Santa Fe Mountains Landscape Resiliency Project: Scenic Effects Analysis

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For: Espanola and Pecos-Las Vegas Ranger Districts, Santa Fe National Forest
Date: February 27, 2020

Issues Addressed

This section includes issues pertaining to scenery that have been identified for detailed analysis. “An issue is a statement of cause and effect linking environmental effects to actions” (Forest Service Handbook 1909.15).

Issue 1 as expressed during scoping comments:

The Santa Fe Mountains Landscape Resiliency Project (SFMLRP) area is the scenic backdrop to the city of Santa Fe and surrounding communities. Residents and visitors value the area as a spiritual and recreational landscape. The public is interested in how proposed treatments will affect the visual quality of the project area.

Methodology

This section includes a description of the methods and data used in this analysis.

The 1987 Santa Fe National Forest Land Management Plan (Forest Plan) utilized the Forest Service Visual Management System (VMS), as outlined in Forest Service Handbook 462 (USDA Forest Service 1974), to inventory scenic resources. The Forest Service Scenery Management System (SMS) replaced the VMS in 1995, as outlined in Landscape Aesthetics: A Handbook for Scenery Management (Agricultural Handbook # 701, USDA 1995). Concepts between the two systems are similar, and processes are interchangeable. To analyze forest plan compliance, the visual quality objectives identified in 1987 Forest Plan are measurement indicators. However, to be comply with forest wide standard A02, the most recent inventory of scenic resources conducted by the SMS is used to describe the affected environment.

> **A02** During the intensive reconnaissance phase of project planning, verify or refine the Visual Resource inventory. Variety classes and sensitivity levels normally will not change. However, on-site inspection or detailed computer simulation of seen areas may reveal subtleties not sensed in the existing, large scale simulated inventory. Use the revised inventory to guide project design to meet the prescribed Visual Quality Objective, and to update the overall Forest inventory.

The analysis contained in this report to identify and disclose impacts to scenic resources from the SFMLRP is qualitative and assesses whether the effects of the alternatives would be consistent with the standard and guidelines for scenery as prescribed in the Santa Fe Forest Plan. An Enterprise Program Landscape Architect conducted a site visit in September 2019 to collect information, learn the project area’s scenic character, and review existing scenic integrity.

Scenery design features were selected to help achieve desired VQOs. All resource design features were analyzed as a component of the proposed action. In addition to the design features for scenery, certain

design features for wildlife and recreation would also have beneficial scenery effects. See complete list of design features in the EA.

Assumptions

For this report, the definition of a short-term impact is 1 to 5 years because immediate fire effects are expressed during this time, such as the response of herbaceous plants and shrubs.

For this report, the definition of a long-term impact is 6 years and beyond because the structure and composition of vegetation recover from fire effects by this time.

The spatial extent of analysis is the SFMLRP boundary and seen areas from Tesuque Opera House, Monte Sol summit, Glorieta Exit from I-25, La Tierra Trails, and Tesuque Pueblo. This spatial extent was chosen because the project area is the scenic backdrop to the city of Santa Fe and surrounding communities. Due to ridgelines, there wouldn't be many views from the Pecos Wilderness, therefore the Wilderness areas is not included in the impact analysis area.

All slash piles, except wildlife piles, will be disposed within the short-term considered in the analysis. For the long-term, it is assumed piles would not remain on the landscape.

All mechanical treatment will be followed by prescribed fire, which would soften the visual effects of the mechanical cutting and consume most activity slash. This would also ensure mixed to low severity fire effects.

Approximately 750 acres per year would be treated with manual or mechanical vegetation thinning.

The amount of thinning required for prescribed fire unit preparation depends primarily upon vegetation conditions and topography. In general, the approach is to do the least amount of thinning necessary to ensure safety and meet resource objectives.

No more than 4,000 acres per year would be treated using prescribed fire.

Prescribed fire would occur in areas that have been previously thinned, ensuring mixed to low severity.

Hand or machine firelines, would also be used on ridgelines, spur ridges, valley/canyon bottoms to create a prescribed fire perimeter.

Visibility Analysis

To gauge visibility of the project area, viewsheds were analyzed by utilizing a composite map produced during recent forest plan revision processes and site-specific viewsheds that analyze specific popular observation points. Viewshed studies were executed with the visibility tool in ArcGIS version 10.5.1.

The composite map displays Landscape Visibility (Viewshed Analysis / Concern Level / Distance Zone) with up to twelve levels of visibility that matches the national scenery data dictionary standard. The 12 values that may be attributed on the feature class for Landscape Visibility are as follows: Fg1, Mg1, Bg1, Fg2, Mg2, Bg2, Fg3, Mg3, Bg3, ss1, ss2, ss3. These values are a compilation of distance zone, viewshed analysis, and concern level. These concepts are explained further in the affected environment section and further information is in Landscape Aesthetics: A Handbook for Scenery Management (Agricultural Handbook # 701, USDA 1995).

The second is a series of viewshed analyses from 9 selected prominent observation points in and around the study area where there is a high concern for scenery from the public. The observation points were selected after a field review and consultation with district staff, Figure 1.

The viewsheds utilize a 10-meter resolution Digital Elevation Model (DEM). The observer height is 3 meters or 15 feet above the ground. The exception is the viewshed from Glorieta Baldy Lookout, which an observer height of 10 meters or 30 feet above the ground.

The outputs of all viewshed analyses map what portions of the project area that are not screened by landform. The ArcGIS operation only uses a bare earth terrain model and does not account for vegetation to generate the output of seen areas.

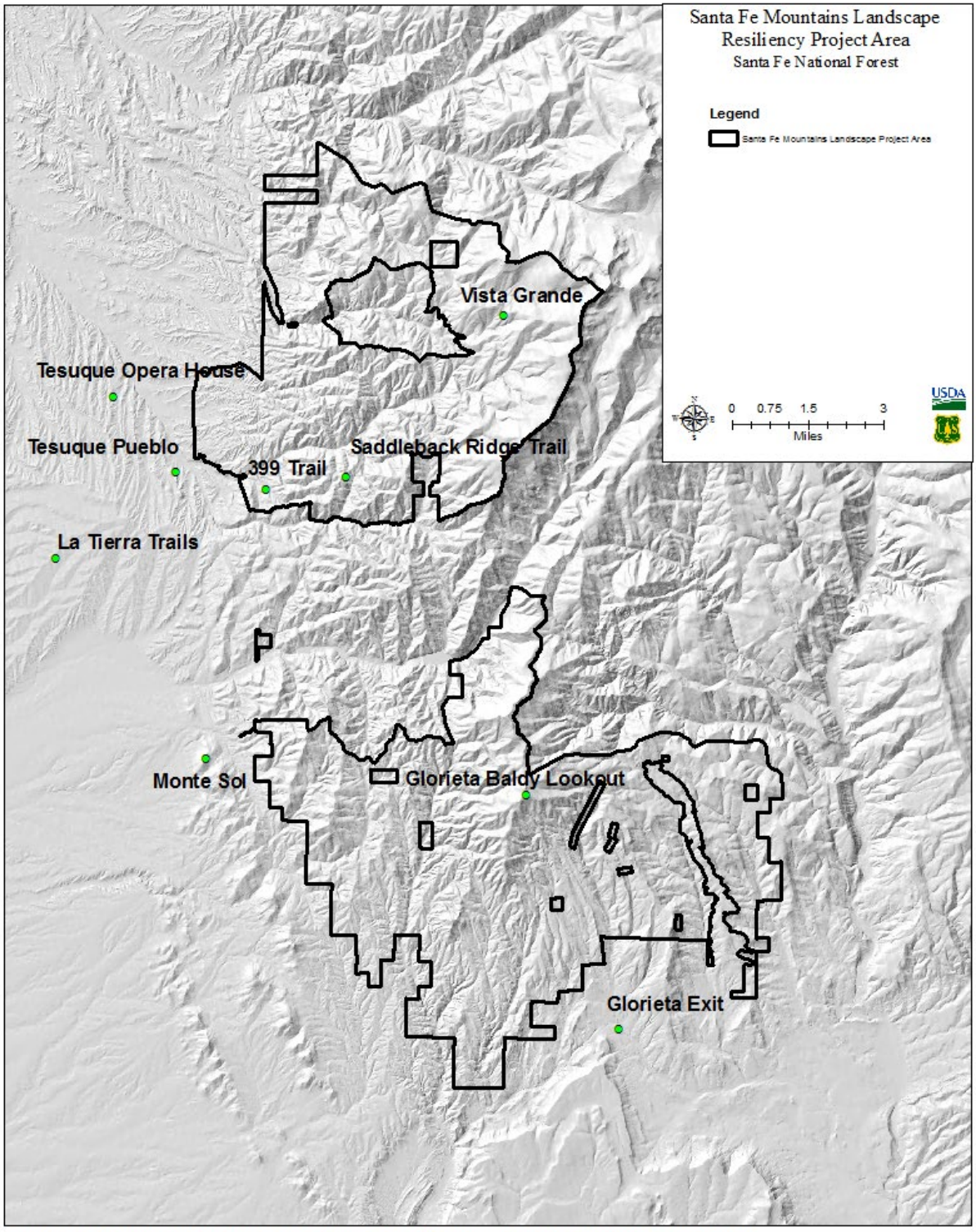

Figure 1 Observation points chosen for viewshed analysis

Visualizations

For 5 selected vista points, visualizations in Adobe Photoshop were created. Visualizations are an artistic interpretation of what the proposed action would look like from select observation points. The artist used the prescription, desired future conditions, and methods to render in a photo montage what the vegetation is expected to look like post implementation.

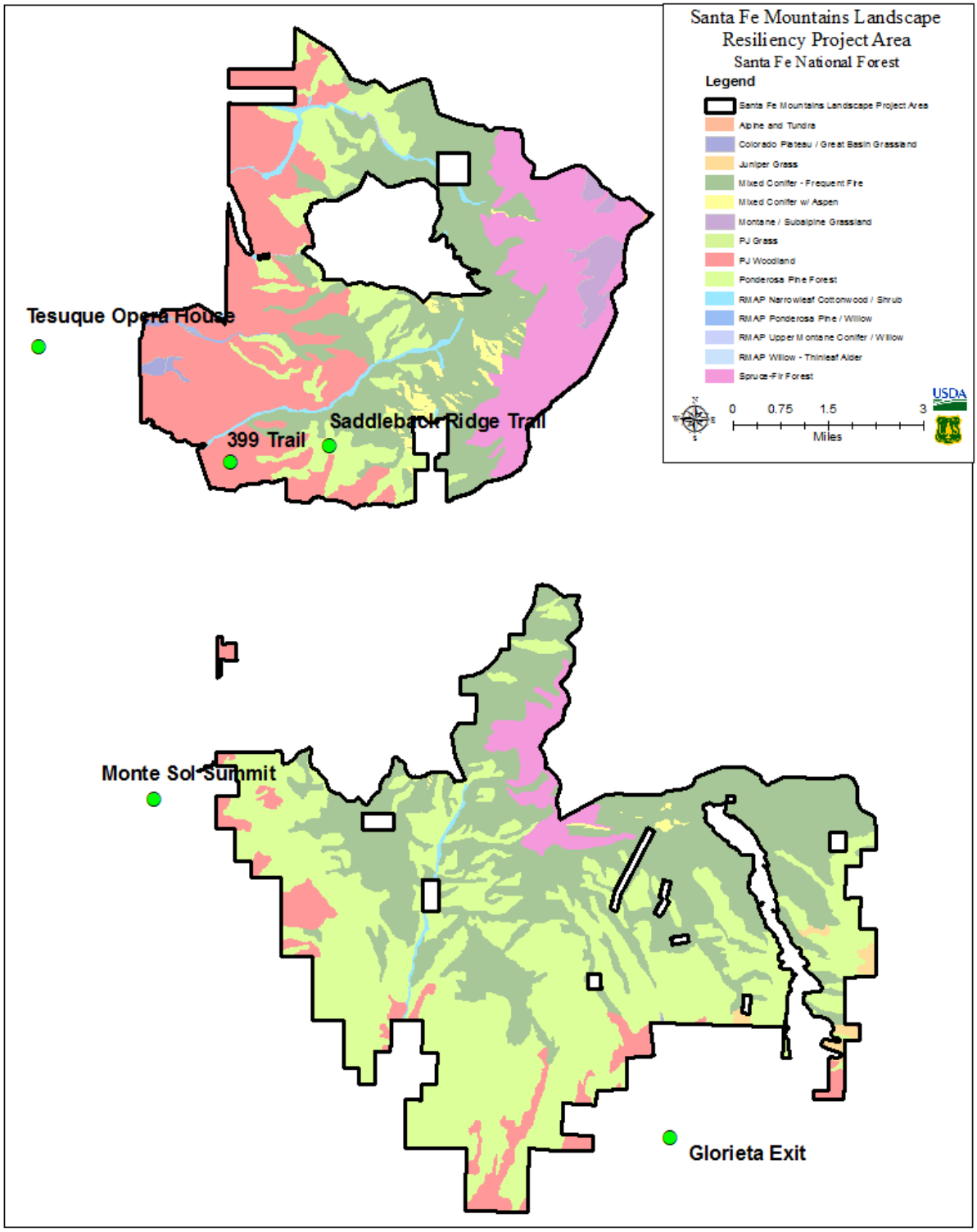

Figure 2 Observation points chosen for visualization of proposed action and vegetation types within the project area

