitation is about 30 to 60 inches, much of it falling as snow. Potential natural vegetation includes mixed conifer forests: forests that are dominated by at least three conifer species, one of which is white fir. This unit's soils are moderately deep to deep, and support mixed conifer with species compositions heavy to white fir due to the elevation. Sugar pine may make up a large portion of the species composition where site conditions are more open due to fire, shallow soils, or south aspect. Red fir may be present at upper elevations and in cold air drainages. Giant sequoia inclusions can be found on up to five percent of this unit, particularly in the southern portion of the Monument.

**Red Fir and Jeffrey Pine (RedFir/JP):** This unit occurs primarily at higher elevations in the southern portion of the Monument. It has a mean elevation of 8,079 feet. Points of reference include Jordan Peak, The Needles, Mitchell Peak, and Chimney Rock. This unit falls in the frigid temperature regime and, where soils allow, conifer production is limited mostly by temperature and exposure. The mean annual precipitation is about 40 to 60 inches, mostly falling as snow. Mean annual temperature is about 35 to 50

degrees Fahrenheit. Runoff is rapid and maximum flow in these rivers is during the spring when snow is melting. Soils are deep and well drained to moderately deep, and somewhat excessively drained. Deep soils found on metamorphic parent materials and are typically rocky. This unit falls in the upper montane vegetation zone, one of the least altered and most contiguous forested types in the Sierra Nevada. Similar to the existing vegetation, red fir as potential natural vegetation falls mostly on more productive and cooler locations, whereas Jeffrey pine occurs on shallower soils and warmer aspects. These two types are highly intermixed in this unit.

**Red Fir and Lodgepole Pine with Meadow Inclusions (RedFir/LP):** This unit occurs in the higher elevations of the Monument between Grant Grove and Marvin Pass to Chimney Rock; between Quaking Aspen and Junction Meadow; and on the west side of the Greenhorn Mountains at Tobias Pass. It has a mean elevation of 7,543 feet. The mean annual precipitation is 40 to 60 inches, mostly falling as snow. The mean annual temperature is about 35 to 50 degrees Fahrenheit. This unit occurs frequently in broad canyon bottoms and slopes tend to be moderately steep to gentle. Meadows are a common inclusion. Small amounts of mixed conifer as potential natural vegetation occur at the lowest elevations in the unit, and Jeffrey pine as potential natural vegetation can be found on shallow soils. Aspen can be found in very limited locations and amounts in both the northern and southern portions of the Monument.

**Upper Mixed Conifer Forest dominated by Jeffrey Pine with Giant Sequoia inclusions**

**(UpperCon/JP):** This unit is located in the southern portion of the Monument and has a mean elevation of 6,691 feet. The largest area is located between Slate Mountain and the Kern River, from Indian Rock to Parker Pass. The other major area is located between Jordan Peak and Moses Mountain, along the North Fork of the Middle Fork Tule River. A smaller area is located between Dennison Peak and the Sequoia and Kings Canyon National Parks. Soils are shallow and excessively well drained, which tends to favor a potential natural vegetation of more drought-tolerant Jeffrey pine forests over white fir. The highest elevations of this unit will support red fir on the more moist sites. At the moderate and lower elevations, Jeffrey pine occurs on warm and/or dry sites, but white fir becomes more important on north-facing slopes and in drainages. Large amounts of rock outcrops and shallow soils may help maintain an open stand condition and trees often grow in deep soil pockets among rocky areas. Drought and competition with drought-adapted shrubs will also limit the distribution of conifers to deeper soils and more mesic conditions. Sugar pine will occur as a part of the potential natural vegetation at lower elevations wherever open stand conditions prevail. Giant sequoia inclusions are found on less than five percent of this unit. This ecological unit has numerous conifer plantations created primarily by harvesting and replanting in the 1960s through 1980s. The conditions in these plantations are described in the previous section (Mixed Conifer dominated by Ponderosa Pine).

The following table identifies each "place" within the Monument and the ecological units found in each "place."

**Table 6 Places and Ecological Units**

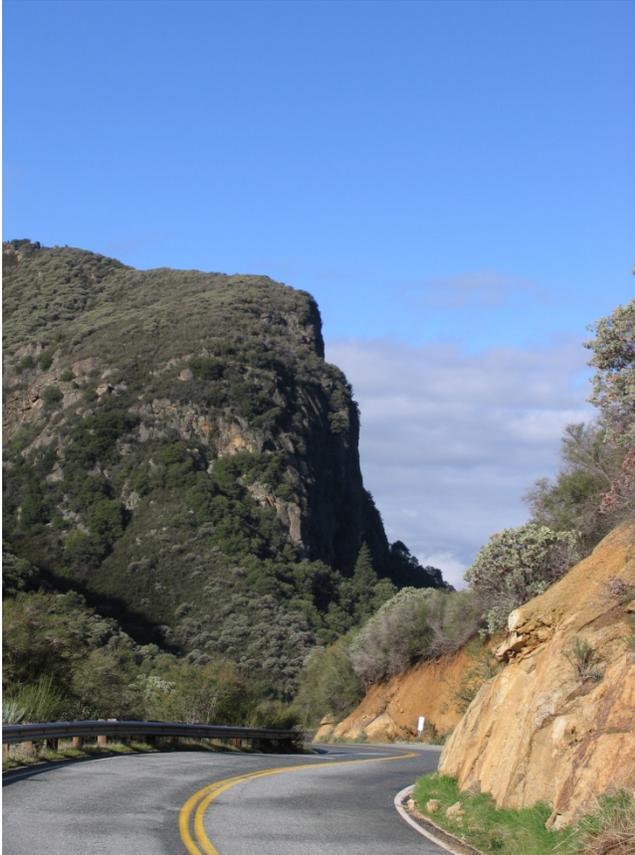
Places	Ecological Units								
	Blue	Chap.	Mont.	Mix/PP	Mix./GS	Mix./Fir	RedFir/JP	RedFir/LP	UpperCon/JP
Front Country	X	X	X	X					
High Hume			X	X	X		X	X	
Kings Canyon-SR*			X	X	X				
Generals-SR*							X	X	
Hume Lake-RL**			X		X				
Kings River-RL**		X	X		X				
KRSMA-OHV	X	X	X	X	X				
KRSMA Wild***		X	X	X	X				
Monarch Wild***			X	X	X			X	
Tule River-RL**	X	X	X	X					
Western Divide			X	X		X	X	X	X
Lloyd Meadow		X	X	X	X	X	X		X
Golden Trout Wild***							X		X
Western Divide SR*			X			X	X	X	X

\*SD-Scenic Route, \*\*RL-Rivers and Lakes, \*\*\*Wild-Wildlands

# Rivers and Lakes

## Tule River

The Middle Fork of the Tule River descends steep canyons through a wide variety of fire evolved life zones. The Tule River Canyon is comprised of foothills covered with oak woodlands, impressive granite



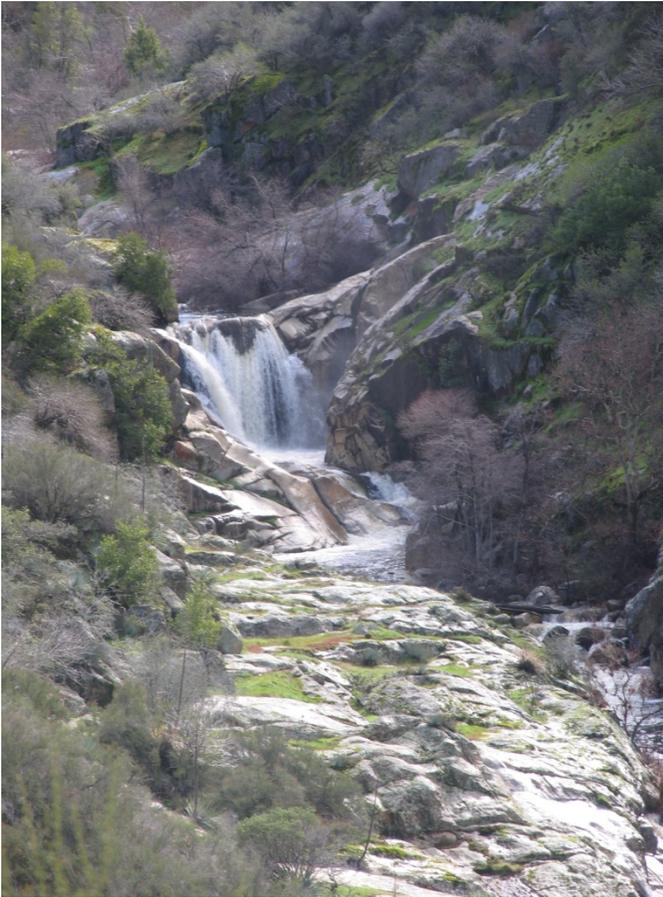
features, and steep chaparral covered slopes with conifer covered ridge lines. The riverbed is granite based with beautiful, deep pools carved from large slabs of smooth granite and boulder-strewn stream beds interspersed with beautiful water cascades. Riparian vegetation includes sycamores, cottonwoods, and willows at lower elevations.

*Management challenges* include fire, hydroelectric power projects, Native American values, tribal relations, wildland urban intermix, and crowd and traffic control, litter, graffiti, and gang related problems. In most years, all of the water in this river is used and reused before it can reach its historic destination in Tulare Lake. Water from the river provides hydroelectric power, irrigation, and drinking water. Central valley residents are attracted to the river during the hot summer months for social gatherings, water play, and fishing.

*Scenic attributes* are the Middle Fork of the Tule River with deep pools carved from large slabs of

smooth granite; views to distinctive ridge lines including Slate Mountain, Jordan Peak, and large rock outcrops; riparian vegetation; wildflower displays in the spring; conifer forests on ridge lines; and waterfalls.





*Recreation opportunities* include day use at Upper and Lower Coffee Camps, the Stairs, fishing, water play; developed camping at Wishon Campground; Wishon cabin rental; trails include 30E14, 30E16; no dispersed camping along the Tule River.

*Ecological units* are predominantly blue oak and interior live oak, chaparral and live oak, limited montane hardwood and montane hardwood-conifer, and mixed conifer dominated by ponderosa pine.



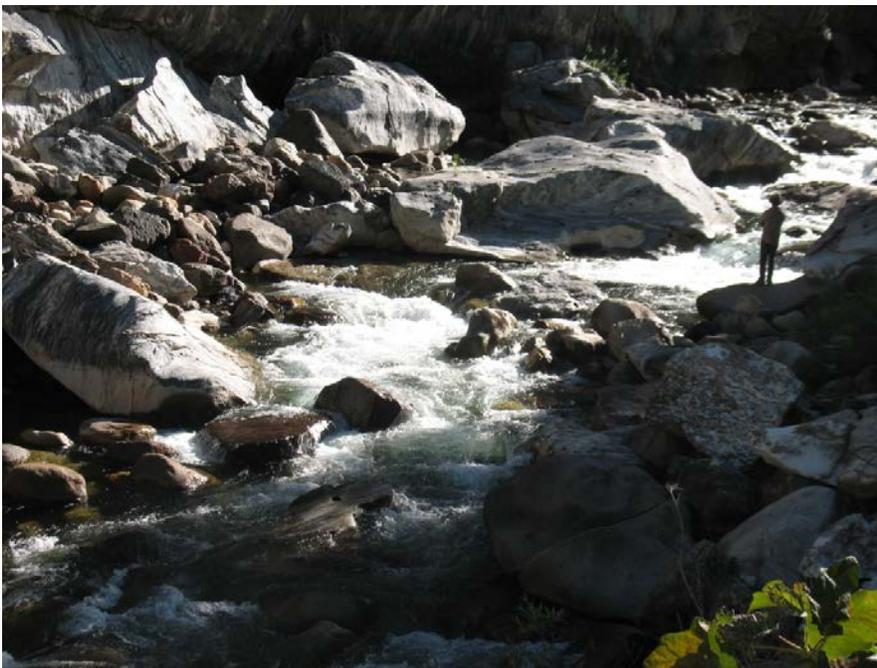


## Rivers and Lakes

### Kings River

This wild and scenic river travels through the world-renowned Kings Canyon, one of the deepest canyons in the world at over 8,000 feet deep separating the Sierra and Sequoia national forests and dividing the Monarch Wilderness. Both the Middle and South Forks begin in the backcountry of Kings Canyon National Park. Highway 180 which is the Kings Canyon Scenic Byway drops into the Kings River gorge along the South Fork and provides the only vehicle access to this section of the river and Cedar Grove in Kings Canyon National Park.

*Management challenges* include the interface with Kings Canyon and Sequoia National Parks and unmanaged or concentrated recreation activity that could lower scenic integrity in areas that do not provide facilities. All access is limited, with only the Kings Canyon Scenic Byway for passenger vehicle access along the South Fork of the Kings River. Downstream is Forest Road 12S01 for approximately 4 miles at the western end and the Kings River



National Recreation Trail for part of the middle length of the river.

*Scenic attributes* are the U-shaped valley carved by glaciers; whitewater; outstanding geologic features including marble pendants, folded rocks, and limestone caves; Monarch Wilderness; riparian habitat with cottonwoods, sycamores, and willows lining the banks where the river widens and slows; and numerous streams and waterfalls that flow into the Kings River.

*Recreation opportunities* include fishing; driving for pleasure at Kings Canyon Scenic Byway; developed day use at Grizzly Falls and Boyden Cavern; Deer Cove trailhead to Monarch Wilderness; Kings River National Recreation Trail; other opportunities outside the Monument include Mill Flat, Kirch Flat, Green Cabin Flat, and Camp 4.5 campgrounds, Camp 4.5 cabin rental, and whitewater rafting.



*Ecological units* are chaparral and live oak, montane hardwood, and montane hardwood with conifer.

## Rivers and Lakes

### Hume Lake

At 5,200 feet in elevation, the 87-acre reservoir is located in mixed conifer forest in the Tenmile Creek watershed. The Hume Lake Dam has been nominated as a National Historic Landmark. The reservoir was



built in the early 1900s to support historic logging operations in the area and was the beginning of the longest log flume that transported logs down Tenmile Creek to the Kings River and then on to the mill in Sanger. Today the lake is a popular recreation destination and provides riparian habitat for wildlife.

*Management challenges* include risks associated with: 1. Wildfire, 2. Recreation interface with the Hume Lake Christian Camps and

Kings Canyon and Sequoia

National Parks, 3. Dispersed recreation activity which has the potential to lower scenic integrity in areas that do not provide facilities (Cole 1993, USDA Forest Service 1995c), and 4. Scenic resource needs for improvement in overstocked forests especially in areas that have missed burn cycles or in plantations (Ryan 2005). *Scenic attributes* are Hume Lake, Hume Lake Dam, Tenmile Creek, mixed conifer forest, and vistas to distinctive ridge lines.

*Recreation opportunities* include developed camping at Hume Lake Campground and Aspen Hollow Group Campground; fishing; day use at Powder Can and Sandy Cove, Hume Lake Interpretive Trail; recreation residences; Hume Lake Christian Camps (private).

*Ecological units* are predominantly mixed conifer forest, dominated by ponderosa pine, and limited mixed conifer including giant sequoia.



## Western Divide

The Western Divide is the high elevation ridge line that breaks the Sierra Nevada range into two watersheds. This area has 19 recorded giant sequoia groves. Old growth forests provide habitat for rare



wildlife species such as the Pacific fisher. Meadows, some lined with aspen groves, creeks with waterfalls, and distant vistas are abundant. Needles and Dome Rock are spectacular, high profile granite monoliths. Slate Mountain is an unusual and prominent landmark with a botanical area hosting rare plants. Jordan and Mule Peak are still in operation as fire lookouts, and they are open to the public.

*Management challenges* include risks associated with wildfire and urban intermix, which includes improving scenic integrity in overstocked forests, especially in areas that have missed burn cycles or in plantations, especially in areas visited by the public. Unmanaged or concentrated recreation activity has the potential to lower scenic integrity in areas that do not provide facilities.

*Scenic attributes* are a wide variety of habitats including old growth forests with rare wildlife species, giant sequoia groves, meadows, aspen groves, creeks with waterfalls, views to

distinctive ridge lines at Slate Mountain, Jordan Peak, Mule Peak; and geological features of Needles and Dome Rock.

*Recreation opportunities* include driving for pleasure on back roads with off-highway vehicle (OHV) opportunities; stream fishing at the Middle Fork of the Tule River, Peppermint Creek, Nobe Young Creek; points of interest at Slate Mountain Botanical Area, multiple giant sequoia groves, fire lookouts (Jordan Peak, Mule Peak); rock climbing at Dome Rock, Needles; extensive dispersed camping opportunities; rental cabins at Frog Meadow and Mountain Home; developed camping at Frog Meadow; trails; trailheads for Nelson, Lewis Camp, Summit, Clicks Creek trails, and the Summit National Recreation Trail.



*Ecological units* are mixed conifer dominated by white fir and sugar pine, upper mixed conifer dominated by Jeffrey pine, red fir, and lodgepole with meadow, red fir, and Jeffrey pine, mixed conifer and giant sequoia, montane hardwood and montane hardwood-conifer, limited chaparral and live oak.



## Scenic Routes

### Kings Canyon Scenic Byway

This scenic route is the only designated national forest scenic byway in the Sequoia National Forest and provides the only vehicle access into the world-renowned Kings Canyon. This area of the forest is



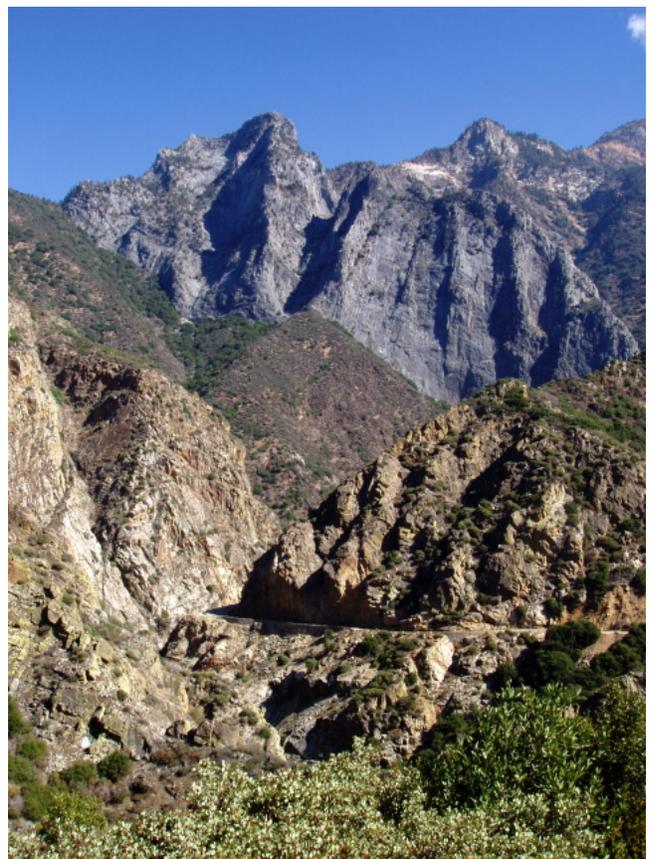
strongly influenced by visitation at Sequoia and Kings Canyon National Parks. No communities are located along this route; however, in Kings Canyon National Park, Grant Grove has a visitor center, grocery store, post office, and restaurant.

