SCENERY MANAGEMENT SYSTEM INVENTORY REPORT

Apache Sitgreaves National Forest
Land and Resource Management Plan Revision

Written by

Jan Spencer, Landscape Architect

Cass Klee, GIS Analyst,

TEAMS Enterprise Unit

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Cover Photo – View from the Mogollon Rim Trail, Photo by Jan Spencer (TEAMS). Other photos used in this document courtesy of the Apache-Sitgreaves National Forest website and various staff members.

"Our peace of mind, our emotions, our spirit - even our souls are conditioned by what our eyes see."
Lady Bird Johnson

Abstract

Scenery as well as other natural resources must be cared for and managed in order to maintain quality scenery for generations to come. Scenic resources vary by location and by existing natural features including vegetation, water features, landform and geology, and human-made elements. All activities that forest visitors experience are performed in an environment where scenery is defined by the arrangement of the natural elements of the landscape along with components of the built environment. When we experience the landscape, scenery combines all the ecological features and the human elements. The composition of these attributes is what gives a landscape its character or image. The following quotes highlight the importance of managing scenic resources.

“Forestry professor Hamish Kimmins (2002), in his study of the evolution of forest management, proposed that forestry is now entering a period of “social forestry,” which uses ecologically based ecosystem management to promote multiple values including aesthetics, water, recreation, and conservation.” (Ryan, 2005)

“For the public who visit the forests, scenic beauty is an important aspect of the experience (Ribe 1994, USDA Forest Service 1995). Therefore, incorporating aesthetics into forest management is becoming increasingly important (Bacon and Dell 1985; Litton 1968, 1972; Ribe 1989; Tlusty and Bacon 1989).” (Ryan, 2005)

"The character of the environment affects the quality of life and the value of property in both residential and commercial areas,' wrote Justice Stevens for the United States Supreme Court in a 1984 case.” www.scenicamerica.org

“Aesthetic meanings can be characterized as relatively tangible, commonly held, and emotionally evocative. Aesthetic meanings are readily tied to on-the-ground (tangible) features of the setting that allow researchers to make generalized predictions about the environmental factors that influence scenic quality (Daniel 2004, Hull 1989)… Aesthetic meanings can be sufficiently isolated from other meanings of the landscape to warrant some attempt to inventory them. Further, aesthetic types of meanings are tangible (in that they can be mapped onto the landscape using formal, psychophysical, and psychological theories of beauty), emotionally potent, and provide a widely shared and valued basis for natural resource decision making.” (Williams, 2007 pg. 32)

The Scenery Management System provides the framework to effectively inventory, assess and manage scenic resources in a sustainable and multiple use context.

Figure 1. View of Escudilla Mountain from the Coronado Trail Scenic Byway on Highway 191

Introduction

The Scenery Management System (SMS) provides a systematic approach for determining the relative value and importance of scenery in National Forest lands. Ecosystems provide the environmental context for the scenery management system. Ecosystems as recreational settings greatly affect the quality and effectiveness of the recreation experience. A key attribute of recreation settings is the quality of aesthetics. The SMS is to be used in the context of ecosystem management to inventory and analyze scenery on National Forest lands, to assist in establishment of overall resource goals and objectives, to monitor scenic resources and to ensure high quality scenery for future generations. The process described within this document is consistent with the process outlined in Landscape Aesthetics: A Handbook for Scenery Management, Agricultural Handbook Number 701, with refinement for Apache-Sitgreaves National Forest management needs.

This report has been prepared to document the SMS inventory and assessment process for the 2008-2009 Land and Resource Management Plan (LRMP) revision for the Apache-Sitgreaves National Forest and to report the information this process generated. The TEAMS Enterprise Unit was contracted in August 2007 by the Apache-Sitgreaves NF to undertake basic inventories and analyses required by the SMS for forest plan revisions. These inventories provide essential information to determine the existing condition of scenic resources, the inherent scenic beauty of the landscape, the value of scenic resources to the human environment, and potential scenery management scenarios.

This information is used in an interdisciplinary land use planning format to develop long-term scenic integrity objectives (SIO) for all parts of the Apache-Sitgreaves NF. These SIOs become part of the new forest plan.

Managing for scenic quality benefits the local and regional economy of the east-central Arizona. It is important to manage the scenic resources to ensure a quality sightseeing experience for the public. Scenery is an integral component of all forest settings, and contributes to the quality of the users' experience. Providing a natural appearing landscape for these visitors is important.

Management of multiple resources has, to varying degrees, altered the natural landscape character. The most obvious effects on scenic resources are from vegetation and landform alterations. Resource management activities that have altered scenic resources include but are not limited to timber management, mining, roads and trails, campgrounds and picnic grounds, fire management (suppression and prescribed burning), and livestock grazing. It is important to evaluate the management of multiple resources and the possible effects associated with scenic resources.

Legal and Administrative Framework

-The National Environmental Policy Act of 1969 (NEPA)- 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 following:

• **The Wilderness Act (1964)-** The act dictates that Wilderness is an area of Federal land that will be managed to retain its primeval character and influence. It is protected and managed so as to preserve its natural condition and the imprint of man's work must be substantially unnoticeable.

• **The Wild and Scenic Rivers Act (1968)-** The outstandingly remarkable scenic values of rivers eligible or suitable to be included in the system must be carefully managed. Any management activities that could negatively impact the scenic resources should not be conducted.

• **The National Trails System Act (1968)-** This act 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)-** This act 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)-** This act 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)-** This act provides direction that the preservation of aesthetic values is 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)-** The act states that "a surface area may be designated unsuitable for certain types of surface coal mining operations if such operations will result in significant damage to important aesthetic values and natural systems."

• **The Public Rangelands Improvement Act (1978)-** This act declares that "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 (VMS) 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
-Ski Areas, Chapter 7, Agriculture Handbook 617: 1984
-Recreation, Chapter 8, Agriculture Handbook 666: 1987
-Landscape Aesthetics, A Handbook for Scenery Management, Agriculture Handbook 701: 1995

General Description of Scenic Resources on the Apache-Sitgreaves National Forest

The landscapes of the Apache-Sitgreaves National Forest (ASNF) have a wide variety of features. The Forest has a diverse range of landscapes, water features and vegetation. The Forest covers a little over 2 million acres in east-central Arizona. Elevations vary from near 3,500 feet in the Clifton area to 11,500 feet at Mt. Baldy.

The scenic backdrop and the recreation opportunities of the Forest attract thousands of visitors every year. Grasslands, high-desert mesas, mountains, canyons, valleys, and alpine summits provide a range of topography. Landscapes vary with canyons lined with rock outcrops, rolling hills, timbered slopes, and hidden treasures of trickling streams and associated riparian areas. The Mogollon Rim is one of the most dominant features on the Forest. The rim averages an elevation of 7,500 feet. Incredible scenic vistas of the southern forests are abundant along the rim. The White Mountains are also a predominant feature of the Forest.

The vegetative mosaic of the Forest is composed of the following vegetation grasslands, sage, pinyon-juniper, ponderosa pine/gambel oak, mixed conifer, aspen groves, high elevation spruce-fir forests, and meadows.

The Forest includes more water-bodies than any other Forest in the southwest, boasting 34 lakes and greater than 680 miles of rivers and streams. Lakes, ponds, and reservoirs are scattered throughout the Forest. Large lakes and reservoirs include Fool Hollow Lake, Big Lake, Chevelon Canyon Lake, Bear Canyon Lake, Woods Canyon Lake, Black Canyon Lake, Luna Lake, Willow Springs Lake, and Crescent Lake. Eligible Wild and Scenic Rivers that include outstandingly remarkable values for scenery include Chevelon Canyon, Woods Canyon, East Clear Creek, West, East and South Forks of the Little Colorado River, West and East Forks of the Black River, North Fork of the East Fork Black River, main stem of the Black River, Bear Wallow Creek, Blue River, KP Creek, Sardine Creek, San Francisco River, Turkey Creek, Little Blue Creek.

Figure 2. Woods Canyon Lake

Woods Canyon Lake is a popular attraction for fishing, camping and picnicking. People are drawn to the area for its variety of recreation opportunities. For those seeking solitude and remoteness, those opportunities can be found in the Mt. Baldy, Escudilla, and Bear Wallow Wilderness areas as well as the Blue Range Primitive Area.

The Coronado Trail Scenic Byway (Highway 191) runs south to north through the Clifton Ranger District proceeding through a portion of the Alpine and Springerville Ranger Districts. The stop at Blue Vista offers incredible panoramic views of the Clifton District, and into the adjacent San Carlos Indian Reservation. There are several campground and picnic areas to travelers for stop and enjoy the Forest along the scenic byway.

Figure 3. View from the Blue Vista

Visitors can enjoy a variety of recreation experiences in a scenic setting. Recreation activities include hiking, biking, horseback riding, camping, fishing, boating and hunting. The Forest has over 1,000 miles of trails to be explored. This includes four National Recreation Trails: Escudilla, Blue Ridge, Eagle, and General George Crook.

Cultural resources are abundant across the Forest. The self-guided Black Canyon Auto Tour highlights both historic and prehistoric sites. The canyon contains images left from five cultures of the past. The first inhabitants of the canyon were the Mogollon Indians.

The pictographs on the canyon walls tell the stories of the Mogollon Rim culture. Historic grave sites are found through out the canyon. Some of the gravesites are remnants of the Pleasant Valley Feud.

Figure 4. Pictographs along the Black Canyon Journey Through Time

Figure 5. Pictographs at the Blue Crossing Campground

Products of the Scenery Management System Process

•Map of scenic attractiveness utilizing water features, topography, landform and vegetation.
•Map of concern levels utilizing road, trail, and stream travel routes and use area concern levels.
•Map of concern level 1 visibility and distance zones
•Map of Forest lands with a scenic class value (representing the level of public value for scenery) to be used as a management tool.
•Map of the existing scenic integrity levels of the Forest.
•Map showing a composite of scenic values and conditions called the Composite Scenery Base Map.
•Summary report to document entire process.
•GIS layers for all maps, provided by TEAMS.

Overview of the Scenery Management System Process

The scenery management system process involves identifying scenic components as they relate to people, mapping these components and assigning a value for aesthetics. These geo-spatial analyses provide information to planning teams to assist them in making a decision relative to scenery as a part of ecosystems and at project levels, and in determining the tradeoffs related to forest plan management scenarios.

The Landscape Character Description is an objective description of the biological and physical elements drawn from data available at the ecological subsection unit and combined with identified Landscape Character attributes in combination with 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. Apache-Sitgreaves Forest staff developed the Landscape Character Descriptions.

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; 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: human values as they relate to the relative importance to the public of various scenes and the relative sensitivity of scenes based on distance from an observer. Human values that affect perceptions of landscapes are derived from constituent analysis. Constituent Analysis serves as a guide to perceptions of attractiveness, helps 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, travel ways, 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. Apache-Sitgreaves Forest Staff familiar with public values relating to scenery identified and mapped the concern levels for travelways including water routes.

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

This process was only applied to travelways classified as concern level 1.

Scenic Classes: Using the data gathered and mapped for scenic attractiveness and landscape visibility (seen areas/distance zones), and concern level areas, a numerical Scenic Class value is assigned to Forest lands. The ratings 1-6, indicate the scenic value of landscape areas, regardless 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.

Figure 6. Chevelon Canyon on the Black Mesa District

Components & Process

Forest staff depicted the concern levels and sent them to TEAMS to create a GIS coverage. TEAMS staff then created the concern level areas, visibility analysis for concern level 1, scenic classes, existing scenic integrity analysis, and composite scenery base map. The remaining SMS steps will be completed by the Forest within the context of the Forest Plan Interdisciplinary Team. This includes data validation, and creation of preliminary and final Scenic Integrity Objectives.