Resource Indicators and Measures

Visual Quality Objectives are measurable standards or objectives for the visual properties of land management. Each describes a different degree of acceptable alteration of the natural landscape based upon the importance of aesthetics. The degree of alteration is measured in terms of visual contrast with the surrounding natural landscape. There are five terms which can be defined as visual resource management goals (USDA 1974). The 1987 Santa Fe Forest Plan defines the objectives:

- **Preservation:** In general management activities are not detectable to the visitor.
- **Retention:** In general management activities are not evident to the casual visitor.
- **Partial Retention:** In general management activities may be evident but must be subordinate to the characteristic landscape.
- **Modification:** In general management activity may dominate the characteristic landscape but must at the same time, utilize naturally established form, line, color, and texture. Man's activities should appear as natural occurrences when viewed as middleground or background.
- **Maximum Modification:** Management activity may dominate the characteristic landscape but should appear as a natural occurrence when viewed as background.

An additional short-term management goal that is pertinent to the Santa Fe Mountains Landscape Resiliency Project is **Enhancement**. This goal is for landscapes having a potential for greater natural-appearing variety. Once the short-term goal is attained, one of the five objectives is then applied (USDA 1974).

As stated, the 1987 Santa Fe National Forest Plan, used the Visual Management System (VMS) to inventory and analyze scenic resources. This system, which was released in 1974, established standards of measurement (i.e., visual quality objectives) for assessing proposed and existing impact to scenic quality. The 1987 forest plan states:

> All lands within the Forest are managed to achieve some level of visual or scenic quality. The standards to which they are managed are defined as visual quality objectives (VQOs).

Management area standards and guidelines assign visual quality objectives for each management area, often summarizing the acres for each VQO occurring within the management area. However, digital maps of VQOs are only available for western portions of the Forest and may not accurately reflect VQOs identified in the management area direction. The visual resource inventory completed in the 1980s is mostly on hardcopy maps (USDA 2016).

From Santa Fe National Forest Plan (1987):

> All lands within the Forest are managed to achieve some level of visual, or scenic quality. The standards to which they are managed are defined as Visual Quality Objectives (VQO's) for each area.
>
> Areas viewed in the foreground from communities, recreation areas, and high use roads and water bodies, as well as scenic backdrops from these areas, will have an objective of Retention. There, management activities will not be visually evident within one year of project completion. Activities will be designed to promote diversity and the scenic characteristics of the forest. Backdrops of less scenic quality or lands viewed in the foreground from lower use areas have a

VQO of Partial Retention. Here, activities may be evident, but must remain subordinate to the characteristics of the landscape. Other areas, containing minimal scenic variety or seldom seen from common use areas, have objectives which permit a more managed appearing forest while retaining some qualities of naturalness.

Table 1. Resource condition indicators and measures for assessing scenic effects (example)

Issue	Indicator or Measure	Source
Visual Quality	Qualitative analysis of the potential changes in the visual quality objective(s) within the SFMLRP area in both the short- and long-term.	Forest wide Standard: A13 Manage for Visual Quality Objectives (VQO's) as defined in each Management Area. 1

Affected Environment

Scenic Character

Scenic character is a combination of the physical, biological, and cultural images that gives an area its scenic identity and contributes to its sense of place. Scenic character makes each landscape identifiable or unique. All landscapes have definable scenic character attributes. In most national forest settings, scenic character attributes are positive natural elements (e.g. landform, vegetative patterns, and water).

Landform

The Santa Fe Mountains Landscape Resiliency Project area is in the southwestern Sangre de Cristo Mountains east of Santa Fe on the Española and Pecos/Las Vegas Ranger Districts. The landform of the project area is mountainous terrain with highly dissected slopes, sharp, angular ridgetops, and deep V-shaped canyons. Features of glaciation, such as cirques, glacial troughs, deep valleys, and sharp combs, are evident.

The lowest elevations are approximately 6,500 feet. The highest elevations extend to approximately 11,000 feet. Glorieta Baldy, Atalaya Mountain, Aspen Peak, Thompson Peak and Shaggy Peak are prominent mountains located within the project area. The summits of Lake and Tesuque Peaks are adjacent to the northeast project boundary with their western slopes located within the project area. In the north project area, mountain summits rise above the treeline. Mountains don't rise above treeline in the south project area. Figure 3 and Figure 4 are terrain models of project area with prominent landmarks mapped.

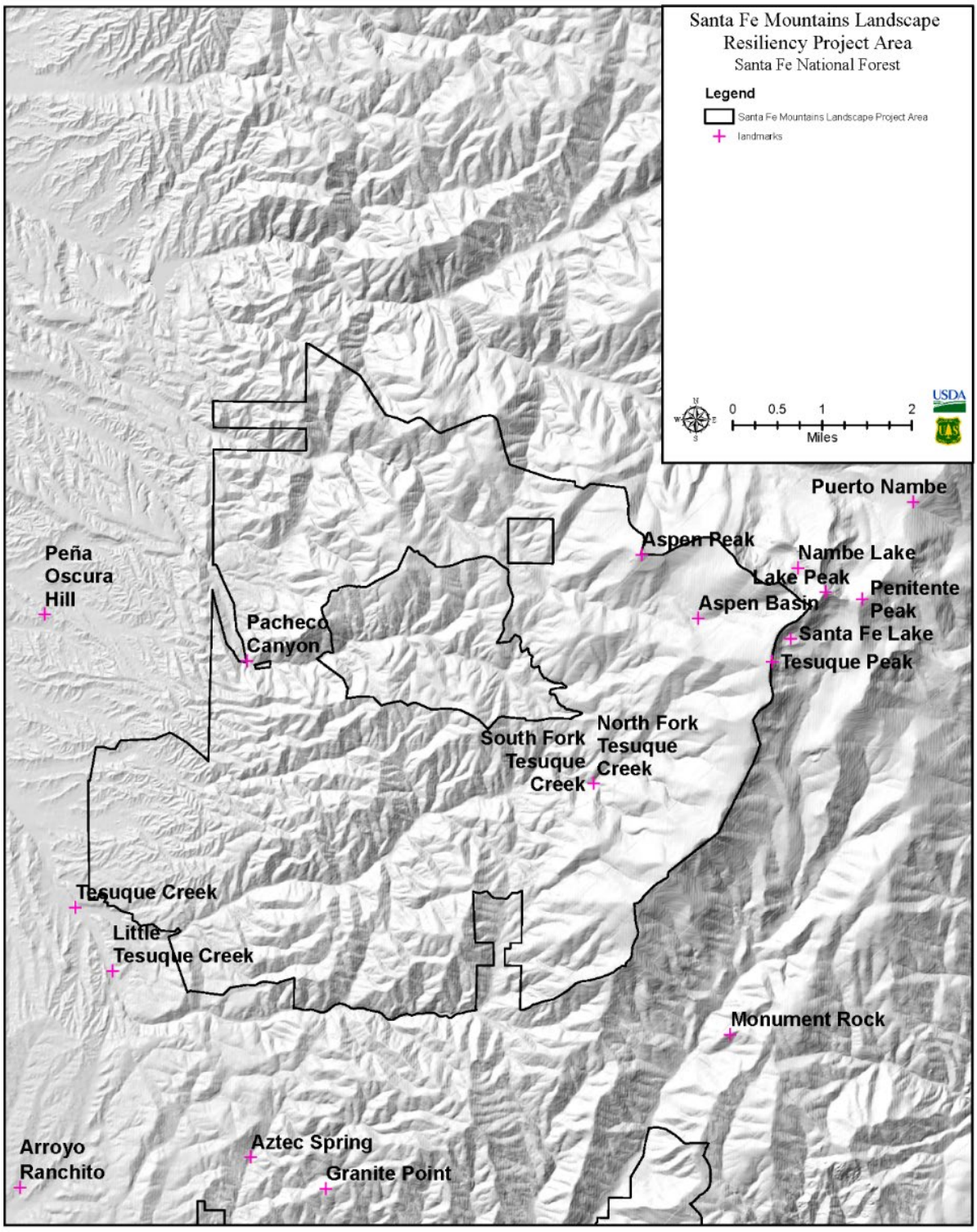

Figure 3 North project area terrain

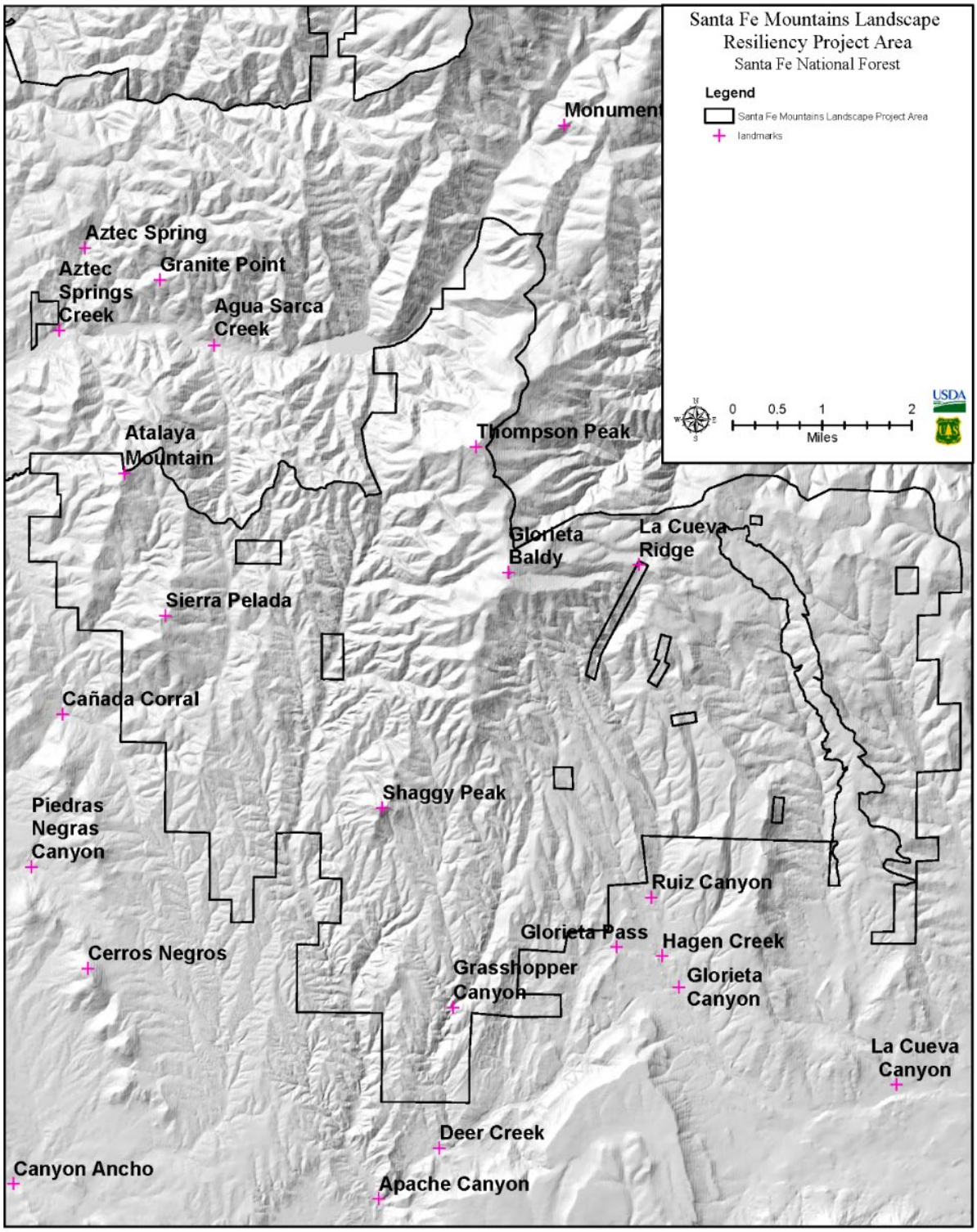

Figure 4 South project area terrain

Vegetative Patterns

The expansive range of elevation, aspect, soil type and dissected terrain creates multiple vegetation types. At a broad scale, coniferous forest is the predominant vegetation. Montane conifer generally dominates the lower mountain slopes while subalpine conifer dominates the upper mountain slopes. Pinyon-juniper woodland and plains grassland can be found in the foothills at the base of the mountains. Aspen and mountain meadow grassland are common to parts of the area. Alpine tundra is found on the summits of several of the higher mountain peaks (north project area). Stingers of riparian deciduous forest and woodland are common along watercourses" (USDA FS 1989, 43).