*Management challenges* include risks associated with wildfire, urban/private property, and Sequoia and Kings Canyon National Parks interface. Maintaining high to very high scenic integrity associated with the Scenic Routes recreation niche

setting includes improving scenic integrity in overstocked forests, especially in areas that have missed burn cycles, and maintaining or creating vista points closed off by encroaching vegetation. Visitation rates and visitor expectations for scenery are high because of the adjacent national parks.

*Scenic attributes* are views into the central valley, Cherry Gap, Converse Basin, and Indian Basin, giant sequoia groves, ancient stumps remaining from the historic logging period, mixed conifer forests, panoramic vistas of Kings Canyon, unusual displays of folded rocks and marble roof pendants in the Kings River gorge; along the Kings River the road splits the Monarch Wilderness in two.

*Recreation opportunities* include driving for pleasure: access to the Converse Basin giant sequoia grove, Indian Basin grove, Monarch Wilderness, the wild and scenic Kings River, Sequoia National Park at Grant Grove and Cedar Grove, developed day use at Grizzly Falls and Boyden Cavern, interpretive vista points, Indian Basin Interpretive Trail, and developed camping at Princess and Convict Flat campgrounds.



*Ecological units* are mixed conifer dominated by ponderosa pine, montane hardwood and montane hardwood-conifer, mixed conifer including giant sequoia.



## Scenic Routes

### Generals Highway

This route travels through National Forest System lands connecting Sequoia National Park with Kings Canyon National Park. The road is high elevation that is closed periodically during the winter when travel



becomes questionable for passenger vehicles.

Routes that go to Jennie Lakes Wilderness, Buck Rock, the Big Meadows area, and Ten Mile Road are accessed from this highway.

*Management challenges* include risks associated with wildfire, urban/private property, and Sequoia and Kings Canyon National Parks interface. Maintaining high to very high scenic integrity associated with the Scenic Routes recreation niche setting includes improving scenic integrity in overstocked forests, especially in areas that have missed burn cycles, and maintaining or creating vista

points closed off by encroaching vegetation. Visitation rates and visitor expectations for scenery are high because of the adjacent national parks.

*Scenic attributes* are giant sequoia groves, red fir forests, views of distinctive ridge lines, vista points into Kings Canyon, the national park backcountry, and the central valley.

*Recreation opportunities* include driving for pleasure, access to the Big Meadows recreation area, Hume Lake, and the national parks; developed camping at Stony Creek and Upper Stony Creek campgrounds, Fir and Cove group campgrounds; Montecito Lake Resort, Stony Creek Resort; and trailheads at Stony Creek (Jennie Lakes Wilderness).

*Ecological units* are red fir and lodgepole with meadow inclusions, red fir, and Jeffrey pine.



## Scenic Routes

### Western Divide Highway

The Western Divide Highway as a "place" includes the Western Divide Highway (M107), a small portion of highway 190, and a small portion of SM50 to SM99. The scenic route starts at Camp Nelson on highway 190 and becomes SM107 at Ponderosa. SM107 ends at the intersection of SM107 and SM50,



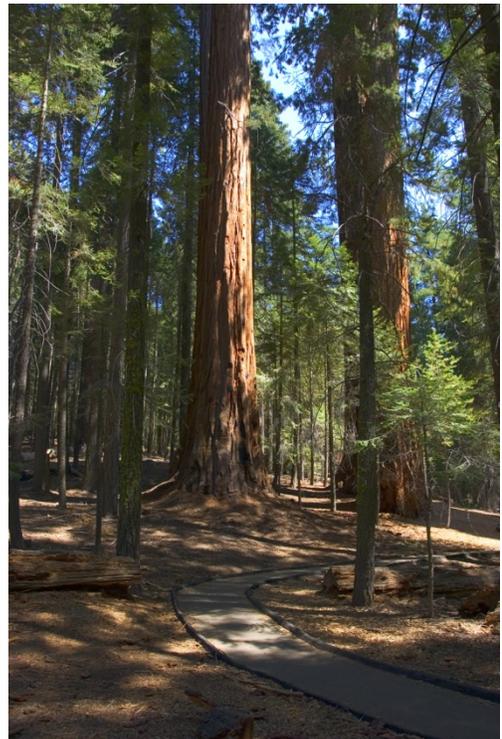
and the scenic route continues on SM50 traveling east and becoming SM99 at the small community of Johnsondale. The route travels from mixed conifer woodlands of fir and pine intermixed with lush meadows down to drier gray pine scrublands with granite domes, rock outcrops, and views to the Kern Plateau. The scenic route ends at the Johnsondale Bridge where the route crosses the North Fork of the Kern Wild and Scenic River and continues south along the river to the community of Kernville. This route is a main travel artery through the southern portion of

the Monument accessing developed and dispersed camping opportunities, multiple giant sequoia groves, fishing streams, and geologic features .

*Management challenges* include risks associated with wildfire and urban intermix. Maintaining high to very high scenic integrity associated with the Scenic Routes recreation niche setting includes improving scenic integrity in overstocked forests, especially in areas that have missed burn cycles, and maintaining or creating vista points closed off by encroaching vegetation.

*Scenic attributes* are meadows, diverse conifer forests, and giant sequoia groves; Needles and Dome Rock; views to distinctive ridgelines and features including Slate Mountain, Black Mountain Grove, Solo Peak, Kern Plateau, and Nelson Peak. Many of potential vista points are blocked by dense, overgrown forests or the brush-like character of multiple saplings and shade tolerant species that have colonized the road edges.

*Recreation opportunities* include driving for pleasure; Trail of 100 Giants; stream fishing the Middle Fork of the Tule River, Peppermint Creek, Nobe Young Creek; viewing the features of Dome Rock and Needles; developed camping at Coy Flat, Belknap, Quaking Aspen, Upper



Peppermint, and Redwood Meadow campgrounds; developed group camping at Holey Meadow, Long Meadow, and Quaking Aspen.



*Ecological units* are mixed conifer dominated by white fir and sugar pine, upper mixed conifer dominated by Jeffrey pine, limited red fir and lodgepole with meadow, limited red fir and Jeffrey pine, and limited montane hardwood and montane hardwood-conifer.

## Lloyd Meadow

This high mountain shelf located between the Western Divide Highway and the Kern Plateau has an average elevation of 5,500 feet with spectacular views to the Kern River. Moist west side conifer forests give way to a drier, more east side conifer forest with some gray pine and shrubland. The southern third



was burned in the McNally Fire of 2002. Granite formations and expansive vistas of the Kern River and Kern Plateau are enjoyed from many areas. The area includes the only access point for boaters starting the Forks of the Kern run and also provides early season access to the Golden Trout Wilderness.

*Management challenges* include risks associated with wildfire and some urban intermix with private property owners and recreation camps such as the R-Ranch. Scenic integrity could be improved in overstocked forests, especially in areas

that have missed burn cycles, or in plantations. Dispersed recreation is popular in this area, and unmanaged or concentrated recreation activity has the potential to lower scenic integrity in areas that do not provide facilities.

*Scenic attributes* are views to the Kern River and Kern Plateau, Needles and Dome Rock, Freeman Creek Grove, conifer forests, and multiple streams.

*Recreation opportunities* include developed camping at Lower Peppermint Campground; extensive dispersed camping opportunities; Jerky and Forks of the Kern trailheads provide access to the Golden Trout Wilderness; multiple trails; organizational camps; water play at the “tubs and slides,” rafting and kayaking the Forks of the Kern; hunting; fishing; rock climbing; hiking and viewing the George Bush Tree in the Freeman Creek grove; mountain biking; equestrian use; and group use (non-commercial). Outfitter-guides provide services for some of these activities.

*Ecological units* are mixed conifer dominated by ponderosa pine (Freeman Creek Grove), chaparral and live oak, mixed conifer dominated by white fir and sugar pine, upper mixed conifer dominated by Jeffrey pine, montane hardwood and montane hardwood-conifer, red fir and lodgepole with meadow, red fir, and Jeffrey pine.



## Wildlands

### Golden Trout Wilderness

Designated in 1978, totaling 303,511 acres, the Inyo manages the eastern two-thirds, and the western third is managed by the Sequoia. Only a small section in the northwest corner of the Golden Trout Wilderness



and adjacent to Mountain Home State Forest is in the Monument. Maggie Mountain and Moses Mountain are outstanding landmarks, along with the North Fork of the Middle Fork of the Tule River and the Maggie Mountain, Middle Tule, and Upper Tule River giant sequoia groves.

*Management challenges* include risks associated with wildfire aggravated by extremely steep slopes and protecting the wilderness character.

*Scenic attributes* are Moses and Maggie mountains, the North Fork of the Middle

Fork of the Tule River, and giant sequoia groves.

*Recreation opportunities* include hiking, stock use, and dispersed camping.

*Ecological units* are red fir and Jeffrey pine and upper mixed conifer dominated by Jeffrey pine.

### Kings River Special Management Area (KRSMA)

KRSMA begins at the junction of the South and Middle Forks of the Kings River where highway 180 climbs out of the canyon. KRSMA has little visitation because of the steep terrain. This area is visited mostly by anglers accessing the river. The main stem once provided the route for the longest lumber flume which carried lumber harvested during the historic logging period to Sanger. The Boole Tree is located on the southern boundary of this area and can be accessed by a two-mile loop trail. Plant communities range from riparian along the Kings River, forming the northern boundary, through grassland and chaparral to giant sequoia groves at the top of the drainage of Converse Creek. Prehistoric and historic use by Native Americans and ranchers occurred in this area.

*Management challenges* include risks associated with wildfire aggravated by extremely steep slopes. Visitation in these areas is very limited due to vegetation and terrain.

*Scenic attributes* are the Boole Tree, conifer forests, and the Kings River.

Recreation opportunities include fishing and the trail to the Boole Tree.

*Ecological units* are chaparral and live oak, montane hardwood and montane hardwood-conifer, mixed conifer including giant sequoia, and mixed conifer dominated by ponderosa pine.

## Wildlands

### Monarch Wilderness and Agnew Roadless Area



The Monarch Wilderness was designated in 1984, totaling 44,896 acres. The Sierra National Forest manages the northwest portion, and the rest is managed by the Sequoia. The only access is from the Sequoia side. The wilderness is adjacent to Kings Canyon National Park. From 2,000 feet in elevation at the South Fork of the Kings River to 11,077 feet on Hogback Peak, this land is steep and rugged with magnificent views from high ridges into deep canyons.

Riparian areas to brush lands to conifer forests to meadows to giant sequoia groves, the Wild and Scenic South Fork of the Kings River and highway 180 bisect the area. The Kanawyer Trail traverses the Monarch and provides magnificent views into Kings Canyon. The Deer Cove Trail leads up to Grizzly Lakes and Wildman Meadow, popular only with the hardest of hikers, hunters, and stock users. At the higher elevations are the Monarch, Deer Meadow, Agnew, and part of Evans giant sequoia groves. Agnew Roadless Area, like the adjacent Monarch Wilderness, is generally steep terrain, broken by rock outcrops and streams with mixed conifer forest. The proposed Windy Gulch Geologic Area (caves) is located in this area.

*Management challenges* include risks associated with wildfire aggravated by extremely steep slopes and protecting the wilderness character.

*Scenic attributes* are giant sequoia groves, views from high ridges into deep canyons, conifer forests, and meadows.

*Recreation opportunities* include the Kanawyer and Deer Cove trails, hiking and stock use, hunting, and dispersed camping.

*Ecological units* are montane hardwood and montane hardwood-conifer, mixed conifer including giant sequoia, mixed conifer dominated by ponderosa pine, limited red fir and lodgepole with meadow inclusions.



## Hume High Elevation

Located in the northern section of the Monument, this area is strongly influenced by the national parks and the Hume Lake Christian Camps. Elevations range from 4,000 feet to 8,000 feet in mixed conifer forest with one of the largest concentrations of giant sequoia groves. Visitors have many opportunities to



discover and explore these groves in their natural, wild condition while enjoying outstanding scenery including vistas of the Sierra high country and into Kings Canyon. Maintaining access to giant sequoias for “discovery” in a natural setting is important for this area. Thirteen giant sequoia groves are located in the district, including the two largest, with associated mixed conifer to red fir forests and granite and basalt outcrops. The historic logging of giant sequoias is a story unique to this area of the forest. Converse Basin, the largest grove, was host to the most extensive historic giant sequoia logging operation. Giant specimen stumps remain after 100 years, presenting the best opportunities in the forest to tell the historic logging story. Buck Rock Lookout, which is staffed with volunteers from the Buck Rock Foundation, functions as a fire lookout and is open to the public.

*Management challenges* include risks associated with wildfire and the interface with Kings Canyon and Sequoia National Parks.

Scenic integrity and scenic stability in overstocked forests could be improved, especially in areas that have missed burn cycles or in plantations. Unmanaged or concentrated recreation activity has the potential to lower scenic integrity in areas that do not provide facilities.

*Scenic attributes* are giant sequoia groves, mixed conifer forests; vistas to Buck Rock, Kings Canyon, and the Sierra high country; giant sequoia specimen stumps; and Buck Rock Lookout.

*Recreation opportunities* include developed camping at Eshom, Big Meadows, Horse Camp, Landslide,



Tenmile, and Buck Rock campgrounds; Logger Flat Group Campground; Big Meadow rental cabin; extensive dispersed camping opportunities; giant sequoia groves, numerous trails, Chicago Stump, trail to Boole Tree; fishing at Big Meadows and numerous creeks.



*Ecological units* are mixed conifer including giant sequoias, mixed conifer dominated by ponderosa pine, montane hardwood and montane hardwood-conifer, red fir and lodgepole with meadow inclusions, red fir, and Jeffrey pine.

### **KRSMA Off-Highway Vehicle (OHV)**

A portion of the Kings River Special Management Area, this area is bounded on the north by the Kings River and has the only OHV trails in the Monument, as authorized by the legislation that created KRSMA. The area is generally steep with brush and grass covered canyons, 1,000 feet to 5,000 feet in elevation, not very accessible, and provides great opportunities for solitude. Native American use and needs may preclude some interpretation. Millwood staging area and Mill Flat Campground are the access points to this area via the Davis Road (12S01). The existing OHV routes are currently impassable, even for a dirt bike. During the historic logging period, a flume was maintained along Mill Flat Creek to the Kings River originating at the town of Millwood.

Management challenges include risks associated with wildfire aggravated by extremely steep slopes. Visitation in these areas is very limited due to vegetation and terrain.

Scenic attributes are views to the Kings River and steep topography.

Recreation opportunities include OHV trails.

Ecological units are blue oak and interior live oak, chaparral and live oak, montane hardwood and montane hardwood-conifer, limited mixed conifer dominated by ponderosa pine, and very limited mixed conifer including giant sequoia.

## Front Country

This setting is a desirable destination for visitors in spring and fall when temperatures are moderate and snow prevents access to higher elevations and is undesirable in the summer due to heat. During the spring



the hillsides are dressed in spectacular displays of wildflowers. Often referred to as the foothills, the landscape progresses uphill from grasslands, chaparral, and oak woodland to mixed conifer forest. Elevations range from 1,000 feet to 4,500 feet with decomposed granite and erosive soils. These areas are the wildland urban intermix and are generally steep and prone to fire.

*Management challenges* include risks associated with wildfire in steep and fire prone vegetation types, Native American values, tribal relations, urban intermix, litter, graffiti, and gang-related problems.

These areas are utilized mostly by residents; unmanaged or concentrated recreation activity has the potential to lower scenic integrity, and most of these areas do not provide facilities.

*Scenic attributes* are wildflowers, rock outcrops, and views to distinctive ridge lines such as Dennison Peak, Moses Mountain, and Maggie Mountain.

*Recreation opportunities* include developed camping at Leavis Flat and White River campgrounds; organizational camps; hiking and stock use on trails, fishing, hunting, and dispersed camping.



*Ecological units* are blue oak and interior live oak, mixed conifer dominated by ponderosa pine, chaparral and live oak, and very limited upper mixed conifer dominated by Jeffrey pine.



## **Sensitivity and Concern Levels**

Using the VMS, all roads and trails were assigned a sensitivity level during the scenery analysis process for the forest plan, 1988. This reflects the public concern or expectation for scenic quality along traveled routes. Like the visual quality objectives in the plan, these were influenced by different management emphasis at the time.

In the forest plan the highest sensitivity level, Level 1, was assigned to Highway 190, Highway 180, and the Generals Highway. Short trail segments going into the Golden Trout Wilderness and Jennie Lake Wilderness were also considered Level 1. This sensitivity resulted in much of the foreground areas from the travel corridors in the retention visual quality objective. Low-use roads and trails were assigned Level 3, the lowest level of sensitivity, while others received a moderate sensitivity (Level 2).

The MSA added the Freeman Creek Trail from North Road to the Lloyd Meadow Road, and all trails entering the Jennie Lakes Wilderness were changed to a Sensitivity Level 1.

The VMS sensitivity levels 1, 2, and 3 equates to SMS concern levels of 1 (High), 2 (Moderate), and 3 (Low). However the creation of the Monument raised the public expectation for a high quality scenery. The sensitivity levels from previous planning efforts did not reflect the changes in management direction. This is reflected in the concern level mapping done during the SMS inventory process.

All primary roads, all trails, travelways accessing objects of interest, such as giant sequoia groves and geologic features, water bodies, recreation facilities, concentrated use areas, and overlooks, are concern level 1 (high). All other forested areas and areas not identified as concern level 1 fall into concern level 2 (Moderate). There were no concern level 3 routes assigned within the Monument, because of the high expectation of the public for scenic quality based on the proclamation and the importance of scenery to recreation experiences.