Concern Levels

The Apache-Sitgreaves National Forest approached concern levels with the following premises: All lands on the Forest have important aesthetic values to the public. Therefore there is not a need to establish concern levels along all roads and trails, or to run a visibility analysis for the entire Forest to see what parts of the Forest are visible from which roads or trails. Concern level 1 areas include but are not limited to specially designated areas such as Wilderness, eligible wild and scenic rivers with scenery as an outstandingly remarkable value, scenic byways, etc.. Concern level 2 areas would comprise the majority of Forest lands, and concern level 3 areas would apply to lands that are managed to sustain major disturbances such as mining. The SMS handbook outlines guidelines to derive the concern levels. Refer to Landscape Aesthetics, A Handbook for Scenery Management, Agriculture Handbook 701: 1995, for detailed information on determining concern levels. Refer to Table 1 for a display of the concern level areas acres and Figures 9 and 10 for maps of the concern level areas.

Representatives from various resource staff areas assisted in the identification of concern levels for the Forest's travel routes and use areas during the SMS training session at the Supervisors Office in Springerville, AZ, during the week of April 28, 2008. This data was placed on maps and sent to TEAMS for creation of GIS layers.

Concern level 1 generally includes all seen areas from primary travel routes, use areas, and water bodies where the forest visitors have a high interest in scenic qualities.

Concern level 1 areas also include all seen areas from secondary travel routes use areas, and water bodies where the forest visitors have a high interest in scenic qualities.

Both the SMS and the VMS give a Concern Level 1 to secondary travelways and use areas where any level of use has a High interest in scenery, although the VMS is more instructive in stating, "Level 1 also includes all seen areas from Secondary travel routes, use areas, and water bodies where at least three fourths of the Forest visitors have a Major concern for the scenic qualities" (USDA FS 1974, 19).

A visibility analysis was done for all travelways assigned a concern level 1. The resulting viewsheds depict the seen areas from the concern level 1 travelways. Refer to Table 2.

Concern Level 2 generally includes all seen areas from primary travel routes, use areas, and water bodies where the forest visitors have a moderate interest in scenic qualities or low interest in scenic qualities if the area receives moderate to high use.

Concern level 2 also includes all seen areas from secondary travel routes, use areas, and water bodies where the forest visitors have a moderate interest in scenic qualities or low interest in scenic qualities if the area receives high use or "where at least one-fourth and

not more than three-fourths of the Forest visitors have a Major concern for scenic qualities" (USDA FS 1974, 20).

Concern Level 3 areas apply to all other travel routes and use areas not listed above.

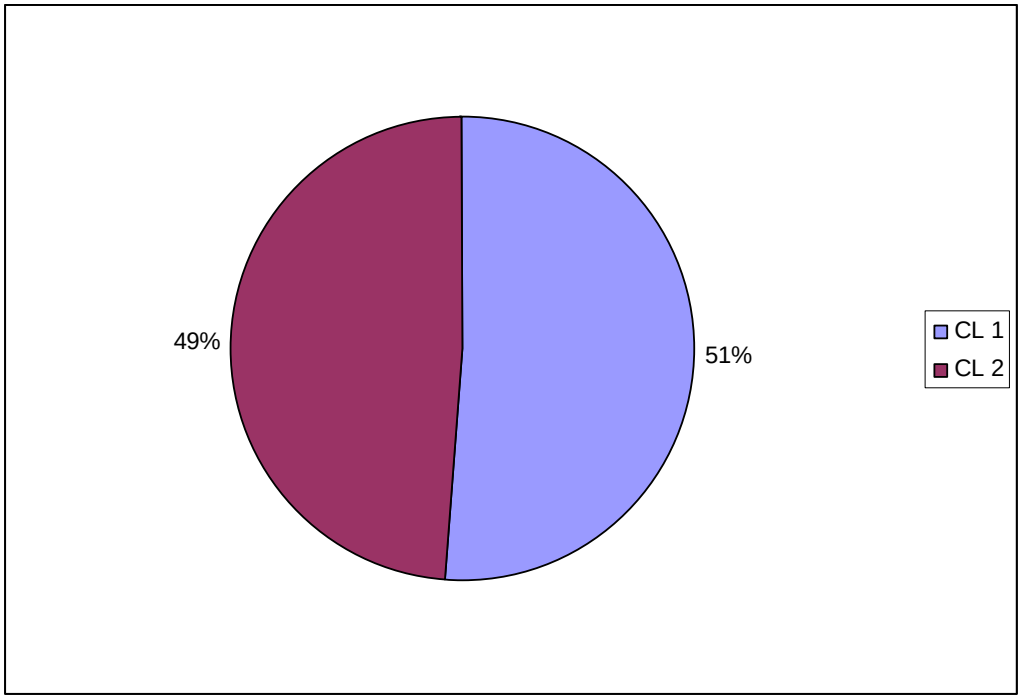
The following table displays the acres and percents of the concern level areas.

Table 1. Concern Level Areas

Concern Level Areas	Acres	Percent of Forest
Concern Level 1 Areas	1,033,125	51%
Concern Level 2 Areas	981,545	49%
Concern Level 3 Areas	515	>1%

Note: The acres calculations only include National Forest ownership

Figure 7. Concern Level Areas



Visibility Analysis for Concern Level 1 Travelways

The visibility analysis was generated using ArcInfo Geographic Information System (GIS). Viewpoints were generated at roughly 1/4-mile intervals for concern level one roads, trails, the Mogollon Rim use area, and streams. Each viewpoint was assigned an observation height. The viewsheds for the observation points were modeled using the Forest 10 meter DEM re-sampled to 30 meters give the scale of the analysis. Only the topographical/elevation information was used to determine seen areas, vegetation was not

considered in the analysis. Refer to Table 2, and Figures 8, 11 and 12 for illustrations of concern level 1 visibility and distance zones.

Table 2. Visibility and Distance Zones for Concern Level 1

Distance Zone/Concern Level 1	Acres	Percent of Forest
Foreground Level 1 (Fg1)	223,591	11%
Middleground Level 1 (Mg1)	75,604	4%
Background Level 1 (Bg1)	500,069	25%
Total Concern Level 1 Viewsheds	799,264	40% of the Forest