At the midscale level, the vegetation types are described by dominance type. Lower elevation foothills are dominated by pinyon and pinyon-juniper, which transitions to mixed ponderosa pine as elevation increases. The ponderosa pine mix changes to upper deciduous-evergreen forest mix with more aspen, spruce, and fir mixing with pine types. Aspen dominates in areas burned by historic fires. The highest elevations are dominated by spruce-fir forests, wet meadows intermixed with spruce-fir forests, and subalpine tundra. Riparian vegetation is common in most drainage bottoms. A combination of high elevation and abundant moisture result in a beautiful array of color from flowering plants during the summer months.

Landforms and vegetation combine for dramatic landscapes comprised of pine and spruce forests, aspen turning golden colors in the fall, and high mountain meadows occurring on steep mountains and in river canyons with high cliffs and rock outcrops. Fall color viewing of vivid gold aspen is popular. Aspens at Big Tesuque are a draw for visitors. Figure 5 and Figure 6 map the vegetation community types within the SFMLR project boundary.

Disturbance Regimes

Wildfires vary in frequency and intensity within the vegetation types that occur within the project area. Fires also vary in frequency and intensity, depending on fuel load and moisture. In most cases, historic occurrence has changed from frequent, low intensity, ground fires to infrequent, high intensity, stand replacing fires.

The historic fire regime over much of the area in highest elevations of the upper deciduous and spruce-fir-pine mix is 35 to 200-year fire return interval with replacement severity. The historic fire regime of the lower elevations of the upper deciduous and spruce-fir-pine mix dominated areas have a fire regime group 35 to 200-year fire return interval with low and mixed severity. Ponderosa pine dominated areas have a fire regime group of less than 35-year fire return interval with low and mix severity. The historic fire regime over much of the area in pinyon-juniper dominated areas is 35 to 200-year fire return interval with low and mixed severity (LANDFIRE 2014a).

Historic fires on the Sangre de Cristo Mountains have resulted in large areas of aspen, which provide beautiful golden fall colors intermixed against green conifer covered mountains.

For more details about vegetation communities, see the silviculture and fuels specialist reports.

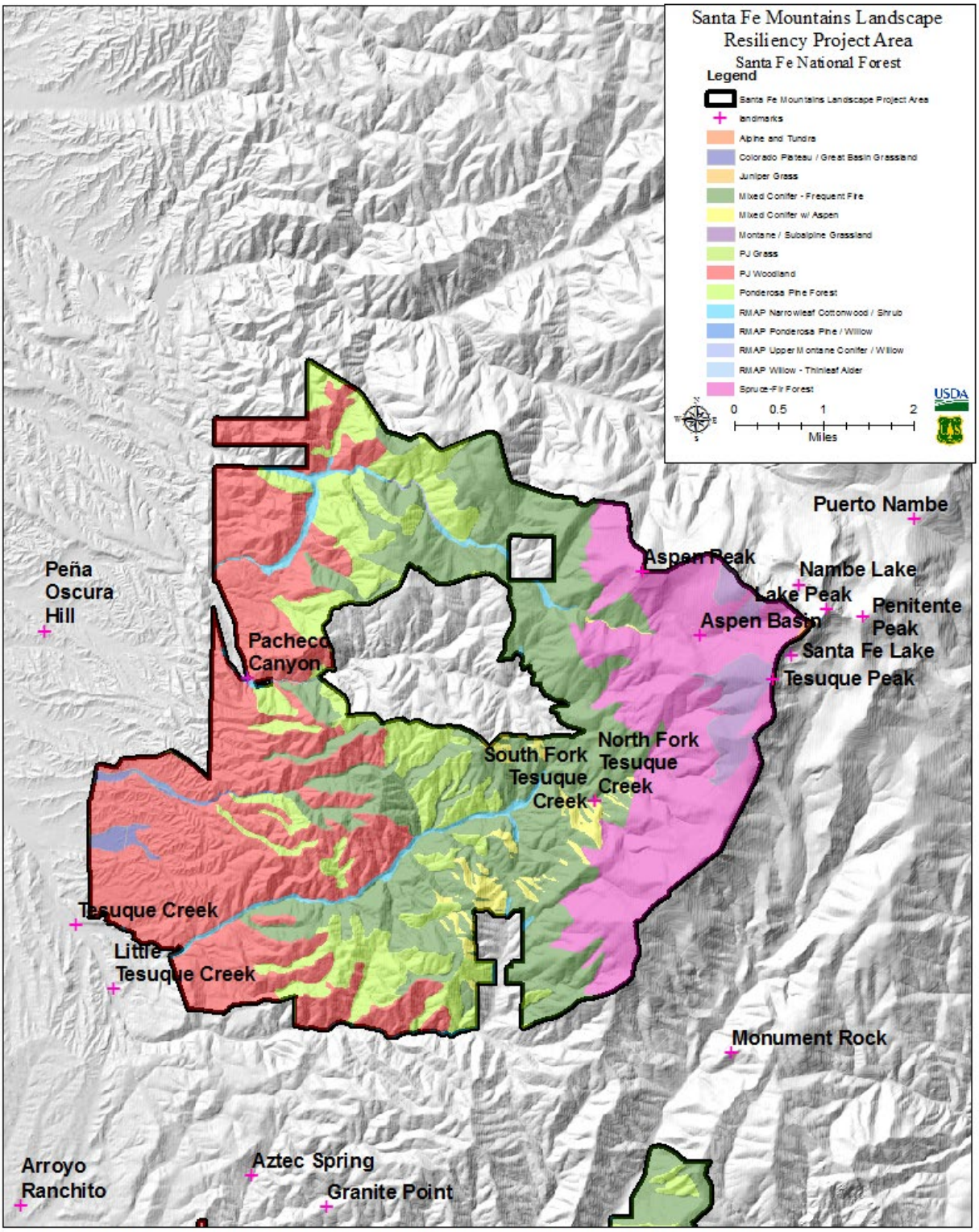

Figure 5 North project area ecological vegetation types

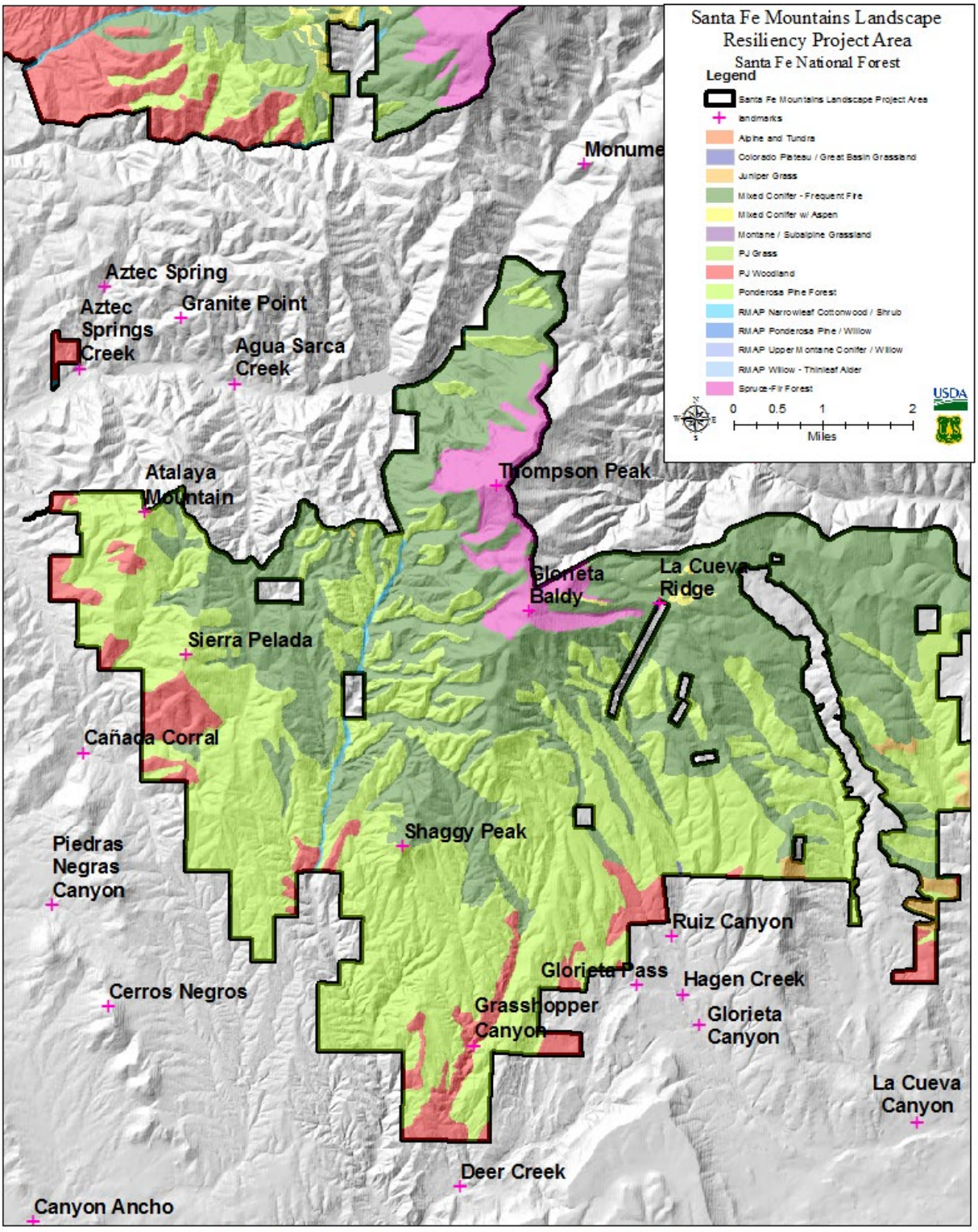

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Figure 6 South project area ecological vegetation types

Waterbodies

At higher elevations, streams are high gradient and perennial with boulder, cobble, and bedrock substrates. Dropping in elevation, streams become moderate to high gradient, and become intermittent and ephemeral with cobble, gravel, and sandy substrates. A number of distinctive water features occur within the project area including Alamitos Canyon, Apache Canyon, Arroyo Hondo, Deer Creek, Galisteo Creek, Glorieta Canyon, Grasshopper Canyon, Little Tesuque Creek, North Fork Tesuque Creek, Rio Chupadero, Rio En Medio, South Fork Tesuque Creek, and Tesuque Creek, to name a few. Figure 7 and Figure 8 map the primary streams of the project area. These streams are water bodies attract forest visitors that have a high interest in scenic qualities.

For more details about waterbodies in the SFMLRP area, see the hydrologist specialist report.