## **Visibility Analysis**

The visibility analysis was generated in ArcInfo GIS, using the concern level data layers. Forest personnel can provide more detailed information on how the visibility layers were developed. TEAMS Enterprise edited the visibility analysis completed by the forest to assign a value to unseen areas.

Unseen Acres: Inevitably the visibility computer analysis results in some acres that are “unseen.” These acres are referred to in the SMS Handbook as seldom seen since they may be seen, at a minimum, from aircraft and an occasional viewer wandering through the forest (USDA Forest Service 1995c, 4-11). The designated wilderness and wild and scenic rivers data layers were used to determine and assign a concern level to these “unseen acres.” Unseen areas within the Monarch and Golden Trout Wilderness and the Wild and Scenic River corridors were assigned concern level one. Unseen areas located between the Monarch Wilderness and Wild and Scenic Kings River corridor were also assigned concern level one. All other unseen areas within the Monument were assigned concern level two.

In addition to the above edits, data discrepancies resulting from the DEM (digital elevation model) and visibility GIS model were edited. Data discrepancies in the visibility model output resulted in lines of data which did not match the natural flow of visibility class polygons. The polygons making up these lines of data were edited in ArcMap to match the visibility value of the surrounding polygons.(2) The following table displays the number of acres and the percentage of area in the Monument in each of the distance

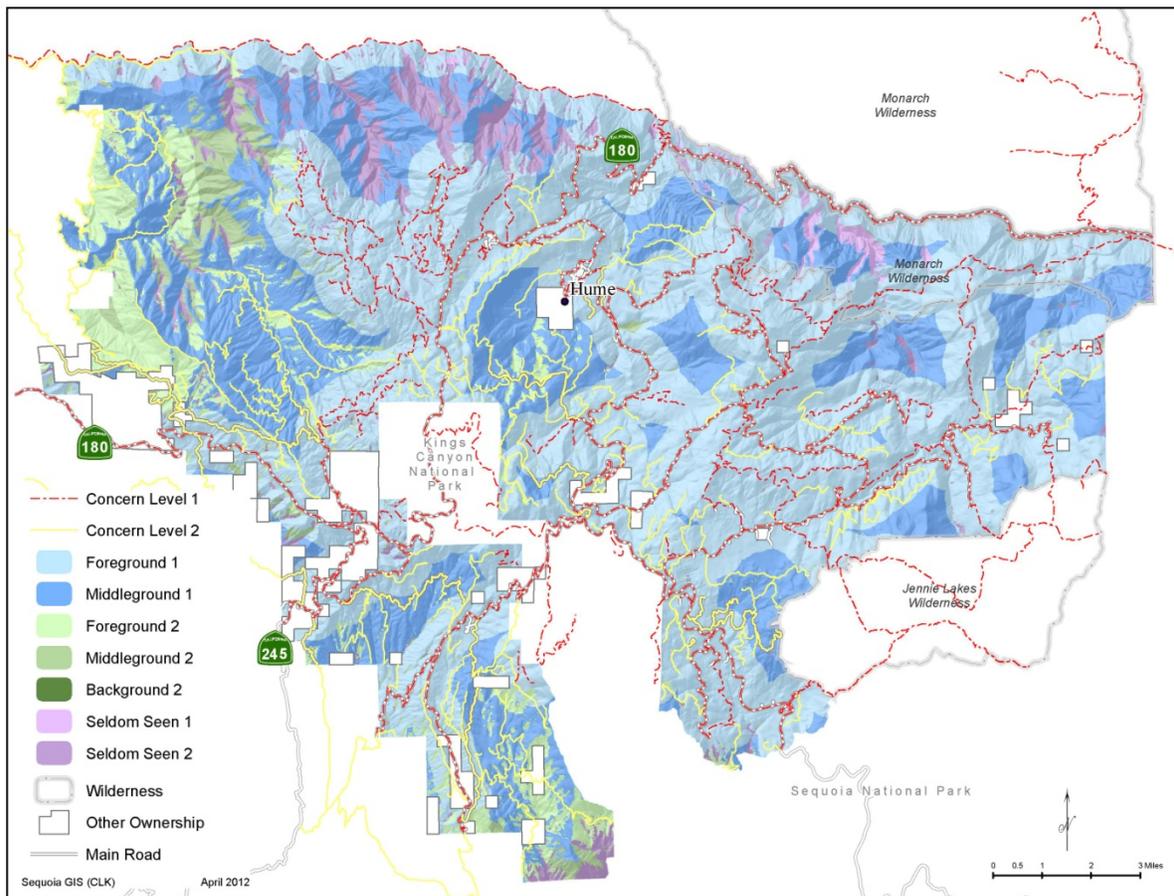
zones with their respective concern level. The maps following the table locate the distant zones with concern level.

**Table 7 Visibility, Distance Zones, and Concern Level Acres**

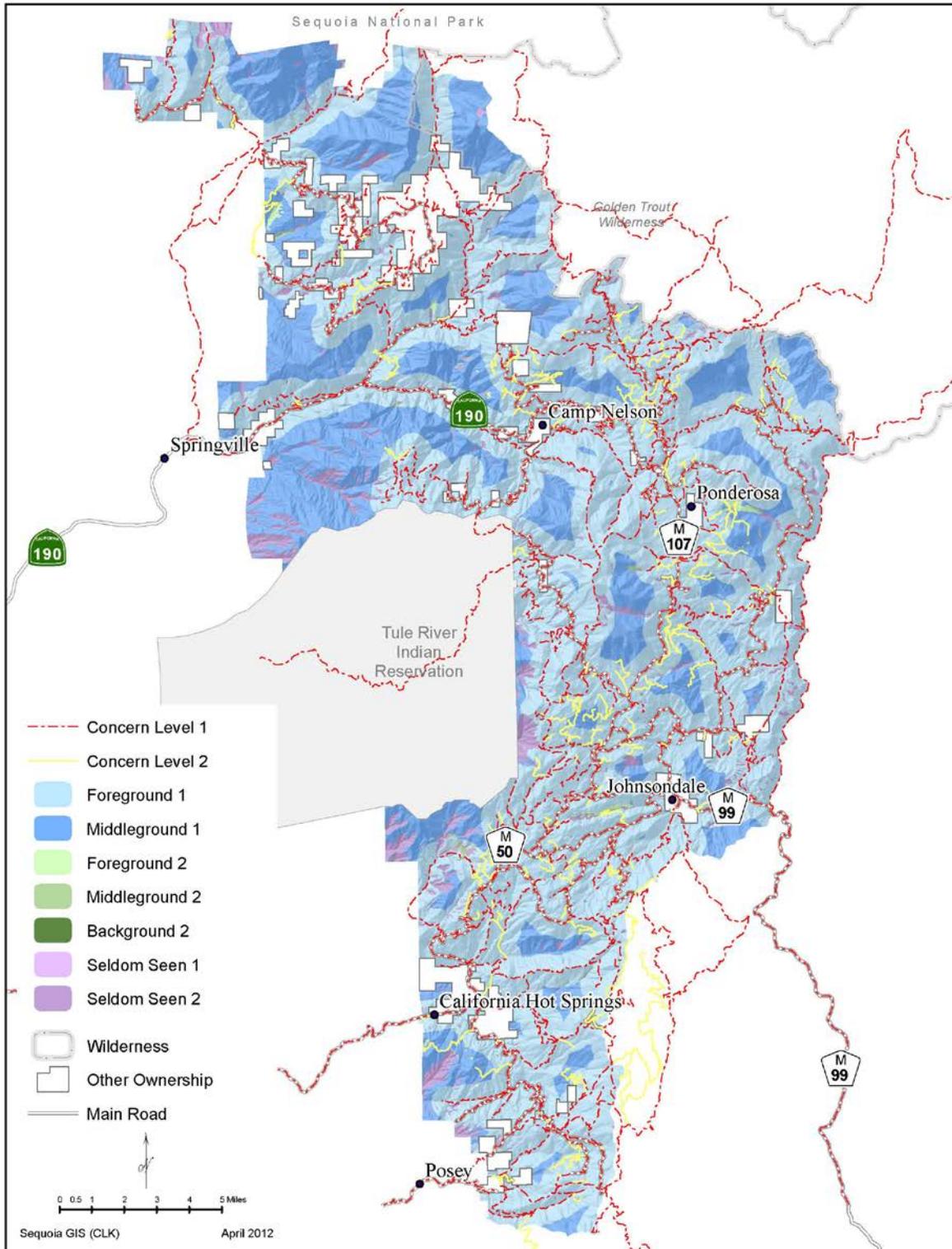
Distance Zones	Concern Level	Acres	Percent of Monument
Foreground	Level 1 (Fg1)	218,088	66
Middleground	Level 1 (Mg1)	84,094	26
Background	Level 1 (Bg1)	0	0
Seldom Seen Areas	Level 1 (ss1)	1,324	0
Foreground	Level 2 (Fg12)	8,937	3
Middleground	Level 2 (Mg2)	3,211	1
Background	Level 2 (Bg2)	0	0
Seldom Seen Areas	Level 2 (ss2)	12,662	4

Note: The acres calculations only include National Forest Systemlands.

**Map 5 Visibility Mapping of the Northern Portion of the Monument**



**Map 6 Visibility Mapping of Southern Portion of the Monument**



## Scenic Attractiveness

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 valued for scenic beauty, based on commonly held perceptions of the beauty of landform, vegetation pattern, composition, water characteristics, and land use patterns and cultural features. Scenic attractiveness indicates varying levels of long-term beauty of the landscape character, regardless of existing conditions. Scenic attractiveness classifications are Class A – distinctive, Class B – typical, and Class C – indistinctive.

Class A – Distinctive landscapes are 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 landscapes are areas where landform, vegetation patterns, water characteristics and cultural features 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.

Class C – Indistinctive landscapes are areas where landform, vegetation patterns, water characteristics and cultural features have low scenic quality. Often water and rock form 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.

Forest personnel supplied TEAMS Enterprise with the Monument’s scenic attractiveness layer in GIS. The Forest Landscape Architect provided the following information on how scenic attractiveness was determined:

### **A-Distinctive landscapes for the Monument included:**

- All sequoia groves
- Botanical areas and research natural areas
- Wild and Scenic River Corridors
- Geologic features including Needles, Dome Rock, Tobias Peak, Mule Peak, Moses Peak, Buck Rock, Mitchell Peak
- Fire lookouts
- Kern, Tule, Kaweah, and Kings Rivers and their tributaries and canyons
- Forest meadow complexes- the meadow layer was studied and areas with multiple meadows were grouped and identified as A.
- Rock outcrops and slopes 50-75 percent were studied for inclusion

### **B-Typical or Common Landscapes for the Giant Sequoia National Monument will include:**

- All other forested areas and areas not identified as A or C.

### C-Indistinctive Landscapes:

- Brush and grass type on slopes of 0-50 percent and rarely seen areas were studied for inclusion.

The forest can provide any additional information on the process used to determine scenic attractiveness classes.

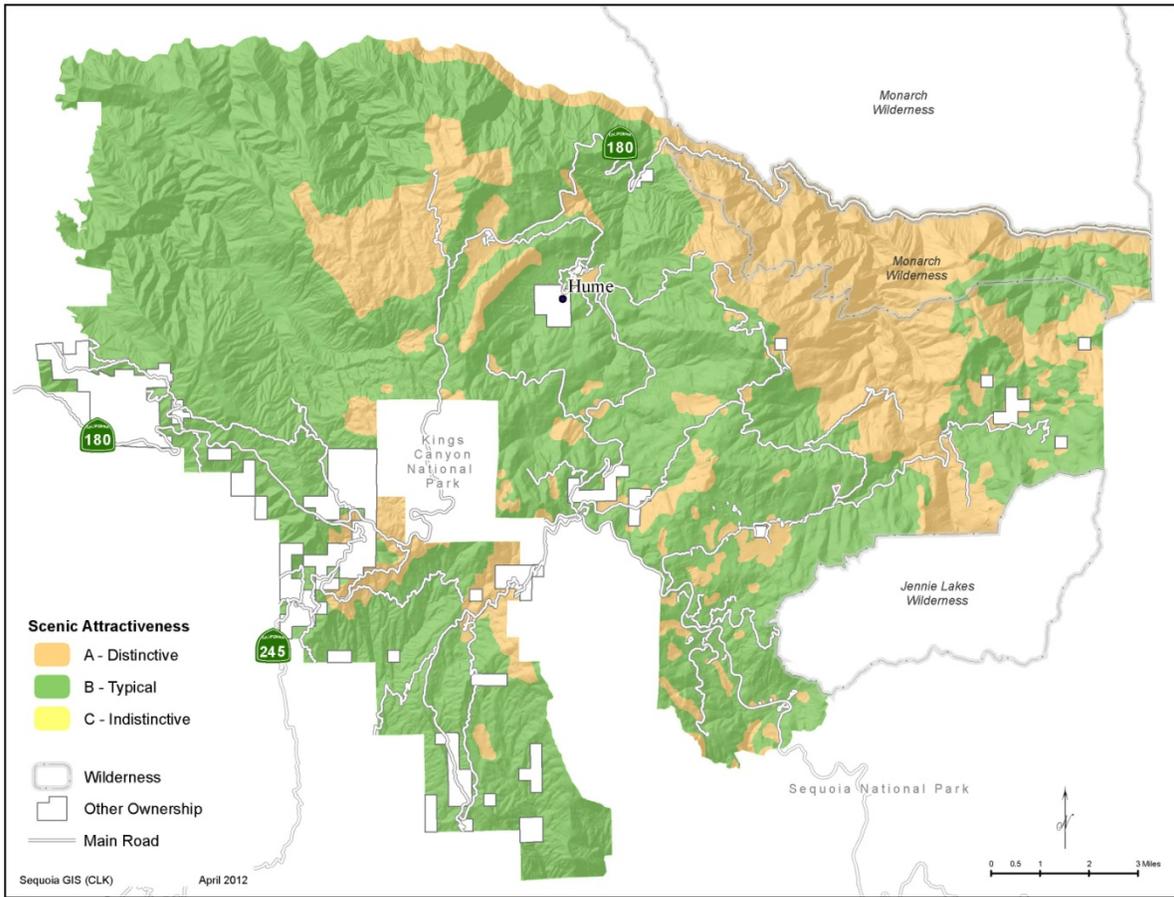
TEAMS Enterprise edited the scenic attractiveness inventory after review and discussion with the Forest Landscape Architect. It was decided to no longer include the Kings Canyon National Scenic Byway or the Generals Highway corridor as distinctive because the importance of these features is more appropriate in concern levels and visibility analysis. Scenic attractiveness is more focused on landform, rock form, water features, and vegetative patterns and composition. The Scenic Byway and Generals Highway corridor polygons were edited in ArcMap and changed to class B, typical. Other distinctive features, such as meadows, giant sequoia groves, unique geology, rock outcrops, etc., which overlapped with the scenic corridors were preserved as class A, distinctive. These changes only affected the northern portion of the Monument. No edits were made to the southern portion of the Monument. Additionally, the Forest Landscape Architect identified the need to change the scenic attractiveness around the Hume Lake area. Only Hume Lake should be class A, distinctive, while the rest of the recreation area should be class B-Typical. The following table displays the number of acres and the percentage of area in the Monument in each Scenic Attractiveness Class (Class). The maps that follow the table locate each Class.

**Table 8 Scenic Attractiveness Class Acres**

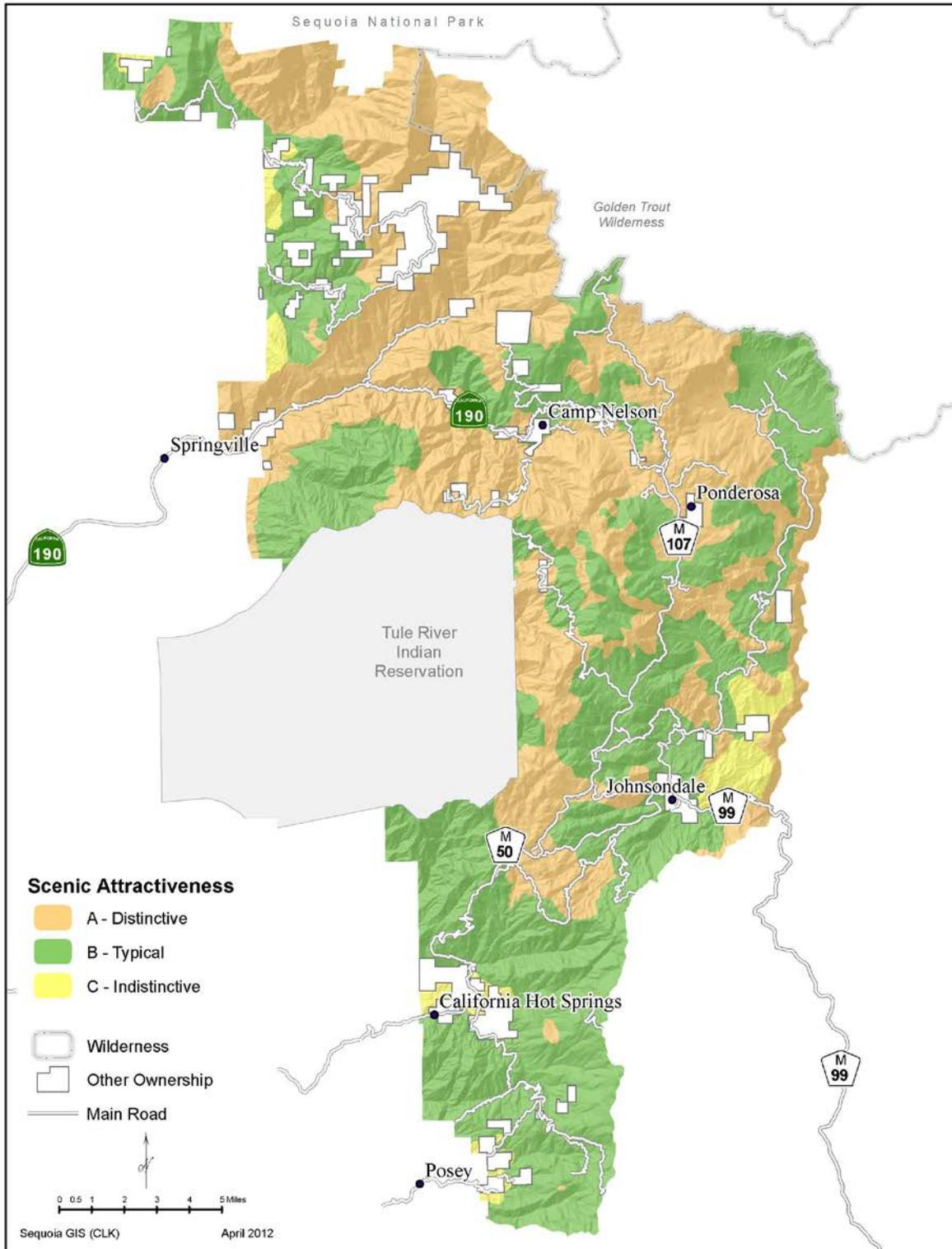
<b>Class</b>	<b>Acres (1)</b>	<b>Percent of Monument</b>
A - Distinctive	130,303	40
B - Typical	191,997	58
C - Indistinctive	6,016	2