Note: The acres calculations only include National Forest ownership

Figure 8. Concern Level 1 Visibility and Distance Zones

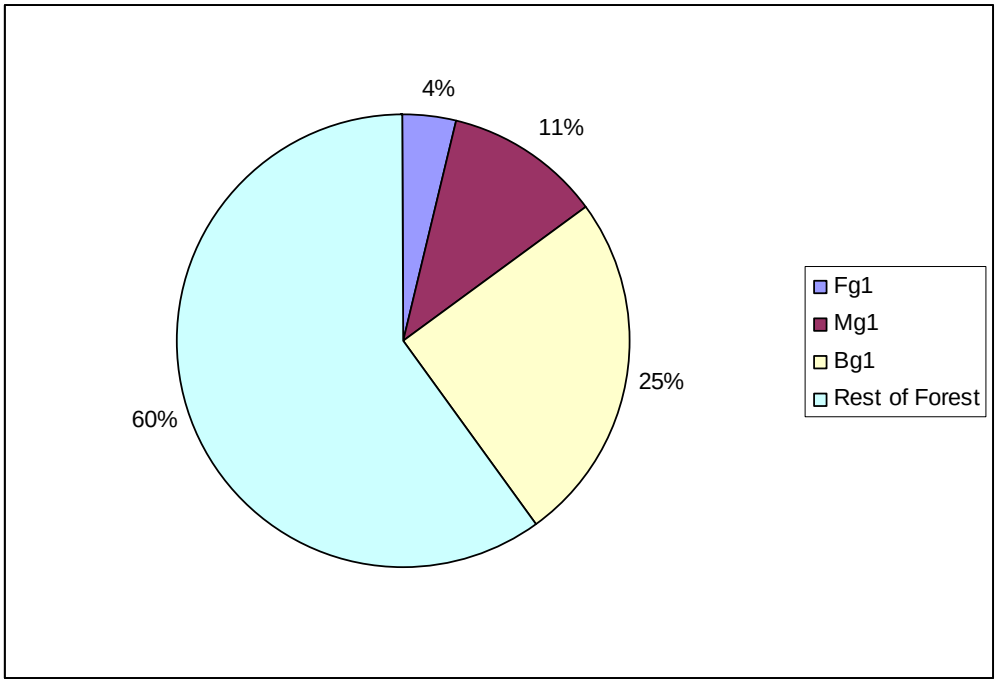


Figure 9. Apache Concern Level Areas Map

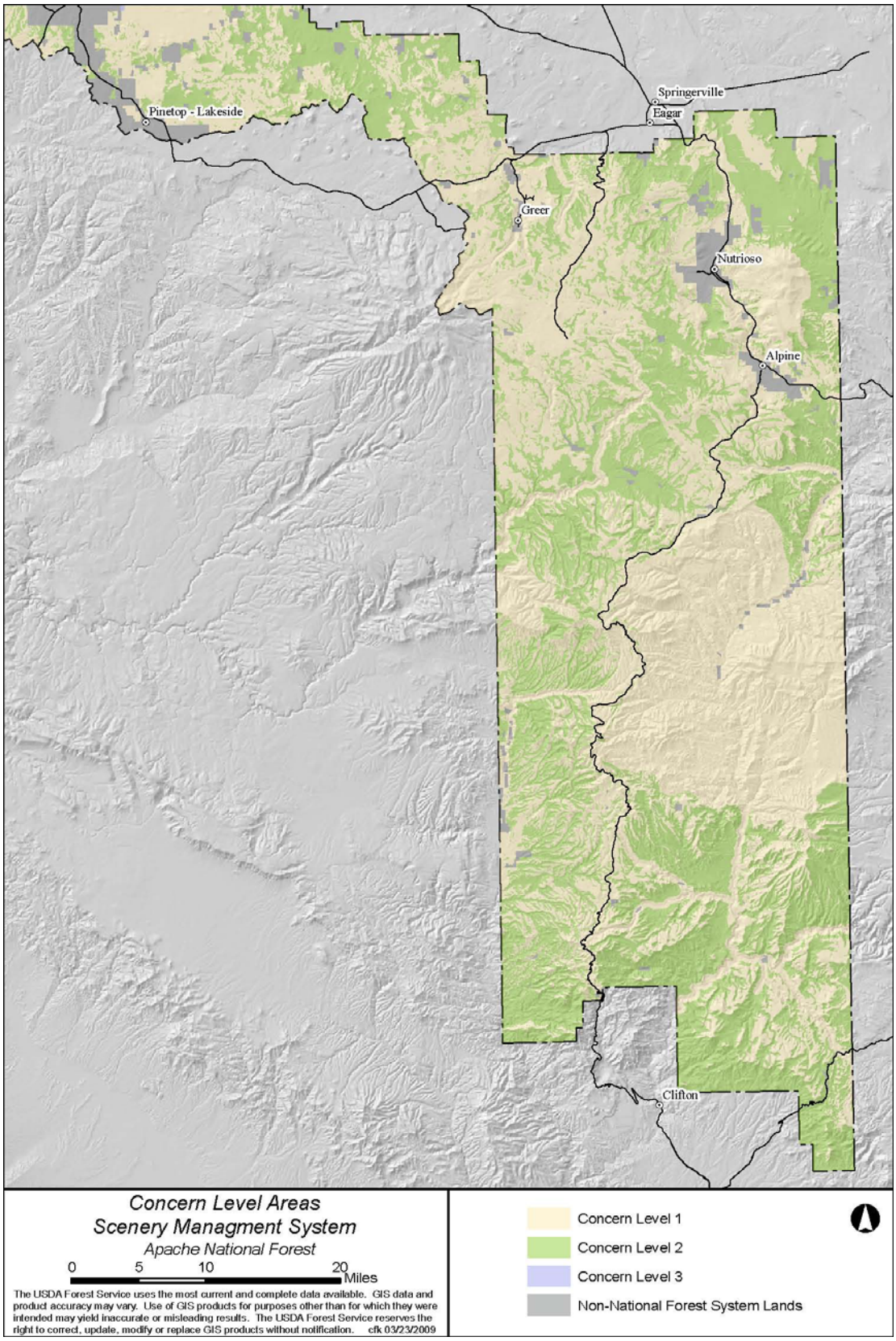


Figure 10. Sitgreaves Concern Level Areas Map

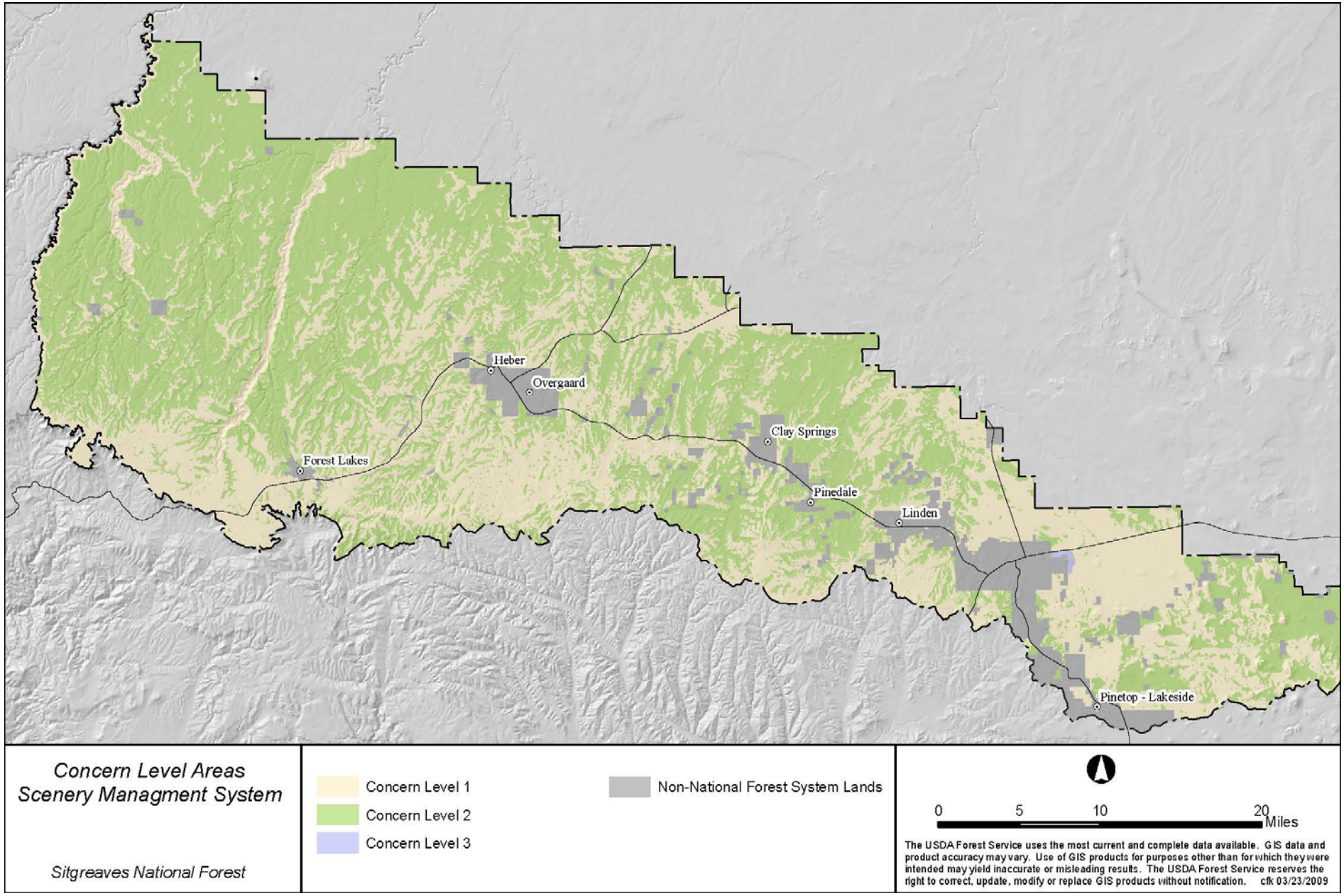


Figure 11. Apache Visibility and Distance Zones for Concern Level 1 Travelways Map

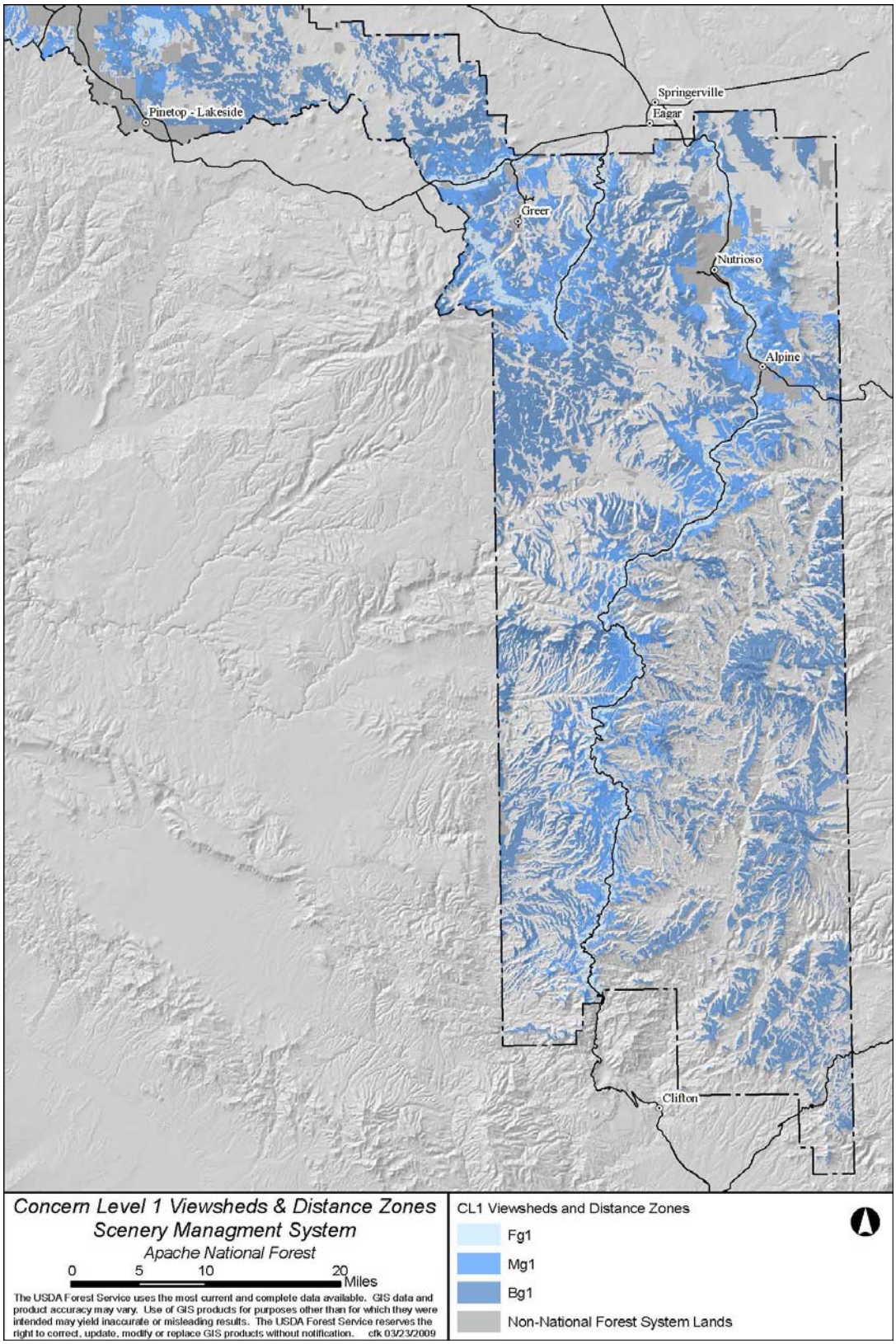
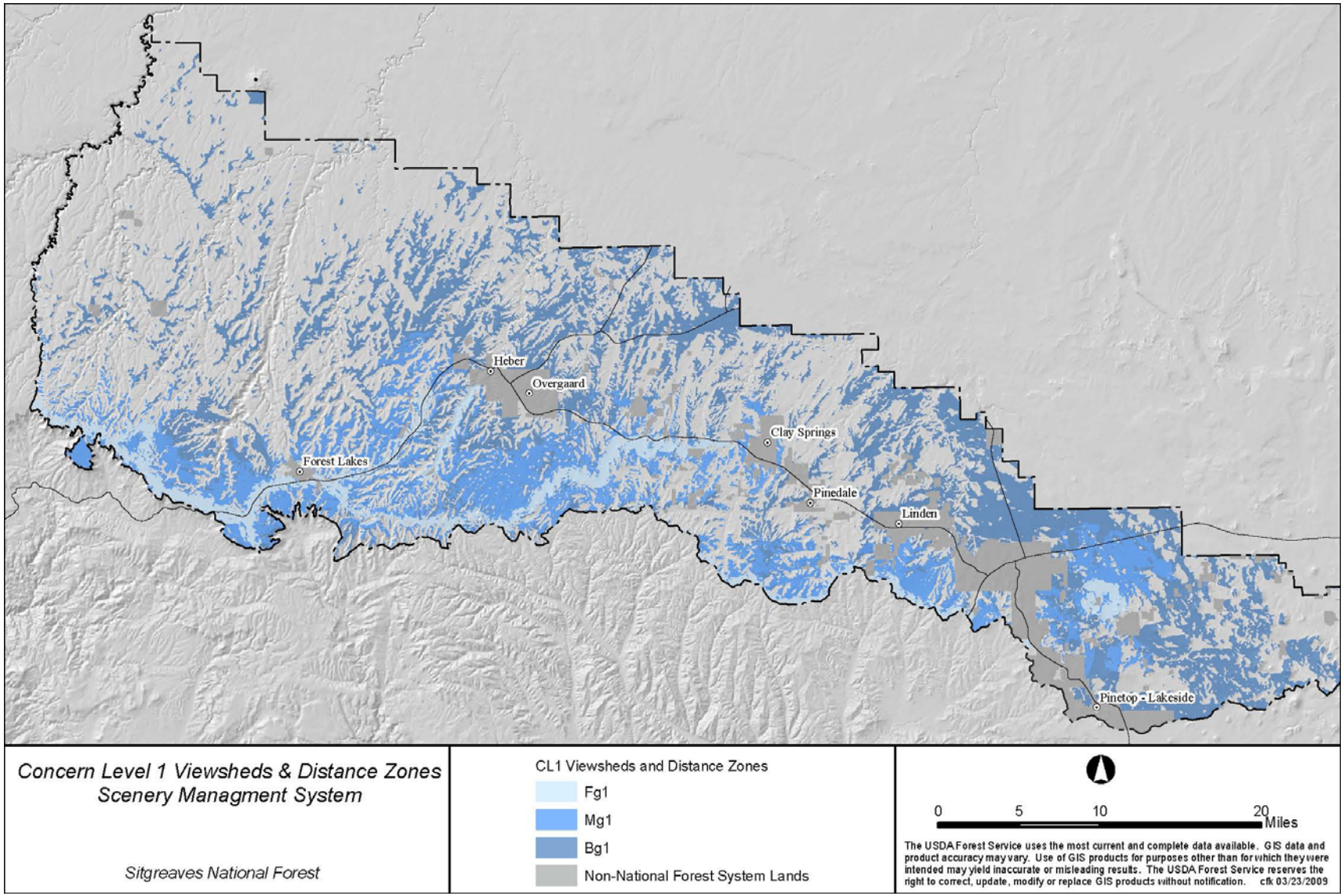


Figure 12. Sitgreaves Visibility and Distance Zones for Concern Level 1 Travelways Map



Existing Scenic Integrity

Existing scenic integrity levels were determined for the Apache-Sitgreaves landscapes using the following elements in GIS. All timber activity shapefiles were created from the AS_UTM12.mdb accomplished polygon feature class joined with the iweb-activities-FACTS. Utility corridors that altered the landscape were also used. This data was used in GIS to display the current condition of the landscape. Other GIS data used includes: designated wilderness areas, roadless inventory, and Recreation Opportunity Spectrum (ROS), historic forest openings. NAIP (National Agricultural Imagery Program) aerial imagery from 2005 was used as a reference to identify changes in the landscape that may not be found in the above GIS layers and may be noticeable from aerial views. Due to time constraints which limited field review, all Existing Scenic Integrity Levels were rated from an aerial view. Refer to Figure 13 for a display of the existing scenic integrity levels, and to Figures 14 and 15 for maps. Table 3 displays the acres for each scenic integrity level.