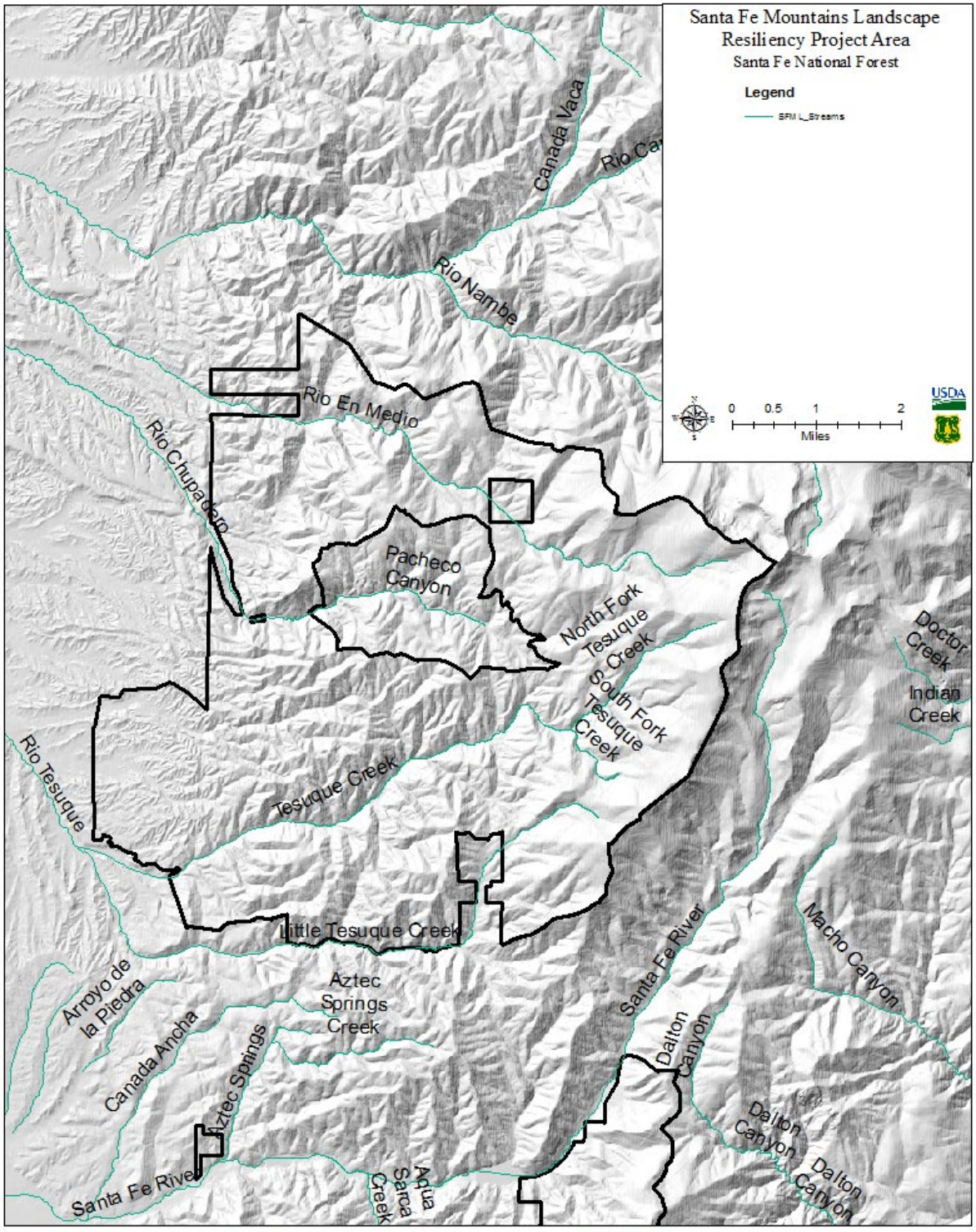

Figure 7 Streams in north project area

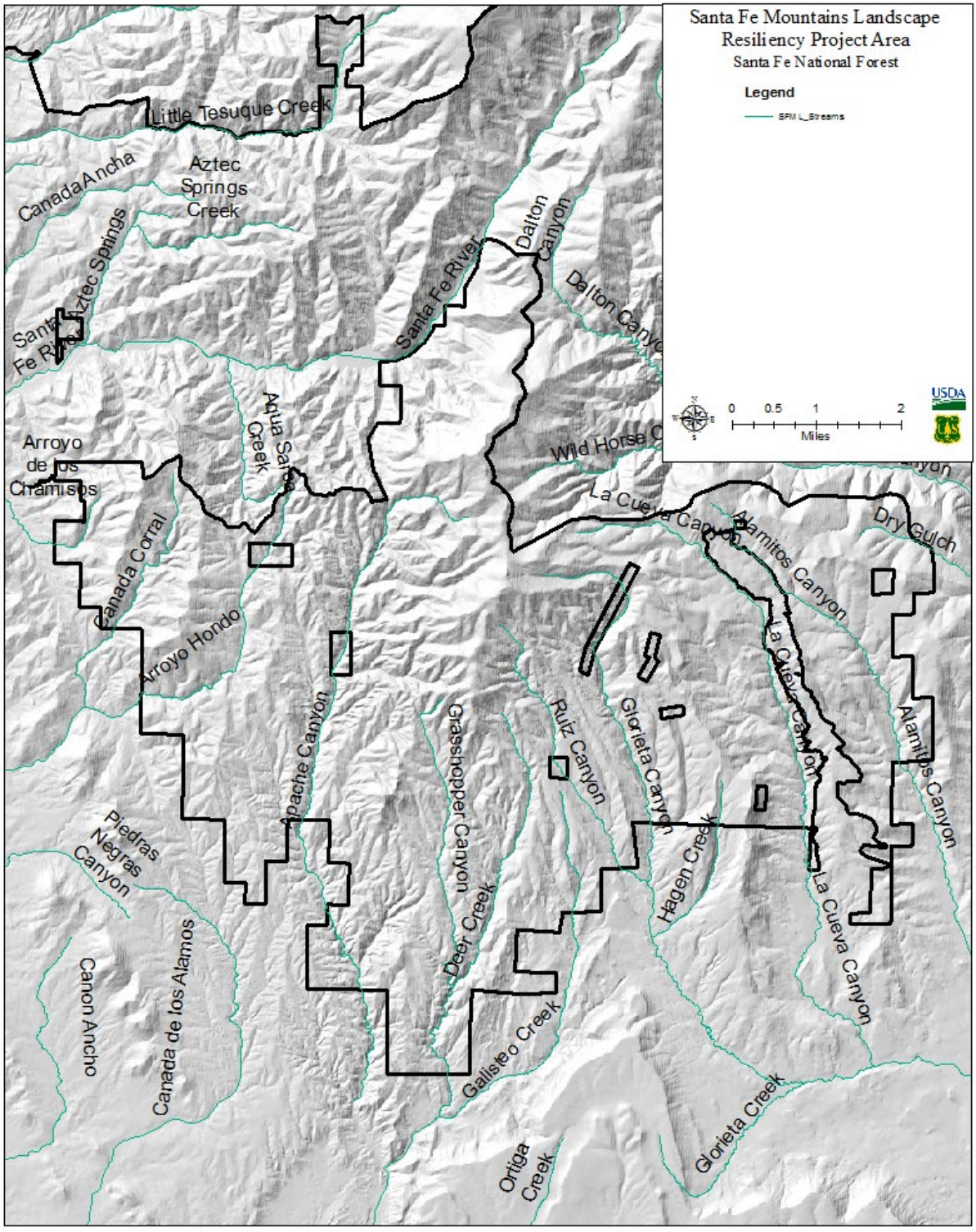

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Figure 8 Streams in the south project area

Concern Levels

Landscapes are viewed to varying degrees from different locations and subsequently differ in their importance. To assist scenic inventory and analysis, this importance is ranked by concern levels (USDA 1995).

Concern levels are a measure of the degree of public importance placed on the landscapes viewed from travelways and use areas. Primary travelways and use areas that are concern level 1, are nationally or regionally important locations associated with recreation and tourism. Secondary travelways and use areas that are concern level 2, are locally important locations associated with all types of use including recreation and tourism.

The following are brief descriptions of travelways and use areas that attract a high number of people with concern for scenery.

Winsor National Recreation Trail

Winsor National Recreation Trail is 22 miles long, approximately 9 of which are located within the project area. It begins at end of County Road 72A in Tesuque and ends at Winsor Creek Campground. Within the Española District, the trail is divided into two sections. The lower elevation trail from the Tesuque Trail Head to Aspen Basin is outside of the Pecos Wilderness. The next section from Aspen Basin to Spirit Lake is within the Pecos Wilderness. The trail is open for hiking, backpacking, mountain biking, (only the lower trail outside of the Wilderness) and horseback riding (USDA 2016).

Santa Fe National Forest Scenic Byway

This nationally recognized strip of highway starts in the historic downtown plaza in Santa Fe, follows New Mexico Highway 475, and ends 16 miles later at the Santa Fe Ski Area. Spring and summer wildflowers dot the uphill road cuts and slopes below the road. The drive is most scenic in the autumn when the aspen colors are in full effect.

The Santa Fe National Forest Scenic Byway has an Interpretive Master Plan available to help guide managers make this available and useful resource to visitors. There are many great stops on the way. Vista Grande Overlook, near the top of the byway, has spectacular views of the Rio Grande Valley between the Jemez Mountains to the west and the Sangre de Cristo Mountains. The cities of Santa Fe, Los Alamos, White Rock, and on clear days, even Albuquerque are visible from this vista. Big Tesuque and Aspen Vista both have great views of the fall foliage. There are also several campgrounds and picnic areas along the way.

Santa Fe Ski Basin

Santa Fe Ski Area is a year-round mountain retreat for residents of Santa Fe and tourists from all over the world. In the summer, the ski slopes offer hiking and mountain biking dispersed recreation opportunities. During the fall, the ski area opens a lift for viewing of fall colors. The parking lot of the ski area serves as parking for the Winsor National Recreation Trail trailhead and a gateway to the west side of the Pecos Wilderness.

Ski Santa Fe is located at the top of the Santa Fe National Forest Scenic Byway, (NM State Route 475 or Hyde Park Road), 16 miles from the historic Santa Fe Plaza in downtown Santa Fe. The area operates on 660 acres of National Forest land, under a Special Use Permit. There are seven lifts serving 73 runs, with a mix of beginner, intermediate and advanced runs. The base area elevation is 10,350’ and the summit

12,075', for a total vertical gain of 1,725'. It is the primary downhill skiing area for the Santa Fe National Forest.

Table 2 lists the areas and travelways that attract a high number of people with concern for scenery. Figure 9 maps the concern level the areas and travelways with the project area.

Name	Concern Level	Feature Type	Project Area
Aspen Basin	1	campground	north
Aspen Cabin	1	administrative site	north
Aspen Ranch Trailhead	1	trailhead	north
Aspen Vista Trailhead	1	trailhead	north
Bear Wallow Trailhead	1	trailhead	north
Big Tesuque	1	campground	north
Chamisa Trailhead	1	trailhead	north
Glorieta	1	picnic site	south
Glorieta Baldy	1	lookout	south
Norski	1	cross-country ski area	north
numerous roads	1 and 2	roads of various maintenance levels	south
numerous streams	1	streams	north and south
numerous trails	1 and 2	trails	north and south
Pacheco Canyon Road	1		north
Santa Fe Ski Area	1	alpine ski area	north
Vista Grande Overlook		observation site	north
Winsor National Recreation Trail	1	trail	north
Santa Fe National Forest Scenic Byway	1	road	north

Table 2 Travelways and use areas with concern levels 1 or 2 within project area

The following areas are also in the vicinity of the SFMLRP area and attract a high number of people with concern for scenery.

Hyde Memorial State Campground

New Mexico's first State Park is set in the Sangre de Cristo Mountains amongst a forest of pines along Little Tesuque Creek. The park is a short drive from Santa Fe and offers excellent group facilities and campsites. There are beautiful hiking trails with spectacular views. You can enjoy Hyde Memorial State Park in the winter months too with snowshoeing, sledding and cross-country skiing. The park elevation ranges between 8,300 - 9,400 feet (http://www.emnrd.state.nm.us/SPD/hydememorialstatepark.html).