1. The acres calculations only include National Forest Systemlands.

**Map 7 Scenic Attractiveness Classes in the Northern Portion of the Monument.**



**Map 8 Scenic Attractiveness Classes in the Southern Portion of the Monument**



## Scenic Classes

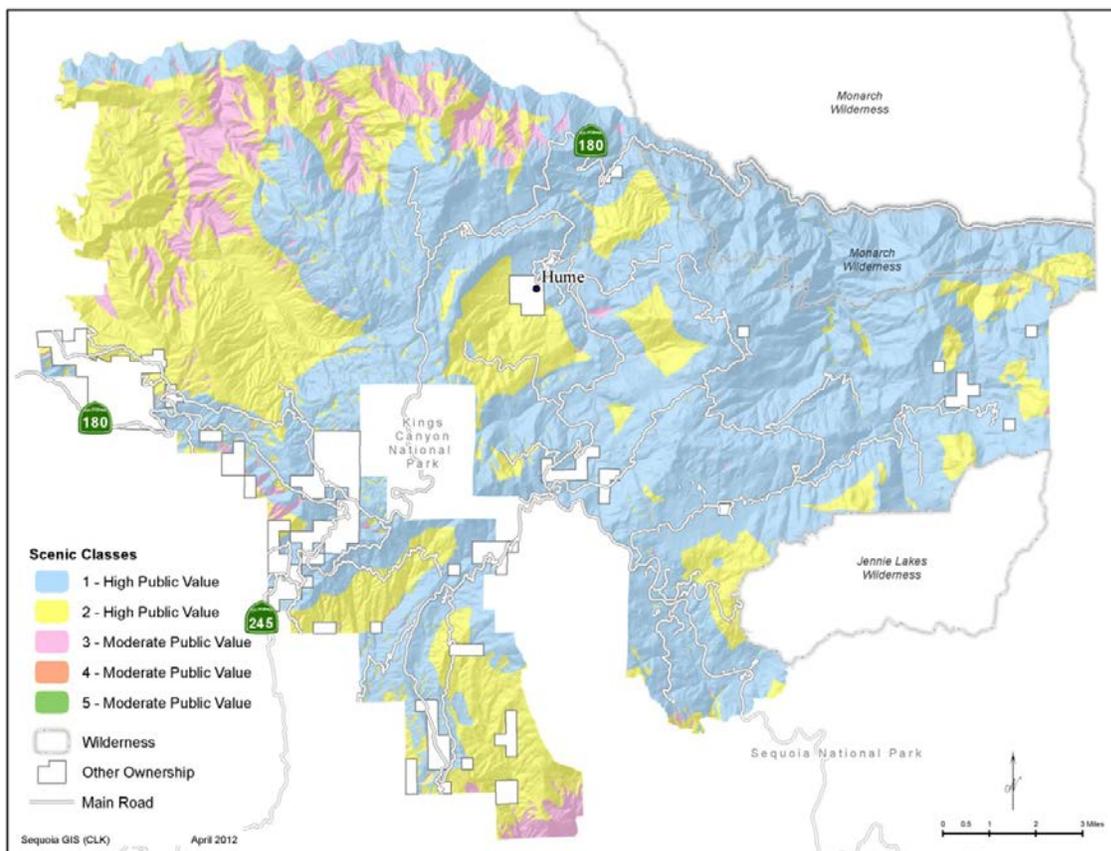
Scenic classes represent the relative landscape value by combining distance zone, concern levels, and scenic attractiveness inventories as outlined in the Scenic Class Matrix on page 4-16 of the SMS handbook. They are a product of the inventory process used for analysis and forest planning purposes. Generally, scenic classes 1 and 2 have high public value, classes 3-5 have moderate value and classes 6 and 7 have low value (USDA Forest Service 1995c, p. 4-15). Approximately 96 percent of the Monument has high public value and the remaining four percent has moderate public value. No lands within the Monument have low public value. The following table displays the number of acres and the percentage of area in the Monument in each Scenic Class. The maps that follow the table locate each Scenic Class.

**Table 9 Scenic Class Acres**

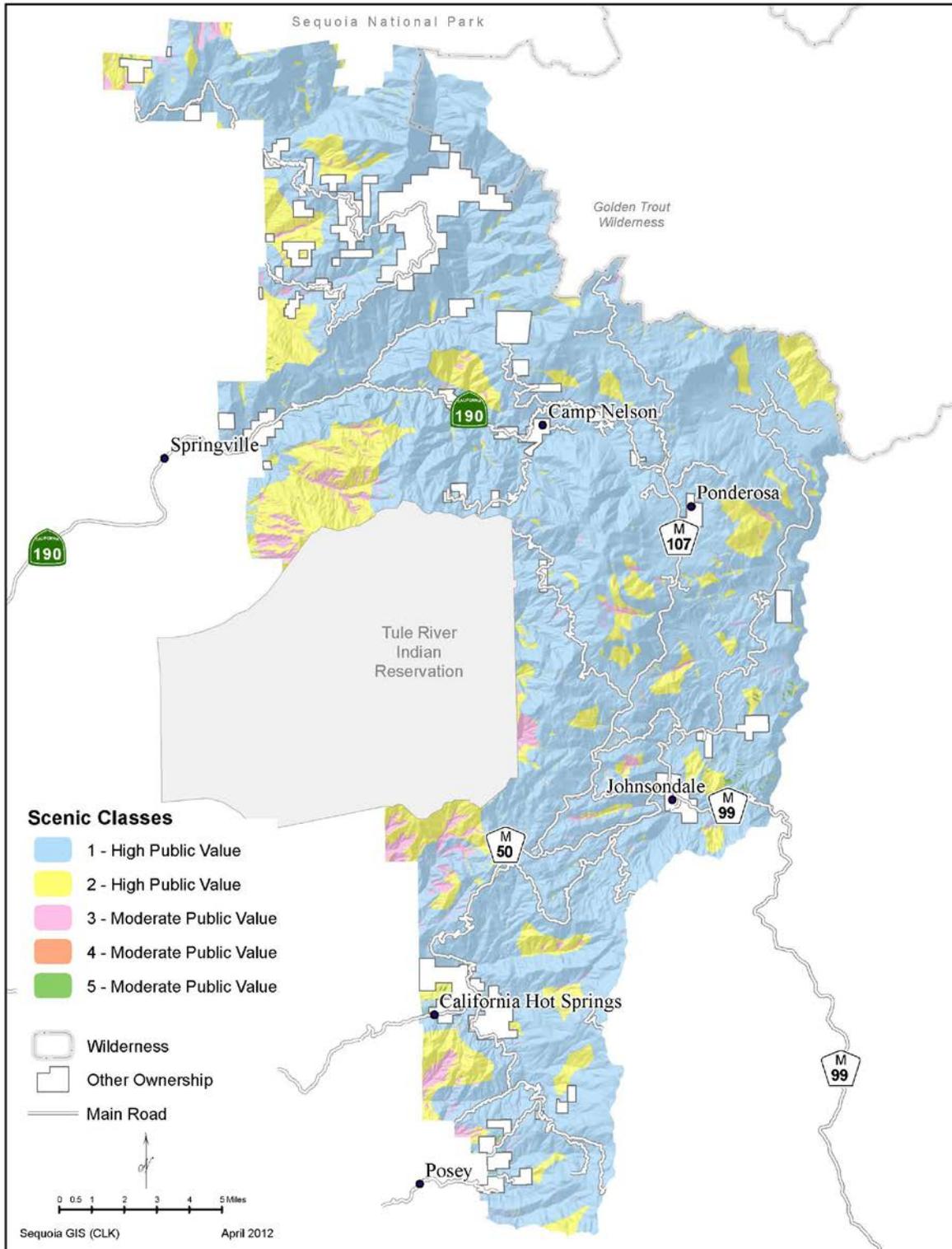
Scenic Class	Acres (1)	Percent of Monument
1 – High Public Value	250,078	76
2 – High Public Value	65,409	20
3 - Moderate Public Value	12,559	4
4 – Moderate Public Value	15	0
5 – Moderate Public Value	254	0
6 – Low Public Value	0	0
7 – Low Public Value	0	0

1. The acres calculations only include National Forest Systemlands.

**Map 9 Scenic Classes in the Northern Portion of the Monument**



**Map 10 Scenic Classes in the Southern Portion of the Monument**



## Scenic Integrity Level Definitions

**Very high** (unaltered) 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) 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) 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.

**Low** (moderately altered) 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) 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.

## Existing Scenic Integrity

The existing scenic integrity (ESI) is a snapshot in time of the existing condition of scenery resources and will change over time. ESI is a result of the implementation of the current forest plan and indicates the degree of intactness and wholeness of the landscape character. Conversely, ESI is a measure of the degree of visible disruption of the natural landscape character. A landscape with very minimal visual disruption is considered to have high ESI. Those landscapes having increasingly incompatible relationships among scenic attributes are viewed as having diminished existing scenic integrity. National Forest System lands are not managed for unacceptably low scenic integrity. The unacceptably low level is used in the inventory process to identify lands that need rehabilitation. No lands were identified as unacceptably low during the ESI inventory for the Monument. The following table displays the number of acres and the percentage of area in the Monument by existing scenic integrity level.

Existing scenic integrity (ESI) levels were determined for the Monument landscapes using elements and data available in GIS. Forest activities data from 1980 to present were used to determine areas that appear altered from vegetation management and other activities which alter the landscape, including developed and dispersed recreation, travel management, and livestock grazing. Other GIS data used to determine scenic integrity of the landscape includes designated wilderness, wild and scenic river corridors, inventoried roadless areas, special areas, research natural areas, the Kings River Special Management Area, and giant sequoia groves. National Agricultural Imagery Program (NAIP) aerial imagery from 2008

was used as a reference to identify changes in the landscape that may not be found in the GIS layers and may be noticeable from aerial views.

Due to time constraints which limited field review, ESI levels were rated from an aerial view, which is the most revealing. During site-specific analysis for projects, the ESI inventory can be reviewed and updated based on views from concern level travelways and use areas, using typical on-the-ground observer points.

The Monarch and Golden Trout wildernesses and most wild and scenic river corridors appear unaltered, expressing the highest possible level of intactness with a primitive and natural sense of place and have an existing scenic integrity of very high. Lands with very high ESI make up about 5 percent of the Monument.

Inventoried roadless areas (IRAs), special areas, research natural areas, the Kings River Special Management Area, and giant sequoia groves are naturally appearing; the landscape appears intact, and deviations from the landscape character are not evident, giving these areas an ESI level of high. A portion of the Kings Wild and Scenic River corridor along state highway 180 near and east of Horseshoe Bend was rated high due to the presence of the highway. Lands with high ESI make up about 36 percent of the Monument.

The majority of the landscape, about 56 percent of the Monument, appears slightly altered due to the transportation system, developed recreation, special use permitted areas, and vegetation management activities, and has an ESI of moderate. The southern portion of Black Mountain Grove was rated moderate because of roads concentrated in this particular area. Additionally, some vegetation management activities caused lands originally rated as high to be rated as moderate because of fragmentation with small areas isolated from groves, IRAs, and the Kings River Special Management Area. These small isolated areas were rated the same as adjacent lands until further field review can be completed.

Areas with vegetation treatments were rated as low ESI, as well as some dispersed camping areas. Most dispersed recreation sites and camping areas have reduced ground cover, litter, and extensive user-created trails being affected to the extent that they appear moderately altered. Vegetation treatments with naturally appearing edges and in areas with natural openings were also rated low. The above deviations may dominate the valued landscape character, but borrow from valued attributes such as shape, edge effect, and pattern of natural openings, resulting in a landscape which appears moderately altered. If treated areas are not noticeable and naturally appearing, some may be determined to meet high or moderate ESI during field review or site-specific project level analysis.

Two areas in the northern portion of the Monument were identified as having very low ESI. These areas adjacent to private land had extensive clearing, ground disturbing activities, or geometric shapes. These areas may strongly dominate the valued landscape character and borrow little from valued attributes such as size, shape, edge effect, and pattern of natural openings.

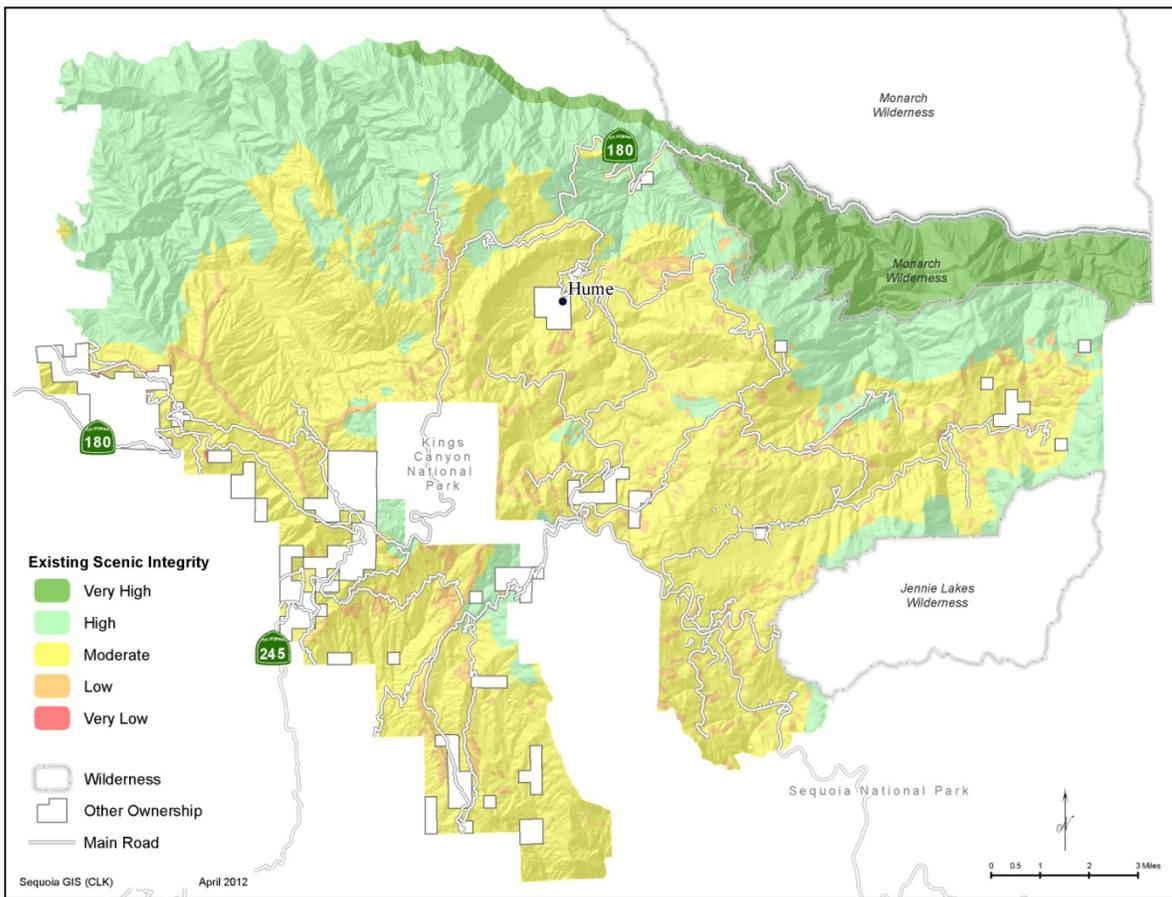
The following table displays the number of acres and the percentage of area in the Monument by existing scenic integrity level. The maps that follow the table display the existing scenic integrity.