Designated Wilderness Areas, inventoried roadless areas, natural openings and areas with natural changes appear unaltered, expressing the highest possible level of intactness. This includes a primitive and natural sense of place denoting an existing scenic integrity of **Very High**.

The combination of primitive ROS class areas, eligible wild river corridors, and scenic river corridors when scenery is an outstandingly remarkable value, areas that have been managed for single tree selection and old growth management, and inventoried roadless areas; are naturally appearing and the landscape appears intact and deviations from the landscape character are not evident, giving these areas an existing scenic integrity level of **High**.

Forest management activities including but not limited to timber harvesting, recreation developments, special use permits, grazing activities, and portions of the transportation system have slightly altered the forest landscape. This portion of the Forest has an existing scenic integrity of **Moderate**. Vegetation management activities identified in this category include: shelterwood preparation cut, shelterwood final removal cuts, pre-commercial thinning, sanitation cut and salvage, group selection cuts, fuel treatment pl and piling of activity fuels. The two sheep stock driveways were also rated in this category.

Areas with the following vegetation treatments were rated as **Low** existing scenic integrity: Shelterwood cut, seed tree prep cut, commercial thinning, pre-commercial thinning strip, salvage cut, overstory removal cut, seed tree final cut, fuel break, compacting and crushing fuels, and partial removal cut.

Utility corridors, gravel pits and other surface mining activities, and patch and stand clear cut timber harvest units with unnaturally appearing shapes and edges and/or an extensive network of roads were assigned **Very Low** existing scenic integrity. These areas may strongly dominate the valued landscape character and borrow little from valued attributes. The area burned by the Rodeo-Chediski fire was also rated very low based on the following information: This fire burned in the pinyon pine, ponderosa and mixed conifer vegetation types. Historically stand replacing fires did not occur in these vegetation

types. Therefore, this stand replacing fire is considered to be outside the historical range of variability, and as such will be assigned a very low existing scenic integrity.

No areas that are extremely altered which would be classified as unacceptably Low Integrity that would need rehabilitation were found on the Forest. Refer to Appendix A for additional information regarding this inventory.

Table 3. Existing Scenic Integrity Levels

Existing Scenic Integrity Level	Acres	Percent of Forest
Very High	468,334	23%
High	452,845	22%
Moderate	796,963	40%
Low	135,374	7%
Very Low	161,669	8%

Note: No lands were rated Unacceptably Low. The acres calculations only include National Forest ownership.

Figure 13. Existing Scenic Integrity Levels Chart

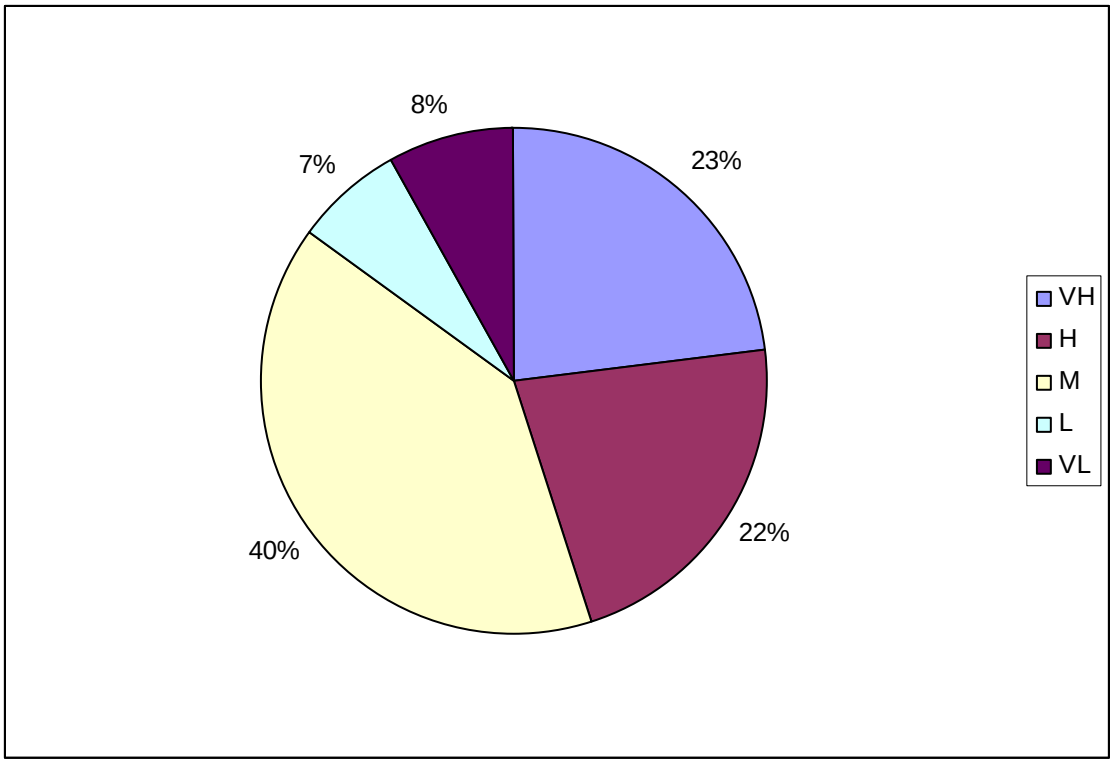


Figure 14. Apache Existing Scenic Integrity Levels Map

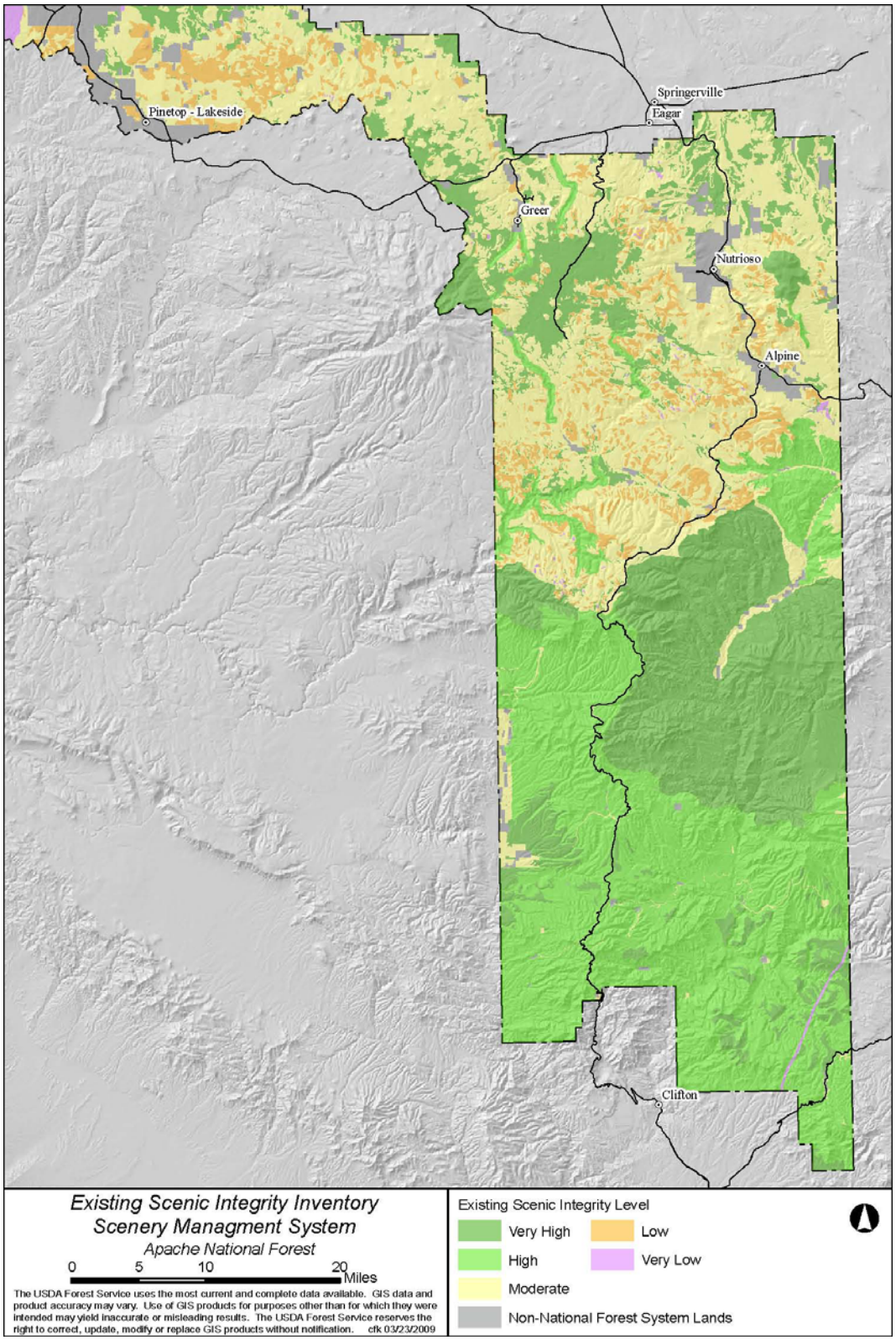
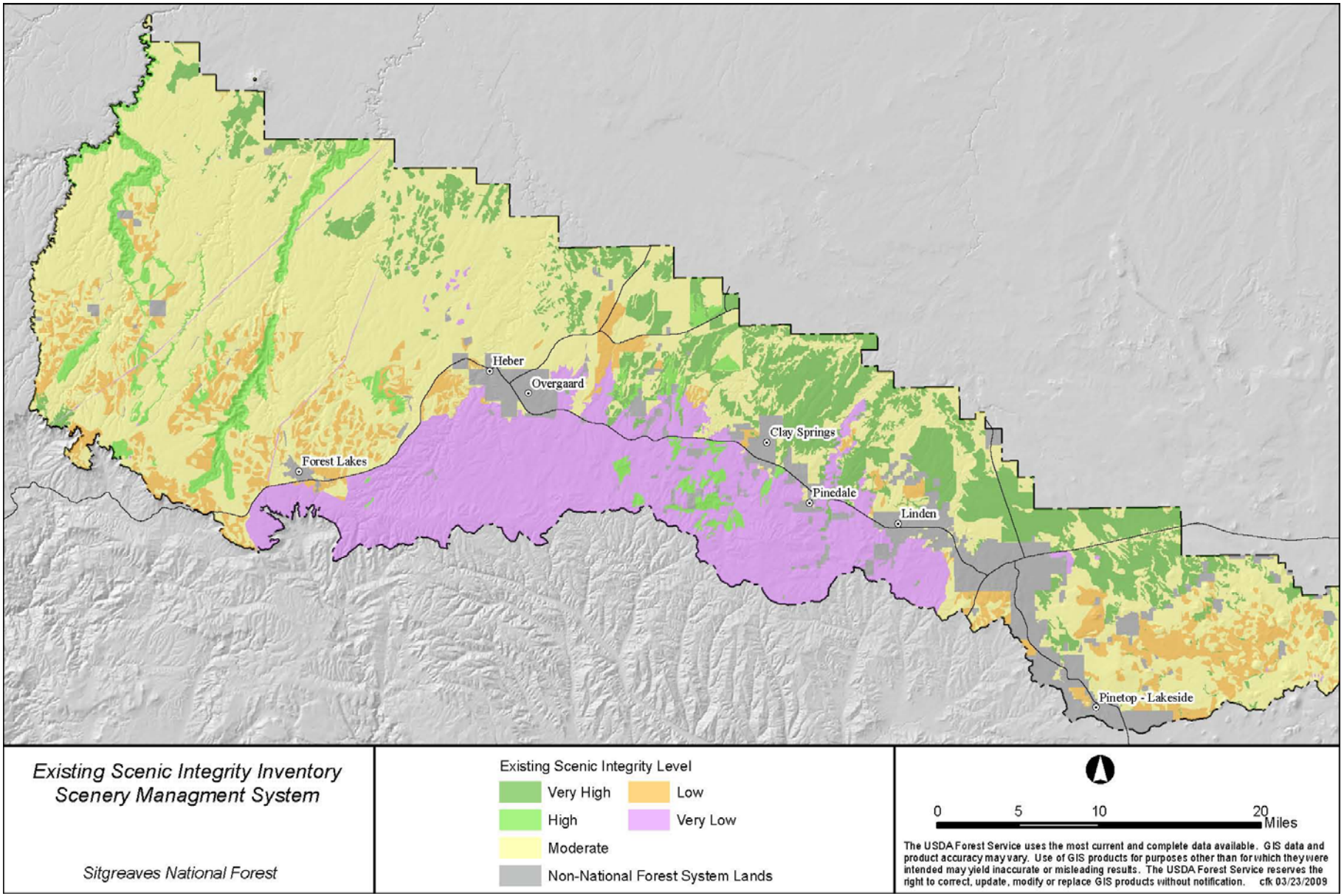


Figure 15. Sitgreaves Existing Scenic Integrity Levels Map



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 that are 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 inherent beauty of the landscape character, regardless of existing conditions.