Black Canyon Campground

Black Canyon campground is one of the more popular campgrounds on the Santa Fe National Forest and offers the most amenities of any of the campgrounds in the Espanola Ranger District. There are 36 units for cars and RVs, 6 walk-in units for tent camping only, picnic tables and grills, drinking water, a campground host on site, vaulted toilets, and several double sites to accommodate a maximum of 16 people.

Dale Ball Trail System

The Dale Ball Trail system is a 22 mile network of trails in the foothills of the Sangre de Cristo Mountains. Located a short distance from downtown Santa Fe, it is the quickest way to get from the city into the mountains. It offers great opportunities for beginners and advanced hikers alike, along with amazing views of both the surrounding wilderness and back towards the city. The trail features a unique numbered sign system at each trail junction to provide easy navigation, as well as connecting to other local trails, including the Nature Conservancy, Dorothy Stewart and Atalaya Trails (https://sfct.org/dale-ball-trails/).

The project area is in the middleground (.5 to 4 miles) and background distance (4 miles to the horizon) zones of the following communities and nationally designated trails. The project area is the scenic backdrop to the westerly and northwesterly views from these communities and trails. Table 3 lists the travelways and use areas that have concern levels of 1 or 2 adjacent to the project area.

Santa Fe Trail National Scenic Byway

In 1821, the Santa Fe Trail became America's first great international commercial highway, and for nearly 60 years thereafter was one of the nation's great routes of adventure and western expansion. Mindful of this, the Santa Fe Trail Association was created in 1986 to help protect and preserve it. The U.S. Congress likewise recognized the significance of the Trail to American history by proclaiming it a National Historic Trail in 1987 (USDA 2016).

Route 66 pre-1937 alignment National Scenic Byway

Secretary of Transportation designated it as a national scenic byway in October 2009. Only Arizona, Illinois, New Mexico, and Oklahoma have designated Route 66 as a national scenic byway. The entire route is 2,448 miles long and runs from Chicago to Los Angeles. However, the length of the designated national scenic byway is 1,409 miles, with a 604-mile-long segment crossing New Mexico (SFNF 2015). Coming into Santa Fe, the historic route runs parallel to Interstate 25 (I-25). This byway also carries a historic state designation (USDA 2016).

El Camino Real National Scenic Byway

El Camino Real National Scenic Byway was designated in September 2005. It is 299 miles long and runs from El Paso, Texas, through New Mexico, nearly to the Colorado border. It follows the Rio Grande and the I-25 corridor. El Camino Real also carries a New Mexico State designation and is also designated El Camino Real de Tierra Adentro National Historic Trail (2000).

Stretching 1,150 miles from Mexico City to Santa Fe, the highway was for three centuries the Southwest's main conduit for traders, settlers, and social change. Today, I-25, from Las Cruces to Santa Fe, now parallels the route of the Camino Real (USDA 2016).

Table 3 Travelways and use areas with concern levels 1 or 2 adjacent to the project area

Name	Concern Level	Feature Type	Project Area
Santa Fe	1	city	north and south
Glorieta Conference Center	1	community	south
Tesuque Pueblo	1	community	north
El Cuevo	1	community	south
Rio en Medio	1	community	north
Canada de Los Alamos	1	community	south
El Camino Real	1	national scenic byway	north
Historic Route 66	1	national scenic byway	north and south
Santa Fe Trail	1	national scenic byway	south

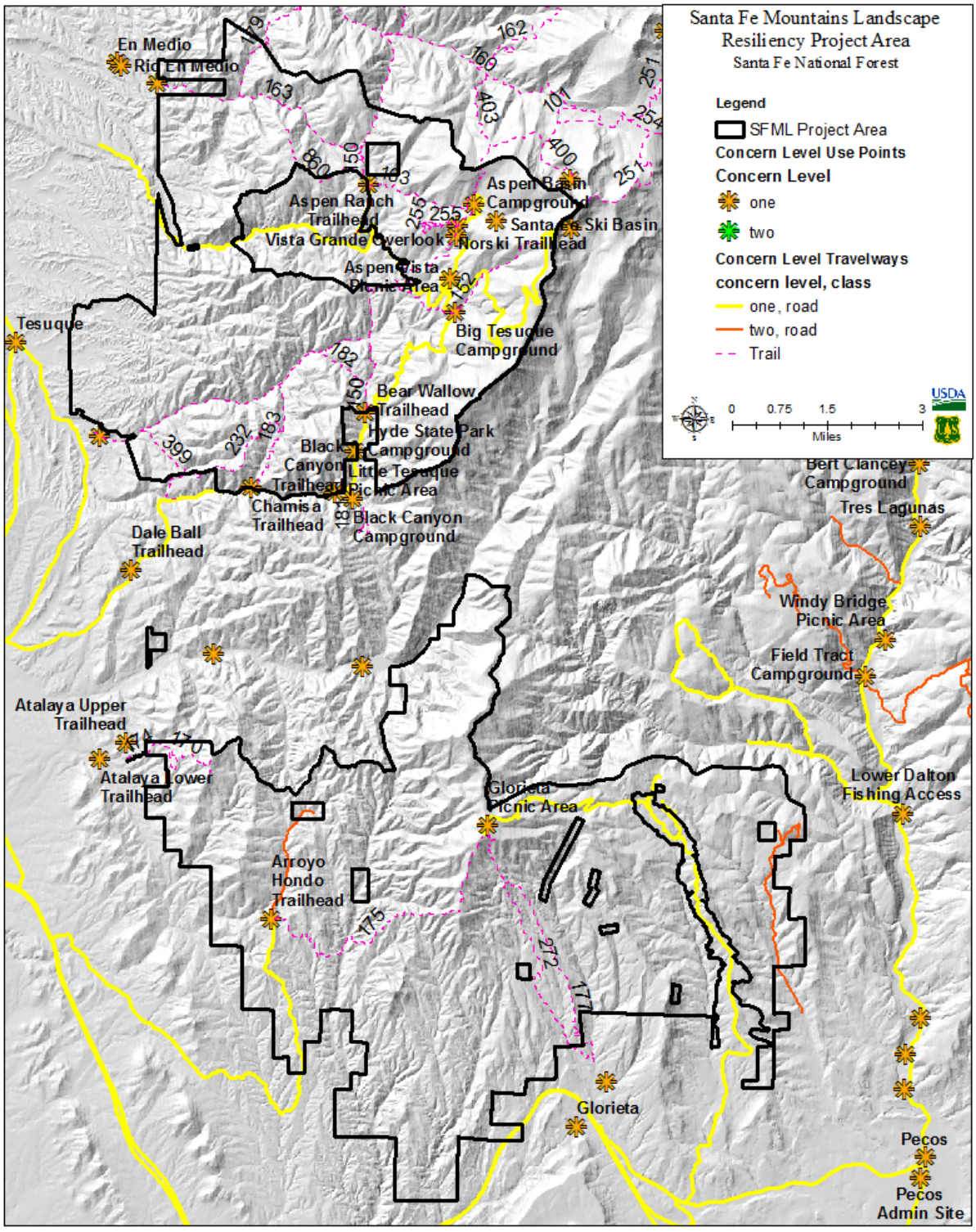

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Figure 9 Travelways and use areas that attract large numbers of people with concern for scenery both within and adjacent to the project area

Visibility

Landscapes viewed close up are more sensitive with distinctive views than those viewed from greater distances where the landscape is indistinct. Landscape Visibility reflects the public concern (importance) of scenery along travel ways and use areas referred to as a concern level. Another factor of Landscape Visibility is based on the degree of discernible detail (sensitivity) of the landscape and the distance from the observer or viewer. Therefore, Landscape Visibility is a combination of concern level, distance zone and viewshed analysis.

Views across the landscape have been divided into landscape distance zones to inventory the degree of discernible detail as follows. Landscape Distance Zones include:

- Immediate Foreground 0 to 300 feet
- Foreground 300 feet to ½ mile
- Middleground ½ mile to 4 miles
- Background 4 miles to horizon

Seldom Seen Areas are areas not seen from travel routes or identified use points and are generated by completing a viewshed analysis. 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.

Additional factors of Landscape Visibility include the context of viewers, duration of view, seasonal variations, and number of viewers. The concern level section discussed the context of viewers and the number of viewers also referred to as level of use. The duration of view and seasonal variations within a view are important factors to identify and consider in project level planning (USDA 2019).

Figure 10 Photo Example of Landscape Distance Zones

The deeply dissected slopes and incised canyons of the project area affect how much of the landscape is visible at one time.

Figure 11 is a map of the visibility analysis conducted during recent forest plan revision efforts for the Santa Fe National Forest. The analysis utilized the concern level travelways and use areas. The digital elevation model (DEM) used to model terrain is bare earth and doesn't account for vegetation. Because it does not account for vegetation, the visibility output is considered not screened by landform. The model does not base the visibility output based on vegetation but only the topography of the landscape, e.g. mountains, canyons, etc.

The visibility analysis was generated in ArcInfo GIS, using the concern level data layers. Viewpoints were generated at roughly 1/4-mile intervals for concern level 1 roads, trails, and streams and roughly 1/4-mile intervals for concern level 2 roads and trails. These use points included vistas, overlooks, developed recreations areas, and points identified by Forest personnel for key views. The visibility analysis was completed for concern levels 1 and 2 only since areas seen by concern levels 1 and 2 would override most areas seen by concern level 3 (USDA 2015).

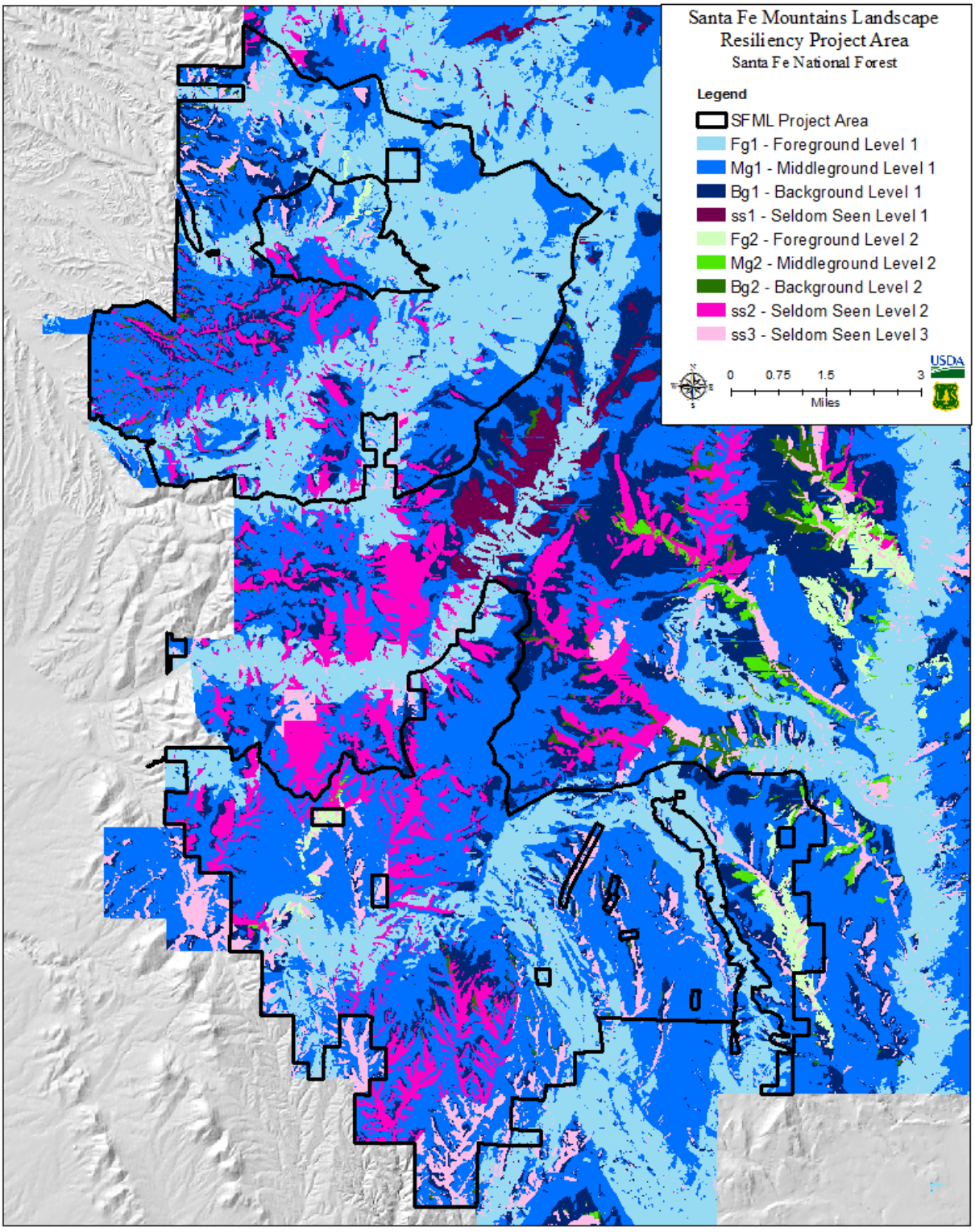

Figure 11 Visibility analysis conducted during forest plan revision

Scenic Attractiveness

Scenic attractiveness ratings reflect the diversity of land and rock formations, topography, surface water features, and vegetation. Scenic attractiveness is based on the physical elements of the landscape, not management designations such as scenic byways or wilderness designations. Scenic attractiveness indicates varying levels of intrinsic, long-term beauty of the scenic character. The three scenic attractiveness categories are: A-distinctive, B-typical, C-indistinctive.