**Table 10 Existing Scenic Integrity Levels Acres**

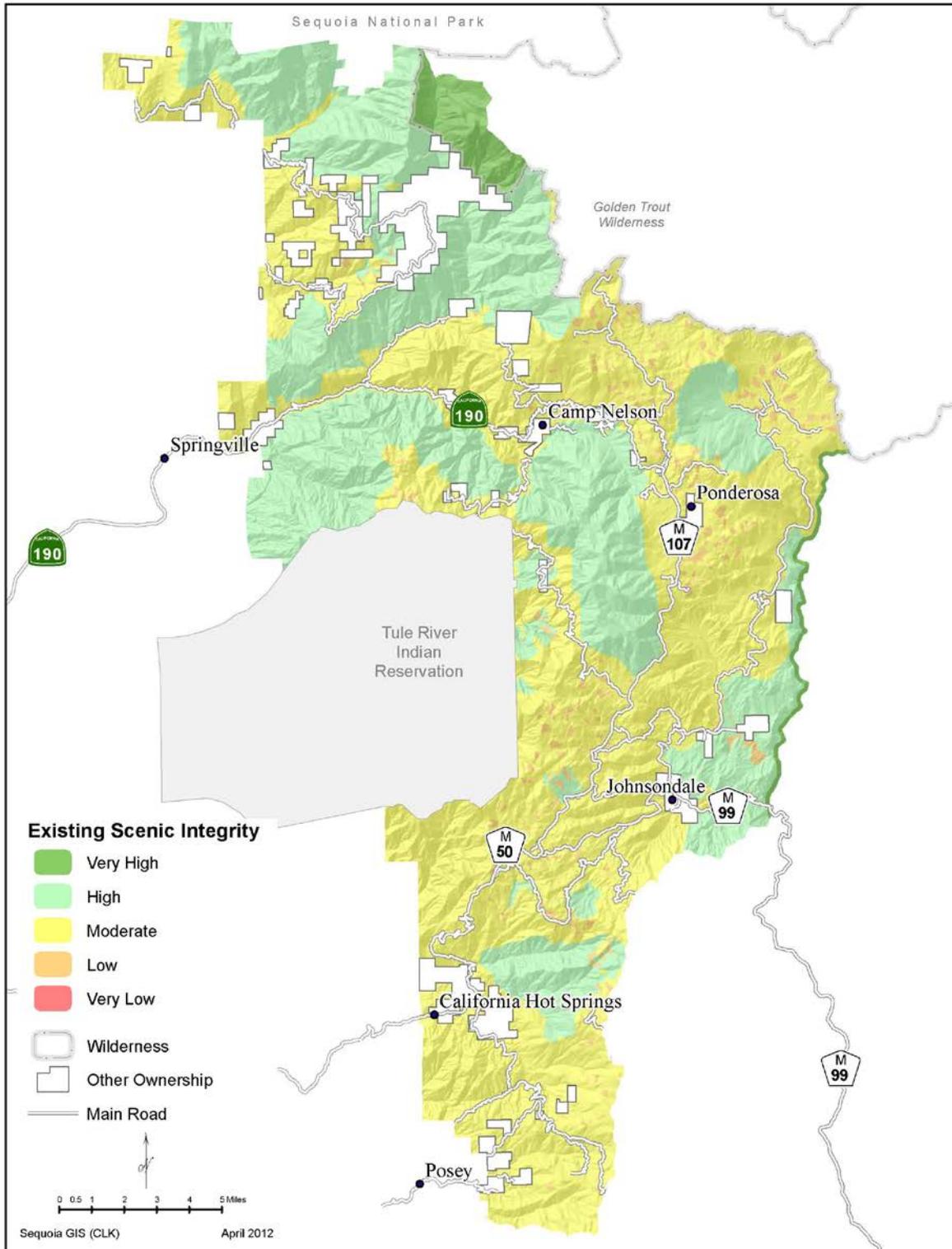
Existing Scenic Integrity Level	Acres (1)	Percent of Monument
Very High	16,050	5
High	118,127	36
Moderate	183,030	56
Low	11,097	3
Very Low	11	0

1. The acres calculations only include National Forest Systemlands.

**Map 11 Existing Scenic Integrity of the Northern Portion of the Monument**



**Map 12 Existing Scenic Integrity of the Southern Portion of the Monument**



## Composite Scenery Base Map

SMS Handbook guidance for determining scenic integrity objectives is as follows. The scenery inventory icon has the following information: distance zone, concern level, scenic attractiveness, scenic classes, and existing scenic integrity.

To determine scenic integrity levels (SILs) for the Monument, a composite scenery base map was produced by combining scenic classes and existing scenic integrity levels. These two inventories contain all the information in the scenery inventory icon. This map is intended to be a starting point for determining scenic integrity levels during the interdisciplinary Monument planning process.

Scenic classes represent the relative landscape value by combining distance zones, seen area, concern levels, and scenic attractiveness classes. The classes are a product of the inventory process that is used for analysis and forest planning purposes. Generally scenic classes 1 and 2 have high public value and classes 3-5 have moderate public value (USDA Forest Service 1995c, p. 4-15). The following table displays the number of acres and the percentage of area in the Monument by scenic class.

**Table 11 Scenic Classes Acres**

Scenic Class	Acres (1)	Percent of Monument
1 – High Public Value	250,078	76
2 – High Public Value	65,409	20
3 – Moderate Public Value	12,559	4
4 – Moderate Public Value	15	0
5 – Moderate Public Value	254	0

1. The acres calculations only include National Forest System lands.

The scenic classes and the existing scenic integrity levels were combined using the matrix shown in the following table. This combination of inventories is the existing condition of the Monument in terms of the scenery management system and will be referred to as the composite scenery base map. The value for each scenic class and the value next to each ESI level were summed, producing a range of values from 2 to 12. The Monument composite scenery base map included values from 2 to 9. The following table displays the matrix used for developing the composite scenery base map.

**Table 12 Matrix for determining SMS Values for the Composite Scenery Base Map**

Scenic Class	Existing Scenic Integrity Levels				
	Very High (1)	High (2)	Moderate (3)	Low (4)	Very Low (5)
1	2	3	4	5	6
2	3	4	5	6	7
3	4	5	6	7	8
4	5	6	7	8	9
5	6	7	8	9	10
6	7	8	9	10	11
7	8	9	10	11	12

The SMS values derived from the composite scenery base map can be correlated with potential scenic integrity levels. A range of values was correlated to a potential scenic integrity level by condensing the range of values in the matrix above into the table shown below. The following table identifies the SMS values for each scenic integrity level (SIL).

**Table 13 Linking SMS Values to Potential Scenic Integrity Levels**

Scenic Integrity Level	Very High	High	Moderate	Low	Very Low
SMS Value	2	3-4	5-8	9-10	11-12

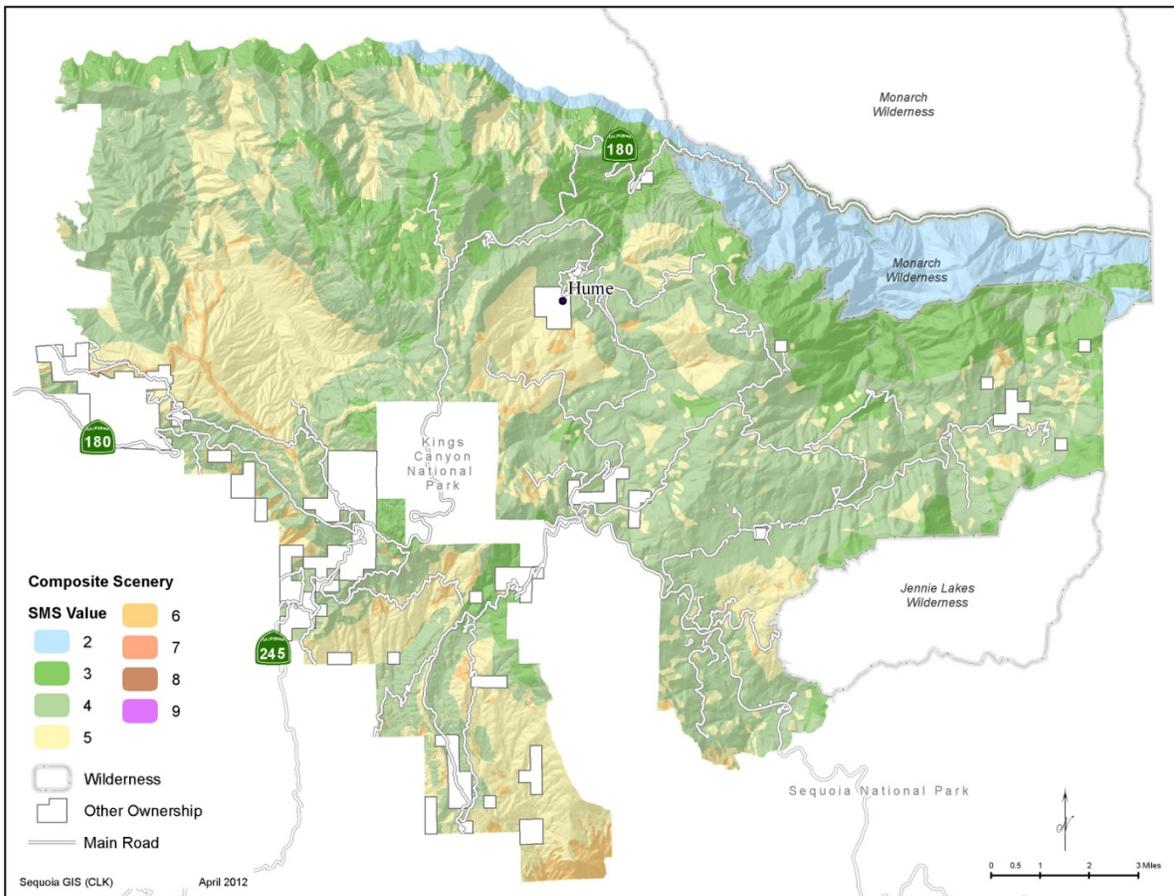
The most likely desired management conditions, scenic class, and current intactness of the landscape were all considered when assigned a potential SIL. National Forest System lands are not managed beyond the very low scenic integrity level. In the matrix of SMS values, the lower the numeric value the more important the public value for scenery, as well as the higher the intactness of the natural landscape. The following table displays the number of acres and the percentage of area in the Monument in each SMS value. The maps that follow the table locate each SMS value.

**Table 14 SMS Values Acres for the Composite Scenery Base Map**

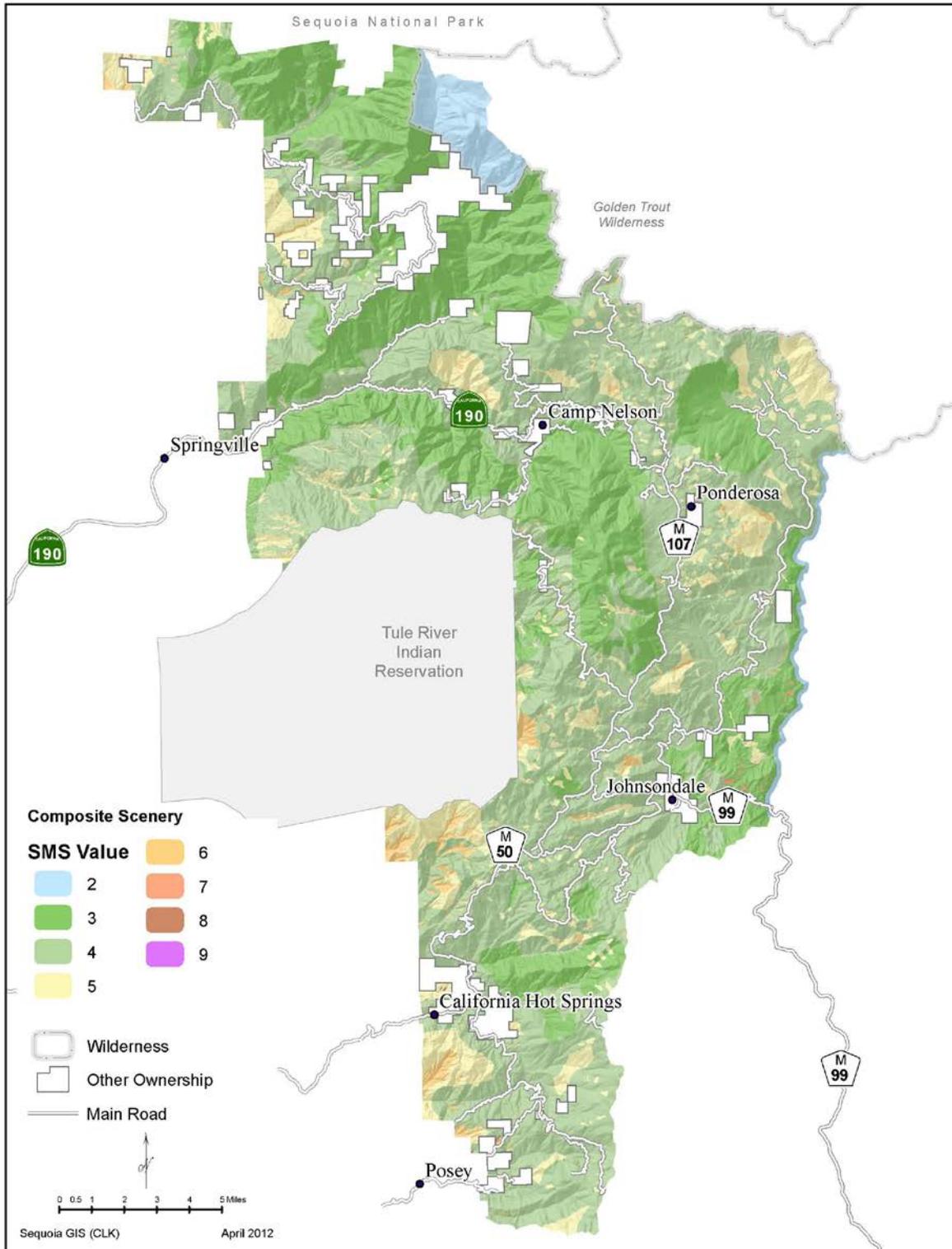
Matrix of SMS Values	Acres (1)	Percent of Monument <sup>5</sup>
2	15,585	5
3	83,830	26
4	168,952	51
5	52,774	16
6	6,896	2
7	202	0
8	71	0
9	5	0
10	0	0
11	0	0
12	0	0

1. The acres calculations only include National Forest System lands.

**Map 13 Composite Scenery Base for the Northern Portion of the Monument**



**Map 14 Composite Scenery Base for the Southern Portion of the Monument**



The SMS values from the composite scenery base map were condensed to provide guidelines and a starting point for developing the proposed scenic integrity levels. The potential scenic integrity levels (SILs) were reviewed by national forest personnel to see if they fit the management needs of the Monument. Edits and changes given by forest personnel were incorporated to develop the proposed SILs presented at the February 16, 2010 interdisciplinary team (IDT) meeting.

**Table 15 Potential Scenic Integrity Levels Acres Based on SMS Values**

Potential Scenic Integrity Level	Acres (1)	Percent of Monument
Very High	15,585	5
High	252,7827	77
Moderate	59,942	18
Low	5	0
Very Low	0	0

1. The acres calculations only include National Forest Systemlands.

The following changes were made to the potential SILs to produce the proposed SILs presented at the February 16, 2010, IDT meeting:

- No areas were assigned proposed SIL of low or very low. Areas with a potential SIL of low were changed to moderate.
- Designated wildernesses, research natural areas, and special areas were assigned proposed SIL of very high.
- Giant sequoia groves not assigned proposed SIL of very high were assigned a proposed SIL of high.
- Inventoried roadless areas not assigned proposed SIL of very high were assigned proposed SIL of high.
- Note that there may be minor changes, refinements, and clarifications to the proposed SILs by forest personnel between the draft EIS and the final EIS.

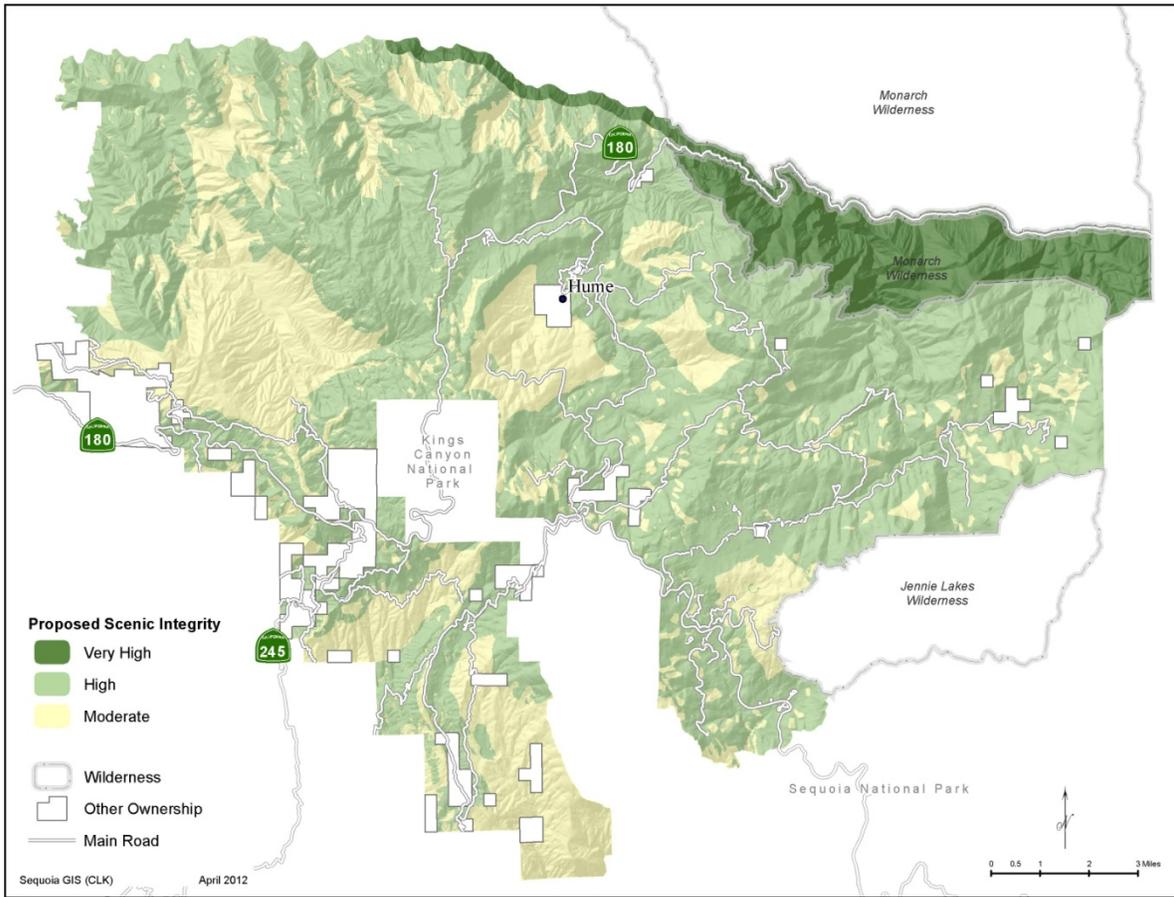
The following table displays the number of acres and the percentage of area in the Monument by Proposed Scenic Integrity Level. The maps that follow the table display the Proposed Scenic Integrity Levels.