TEAMS Enterprise Unit staff developed the ratings for the Forest's scenic attractiveness layer in GIS. See Appendix A for a detailed description of the ratings.

Figure 16. Fall colors on the Apache-Sitgreaves

Scenic attractiveness classifications include:

- 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.

Refer to Appendix B for additional information regarding this inventory.

Table 4. Scenic Attractiveness Classes

Class	Acres	Percent of Forest
A – Distinctive	709,306	35%
B – Typical	1,240,812	62%
C – Indistinctive	65,067	3%

Note: The acres calculations only include National Forest ownership.

Figure 17. Scenic Attractiveness Class Chart

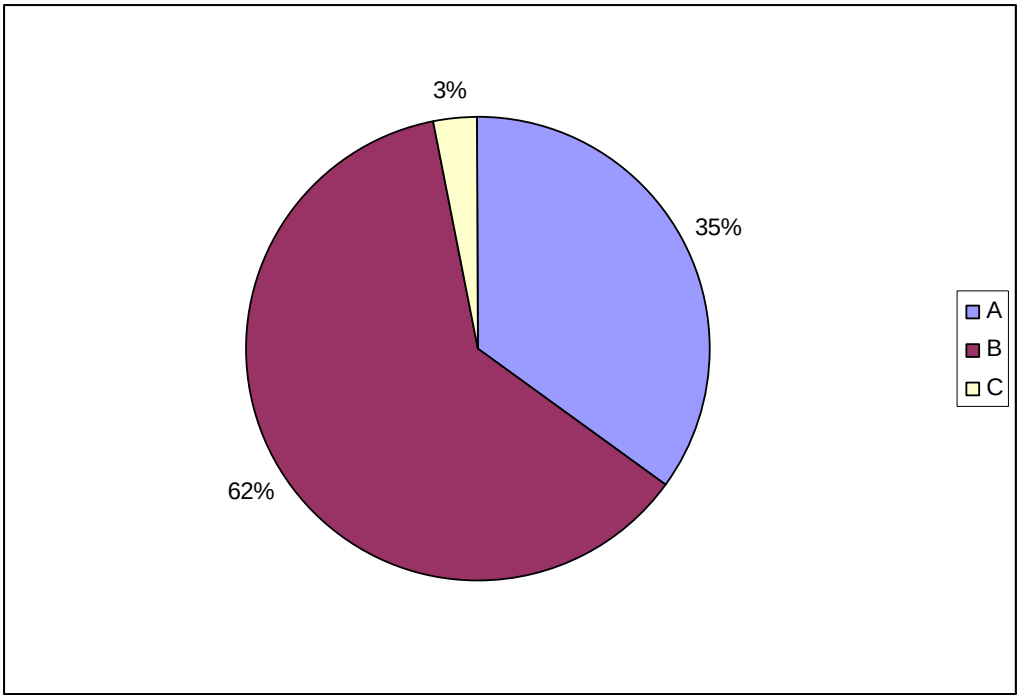


Figure 18. Apache Scenic Attractiveness Class Map

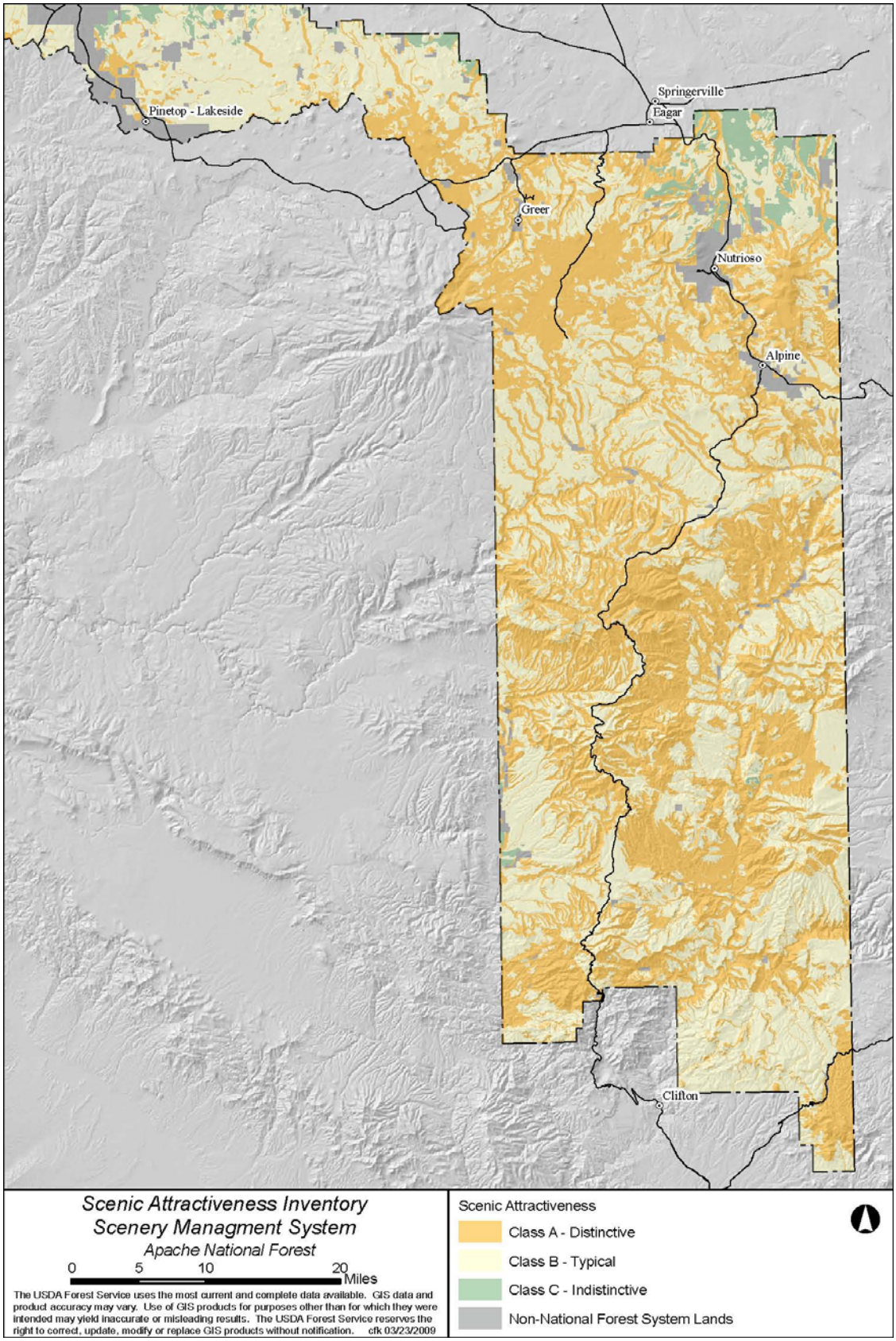
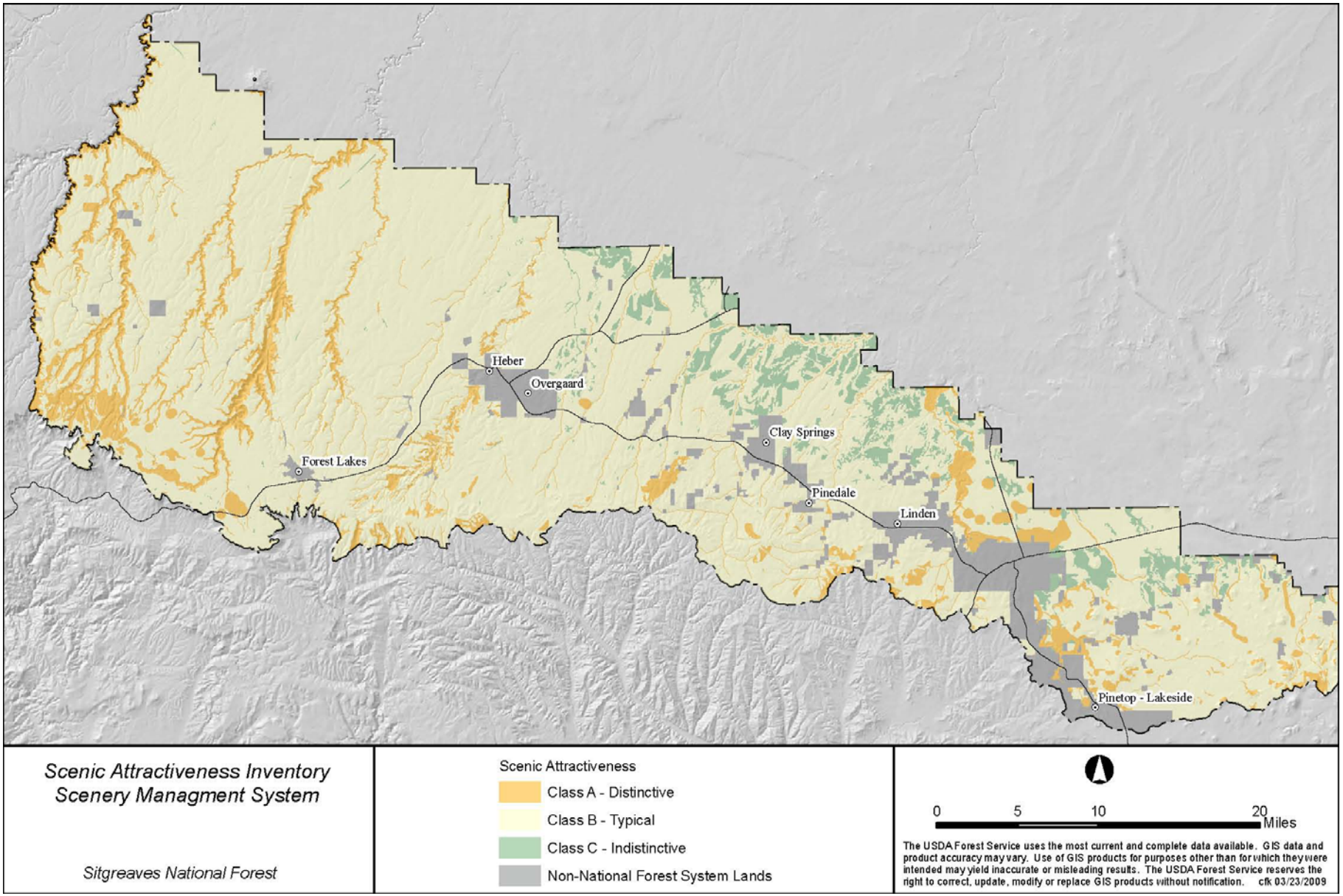


Figure 19. Sitgreaves Scenic Attractiveness Class Map



Scenic Classes

Scenic classes represent the relative landscape value by combining Distance Zone, Concern Levels, and Scenic Attractiveness inventories. The SMS handbook outlines the Scenic Class Matrix on page 4-16. Scenic classes are used during the forest planning process to compare the value of scenery with the value of other resources, such as timber, wildlife, recreation, etc. 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 FS 1995, 4-15).