Category 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.

Category 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.

Category 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.

The rugged landscape, high elevation deciduous and evergreen forests and steams provide for distinctive scenic attractiveness throughout much of the project area. Visitors are drawn to the beauty of rugged canyons, dramatic landscapes, cool waters, panoramic vistas, recreation opportunities, and open spaces. Figure 12 maps scenic attractiveness in the project area as inventoried during recent forest plan revision efforts.

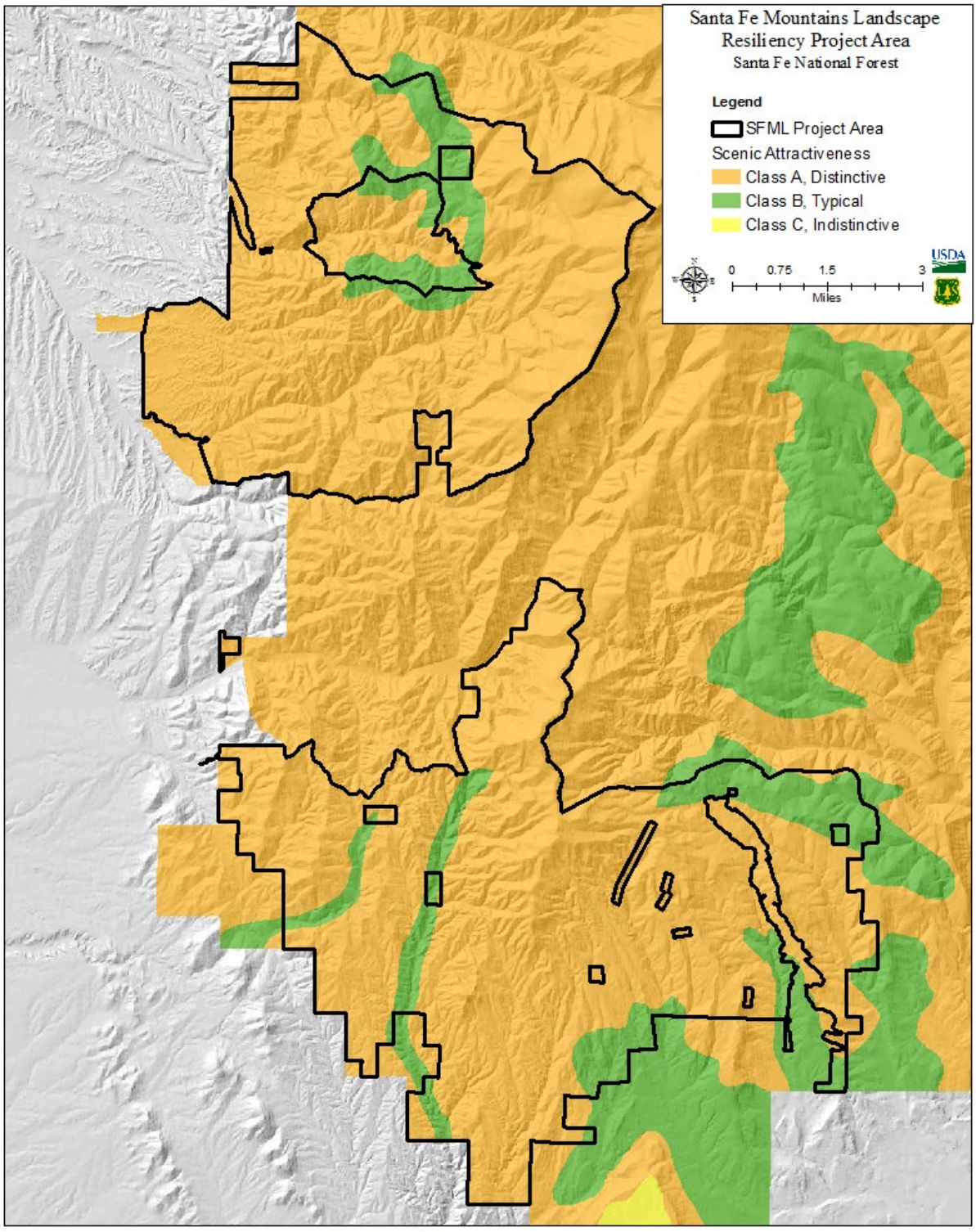

Figure 12 Scenic attractiveness classification for forest plan revision

Existing Scenic Integrity

Existing scenic integrity (ESI) is a measure of the degree to which the attributes of the scenic character are intact. Previous human alterations often disrupt scenic character, and ESI measures the degree of that visible disruption. In some cases, human alterations raise or maintain integrity. A landscape with very minimal disruption and intact attributes is considered to have higher ESI. Landscapes with more noticeable disruption and/ or lack of scenic attributes have lower ESI. The existing scenic integrity inventory is expressed and mapped in terms of very high, high, moderate, low, very low, and unacceptably low. Unacceptably low ESI is only used for inventory development and is not a desired future condition. All other levels may be used to map desired future conditions.

Existing scenic integrity (ESI) levels were determined for the Santa Fe NF using elements in GIS. Forest activities (FACTS) data from about 1980 to 2012 was used to determine areas that appear altered across the forest from vegetative management and fuels reduction activities. Other activities altering the landscape that were used include: utility corridors, travel management, oil and gas well locations, mining activities, recreation developments, communication sites, and livestock grazing activities. This data was used in GIS to display the current condition of the landscape. Other GIS data used includes: designated wilderness areas, roadless inventory, research natural areas, and Recreation Opportunity Spectrum (ROS). The current forest plan ROS layer was used because it is the result of implementing the current Forest Plan. NAIP (National Agricultural Imagery Program) aerial imagery from 2011 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. Most Existing Scenic Integrity Levels were rated from an aerial view, which is consistent with SMS Handbook direction (USDA FS 1995, 2-6). Site specific mitigation for past projects was not considered when rating vegetation management activities. Activities and lands in other ownerships were not reviewed or rated in detail but were generally rated the same as adjacent Forest lands.

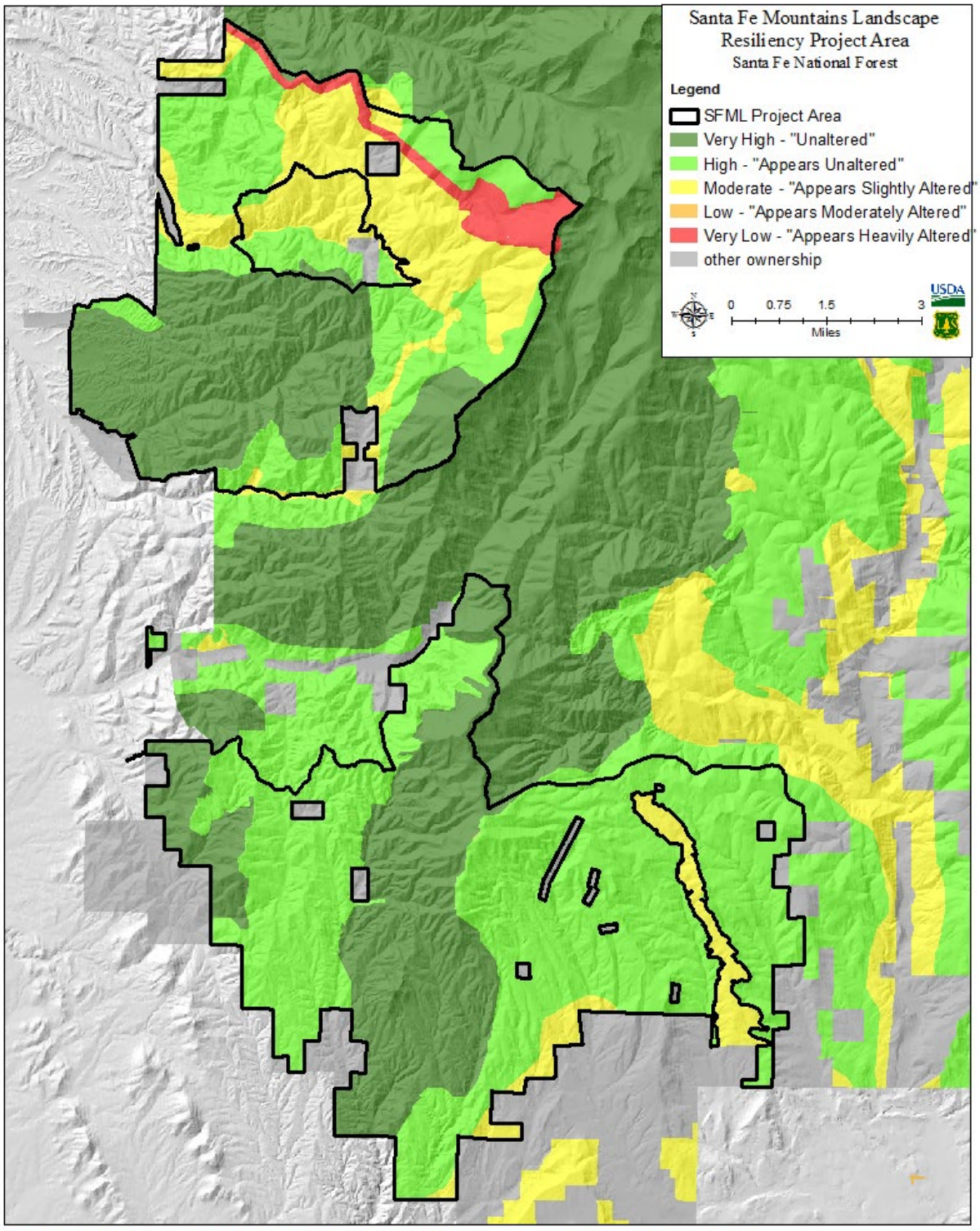

Figure 13 Existing Scenic Integrity classification for forest plan revision

Environmental Consequences

Fire and fire management activities greatly affect the visual quality of any landscape. For example. wildfire and the suppression of wildfire often leave significant scars that remain visible in the landscape for some time but the total exclusion of fire in many ecosystems creates landscapes with less visual diversity. Fire management activities such as the construction of firelines, the disposal of debris, and the use of prescribed fire can also severely diminish visual quality. If they are carried out with an in-depth understanding of the natural role and historical effects of fire on landscape character and if the application of visual resource management objectives and techniques are used, these management activities can be visually pleasing or perhaps even visually enhancing (USDA Forest Service 1985).

No Action Alternative

This section discloses the environmental impacts of the no action alternative.