**Table 16 Proposed Scenic Integrity Level Acres**

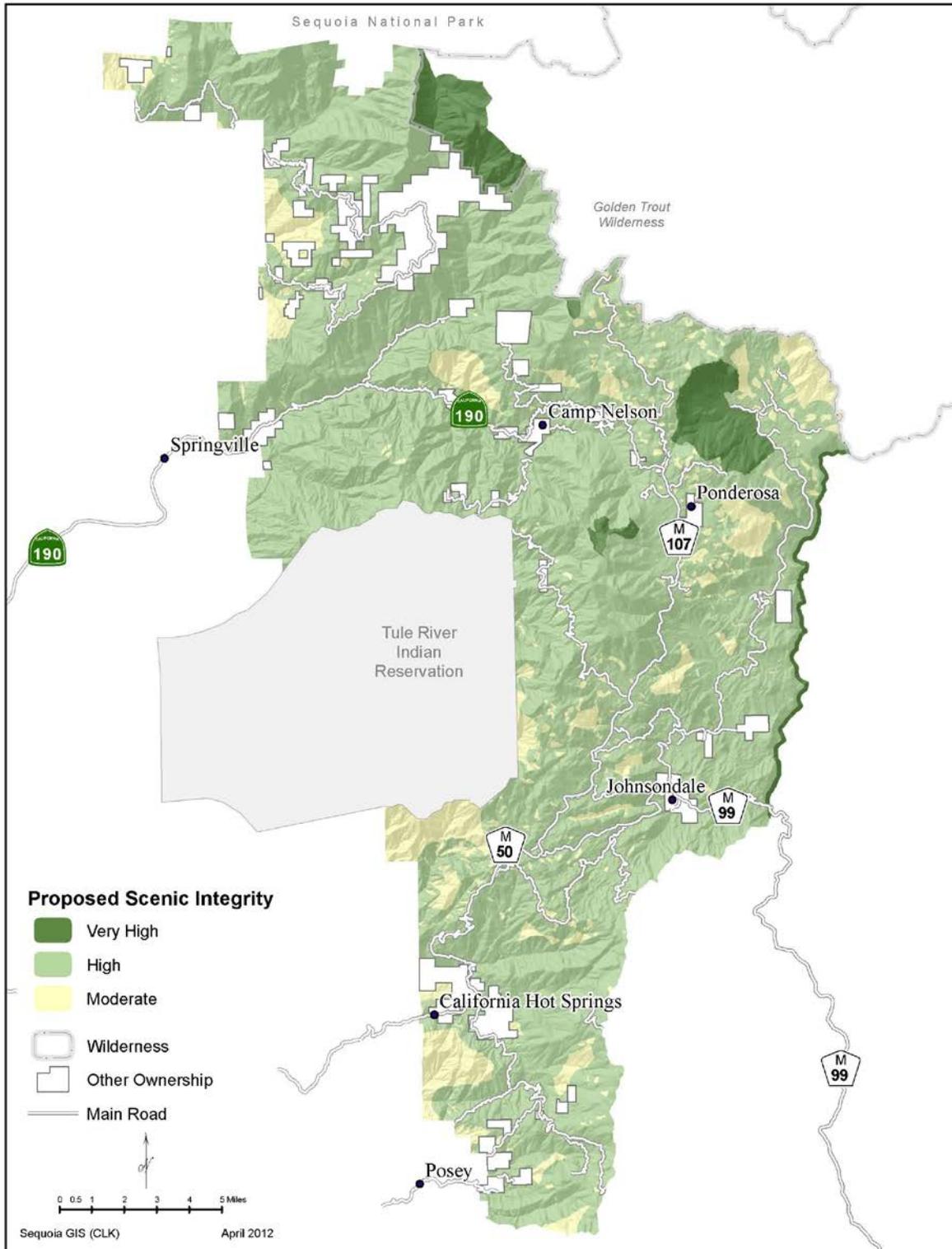
Proposed Scenic Integrity Level	Acres (1)	Percent of Monument
Very High	20,901	6
High	251,134	76
Moderate	56,281	17

1. The acres calculations only include National Forest Systemlands.

**Map 15 Proposed Scenic Integrity Objectives for the Northern Portion of the Monument**



# Map16 Proposed Scenic Integrity Objectives for the Southern Portion of the Monument



## Proposed Scenic Integrity Objectives

Once a final plan alternative is adopted, the proposed scenic integrity objectives will become the scenic integrity objectives (SIOs) for the management plan and will be used to manage the scenery resource. The SIOs reflect the new management emphasis in the Clinton Proclamation focusing on public enjoyment and protection of the objects of interest. The proposed SIOs are based on the information from the composite scenery base map and the refinements made by the interdisciplinary team based on professional judgment. Since the management emphasis remains the same for all the alternatives the SIOs do not change by alternative.

The Forest Plan VQOs equate to the proposed SIOs and are compared by acreage in the following table.

**Table 17 Change in Acreage from Forest Plan VQOs to Monument Plan Proposed SIOs**

VQOs/SIOs	Acres Under the Plan	Proposed acreage as a Monument
Preservation Very High	28,361	59,382
Retention/High	43,475	92,666
Partial Retention/Moderate	106,541	176,267
Modification/Low	124,958	0
Maximum Modification/Very Low	24,980	0

The scenic integrity objectives are expected to serve as a guide for design and implementation of management activities. Only very high, high, and moderate scenic integrity objectives are proposed for the Monument, all emphasizing a relatively natural-appearing landscape. It is important for national forests to manage scenery at this level. "Research has shown that high-quality scenery, especially that related to natural-appearing forests, enhances people's lives and benefits society" (USDA Forest Service 1995, p. 17). It should also be noted that according to Newby's findings that "people expect to see natural or natural-appearing scenery," (quoted in USDA Forest Service 1995, pp. 2-3). Furthermore, "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" (USDA Forest Service 1995, p. 30). The following table compares the proposed scenic integrity to the existing scenic integrity in acres by "place," identifying need for restoration.

**Table 18 Proposed and Existing Scenic Integrity**

Place Name	Acres of Proposed Scenic Integrity					Total
	Very High	High	Moderate	Low	Very Low	
Front Country	0	22,407	14,468	0	0	36,875
Generals Highway	0	2,602	275	0	0	2,877
Golden Trout Wilderness	4,532	0	0	0	0	4,532
Western Divide	2,136	96,134	9,333	0	0	107,602
Hume High Elevation	2	42,340	19,468	0	0	61,810
Hume Lake	0	1,658	193	0	0	1,852
Kings Canyon Scenic Byway	5	6,546	724	0	0	7,274
Kings River	2,793	1,985	76	0	0	4,854
KRSMA	0	6,653	3,069	0	0	9,722

KRSMA OHV	0	8,149	2,493	0	0	10,642
Lloyd Meadow	3,901	23,872	4,168	0	0	31,941
Monarch Wilderness	7,532	5,968	9	0	0	13,508
Tule River	0	23,663	1,603	0	0	25,266
Western Divide Highway	0	9,159	401	0	0	9,559
Total	20,901	251,134	56,281	0	0	328,315

Acres of Existing Scenic Integrity						
Place Name	Very High	High	Moderate	Low	Very Low	Total
Front Country	0	5,960	30,009	906	0	36,875
Generals Highway	0	40	2,585	252	0	2,877
Golden Trout Wilderness	4,532	0	0	0	0	4,532
Western Divide	0	42,901	61,297	3,404	0	107,602
Hume High Elevation	2	10,436	46,620	4,752	0	61,810
Hume Lake	0	172	1,571	109	0	1,852
Kings Canyon Scenic Byway	5	2,427	4,558	273	0	7,274
Kings River	2,787	2,046	18	3	0	4,854
KRSMA	0	6,653	2	0	0	9,722
KRSMA OHV	0	9,719	2,493	0	0	10,642
Lloyd Meadow	1,192	10,690	19,040	1,019	0	31,941
Monarch Wilderness	7,532	5,968	121	26	0	13,508
Tule River	0	16,450	876	30	0	25,266
Western Divide Highway	0	908	8,329	323	0	9,559
Total	16,050	118,127	183,030	11,097	11	328,315

## Ongoing Activities

Activities and conditions that will continue into the future in Alternative A include dispersed and developed recreation. Studies support the strategy of minimizing recreation use impact by concentrating use (Cole 1993). Dispersed recreation could potentially degrade natural resources that contribute to scenic quality (USDA Forest Service 1995c) as demand for these activities rises in the future.

As demand for dispersed use in undisturbed areas rises, the greater the risk of lowering the scenic integrity in undisturbed areas of the Monument. As use increases in heavily used areas, impacts will not increase significantly.

Developed recreation sites protect scenery by concentrating use and by providing amenities such as restrooms, hardened walkways, designated parking areas, and visitor information stations. Alternative A

allows for the development of more recreation sites as visitor demand increases and can protect the scenery resources in both developed and undeveloped areas of the Monument.

Landscapes in areas of high public concern that have missed natural fires (see effects on fire and fuels in Chapter 4) will experience a continued degradation of scenery resources as they become increasingly overstocked, dense with vegetation, and have increasing amounts of dead and down wood, all conditions that people do not prefer (Ryan 2005) potentially lowering scenic integrity. These landscapes are more susceptible to large scale disturbances and in areas that experience large scale disturbances, such as moderate or severe fire (see the effects on Fire and Fuels section in Chapter 4) or exhibit large areas of dead and dying vegetation from competition for limited resources, pests or disease, the scenery resources will be degraded (Ryan 2005). This vulnerability leads to lower scenic stability.

Although the no action alternative, Alternative A, is managed according to the Forest Plan, which established VQOs, the Clinton proclamation increased the emphasis on recreation and public enjoyment and protection of the objects of interest within the Monument boundaries. Consequently, scenery resources, which enhance public enjoyment and the recreation experience, are given higher consideration, and the proposed SIOs, which are considerably higher than those established in the Forest Plan, are used as a guide for design and implementation of management activities.

## Environmental Effects

### Legal and Regulatory Compliance

The National Environmental Policy Act of 1969 (NEPA) states that it is the "continuing responsibility of the Federal Government to use all practicable means to assure for all Americans, aesthetically and culturally pleasing surroundings." 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 into planning and decision-making which may have an impact on man's environment. To accomplish this, numerous federal laws require all Federal land management agencies to consider scenery and aesthetic resources in land management planning, resource planning, project design, implementation, and monitoring. These Federal laws include:

- The Wilderness Act (1964) directs that a designated wilderness be managed to retain its primeval character and influence. It is protected and managed so as to preserve its natural condition. The imprint of man's work must be substantially unnoticeable.
- The Wild and Scenic River Act (1968) stipulates that the outstandingly remarkable scenic values of rivers eligible or suitable to be included in the system be carefully managed. Any management activities that could negatively impact the scenic resources should not be conducted.
- The National Trails System Act (1968) states that trails should be established within scenic areas and along historic travel routes of the Nation, which are often more remotely located.
- The Environmental Quality Act (1970) sets forth a national policy for the environment which provides for the enhancement of environmental quality.
- The Forest and Rangeland Renewable Resources Planning Act (1974) provides direction to conduct aesthetic analysis and assess the impacts on aesthetics for timber harvesting. It also provides the framework for natural resource conservation.

- The National Forest Management Act (1976) directs that the preservation of aesthetic values be analyzed at all planning levels. Part 219.21 requires that the visual resource shall be inventoried and evaluated as an integrated part of evaluating alternatives in the forest planning process, addressing both the landscape's visual attractiveness and the public's visual expectation.
- The Surface Mining Control and Reclamation Act (1977) states that "a surface area may be designated unsuitable for certain types of surface mining operations if such operations will result in significant damage to important aesthetic values and natural systems.
- The Public Rangeland Improvement Act (1978) declares "Unsatisfactory conditions on public rangelands reduce the value of such lands for recreational and aesthetic purposes."

In addition, the Forest Service has routinely included both scenery and recreation as part of the 1960 Multiple Use-Sustained Yield Act. The following USDA handbooks establish a framework for management of scenic resources. These handbooks were written when the Visual Management System was in place. The Visual Management System has now been replaced by the Scenery Management System. The handbooks still apply to management of scenic resources.

- National Forest Landscape Management Volume 1, Agriculture Handbook 434:1973
- Utilities, Chapter 2, Agriculture Handbook 478:1975
- Range, Chapter 3, Agriculture Handbook 484:1977
- Roads, Chapter 4, Agriculture Handbook 483:1977
- Timber, Chapter 5, Agriculture Handbook 559:1980
- Fire, Chapter 6, Agriculture Handbook 608:1985
- Recreation, Chapter 8, Agriculture Handbook 666:1987
- Landscape Aesthetics, A Handbook for Scenery Management, Agriculture Handbook 701:1995

## **Rationale for Changing from Visual Management System (VMS) to Scenery Management System (SMS)**

To inventory, analyze, and set objectives for scenery management, the Sequoia National Forest is currently moving from the Visual Management System (VMS) used in the Forest Plan 1988, to the Scenery Management System (SMS). For most national forests the process of shifting from VMS to SMS is reserved for the forest plan revision. The Monument planning effort utilized the SMS to incorporate the best science for this planning effort.

The VMS used Visual Quality Objectives (VQO) as the measurable standards for the visual management of landscapes. These objectives describe the degrees of acceptable alteration of the natural landscape. The degree of alteration is measured in terms of visual contrast with the surrounding natural landscape. There are five possible objectives: Preservation, Retention, Partial Retention, Modification and Maximum Modification.

The Visual Quality Objectives assigned by the Forest Plan 1988 and specific to the Monument are as follows: Preservation – 28,361 acres, Retention – 43,475 acres, Partial Retention – 106,541 acres, Modification – 124,958 acres, Maximum Modification – 24,980 acres. These objectives are roughly equivalent to the Scenic Management System scenic integrity levels as follows: Preservation = very high, Retention = high, Partial Retention = moderate, Modification = low, and Maximum Modification = very low.

Under the Forest Plan a large portion of the conifer forests within the monument boundary had a sawtimber management emphasis and were assigned Modification and Maximum Modification visual quality objectives. In Modification and Maximum Modification classifications, management activities may dominate the original characteristic landscape. These activities contrast with and detract from the "natural appearing" landscape of which scenic quality is measured.

In 1995, National Forests were directed to change from the Visual Management System to the Scenery Management System. This involves changes in terminology and inventory and analysis processes. The SNFPA 2001 converted established VQOs to the SIOs as shown in the following table. Since the Clinton proclamation and the SNFPA 2001, changed the management emphasis in the Monument a simple conversion of VQOs to SIOs was not appropriate for this planning process. A new scenic resources inventory was conducted for this planning process using the SMS to reflect the changes in management emphasis and to use the best science available for the analysis.

## **Standards and Guides**

For this planning process a new scenery management inventory was completed to reflect the new management emphasis. This analysis was done using the SMS replacing VQOs with SIOs as directed in agency policy.

A number of changes to forest plan standards and guidelines are proposed for the action alternatives (B, C, D, E, F). Some are proposed to be deleted because they are a matter of law, regulation, or policy, and some of them conflict with current national policy or the Clinton proclamation and the SNFPA. Many of the changes proposed are more appropriate as strategies to guide future actions, rather than as standards and guides that require compliance.

**Table 21 New Standards and Guides**

Forest Plan Category	Standard/Guide	Rationale
Scenic Resources	Include mitigation measures for activities that alter the landscape beyond the adopted minimum scenic stability.	Minimum scenic stability is a new indicator added to scenery analysis and inventory process with the changes from VMS to SMS.

**Table 22 Revised Standards and Guides**

Forest Plan Category	Standard/Guide	Rationale
Scenic Resources	Design management activities to meet and exceed when practical the specified Scenic Integrity Objective (SIO).	VQO of the Visual Management System (VMS) changed to SIO in Scenery Management System (SMS).
Scenic Resources	Scenic Integrity Objectives (SIO) will be met with the following exceptions: (1) Accept occasional short-term departure from adopted SIO that will lead to long-term desired scenic character if disclosed in a site specific NEPA decision. (2) Temporary drops of one SIO level may be made during and immediately following project implementation providing they do not exceed three years in duration.	Wording from Forest Plan was adjusted to reflect the SMS process.

**Table 23 Deleted Standards and Guides**

Forest Plan Category	Standard/Guide	Rationale
Visual Resources	Manage Highway 180, Highway 190, Highway 178, Sierra Way (SM99), the Western Divide from Quaking Aspen to the Ponderosa, the Generals Highway, and heavily used trails that lead directly into wildernesses as Sensitivity Level 1. (LRMP p. 4-23)	Visual Management System (VMS) is replaced with Scenery Management system (SMS).  Clinton proclamation raises Concern levels
Visual Resources	Manage about 270 miles of roads and 200 miles of trail as sensitivity Level 2. (LRMP p. 4-23)	Visual Management System (VMS) is replaced with Scenery Management system (SMS).  Clinton proclamation raises Concern levels
Visual Resources	Manage the remainder of the forested land as either sensitivity level 2 or 3. Exceptions occur in the following ROS classes where the greatest visual impact allowed will be: SPNM=PR, SPM=M, RN and R=MM, with M as the primary VQO. (LRMP p. 4-23)	Visual Management System (VMS) is replaced with Scenery Management system (SMS).  Clinton proclamation raises Concern levels
Visual Resources	Manage the remainder of the non-forested lands according to ROS classes. The recommended maximum visual impact allowed will be: SPNM=R, SPM=PR, RN and R=MM, with M as the primary VQO. (LRMP p. 4-23)	Visual Management System (VMS) is replaced with Scenery Management system (SMS).  Clinton proclamation raises Concern levels
Visual Resources	Initiate corrective action to meet adopted VQO when landscape rehabilitation is needed. (LRMP p. 4-23)	Visual Management System (VMS) is replaced with Scenery Management system (SMS).
Visual Resources	Consider visual concerns of individual	This information is included in the

	landowners and agencies within and adjacent to national forest system lands when planning national forest management activities (see timber management, silvicultural systems).	SMS analysis; needs not be restated as a standard/guide.
Visual Resources	Manage activities to reflect where ever possible the form, line, color, texture of natural occurrences when viewed from middle ground and background distances. (LRMP p. 4-23)	This information is contained in guidance for managing scenic resources. Does not need to be restated in the standards/guides.
Mgt Area: OW1, CF1, BO2, OW2, CF3, CF5, BO6, CF6	Protect large or unique tree character in Foreground (FG) R and PR zones (VQO classes).	Visual Management System (VMS) is replaced with Scenery Management system (SMS). This information is useful as a strategy but needs not be required as a standard/guide.
Mgt Area: OW1, MC1, BO2, MC2, CF3, OW5, MC5, CF5	Use M as minimum VQO with emphasis on R and PR (VQO classes).	Visual Management System (VMS) is replaced with Scenery Management system (SMS). Clinton proclamation raises minimum SIO to this level..
Mgt Area: MC1	When corrective action is to be taken, landscape rehabilitation requirements are: Adopted VQO Field Season after action: R-first, PR-third, M-fifth.	Visual Management System (VMS) is replaced with Scenery Management system (SMS).
Mgt Area: MC1, MC5	Design edges and openings to meet the VQO (VQO classes): R & PR-feather, vary edge density, M-feather only.	Visual Management System (VMS) is replaced with Scenery Management system (SMS). This information is useful as a strategy but needs not be required as a standard/guide.
Mgt Area: MC1, MC5, MC6	Achieve visual variety through random mosaic pattern by varying: a. vegetation density, b. age classes, c. distribution of treatments.	This information is useful as a strategy but needs not be required as a standard/guide.
Mgt Area: MC1	Introduce landscape enhancement to improve scenic quality	This information is useful as a strategy but needs not be required as a standard/guide.
Mgt Area CF1, BO6, OW6, MC6, CF7	Use MM as minimum VQO with emphasis on PR (VQO classes).	Visual Management System (VMS) is replaced with Scenery Management system (SMS). Clinton proclamation overrides this standard.
Mgt Area OW2	Use PR as minimum VQO (VQO class).	Visual Management System (VMS) is replaced with Scenery Management system (SMS).
Mgt Area: CF1, CF3, CF5, CF7	Remove trees selectively to improve visual amenities within high use areas, vista points, and along interpretive trails.	This information would be useful as a strategy but need not be required as a standard/guide applicable to Alternatives A, B, C, E, but not D
Mgt Area: CF3	Minimum Rotation Ages: R=200 years, PR=140 years, M=100 years.	Not applicable-no management for timber allowed under the Clinton proclamation.
Mgt Area: CF3	Increase species diversity of native species.	This information would be useful as a strategy but need not be required as a standard/guide applicable to Alternatives A, B, C, E, but not D
Mgt Area: WF4	Maintain P VQO (VQO class).	Visual Management System (VMS) is replaced with Scenery Management system (SMS). Covered by the Wilderness Act. Needs not be a standard/guide.
Mgt Area: OW5	Open undeveloped vistas for viewing scenery.	This information is useful as a strategy but needs not be required as a standard/guide.