Since the Concern Level and visibility processes vary somewhat from the handbook, the following matrix was used to determine the scenic classes for the Apache-Sitgreaves National Forest. Visibility analysis was only run to depict the viewshed of concern level one travelways.

Table 5. Apache-Sitgreaves Scenic Class Matrix

Scenic Attractiveness	Concern Levels					
	Fg1	Mg1	CL1 Areas	Bg1	CL2	CL3
A- (1)	1	1	1	1	2	3
B- (2)	1	2	2	2	3	5
C- (3)	1	2	2	3	4	6

Notes: The average scenic class rating for concern levels 2 and 3 from the matrix in the handbook was used. (USDA FS 1995, 4-16). No areas were identified as seldom seen. The SMS Handbook defines scenic classes 3-5 as moderate public value. The lowest valued landscapes on the Apache-Sitgreaves Forest are the combination of CL3 and Class C, and were assigned a scenic class 6 representing low public value. Some areas of the Forest were assigned a concern level one. The matrix above refers to these areas as CL1 Areas which are displayed in the Concern Level Areas map. The scenic class ratings for the CL1 areas uses the middle-ground values for concern level 1 since there were no distance zones used in these areas. (USDA FS 1995, 4-16).

Table 6. Scenic Classes

Scenic Class	Acres	Percent of Forest
1 - High Public Value	452,496	22%
2 - High Public Value	857,841	43%
3 - Moderate Public Value	671,638	33%
4 - Moderate Public Value	33,025	2%
5- Moderate Public Value	98	<1%
6 - Low Public Value	87	<1%

Note: The acres calculations only include National Forest ownership.

Approximately 65% of the Apache-Sitgreaves NF has high public value, 35% has moderate public value, and less than 1% has a low public value.

Figure 20. Percent of each Scenic Classes

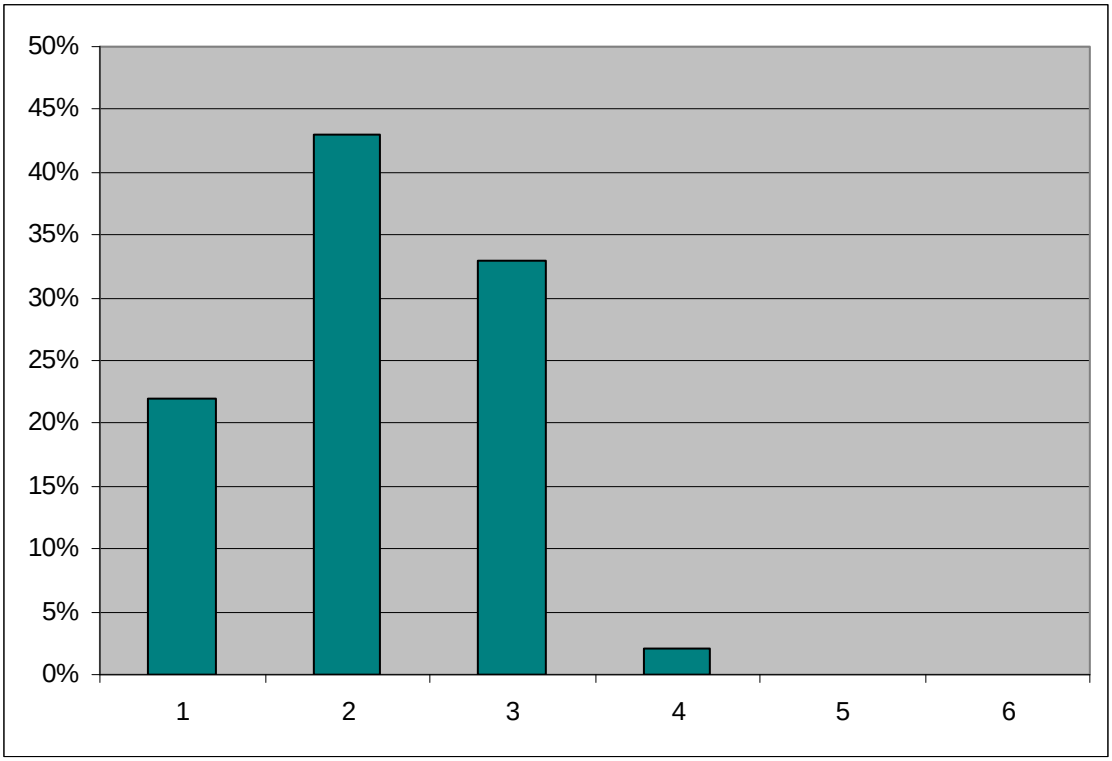


Figure 21. Apache Scenic Classes Map

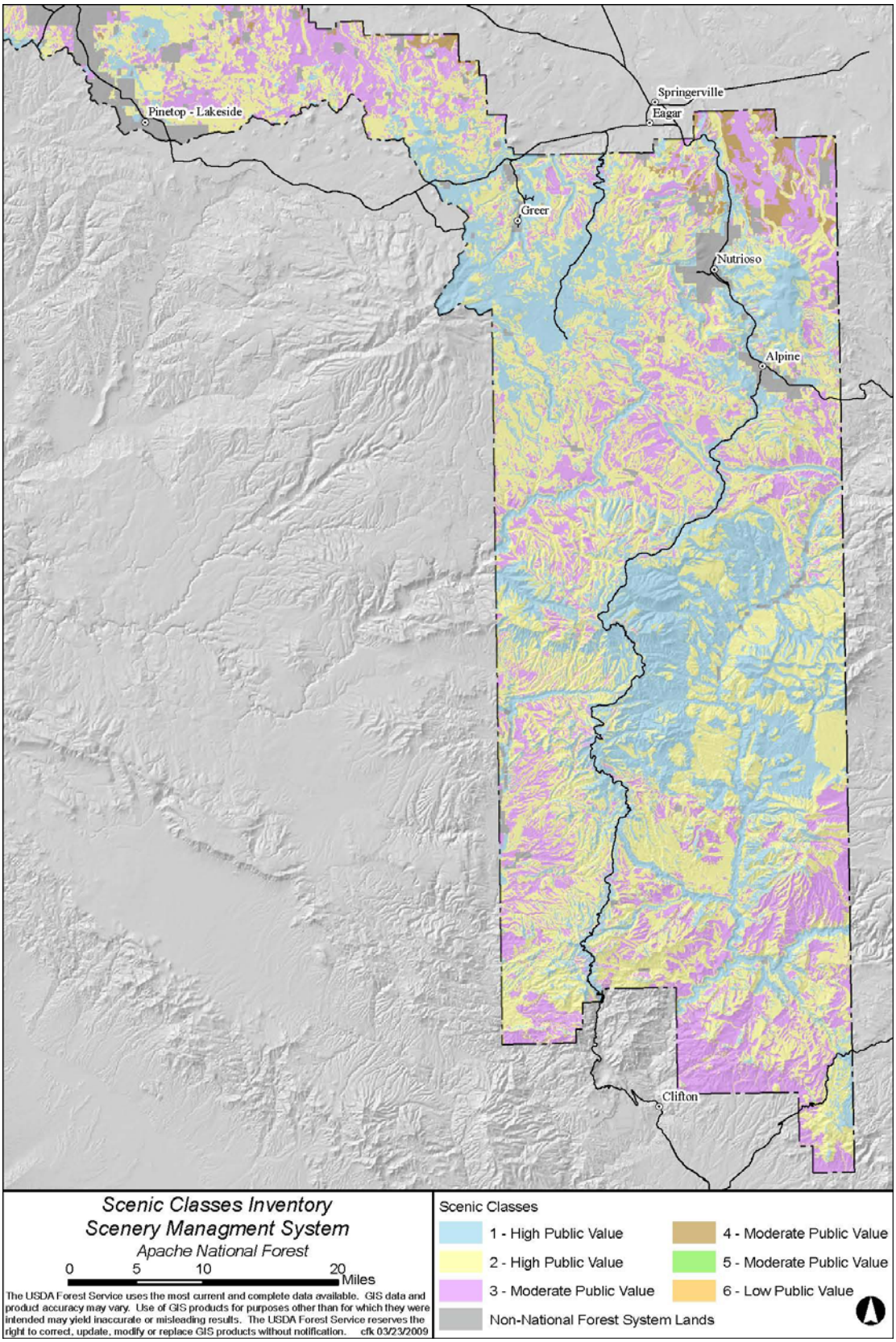
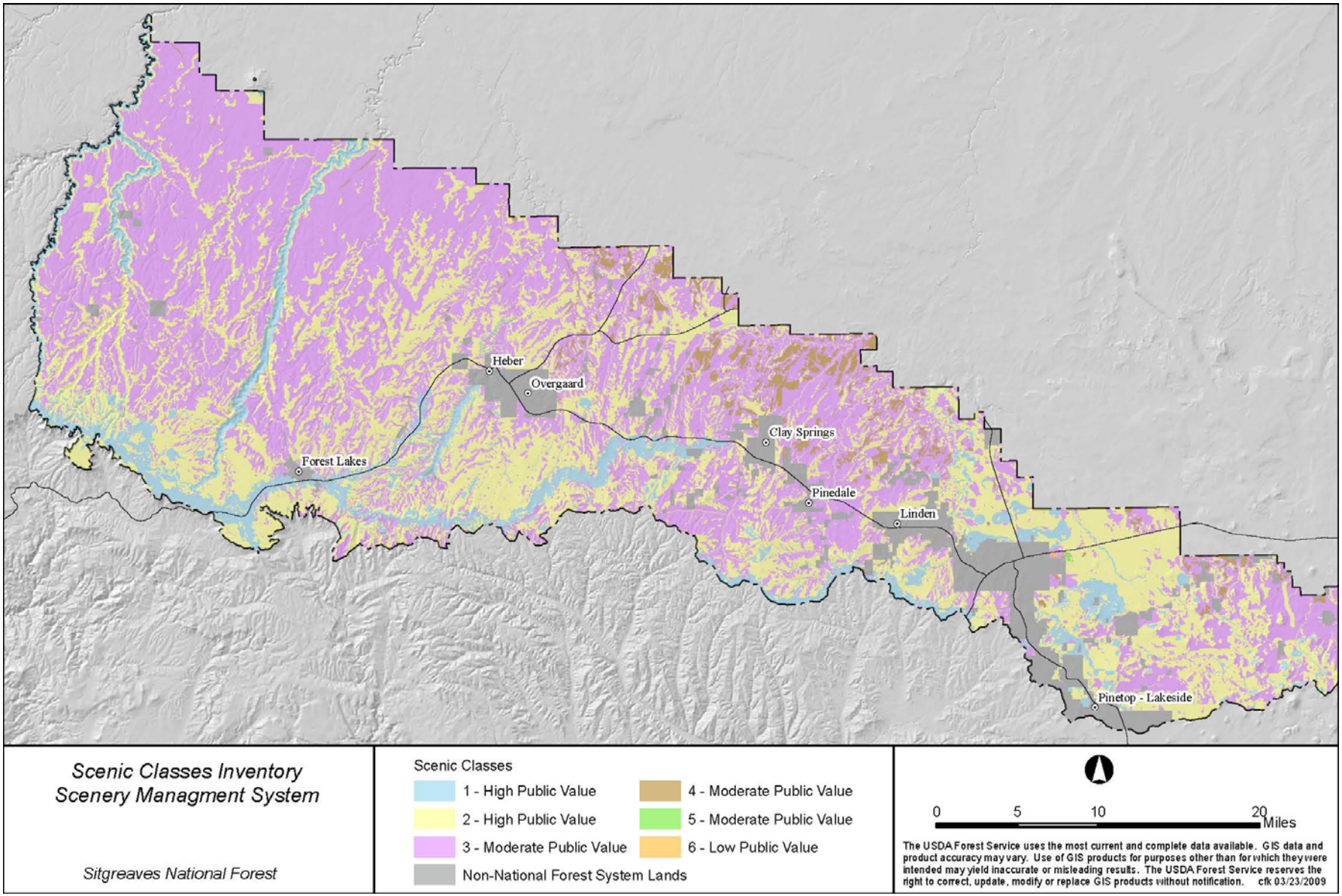


Figure 22. Sitgreaves Scenic Classes Map



Composite Scenery Base Map

SMS Handbook guidance for determining Scenic Integrity Objectives is as follows: "Using the information in the scenery inventory icon as guidance Scenic Integrity Levels are discussed and proposed for all National Forest System acres during the forest planning process. The assignment of integrity levels is dependent on the theme (desired future condition) of each alternative. Once a final plan alternative is adopted, the Scenic Integrity Levels become Scenic Integrity Objectives that are to be used to manage the scenery resource." (USDA FS 1995, 4-16). The scenery inventory icon has the following information: distance zone, concern level, scenic attractiveness, scenic classes, and existing scenic integrity.