Under the No Action Alternative, current management plans would continue to guide management of the project area. No prescribed burning, vegetation and restoration treatments, or road maintenance, would be implemented to accomplish project goals within the project area, unless approved through a separate NEPA document and decision. Without implementing the treatments, forest conditions would continue to depart from desired conditions. The risk of uncharacteristic fire severity would continue to increase within the project area. Forest structure would continue to be somewhat homogenous and would continue to be dominated by a single age class. Forests would lack the desired level of diversity in structure, composition, and density. Forest susceptibility to insects and disease (e.g. bark beetles and mistletoe) would continue to increase. Ultimately, the landscape would not be moved toward desired conditions, and as such, the no action alternative would not meet the purpose and need for the project.

Under the No Action Alternative, scenery would continue in the same state as existing conditions, which are the accumulation of past land management actions and natural processes. The vegetation within the project area would continue to have high and moderate departure from the fire regime groups (as discussed in the affected environment section). Areas of high departure from these fire regime groups occur in the lower elevations, while moderate departure occurs in higher elevations (LANDFIRE 2014b).

Most vegetation types within the project area would continue to be dense stands of even-aged trees. The texture of this forest would continue to be mostly closed, coniferous canopy with few openings, Figure 14. The forest conditions would continue to have middleground (.5 miles to 4 miles distance zone) and background (4 miles to the horizon) views that are even texture with little visual variety, Figure 15. Foreground views (0 to .5 miles), would continue to be obscured by dense stands of even-aged trees, Figure 16.

Figure 14 Existing conditions of forest are an even texture of closed canopy of coniferous forest with little visual variety, as seen in middleground and background views.

Figure 15 Existing conditions are contiguous, uniform texture of forest with few openings, as seen in middleground views. The lack of openings restricts views in all distance zones from within the project area.

Figure 16 Existing conditions are foreground views obscured by dense stands of trees, as seen along the Winsor Trail

Under the No Action Alternative, most noticeable changes to scenic conditions across the landscape would occur through natural processes such as wildfires, wind events, or flooding. These natural disturbances will continue to shape the vegetation and landform features of the landscape, affecting the overall sustainability of the scenic character.

Wildfires which burn with mixed severity have fewer impacts to scenic character than those that burn with high severity, which result in greater tree mortality. Low and mixed severity fires are part of the characteristic landscape by maintaining visual variety and opening sightlines. Under the No Action Alternative, there would be a higher chance of uncharacteristic, stand-replacing wildfire because no treatments would occur to reduce the fuel loading and associated wildfire risk in the area. This type of wildfire could cause post-fire flooding and erosion risk, and insects and disease outbreaks in the project area. People often describe feelings of loss due to the noticeable changes in scenic character and sense of place from uncharacteristic large-scale disturbance. “In general, natural forest disturbances that result in extensive areas of dead or dying trees (Haider and Hunt 2002, Ribe 1990) such as the destruction of the forest by fire or flooding are perceived negatively (Daniel 2001; Fanariotu and Skuras 2004; Gobster 1994, 1995)” (cited in Ryan 2005, page 17).

Other natural disturbances, in the project area, include insect and disease, with mortality or damage from western spruce budworm, spruce beetle, western balsam bark beetle, fir engraver, Douglas fir beetle, and other vectors that cause aspen defoliation - to name a few. Aspen defoliation can greatly affect scenery since fall colors are a big part of the economy and tourism industries. Ponderosa pine dominated types have insect and disease risk with mortality or damage from western pine beetle. Pinyon-juniper vegetation types include mortality and damage from pinyon ips (USDA 2015). Under the No Action Alternative and in the absence of fire, disturbance to vegetation caused by insect and disease is expected to increase. As the density of trees increase, so will competition for limited resources. This competition will stress trees, creating conditions for disease and insect outbreaks. For more information see the fuels and silviculture reports.

Visibility

Due to the large size of the project area and its topography of deeply dissected slopes and incised canyons, the visibility (seen area) of project area, from outside viewing platforms, is limited. A viewshed analysis was conducted from nine observation points within the project analysis area that attract large amounts of people with a high concern for people (concern level 1). Figure 1 displays the observation points from which the viewshed analyses were conducted. The output of the viewshed maps are overlaid with hypothetical thinning units in the Proposed Action Alternative, Figure 17 through Figure 25. The potentially seen areas are not masked and the unseen areas are masked in red. For five of these observation points, a visualization of post implementation of the proposed action was created. Observation points with visualizations are mapped in Figure 2. Lower resolution photo comparisons of existing and proposed conditions are in the Proposed Action Alternative. Higher resolution visualizations are in appendix A.

Proposed Action Alternative

This section discloses the environmental impacts of the SFMLRP proposed action.

The Proposed Action takes a conditions-based approach, and therefore, does not define specific treatment units, but rather general areas throughout the project area where treatments are most likely to occur and the suite of tools that would be used. A central component of the purpose and need for this project is the safe re-introduction of fire as an ecological process to frequent-fire adapted systems. It is imperative that prescribed fire be implemented in a manner that is safe for firefighters while protecting valued resources. Vegetation thinning (both manual and mechanical) treatments and prescribed burning are two methods that would be implemented to meet the purpose and need. Prescribed fire units would typically be defined by ridgelines, spur ridges, valley/canyon bottoms, existing roads and natural barriers.

General

Vegetation treatments may have short-term effects of ground disturbance, stumps, and slash, but in the long term, with the application of design features, may provide for some preferred scenic settings, such as visual access into the forest, greater vegetative diversity, larger trees, and an herbaceous ground cover (Gobster 1994).

In the long-term, the removal of some trees, dependent on scale and intensity of treatment, may improve scenic character and make scenic attributes more resilient to uncharacteristic large-scale disturbance. Healthy, fire-resistant vegetation (such as vegetation conditions allowing fires to move through the landscape without doing major damage and that recover relatively quickly from fire) is important for long-term scenic quality and scenic character resilience. Hence, healthy, and resilient forest environments

that recover relatively quickly would maintain or improve scenic character which maintains sense of place attachment and opportunities to connect with nature.

Proposed activities, although they may have some short-term impacts on scenery, also may begin to move the landscape toward the desired scenic character. Desired scenic character is defined as the appearance of the landscape to be retained or created over time (USDA Forest Service 1995). Effects that would move the vegetation toward the desired scenic character are beneficial to scenic resources in the long term. These beneficial effects are often realized over a longer period but lead to the lasting sustainability of valued scenery attributes. For example, tree thinning may have short-term effects of ground disturbance, stumps, and slash, but in the long term, may provide visual access into the forest and promote large tree growth and a smooth herbaceous ground cover. In the long-term, the removal of some trees, dependent on scale and intensity of treatment, may be a beneficial effect for scenery.

Desired scenic character often includes and is linked to preferred visual settings. Gobster (1994) summarizes visually preferred settings as having four common attributes: large trees; smooth, herbaceous ground cover; an open midstory canopy with high visual penetration; and vistas with distant views and high topographic relief.

Visual access, or how far one can see into a forest, is also a preferred scenic setting (Ryan 2005). The degree of visual access varies throughout the project area, depending on the amount of understory vegetation present in the forest. Forests with dense vegetation allow very little visual access into the forest. In the long term, scenic resources would have higher scenic quality if visual access is achieved or enhanced.

In the long-term, burning typically increases the diversity of texture, color, vegetative size classes, and distribution across the landscape. In the short and long terms, under burning often creates a smooth, herbaceous ground cover, a preferred visual setting. Less severe natural disturbances, such as low burn severity areas where understory burns but most mature trees are not killed, result in preferred forests over time (Taylor and Daniel 1984).

The public often judges the ecological health of a forest by appearance. Hill and Daniel (2008) found that acceptance of restoration activities may be contingent on public perceptions of aesthetics and knowledge of ecological benefits. People prefer landscapes with large trees, openings, and varied spatial distribution of vegetation that provide views through the site and into the landscape (Brush 1979). Recreationists prefer uneven-aged forest landscapes over even-aged, dense stands (Brown and Daniel 1984, 1986, 1987; Ryan 2005). Restored forests meet these scenery preferences, suggesting greater public acceptance and support (USDA Forest Service 2013).

Visibility

As discussed in the No Action Alternative and the Affected Environment, the topography of the project area limits its visibility. The deeply incised canyons and dissected slopes don’t allow much of the project area to be viewed at the same time. Views within the project area are restricted, as well as views from outside into the project area. Figure 17 through Figure 25 map the viewshed output from the observation points within the analysis area. The highest elevations of the project area, are spruce-fir forest and subalpine grassland (Figure 5 and Figure 6). These vegetation types would not receive treatments and therefore no change to scenic conditions is expected. These vegetation types include Santa Fe Ski Basin ski area, therefore no change from the proposed action is expected in the foreground distance zone of this popular recreation destination.

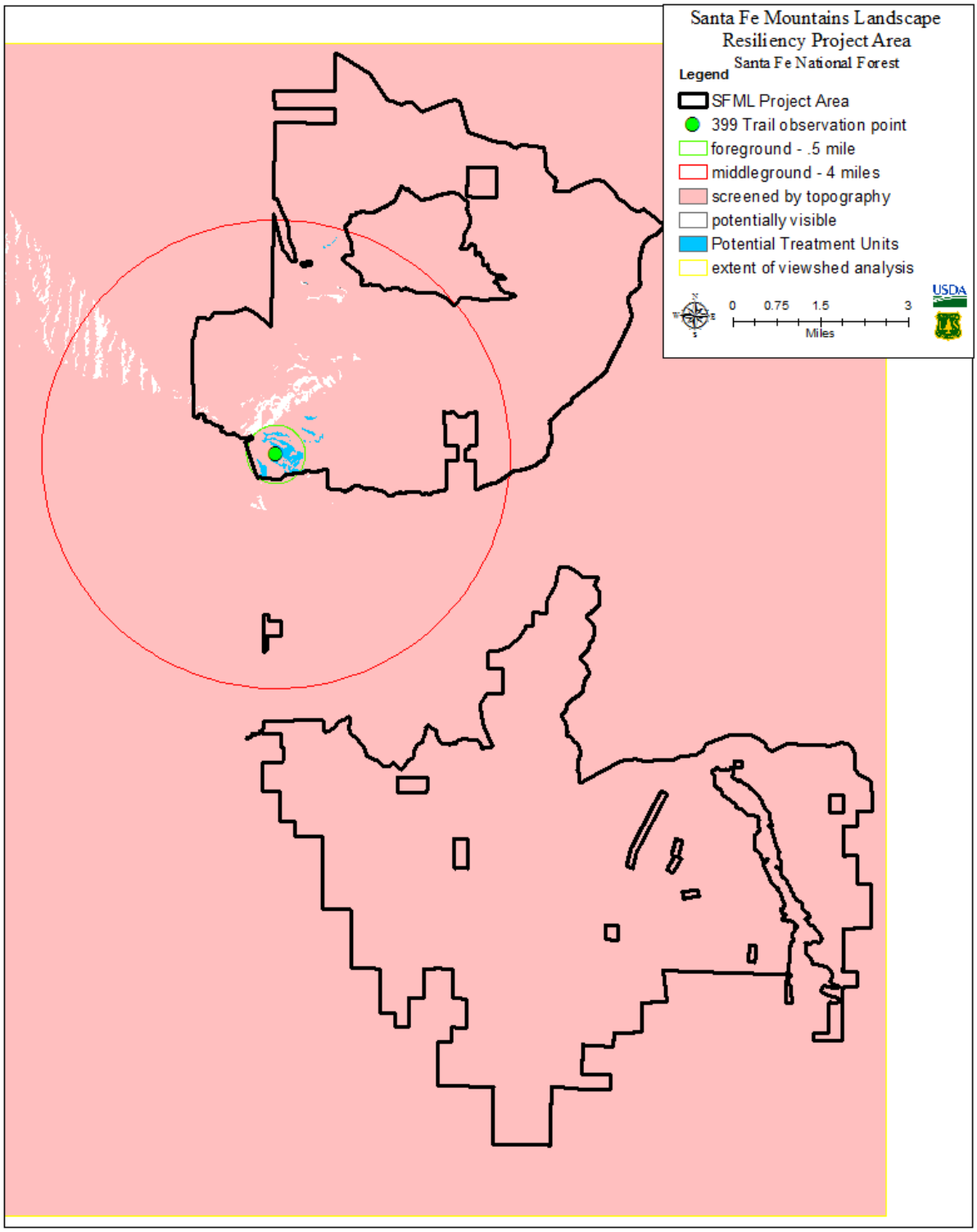

Figure 17 Viewshed analysis from an observation point adjacent to the 399 Trail. The seen area is not masked. The area screened by landform is masked in red. Potential treatment units are indicated in blue. A visualization was created for this observation point.