Mgt Area: CF5	Specify vegetative clearings less than five acres in R and PR zones (VQO classes).	Visual Management System (VMS) is replaced with Scenery Management system (SMS). This information is useful as a strategy but needs not be required as a standard/guide.
Mgt Area: BO6	Provide openings with random spacing.	This information is useful as a strategy but needs not be required as a standard/guide.
Mgt Area: CF7	Reduce long-term visual monotony in R and PR (VQO classes) through random mosaic patterns by: a. varying size and shape of cut units; b. use of "islands" where appropriate; and c. develop irregular edges along cut units.	CF7 is not applicable because there is no management for timber product allowed under the Clinton proclamation.

## Assumptions and Methodology

### Ecological Restoration and Scenery Resources

Ecological restoration processes have the potential to improve or degrade scenery resources. Healthy ecosystems and processes to sustain those ecosystems are not always viewed as scenic (Gobster 1994, 1995, 1999, Nassauer 1995, 1997, Ribe 1999, 2002, USDA Forest Service 1995c, Williams and Cary 2002 [all cited in Ryan 2005]).

Many forests in visually sensitive areas have remained unmanaged, are reaching the end of their normal life cycle, and are becoming susceptible to nature's regeneration processes: wildfire, disease, insect infestation, and wind throw. Nature's regeneration processes often produce landscapes that are not visually appealing (USDA Forest Service 1980). Degraded scenic resources include landscapes with overstocked conditions and heavy fuel loads at risk for large scale regenerative processes, such as moderate and severe wildfire and disease and pest infestations with extensive areas of dead or dying vegetation. Large scale, severe natural disturbances have long-term effects on scenery resources. Landscapes in the Monument with susceptibility to these conditions translate to low scenic stability.(3) Vegetation and fire and fuels management activities can improve scenery resources in these areas.

A visually preferred landscape can be the natural outcome of forest management practices (Ryan 2005). By creating the conditions that people prefer and avoiding the conditions that people perceive as unattractive, vegetation and fires and fuels management activities can improve scenery resources (Brown and Daniel 1986, Buhyoff et al. 1986, Herzog and Kropscott 2004, Herzog and Leverich 2003, Hull and Buhyoff 1986, Kaplan et al. 1998, Patey and Evans 1979, Ruddell and Hammitt 1987, Tahvanainen et al. 2001, Tlusty and Bacon 1989 [all cited in Ryan 2005]). Management activities that restore healthy fuel loads and healthy stocking conditions lower the risks of large scale regenerative processes while improving scenery condition.

Ecosystem management involves a time element in planning for scenery condition. Tree scorching and landscape blackening due to prescribed fire are short-term (one to five-year) visual effects (Gobster 1994, Kaplan and Kaplan 1989, Taylor and Daniel 1984 [all cited in Ryan 2005]). The timing, location, configuration, landscape-level pattern, and treatment characteristics determine the effect on scenery (Litton 1984 [cited in Ryan 2005]).

### Use of Science

Among the references cited is *Social Science to Improve Fuels Management: A Synthesis of Research on Aesthetics and Fuels Management*, General Technical Report NC-261, authored by Robert Ryan and published by the North Central Research Station of the Forest Service. This reference is frequently cited throughout the analysis, and Ryan frequently cites the research of other authors in this publication.

## **Assumptions for All Alternatives**

- Visitors to the Sequoia National Forest value and expect to see naturally appearing landscapes (USDA Forest Service 1995c). Landscapes with the greatest variety or diversity have the greatest potential for high scenic value (USDA Forest Service 1974, 1995c). Landscapes that are more visually complex are preferred over more monotonous ones (Ryan 2005).
- A review of the research on forest aesthetics shows considerable consensus about what the public considers to be a scenic forest. Visually preferred settings have four common aspects: large trees; herbaceous, smooth groundcover; open midstory canopy with high visual penetration; and vistas with distant views and high topographic relief. Large mature trees are an important part of scenic beauty. Forests with more open structure that allows visual access through the understory are considered more scenic than forests with extremely dense understory vegetation. Downed wood from management activities is considered ugly and has a negative effect on scenic beauty (Brown and Daniel 1986, Brunson and Shelby 1992, Cotton and McBride 1987, Dwyer et al. 1991, Gobster 1994, Hull et al. 1987, Kaplan and Kaplan 1989, Kaplan et al. 1998, Scott 1998 [all cited in Ryan 2005]).
- A visually preferred landscape can be the natural outcome of forest management practices. Vegetation management activities can improve scenery resources by creating the conditions that people prefer and avoiding the conditions that people perceive as unattractive (Ryan 2005). Although vegetation management activities can improve scenery resources, short-term effects to scenery can result until mitigation measures can be carried out (e.g., burning slash piles) (Daniel and Boster 1976, Ribe 1989, Ryan 2005, Scott 1998). All vegetation treatments are expected to include mitigation measures for scenery resources in visually sensitive areas, in order to maintain and improve scenery resources (see standards and guidelines for scenery resources in Appendix F in the management plan).
- Fuels reduction projects can improve scenic integrity and enhance scenic attributes valued in the landscape character of places (Brown and Daniel 1986, Buhyoff et al. 1986, Herzog and Kropscott 2004, Herzog and Leverich 2003, Hull and Buhyoff 1986, Kaplan et al. 1998, Patey and Evans 1979, Ruddell and Hammitt 1987, Tahvanainen et al. 2001, Tlusty and Bacon 1989 [all cited in Ryan 2005]). The timing, location, configuration, landscape-level pattern, and treatment characteristics determine the effect on scenery (Litton 1984 [cited in Ryan 2005]). These factors are determined during site-specific planning; therefore, the cumulative visual effects of the alternatives cannot be predicted with confidence. Actual effects will vary with the degree of consideration of scenery management during site-specific planning and implementation.
- Many forests in visually sensitive areas have remained unmanaged, are reaching the end of their normal life cycle, and are becoming susceptible to nature's regeneration processes: wildfire, disease, insect infestation, and windthrow. Nature's regeneration processes often produce landscapes that are not visually appealing (USDA Forest Service 1980). Large scale, severe natural disturbances have a negative effect on scenery resources (Daniel 2001, Fanariotu and Skuras 2004, Gobster 1994, 1995, Haider and Hunt 2002, Ribe 1990 [all cited in Ryan 2005]).

- Landscapes that have been burned are not visually appealing to people; forests left blackened and charred are perceived negatively by the public (Gobster 1999, Scott 1998, Taylor and Daniel 1984 [all cited in Ryan 2005]). Low-intensity fire can improve scenic beauty over time, but may have short-term negative visual effects, such as dead wood and scorched trunks (Gobster 1994, 1999, Kaplan and Kaplan 1989, Patey and Evans 1979, Scott 1998, Taylor and Daniel 1984 [all cited in Ryan 2005]). With education and understanding of the ecological role of fire in the landscape, the public is becoming more accepting of short-term effects of fire (Ryan 2005).
- Built elements disrupt the natural appearance of the landscape with effects to scenic integrity, depending on the design, existing level of development, and the character of the natural environment (Ryan 2005). All recreation development is expected to follow the Built Environment Image Guide (BEIG) (USDA Forest Service 2001g) and the recreation opportunity spectrum (ROS) guidelines.(4)
- Recreation facilities not only provide conveniences to attract and make visitors comfortable within the natural settings, but they also protect resources from use that is expected to lower scenic integrity. Visitor use has the potential to affect scenic integrity by damaging vegetation and causing erosion, litter, and sanitation issues. Concentrated visitor use and large groups can intensify these effects and add traffic and congestion. Hardened surfaces for parking, roads, and trails provide protection from erosion and compaction and direct traffic away from areas that may be sensitive.
- The projected increases in visitation to the Monument (see the recreation demand analysis in Appendix D in the final EIS) have the potential for increasing the disturbances to scenic quality associated with recreation use and the demand for new recreation facilities.
- Roads create disruptions in the natural appearing landscape and lower scenic integrity by reducing the natural appearance of the landscape. The major visual effect of roads is the linear appearance superimposed on nonlinear landscapes and that roads seldom match the color or texture of the adjacent landscape (USDA Forest Service 1977).

## Methodology

- The analysis of effects is based on how well the alternatives are expected to achieve the desired landscape character of places, rehabilitate or restore compromised landscapes, and maintain or improve existing scenic integrity to meet scenic integrity objectives (SIOs). Recreation development and use, roads, vegetation treatments, and fire and fuels management have the ability to affect the desired conditions for scenery resources in the Monument. The effects analysis uses the following indicators to compare how management strategies proposed in each alternative meet and exceed the SIOs.
- Alternatives are rated on their ability to manage visitor use to maintain or enhance existing scenic integrity (ESI) in order to meet SIOs by providing new developed recreation facilities in areas of concentrated use as demand increases in the future, and by limiting or eliminating visitor uses that have the potential to degrade scenery resources in undeveloped areas. Alternatives are rated most, moderate, or least protected.
- Alternatives are rated on their ability to potentially improve ESI by decommissioning existing roads or prohibiting the development of new roads. Alternatives are rated most or less reduction of effects.
- Alternatives are rated most, moderate, less, or least on their ability to improve ESI and landscape character to achieve or exceed SIOs through vegetation treatments: Methods of treatment and the

amount of acreage treated and potential to improve scenery, Ability to reduce the risks of moderate or severe fire, Ability to retain large trees and protect them from fire scarring and unwanted mortality, Ability to promote stand resilience

- Alternatives are rated on their ability to improve the ESI to achieve or exceed the SIO through fire and fuels treatments. The alternatives are compared by the number of acres proposed for fuels treatment and rated most, moderate, less, and least. Alternatives are also rated on their ability to improve ESI to achieve or exceed the SIO through pre-burn methods of fire and fuels treatments that best minimize the effects of fire on scenery resources.

## Indirect Effects

Management strategies proposed in each alternative have the potential to improve scenery resources through the activities allowed at the project level. These activities are influenced by the standards and guidelines for scenery, requiring that management activities be designed to meet and exceed the specified scenic integrity objective (SIO) when practical. These designed management activities are especially useful in areas where the existing scenic integrity does not meet the established SIO. The projects are likely to be in areas that have impaired ecological function or that have undergone some natural or human caused disturbance and are in need of ecological restoration.

A new scenery management inventory was completed for the Monument for use in this planning process to reflect the proclamation's (Clinton 2000) emphasis on public enjoyment and protection of the objects of interest. The resulting analysis does not assign low or very low SIOs in Alternatives A through F. As shown in the following table, these SIOs are considerably higher than the visual quality objectives (VQOs) established in the Forest Plan. Projects proposed and implemented in any alternative are expected to be required to place a higher consideration for scenery resources and are more likely to improve the overall scenic integrity when compared to the Forest Plan.

**Table 24 Acreage Comparison for Alternatives**

SIO	Explanation	Forest Plan (acres)	Forest Plan (percent)	All Alternative (acres)	All Alternatives (percent)
Very High	No Alterations	28,361	9	59,382	18
High	Alterations not noticeable	43,475	13	92,666	28
Moderate	Alterations visually subordinate	106,541	32	176,267	54
Low	Alterations begin to dominate	124,958	38	0	0
Very Low	Alterations dominate	24,980	8	0	0

## Effects of Recreation Management on Scenic Integrity

Recreation development and use in the Monument have the potential to affect scenery resources. Visitation is projected to increase in the future (see the effects on recreation section in chapter 4 and the recreation demand analysis in Appendix D in the final EIS) and this use is expected to increase effects on scenery resources.

Based on personal observation recreation use, especially use without facilities to mitigate the effects of that use can degrade scenic quality by erosion, damage or absence of vegetation, accumulation of litter, and sanitation issues. These environmental conditions lower scenic integrity (USDA Forest Service 1995c).

The forest service provides recreation facilities to the public not only for visitor convenience but also for resource protection. Restroom facilities help to protect popular areas from sanitation issues. Designated pathways and parking protect soil resources and vegetation from trampling. Visitor information stations encourage responsible use. In these ways, developed facilities can mitigate effects of visitor use on resources that contribute to scenery improving scenic integrity in all of the alternatives.

Studies support the strategy of minimizing recreation use impact by concentrating use. In heavily used areas increasing use is likely to have few negative effects. Where use is widely dispersed, more area will be disturbed unless use levels are very low. Most studies report the amount of impact increases rapidly with initial increases in the amount of use in areas with relatively low levels of use (Cole, 1993).

Alternatives that allow or encourage more dispersed use could have negative impacts on natural resources that contribute to scenic quality. Alternatives that allow for the development of more recreation facilities could protect scenery resources as use and visitation increases.

Most of the effects to scenic integrity caused by the built environment can be mitigated. During site-specific project planning in the future, mitigations (including best management practices) are expected to be identified for project implementation. Examples of mitigation include sensitive placement of facilities, selection of materials that reflect elements in the natural landscape, and using colors that recess into the landscape. All recreation development is expected to follow the Built Environment Image Guide (BEIG), which defines architectural character types that harmonize with the natural landscape (USDA Forest Service 2001g).

Developed sites that meet visitor needs and preferences help to protect resources from damage associated with use. Alternatives A, B, C, E, and F allow for the development of a variety of new recreation facilities that meet visitor preferences and mitigate the effects to scenery associated with use. Alternative D limits new developed sites to walk-in campgrounds and walk-in picnic areas. (See the effects on recreation section in this chapter in the final EIS for more information). Where demand exceeds the capacity to accommodate use at developed sites, whether through crowding or unavailability of preferred facilities, use may shift to other areas without facilities, such as camping along a road in the general forest area.

By eliminating opportunities for roadside camping in undeveloped areas, Alternative C is the only alternative to avoid some potential associated effects to scenery. All of the other alternatives are expected to have a potential decrease in the existing scenic integrity in the general forest area where roadside camping is popular, which could prevent these areas from achieving the SIO as visitor use increases in the future. The greatest effects are expected in the Hume High Elevation, Great Western Divide, and Lloyd Meadow recreation niche settings which are the most popular places for dispersed camping. These places also have a higher number of acres needing restoration with an ESI below the proposed SIO.

Scenery resources are expected to be the most protected from the effects of concentrated use in undeveloped areas in Alternative C and least protected in Alternative D. Alternative C has the best ability to meet or exceed the SIO in undeveloped areas with concentrated use. Alternatives A, B, E, and F are

expected to have a moderate ability, and Alternative D is expected to have the least ability to meet or exceed the SIO in undeveloped areas with concentrated use.

Alternatives B, C, D, E, and F include a strategy to create and maintain scenic vistas which is expected to enhance both the recreation experience and scenery resources.

## **Effects of Road Management on Scenic Integrity**

The alternatives vary in their treatment of roads and what kinds of uses are expected to be allowed. All of the alternatives have the potential for decommissioning existing roads. (For more information on roads, see the effects on the transportation system section in this chapter in the final EIS.)

Alternatives C and D have the greatest potential for reducing the effects of roads on scenic integrity in the long term. With no new roads in Alternative D, no new effects to scenery resources are expected to occur. Alternative C has the most potential for decommissioning roads followed by Alternative D. The reduction of roads is expected to improve the scenic integrity of an area over time as routes return to their natural state (USDA Forest Service 1977). Some improvement of the existing scenic integrity as a result of road decommissioning is expected to help meet the proposed SIOs in Alternatives C and D. Status quo is expected to be the most likely result of effects from roads in Alternatives A, B, E, and F.

## **Effects of Vegetation Treatments on Scenery**

Vegetation management activities can improve scenery resources by creating the conditions that people prefer, avoiding the conditions that people perceive as unattractive (Ryan 2005), and perpetuating these conditions into the future (scenic stability). All of the alternatives propose vegetation treatments in excessive fuels and overstocked conditions, but differ in their methods and the acres expected to be treated. The alternatives produce the landscape conditions that people prefer (Brown and Daniel 1986, Brunson and Shelby 1992, Cotton and McBride 1987, Dwyer et al. 1991, Haider and Hunt 2002, Hull et al. 1987, Kaplan et al. 1998, Ribe 1990, Scott 1998 [all cited in Ryan 2005], USDA Forest Service 1974, 1995c) by:

- Limiting moderate to severe fire
- Producing open forest conditions by removing excessive dead and downed wood and improving overstocked conditions
- Retaining large trees and protecting them from fire scarring and unwanted mortality
- Encouraging a highly variable and complex landscape pattern (diversity)
- Preventing forest disturbances that result in extensive areas of dead or dying trees by improving ecosystem resilience

Desired conditions for vegetation management complement and support the desired conditions for scenery:

- Trees have enough growing space to avoid severe resource competition with other trees and plants. Desirable trees continue to survive and grow in long periods of adverse weather which are less susceptible to large-scale die-off with long-term effects to scenery resources (resiliency) (Haider and Hunt 2002, Ribe 1990 [all cited in Ryan 2005]).
- Giant sequoias thrive and dominate their surroundings and vary in density and arrangement.