To help the Forest determine scenic integrity levels (SILs), 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 Forest planning process. The mapping process is as follows:

To review, scenic classes represent the relative landscape value by combining concern level 1 distance zones and seen area, concern level areas, 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, classes 3-5 have moderate public value and classes 6 and 7 have low public value (USDA FS 1995, 4-15).

Table 7. Scenic Classes acres

Scenic Class	Acres	Percent of Forest
1 - High Public Value	452,496	22%
2 - High Public Value	857,841	43%
3 - Moderate Public Value	671,638	33%
4 - Moderate Public Value	33,025	2%
5- Moderate Public Value	98	<1%
6 - Low Public Value	87	<1%

Note: The acres calculations only include National Forest System lands.

The existing scenic integrity (ESI) is a snapshot in time of the existing condition of the landscape. It is a result of the implementation of the current forest plan. The 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 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 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 Apache-Sitgreaves National Forest.

Table 8. Existing Scenic Integrity Levels

Existing Scenic Integrity Level	Acres	Percent of Forest
Very High	468,334	23%
High	452,845	22%
Moderate	796,963	40%
Low	135,374	7%
Very Low	161,669	8%

Notes: No lands were rated Unacceptably Low. The acres calculations only include National Forest System lands.

The scenic classes and the existing scenic integrity levels were combined using the matrix shown below in Table 9. This combination of inventories is the existing condition of the Forest 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 11.

Table 9. Matrix for determining SMS Values for the Composite Scenery Base Map

	Existing Scenic Integrity Levels				
Scenic Class	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

The SMS values derived from the composite scenery base map can be correlated with potential Scenic Integrity Levels. The range of values was correlated to a potential Scenic Integrity Level by condensing the range of values in the matrix above into Table 10 below.

Table 10. SMS Values for the Composite Scenery Base Map

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

The most likely desired management conditions, scenic class, and current intactness of the landscape were all considered when assigned a potential Scenic Integrity Level. National Forest lands are not managed beyond the Very Low Scenic Integrity Level. The lower the numeric value the more important the public value for scenery is, as well as the higher the intactness of the natural landscape. These values can be used as recommendations to assign scenic integrity

objectives for the Forest Plan. Refer to Figures 23-25 for a display of the SMS values for the composite scenery base map.

Table 11. Composite Scenery Base Map Detailed SMS Value Table

Matrix of SMS Values	Acres	Percent of Forest	Proposed Scenic Integrity Level
2	191,033	9%	Very High
3	276,235	14%	High
4	414,631	21%	High
5	497,177	25%	Moderate
6	438,746	22%	Moderate
7	136,387	7%	Moderate
8	60,436	3%	Moderate
9	330	<1%	Low
10	96	<1%	Low
11	87	<1%	Very Low

Table 12. Composite Scenery Base Map Summary SMS Value Table

Matrix of SMS Values	Acres	Percent of Forest	Proposed Scenic Integrity Level
2	191,033	9%	Very High
3-4	690,866	35%	High
5-8	1,132,773	56%	Moderate
9-10	426	<1%	Low
11	87	<1%	Very Low

Note: No lands were rated Unacceptably Low. The acres calculations only include National Forest System lands.

Figure 23. SMS Values for Composite Scenery Base Map Chart

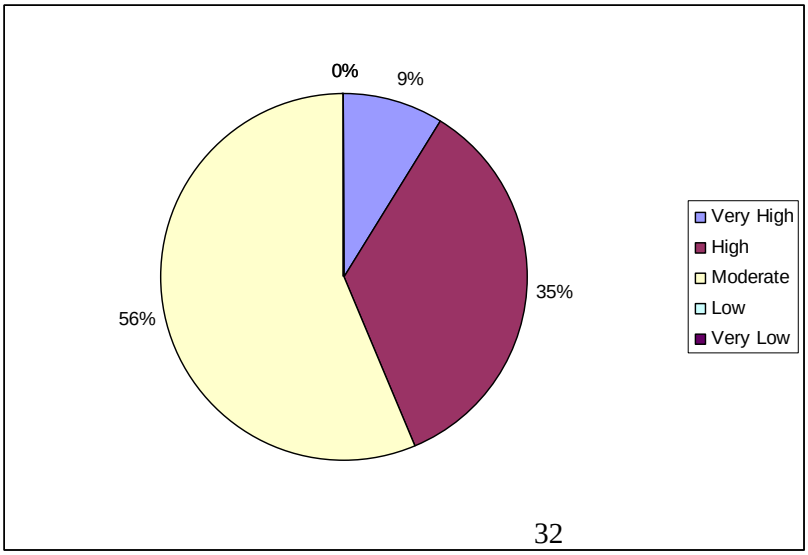


Figure 24. Apache Composite Scenery Base Map

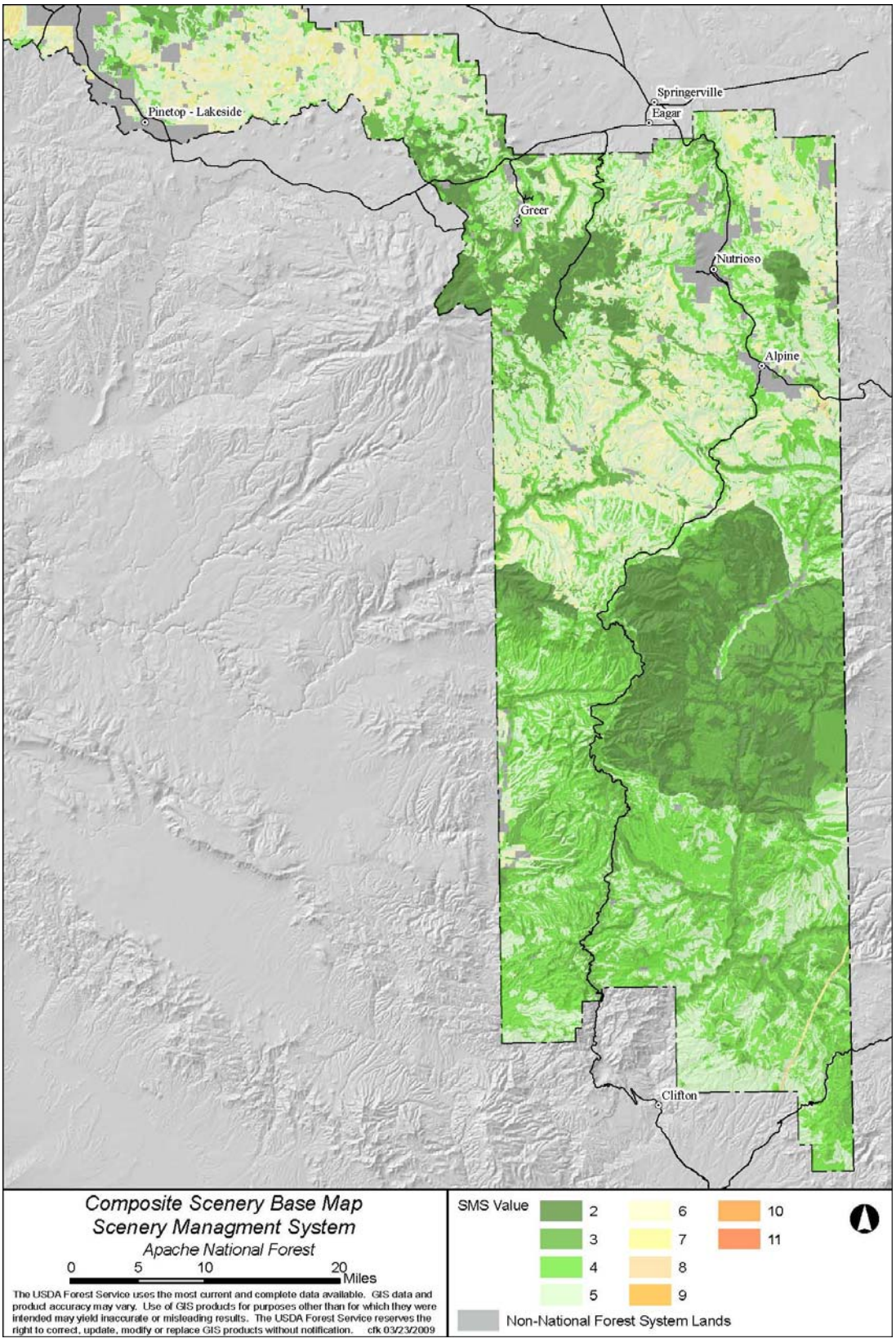
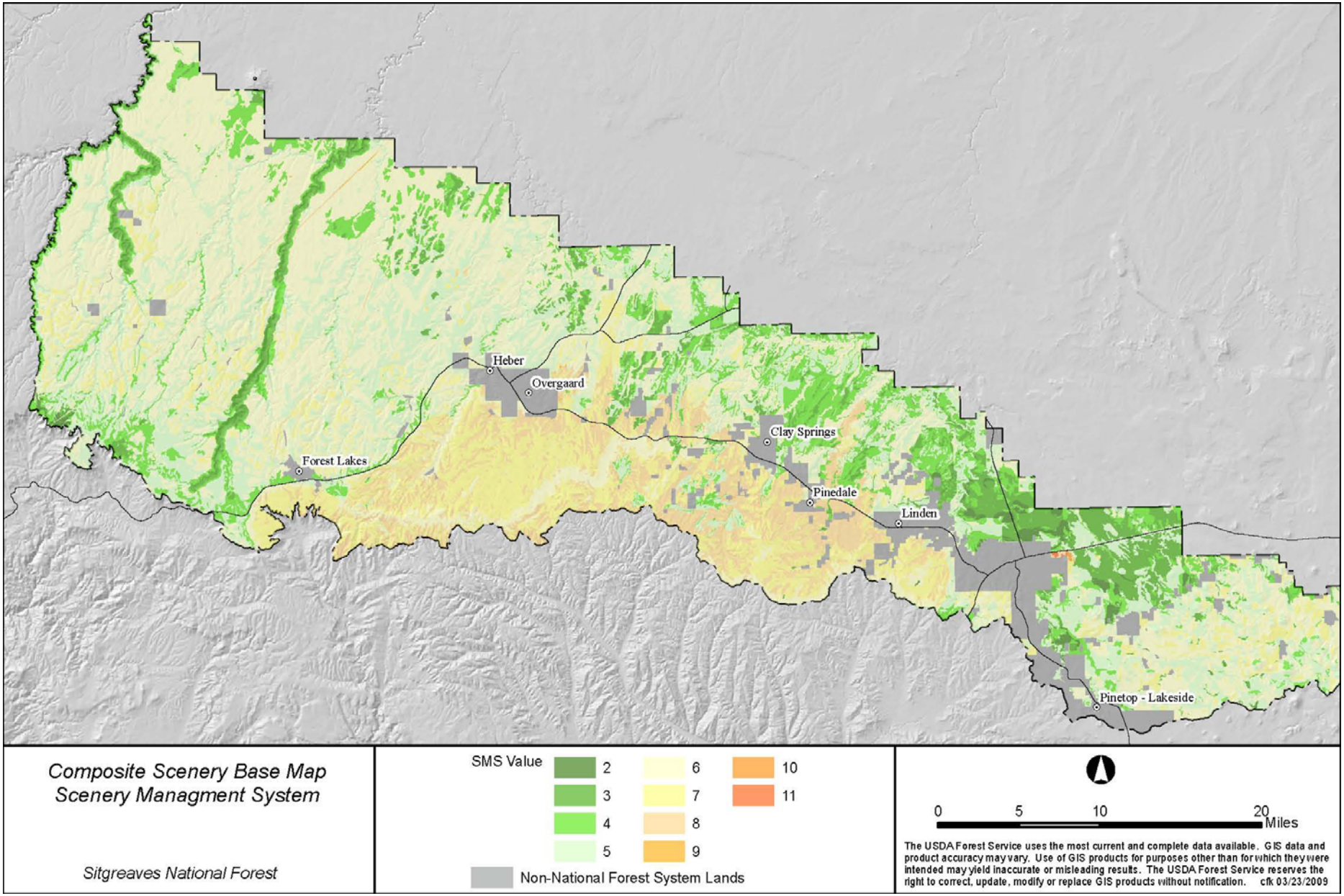


Figure 25. Sitgreaves Composite Scenery Base Map



Proposed Scenic Integrity Objectives

Using the SMS Values to derive Potential Scenic Integrity Objectives

When the Apache-Sitgreaves NF publishes the LRMP, a map depicting the Scenic Integrity Objectives (SIO) will be part of the LRMP. Recommendations for development of the SIO map follows:

A map of the Proposed Management Areas can be draped onto the Composite Scenery Base Map. Depending on the theme or focus of the management area and the suggested scenic integrity level (SIL) on the Composite Scenery Base Map, a recommended SIO can be assigned by the Forest Plan Interdisciplinary Team (IDT) to the management area. In some cases, the management area (MA) can be split into more than one SIO. After all the MAs are assigned SIOs, the Scenic Class map can be reviewed to determine if any changes or “fine tuning” is needed. A result of the fine tuning might be raising or lowering the SIO. Composite Scenery Base Maps on other Forests tended to undervalue scenery as a result of the influence of existing conditions and the visibility assessment. The Scenic Class map indicated where SIOs could be raised while still maintaining consistency with the proposed management themes for each MA.

The recommended SIO map should be reviewed by knowledgeable staff on each Ranger District. This review will further ensure consistency with proposed MA themes, and also to validate, from district staff, that scenic values and special places are effectively represented.

Areas or places on the Forest where Plan IDT direction and district direction were not in agreement need to be identified. Consult The Forest Plan Advisory Group, or the leadership team, to make the final determination of SIOs for these “places”.

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Appendix A- Existing Scenic Integrity Inventory Details

Outlined in this document is a general protocol for determining Existing Scenic Integrity Levels at a forest-wide scale for the Apache-Sitgreaves NF.

Very High ESI

- **Designated Wilderness Areas** – there may be areas dominated by human use and trails identified using DOQQs or NAIP imagery that do not meet Very High. These areas would need to be digitized and assigned the appropriate ESI level. Those areas dominated by human use and trails should be assigned the appropriate ESI level which may vary from High to Low. **(AS_UTM12>Land > Wilderness)**
    - **This applies to all but the road corridor around GR-67004 in the Blue Range Primitive Area. A ¼ mile corridor on each side of the road will be shown as Moderate ESI.**
- **Natural Openings- (**AS_UTM12_other>Activities>Historic_Forest_Openings)
- **Natural Changes no harvesting (AS_UTM12.mdb** accomplished polygon feature class joined with the activities-FACTS)

High ESI

- **Wild and Scenic Rivers** eligible for wild or scenic classification. (Use eligible wild river corridors from corporate dataset. Use scenic segments of rivers only when scenery is identified as an outstanding remarkable value.)
- **Primitive ROS Class outside of designated Wilderness Areas – (**AS_UTM12>Recreation>Recreation_Opport_Spectrum)
- **Single Tree Selection-** (AS_UTM12.mdb > Activities > Accomplished_pl – I queried the FACTS table to pull out the codes listed above. I export data to several shapefiles in the AS_Forest_Planning_GIS_Janz)
- **Old Growth Management-** (AS-UTM12_other>Management Areas>Old Growth Management)
- **Inventoried Roadless Areas** (AS_UTM12_other > land > Roadless_Inventory)

Moderate ESI

- Other Forest lands not identified as Very High, High, Low or Very Low ESI primarily because of transportation management, developed and dispersed recreation, special uses, and other forest management activities not identified as Low or Very Low.
- **Some Timber Activities that generally meet Moderate ESI; covered in first bullet statement for Moderate ESI, but specifics include:** All timber activity shapefiles were created from the AS_UTM12.mdb accomplished polygon feature class joined with the iweb-activities-FACTS
    - Shelterwood Preparation Cut
    - Shelterwood Final Removal Cut
    - Precommercial Thinning
    - Precommercial Thinning Individual Tree

- Sanitation Cut
- Sanitation Salvage
- Group Selection
- Shelterwood Final Cut
- Piling of activity Fuels
- Lop and scatter activity fuels
- Chipping activity Fuels
- Chipping natural fuels

(Source data: AS_UTM12.mdb > Activities > Accomplished_pl – I queried the FACTS table to pull out the codes listed above. Resulting dataset of shapefiles in a folder named AS_Forest_Planning_GIS_Janz).

- Developed Recreation Areas from (AS_UTM12 >Recreation>Recreation_Site_pl)
- **Fuel Treatments** (AS_UTM12_other>Activities>Fuel Treatment PL)
- **Grazing Activities**
  - Stock driveways –two sheep driveways (source AS_UTM12_other>rangeland>driveway)

Low Integrity

- **Timber Activities that generally meet Low ESI** (Verified whether any of these activities would meet Moderate or Very Low using DOQQs or NAIP imagery) All timber activity shapefiles were created from the AS_UTM12.mdb accomplished polygon feature class joined with the iweb-activities-FACTS
  - Shelterwood cut
  - Seed Tree Preparation Cut
  - Commercial thinning
  - Precommercial Thinning Strip
  - Sanitation (Salvage)
  - Salvage Cut- note all units are within the Rodeo-Chediski Fire
  - Seed Tree Seed Cut
  - Shelterwood Cut
  - Shelterwood Cut
  - Overstory Removal Cut
  - Seed Tree Final Cut
  - Fuel Break
  - Partial Removal Cut
  - Compacting/crushing fuels
  - **(Source data: AS_UTM12.mdb > Activities > Accomplished_pl – I queried the FACTS table to pull out the codes listed above. Resulting dataset of shapefiles in a folder named AS_Forest_Planning_GIS_Janz).**

Very Low Integrity

- **Permanent Land Clearing** – (shapefile created from the accomplished polygon feature class joined with the activities-FACTS)
- **Timber Harvest –** areas where units have unnatural and geometrically shaped boundaries and/or an extensive road network. Identify using DOQQs or NAIP imagery.
    - Clear cut (patch and stand) – (shapefile created from the accomplished polygon feature class joined with the act ivies-FACTS)
- **Utility corridors** typically do not borrow from natural shapes, patterns, or edge effect. –
    - Electric and gas transmission lines - buffered with 100 foot buffer or consider the largest ROW on the forest. **(Use Janz_ESI shapefile)**
- **Strip mines-quarries-gravel pits –** Data Source: (I created a shapefile based on a querie of the RMRIS_Cover_Type table)
- **Rodeo-Chediski Fire**- (AS_UTM12.mdb>Fire_Management>Fire_History_pl) This fire burned in the pinyon pine, ponderosa and mixed conifer vegetation types. Historically stand replacing fires did not occur in these vegetation types. Therefore, this stand replacing fire is considered to be outside the historical range of variability, and as such will be assigned a very low existing scenic integrity. Per phone conversation with Mitchell White 10/09/08.

Unacceptably Low Integrity

- No areas that are extremely altered which need rehabilitation were found on the Forest.

Existing Scenic Integrity Levels by Management Activity

Management Activity	Existing Scenic Integrity Levels				
	Very High	High	Moderate	Low	Very Low
Designated Wilderness Areas	**X**				
Wild and Scenic River Corridors		**X**			
Inventoried Roadless Areas		**X**			
Primitive ROS Class outside of designated Wilderness Areas		**X**			
Research Natural Areas		**X**			
Wilderness Study Areas	**X**				
Rodeo-Chediski Fire (outside of HRV for all veg types)					**X**
Timber Management					
Group Selection			**X**		

Management Activity	Existing Scenic Integrity Levels				
	Very High	High	Moderate	Low	Very Low
Single Tree Selection		X			
Fuel treatment PL			X		
Seed Tree Preparation Cut				X	
Commercial thinning				X	
Pre-commercial Thinning			X		
Pre-commercial Thinning Strip				X	
Pre-commercial Thinning- Individual Tree			X		
Sanitation cut			X		
Sanitation (Salvage)				X	
Salvage cut (all units are within the Rodeo-Chedeiki burn area)				X	
Clear cut (patch, strip and stand)					X
Seed tree seed Cut				X	
Overstory Removal Cut				X	
Shelterwood Preparation Cut			X		
Shelterwood Cut				X	
Shelterwood Final Removal Cut			X		
Partial Removal Cut				X	
Single Tree Selection cut		X			
Sanitation Salvage			X		
Fuelbreak				X	
Piling of activity fuels			X		
Permanent Land clearing					X
Natural changes no harvesting	X				
Group Selections			X		
Strip mines-quarries-gravel pits					X
Utility Corridors					X

Appendix B –Scenic Attractiveness Inventory Details

USDA Forest Service
Scenery Management System Inventories
TEAMS Enterprise – Scenic Attractiveness Inventory Value System
Apache-Sitgreaves National Forest
02/05/2009

	Scenic Attractiveness Classes		
Attribute	**Class A- Distinctive**	**Class B- Common**	**Class C- Indistinctive**
	Value- 3	**Value- 2**	**Value -1**
Streams	Stream Order 6-9 In conjunction with or if stream order is not available: Eligible Wild & Scenic Rivers with Scenery Outstanding Remarkable Values (1/8 mile buffer) All Perennial Streams Buffer riparian areas (1/8 mile)	Stream Order 4-5 If stream order is not available: Intermittent Streams Buffer riparian areas (1/8 mile)	Stream Order 1-3 If stream order is not available: Ephemeral Streams Buffer 1/8 mile
Lakes	Includes only those lakes identified as distinctive water bodies by the Forest. The lakes are 6 acres or larger. Those smaller than 6 acres with one or more of the following: Unusual or outstanding shoreline characteristics, strong reflective quality, or class A shoreline vegetation or rock forms. Buffer for shore (1/4 mile)	2-6 acres in size Some shoreline irregularity with Class B vegetation or rock formation. Minor reflective quality. Buffer for shore (1/8 mile)	Not applicable
Topography	Over 60 percent slopes with a lot of dissection, unevenness and sharply exposed ridges, or other outstanding features.	59-30 percent slopes which are moderately dissected with rolling landforms.	29-0 percent slopes, areas with little variety, insignificant dissection, and no dominant features.

Geology/ Landform	Distinctive landscape features, unique or outstanding rock outcrops in size, shape and location. Typically use ecological units or soil inventory	Features are common to the natural landscape.	Small to non-existent features.
Vegetation	High degree of vegetative diversity in type, size, color and texture. Unique or outstanding vegetative species or combinations of species. Typically use species mix. Includes: AZ_Hedgehog_Cactus >Vegetation> AS_UTM12_other For riparian areas use PFC Lotic w/ 100ft buffer PFC Lotic>Vegetation> AS_UTM12_other for	Moderate degree of species diversity in type, size, color and texture. Common vegetative species or combination of species.	Low degree of vegetative diversity, single coniferous species or brush types.

Data Sources:
Streams – AS_UTM12>Water>stream_arc
Distinctive Water Bodies- Water_bodies_disctintive shapefile from Evelyn Treiman
Water Bodies– AS_UTM12>Water>Water_Body
Riparian Areas – AS_UTM12_other> Vegetation> PFC Lotic
Topography – use DEM to develop slope classes
Geology/Landform – AS_UTM12>Terrestrial_Ecological_Units>TEU_land_type
Vegetation – AS_UTM12>vegetation>base vegetation site data
Null Value Vegetation polygons- PNVT for TEU map unit number as documented inn TEI_veg_Janz-commentsback.xls