- Species composition, spacial arrangement, and structure in mixed conifer forests vary, resulting in preferred, more visually complex landscapes (Ryan 2005, USDA Forest Service 1974, 1995c).
- Low density forest with frequent canopy openings dominates the landscape, with higher density forest on portions of north and east aspects. More open forests that allow views through them are preferred over those with dense vegetation at eye level. Rapid tree regeneration resulting in many small trees and shrubs can block visual penetration and lower scenic quality (Ryan 2005).
- Approximately 70 percent of mixed conifer within groves and 50 percent outside of groves are dominated by trees greater than 24 inches in diameter. Vegetation treatments should strive to protect groves of large trees by retaining them during thinning (Brown and Daniel 1986, Cotton and McBride 1987, Dwyer et al. 1991, Hull et al. 1987, Kaplan et al. 1998, Scott 1998).

Vegetation strategies complement and support scenery resources:

- Reduction of fuels by decreasing down woody material, ladder fuels, and brush not only reduces risks from wildfires, but also helps to produce the conditions that people find attractive. Tree thinning has a more positive effect on scenic beauty, especially when smaller trees are removed to lower stand density (Hull and Buhyoff 1986, Tahvanainen et al. 2001 [all cited in Ryan 2005]).
- Protecting giant sequoias caters to people's fondness for large trees. Vegetation treatments should strive to protect groves of large trees (Brown and Daniel 1986, Brunson and Shelby 1992, Cotton and McBride 1987, Dwyer et al. 1991, Hull et al. 1987, Kaplan et al. 1998, Scott 1998 [all cited in Ryan 2005]).
- Forest management techniques that promote ecosystem resilience to future changes in temperature and precipitation are expected to avoid extensive areas of dead or dying trees, which are not considered scenic (Haider and Hunt 2002, Ribe 1990 [all cited in Ryan 2005]).
- Improve stand resilience and health by varying spacing of trees both inside and outside of giant sequoia groves.
- Promote heterogeneity in plantations and young stands by encouraging more diversity in species composition and age and reduction in stand density.
- Plant in areas where natural regeneration is not likely.

The alternatives that treat the most acreage using aesthetically preferred treatments, reduce moderate or severe fire, retain and protect the scenic character of large trees, encourage diversity, and prevent long-term effects of severe disturbances (resilience) have the greatest potential to improve scenery either by improving the existing scenic integrity (ESI) to meet or exceed the scenic integrity objective (SIO) or by improving scenic stability (Brown and Daniel 1986, Brunson and Shelby 1992, Cotton and McBride 1987, Dwyer et al. 1991, Gobster 1994, Hull et al. 1987, Kaplan and Kaplan 1989, Kaplan et al. 1998, Scott 1998 [all cited in Ryan 2005]).

### **Methods of Treatment and Acreage Treated by Alternative**

The alternatives differ in the types of tools used to manage vegetation and the amount of acreage that is likely to be treated. Types of tools used in vegetation management influence the long and short-term effects on scenery resources. Removing dead wood or chipping on-site can greatly increase scenic ratings for management projects. Cleanup is essential in visually sensitive areas (Daniel and Boster 1976, Ribe 1989, Ryan 2005, Scott 1998). As long as mechanical treatments mitigate for effects to scenery, long-term effects to scenery are expected to be positive, and short-term effects are expected to be minimal.

Alternatives A and E consider mechanical treatment first, followed by prescribed fire and then managed wildfire. Fire is preferred over mechanical treatment in Alternatives B and C. Alternative F does not prioritize treatment tools, but allows for maximum flexibility.

In Alternatives A, B, C, E, and F, pretreatment of fuels is expected to occur before prescribed fire. Alternatives E and F allow more pre-burn fuels reduction. Pretreatment could mitigate many of the short-term effects of prescribed fire and prevent most long-term effects. Suggestions include pre-burn cutting of live trees to minimize charring and crown scorch and removing heavy fuels from the base of large trees (Ryan 2005). Mechanical treatments not related to prescribed fire may also occur. Because the wildland urban intermix (WUI) where treatment is expected to occur is smaller in Alternative C, Alternatives A, B, E, and F are expected to better protect scenery resources, with Alternative F rating highest due to its maximum flexibility.

Alternative D considers managed wildfire as the primary treatment method, which is expected to allow for little to no pretreatment of fuels, thereby posing the most risk to both short-term and long-term scenic integrity. Mechanical treatments are only expected under very limited circumstances.

All alternatives, except Alternative D, have an equal ability to use treatments such as light thinning from below and piling and burning slash which is the most aesthetically preferred treatment (Scott 1998 [cited in Ryan 2005]). Effects to scenery are expected to be mostly limited to short-term effects from tree scorching and landscape blackening due to prescribed fire, assuming that adequate consideration for scenery is provided at the project level to mitigate effects (Ryan 2005).

All alternatives, except Alternative D, allow for planting in areas where natural regeneration is not likely following a disturbance event. When a disturbance event has a negative effect on scenery, replanting the area can restore the scenic integrity in a shorter period of time and therefore lessen some long-term effects on the scenery resource (Ryan 2005).

Alternatives A and E have a moderate amount of acres potentially treated by mechanical or hand treatments. Alternatives B and F have the most acres potentially treated by mechanical or hand treatments. Alternative C has less acres potentially treated, and Alternative D has the least acres potentially treated by mechanical or hand treatments.

### **Ability to Lower the Risks of Moderate to Severe Fire**

Wildfire is likely to have more severe effects on long-term scenic integrity and landscape character than planned fuels treatment. Without pretreatment before prescribed burning, tree scorching and mortality could be more intense than expected in areas of heavy fuel loading, leaving longer-term visual effects (Ryan 2005). Managed wildfire is expected to have the greatest risks to scenery resources in the long term, because of the potential for severe fire effects due to current, high fuel loads and the lack of pretreatment.

Alternatives A, B, C, and D are expected to limit the opportunity to use mechanical methods and are expected to require more frequent or severe burning to accomplish vegetation management objectives. Alternatives

E and F allow greater use of mechanical methods, in conjunction with prescribed fire, and can be done less frequently and in a more controlled manner allowing for more protection. Alternatives C and D propose little or no removal of woody biomass, meaning that material deemed excess for fuels and

vegetation competition is expected to remain on-site to be removed by fire. Some of these fires are likely to be larger and hotter than fires that occur under more controlled conditions (see the effects on vegetation section in Chapter 4 in the final EIS).

Alternatives E and F most protect scenery resources from effects of moderate or severe fire. Alternative C protects scenery resources less, and Alternative D protects scenery resources least from effects of moderate or severe fire. Alternatives A and B moderately protect scenery resources from effects of moderate or severe fire.

### **Retain Large Trees and Protect the Scenic Attributes of Large Trees**

All of the alternatives provide for large tree retention in treatment strategies, but vary in their treatment methods. The effects on vegetation section in Chapter 4 in the final EIS identifies that Alternatives E and F allow more pre-burn fuels reduction that better protect soils and larger trees from hot fires. Pre-burn fuels reduction also minimizes fire scarring. The effects on vegetation section in this chapter also identifies that Alternatives A, B, C, and D rely on fire as the main tool for reducing fuels in giant sequoia groves. In the giant sequoia/mixed conifer forest and other forests near popular recreation and tourist areas, suggestions for pretreatment of fuels, which can minimize the visual effects of prescribed fire, include pre-burn cutting of live trees to minimize charring and crown scorch and removing heavy fuels from the base of large trees (Cotton and McBride 1987 [cited in Ryan 2005]).

Alternative F is expected to have the most ability to retain and protect the scenic attributes of large trees, with greater flexibility in mechanical fuels treatments, in addition to fire, to more effectively protect larger giant sequoias from excessive heat. Alternatives A, B, and E have moderate ability. Alternative C relies more on burning and less on mechanical means and has less ability to retain and protect the scenic attributes of large trees. Alternative D is expected to have the least ability to retain and protect the scenic attributes of large trees, as this alternative relies most on managed wildfire followed by prescribed fire to meet vegetation management objectives.

### **Prevent Forest Disturbances That Result in Extensive Areas of Dead or Dying Trees (Resilience)**

The effects on vegetation section in Chapter 4 identifies that the combination of mechanical and fire treatments, as emphasized in Alternative F and allowed in Alternative E, is expected to accomplish the most protection of productive forests from drought, insects, disease, and unwanted fire. Alternative F is expected to treat more acres of vegetation in the most controlled manner to prevent large scale forest disturbances with extensive areas of dead or dying trees. Alternative D perpetuates the risks for large scale forest disturbances with the fewest acres treated and restricting the methods of treatment. Alternatives A, B, and C fall between these extremes and are rated moderate.

### **Vegetation Treatment Comparison**

The following table summarizes and compares the potential to improve scenery through vegetation treatments in each of the alternatives.

**Table 25 Effects of Vegetation Treatments on Scenery**

Vegetation Treatments with Potential to Improve Scenery	Alternative					
	A	B	C	D	E	F
Protects scenic integrity	Moderate	Moderate	Less	Least	Moderate	Most

Amount of area treated	Moderate	Most	Less	Least	Moderate	Most
Lowers risk from moderate or severe wildfire	Moderate	Moderate	Less	Least	Most	Most
Retains large trees	Moderate	Moderate	Less	Least	Moderate	Most
Promotes stand resilience	Moderate	Moderate	Moderate	Least	Most	Most

## Effects of Fire and Fuels Management on Scenery

Desired conditions for fuels in the Monument parallel desired conditions for scenery in the Monument. When fire susceptibility and severity are low, scenery resources are more stable. The purpose of fuels reduction projects is to avoid or prevent large scale, severe fires and to restore a healthy cycle of low-severity fire, which can improve scenery with some short-term visual effects (such as blackened trunks) (Gobster 1994, 1999, Kaplan and Kaplan 1989, Patey and Evans 1979, Scott 1998, Taylor and Daniel 1984 [all cited in Ryan 2005]).

Much of the Monument landscapes have missed natural fires (fire return interval departure), allowing fuels to build up (see fire and fuels affected environment in Chapter 3 in the final EIS), lowering the existing scenic integrity in several ways. Ladder fuels, including large amounts of dead material on the ground, dense midstory vegetation, and overstocked forests, have little visual penetration, a condition that has proven to be unattractive to most visitors (Ryan 2005). Large trees are identified as a scenic attribute and are at greater risk of being damaged in fires that burn through areas of high fuels buildup.

Fuels reduction treatments have a potential to produce the conditions that people find attractive (Brown and Daniel 1986, Buhyoff et al. 1986, Herzog and Kropscott 2004, Herzog and Leverich 2003, Hull and Buhyoff 1986, Kaplan et al. 1998, Patey and Evans 1979, Tahvanainen et al. 2001, Tlusty and Bacon 1989 [all cited in Ryan 2005]). Alternatives that treat the most acreage are most able to improve and perpetuate the desired conditions for scenery in the Monument by protecting large trees, creating more open landscape conditions, and protecting from the long-term effects from severe fire (Ryan 2005). Restrictions on fuels treatments can limit the ability to protect scenic quality and improve scenery.

Fuels reduction treatments are expected in all of the alternatives. Alternatives B and F propose the most potential acres for fuels treatment projects including the WUI defense zone of 45,342 acres, threat zone of 145,522 acres, and the 56,643-acre Tribal Fuels Emphasis Treatment Area (TFETA). Alternatives A and E include the WUI defense zone of 45,342 acres and threat zone of 145,522 acres and are rated as moderate. Fuels treatment is minimal in Alternative D with 4,603 WUI acres and is rated as least. Alternative C includes 8,304 WUI acres and is rated as less.

Alternatives C and D have higher potential associated with moderate to severe fires that affect scenery resources and less probability of improving scenery resources through fuels treatment projects that could protect trees from fire scarring, perpetuate heterogeneous landscapes, improve visual penetration in dense understories, and remove excessive dead and down wood. Alternatives E and F allow more opportunity and flexibility to control forest conditions through mechanical methods that are expected to protect and improve scenery from wildfire and overstocked conditions.

Pretreatment of fuels and how a project is implemented can minimize the visual effects of prescribed fire, as suggested by Christensen and others for the giant sequoia/mixed conifer forest and other forests near popular recreation and tourist areas. Suggestions include pre-burn cutting of live trees to minimize charring and crown scorch; removing heavy fuels from the base of large trees; using single ignitions

rather than multiple ignitions; and removing debris or additional burning if burning has exacerbated heavy dead fuel conditions (Cotton and McBride 1987 [cited in Ryan 2005]).

## Summary

Alternative F has the greatest potential to maintain and improve scenic integrity in the Monument, followed by Alternative B, then Alternatives A and E, and followed by Alternative C. Alternative D is expected to be the least supportive of maintaining and improving scenic integrity because of the restrictions placed on vegetation treatments, the high risk of severe wildfire in areas valued for scenic beauty, and the opportunities available to manage increased visitation, especially those associated with camping. The following table identifies the potential for improvement of ESI by alternative and resource area, using a relative scale of least to most.

**Table 26 Potential Improvement of Existing Scenic Integrity**

Resource Area	Alternative					
	A	B	C	D	E	F
Recreation	Moderate	Moderate	Most	Least	Moderate	Moderate
Roads	Less	Less	Most	Most	Less	Less
Vegetation management	Moderate	Moderate	Less	Least	Moderate	Most
Fuels management	Moderate	Most	Less	Least	Moderate	Most

## Cumulative Effects

In order to understand the contribution of past actions to the effects of the proposed action and alternatives, this analysis relies on current environmental conditions that are a result, in part, of past actions. Existing conditions reflect the combined impact of all prior human actions and natural events that have affected the environment and might contribute to cumulative effects.

The cumulative effects analysis in this chapter do not attempt to quantify the effects of past human actions by adding up all prior actions on an action-by-action basis. Several reasons exist for not taking this approach. First, a catalog and analysis of all past actions would be impractical to compile and unduly costly to obtain. Current conditions have been impacted by innumerable actions over the last century (and beyond), and trying to isolate the individual actions that continue to have residual impacts would be nearly impossible. Second, providing the details of past actions on an individual basis would not be useful to predict the cumulative effects of the proposed action or alternatives. In fact, focusing on individual actions would be less accurate than looking at existing conditions, because information is limited on the environmental impacts of individual past actions, and one cannot reasonably identify each and every action over the last century that has contributed to current conditions. Also, focusing on the impacts of past human actions risks ignoring the important residual effects of past natural events, which may contribute to cumulative effects just as much as human actions. By looking at current conditions, the residual effects of past human actions and natural events, regardless of which particular action or event contributed to those effects, are captured.

Finally, the Council on Environmental Quality issued an interpretive memorandum on June 24, 2005 regarding analysis of past actions, which states, "agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historical

details of individual past actions." The cumulative effects analysis in this EIS is consistent with the National Environmental Policy Act (NEPA) Regulations (36 CFR 220.4 (f)) (July 24, 2008), which state, in part:

CEQ regulations do not require the consideration of the individual effects of all past actions to determine the present effects of past actions. Once the agency has identified those present effects of past actions that warrant consideration, the agency assesses the extent that the effects of the proposal for agency action or its alternatives will add to, modify, or mitigate those effects. The final analysis documents an agency assessment of the cumulative effects of the actions considered (including past, present, and reasonable foreseeable future actions) on the affected environment. With respect to past actions, during the scoping process and subsequent preparation of the analysis, the agency must determine what information regarding past actions is useful and relevant to the required analysis of cumulative effects. Cataloging past actions and specific information about the direct and indirect effects of their design and implementation could in some contexts be useful to predict the cumulative effects of the proposal. The CEQ regulations, however, do not require agencies to catalogue or exhaustively list and analyze all individual past actions. Simply because information about past actions may be available or obtained with reasonable effort does not mean that it is relevant and necessary to inform decision making (40 CFR 1508.7).

For these reasons, the analysis of past actions in this draft EIS is based on current environmental conditions.

The Monument shares boundaries with a number of private and public entities. Kings Canyon and Sequoia National Parks split the Monument in two, sharing viewsheds and visitors. Whether national park visitors experience the Monument landscape as foreground and middleground from within the national forest or as background from a national park location, they have higher expectations for scenic condition than many national forest visitors. Many private property owners in small mountain communities within the boundaries of the Monument have expressed a high concern for scenic condition. The Monument serves as a scenic backdrop for the Tule River Indian Reservation and central valley communities.

The overstocked conditions and heavy fuel loads in the Monument or adjacent lands increase the risks for large and severe disturbance events that compromise the scenic integrity and scenic stability across boundaries. These risks are expected to continue to compound over time if left untreated. More acres are expected to become overstocked and accumulate heavy fuel loads, adding to the number of acres that do not meet the SIO. As more acres are added, the risk of an even larger scale event, with more severe results, lasting over a greater period of time, increases. Alternatives that favor reducing the risks of large scale, severe disturbance events through vegetation or fuels treatments are expected to help protect scenery resources across all boundaries during the life of this plan. Alternatives that treat more acreage are most likely to maintain a higher level of scenic quality during the restoration period. All of the alternatives are expected to provide some vegetation and fuels treatment. Alternative F is expected to best protect scenery resources and meet the scenic expectations of visitors and residents during the life of the plan.

Large disturbance events such as moderate and severe fires are natural ecological processes that regenerate or restore landscapes. Over many decades, returning fire as a natural process is expected to restore the ecological health and eventually create the conditions that people prefer to see in the Monument. However, long-term effects on scenery resources are expected to occur over many years

before the natural fire cycle is restored unless intervention occurs. Alternative D limits the amount of intervention and increases risks to scenery resources from the effects of fire.

Population growth is projected to increase significantly in the area around the Monument, and increased visitation is expected to occur in all of the alternatives. The ability of an alternative to manage this increase in visitation is expected to have effects on scenery resources. Alternative C offers the most protection for scenery resources over both the short and long term, by providing a variety of developed facilities to minimize the effects of use on scenery resources, while minimizing the potential degradation of scenic resources in the general forest area by eliminating dispersed camping along roads.

Alternative D has the potential to have the most effects on scenery resources from visitor use. As population increases, more demand for dispersed use in the general forest area is expected, increasing the effects of recreation in these areas. By limiting development of new recreation facilities as demand increases, visitors who normally choose to use developed facilities are expected to be displaced to the general forest area, or some visitors may visit other areas entirely. Without facilities to protect the natural resources from the effects of dispersed use, scenic integrity is expected to diminish. The projected increase in visitor demand from population growth and from displaced users is expected to compound the recreation effects on scenery in the general forest area.

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