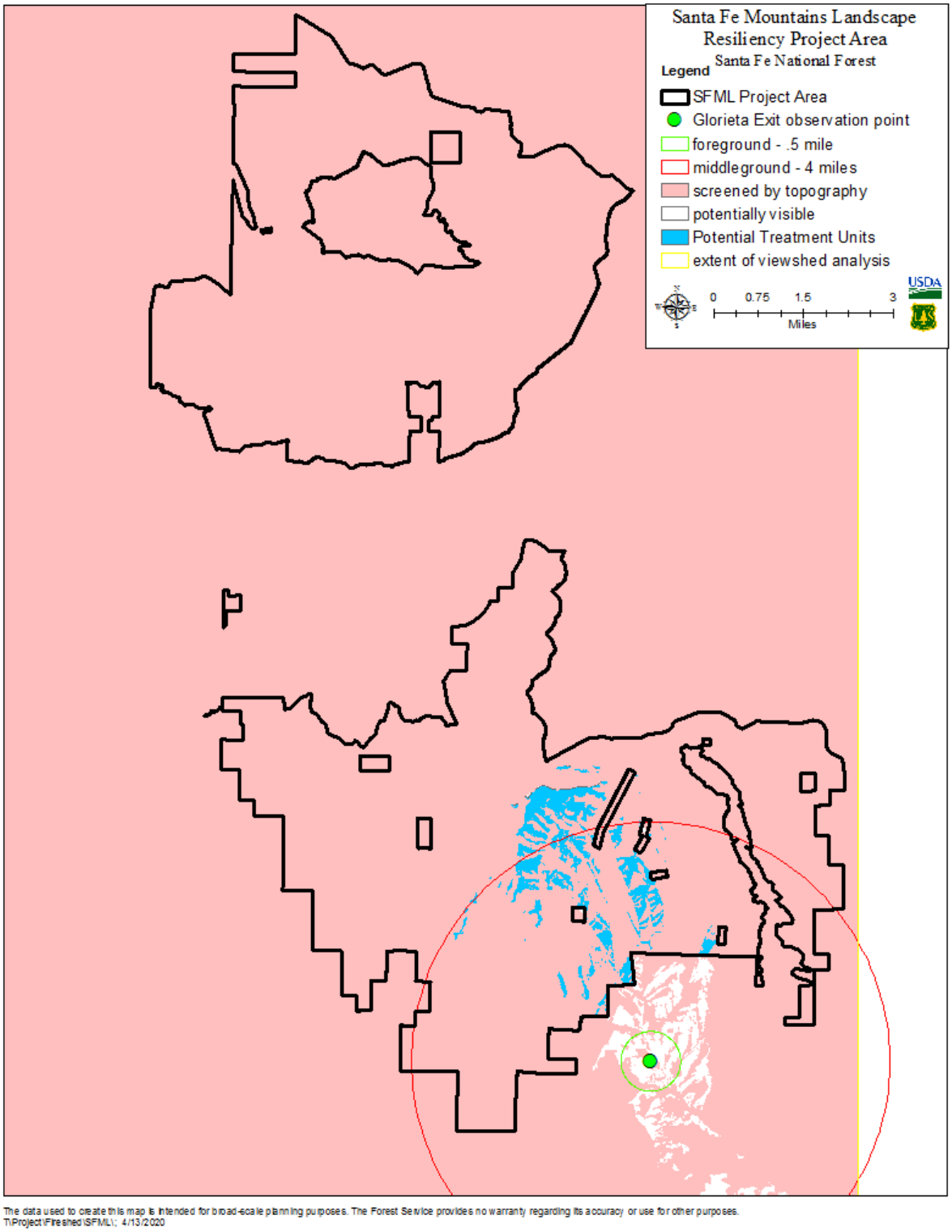

Figure 18 Viewshed analysis from an observation at the Glorieta Exit from I-25. The seen area is not masked. The area screened by landform is masked in red. Potential treatment units are indicated in blue. A visualization was created for this observation point.

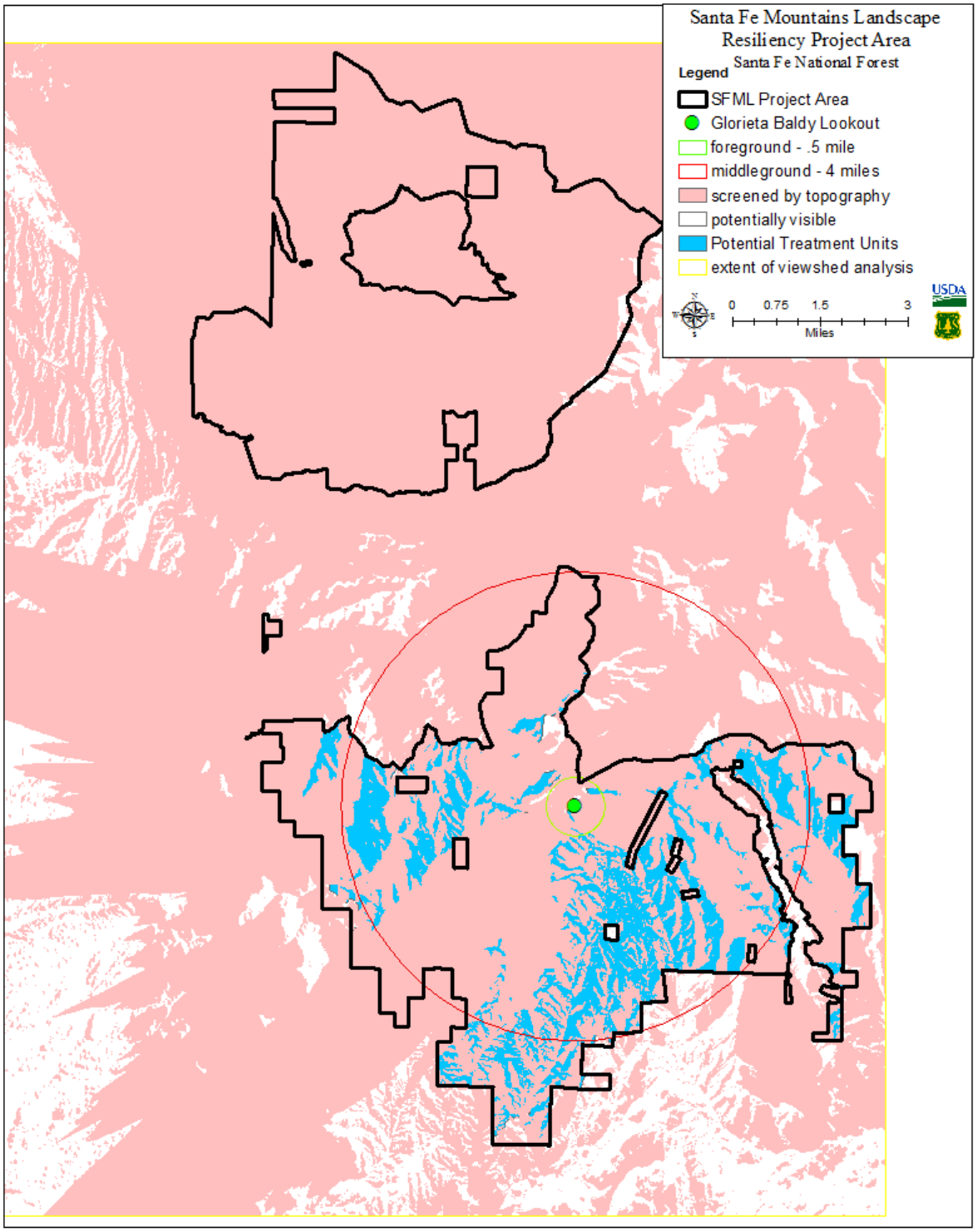

Figure 19 Viewshed analysis from the Glorieta Baldy Lookout. The seen area is not masked. The area screened by landform is masked in red. Potential treatment units are indicated in blue.

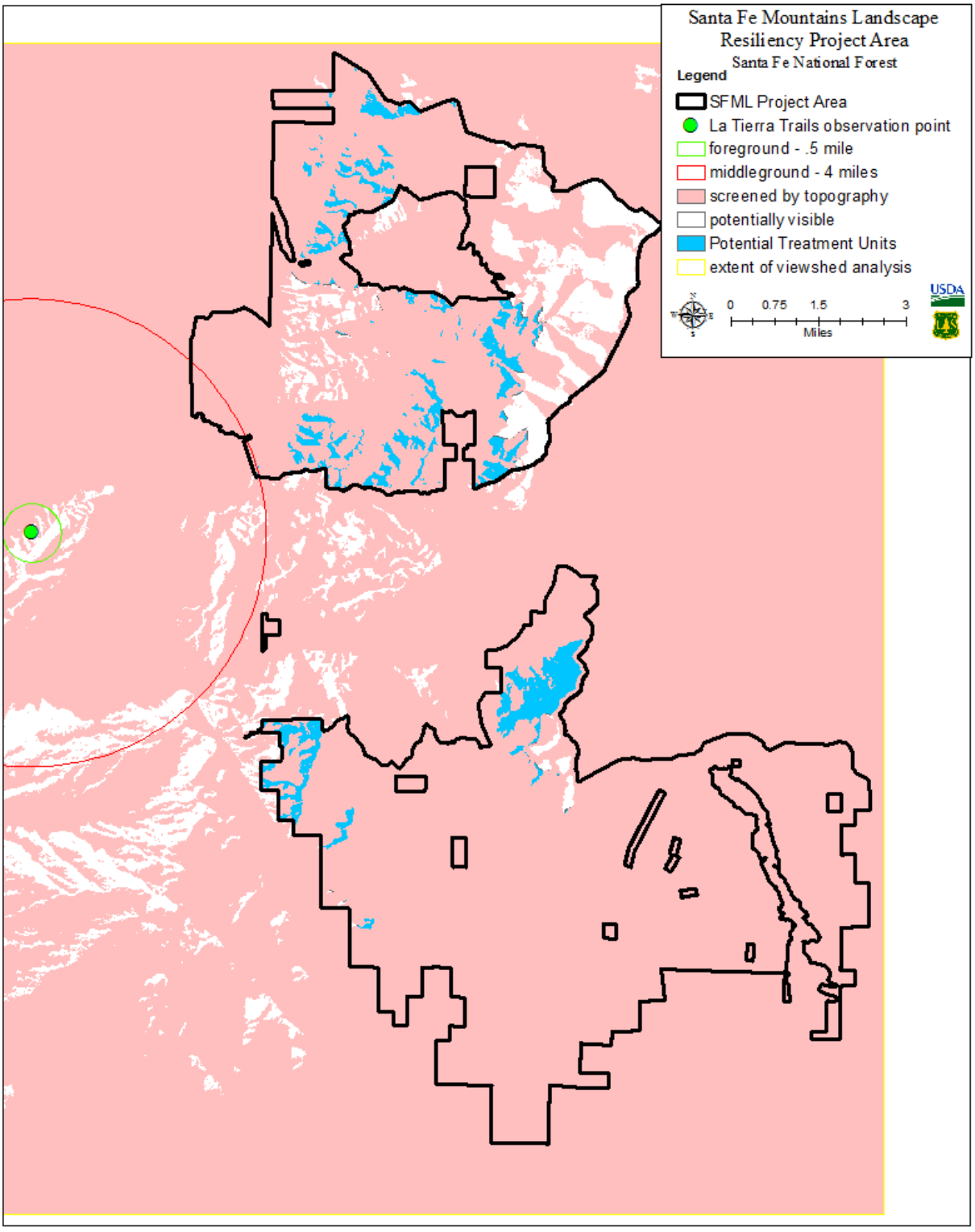

Figure 20 Viewshed analysis from an observation point at the La Tierra Trails. The seen area is not masked. The area screened by landform is masked in red. Potential treatment units are indicated in blue.

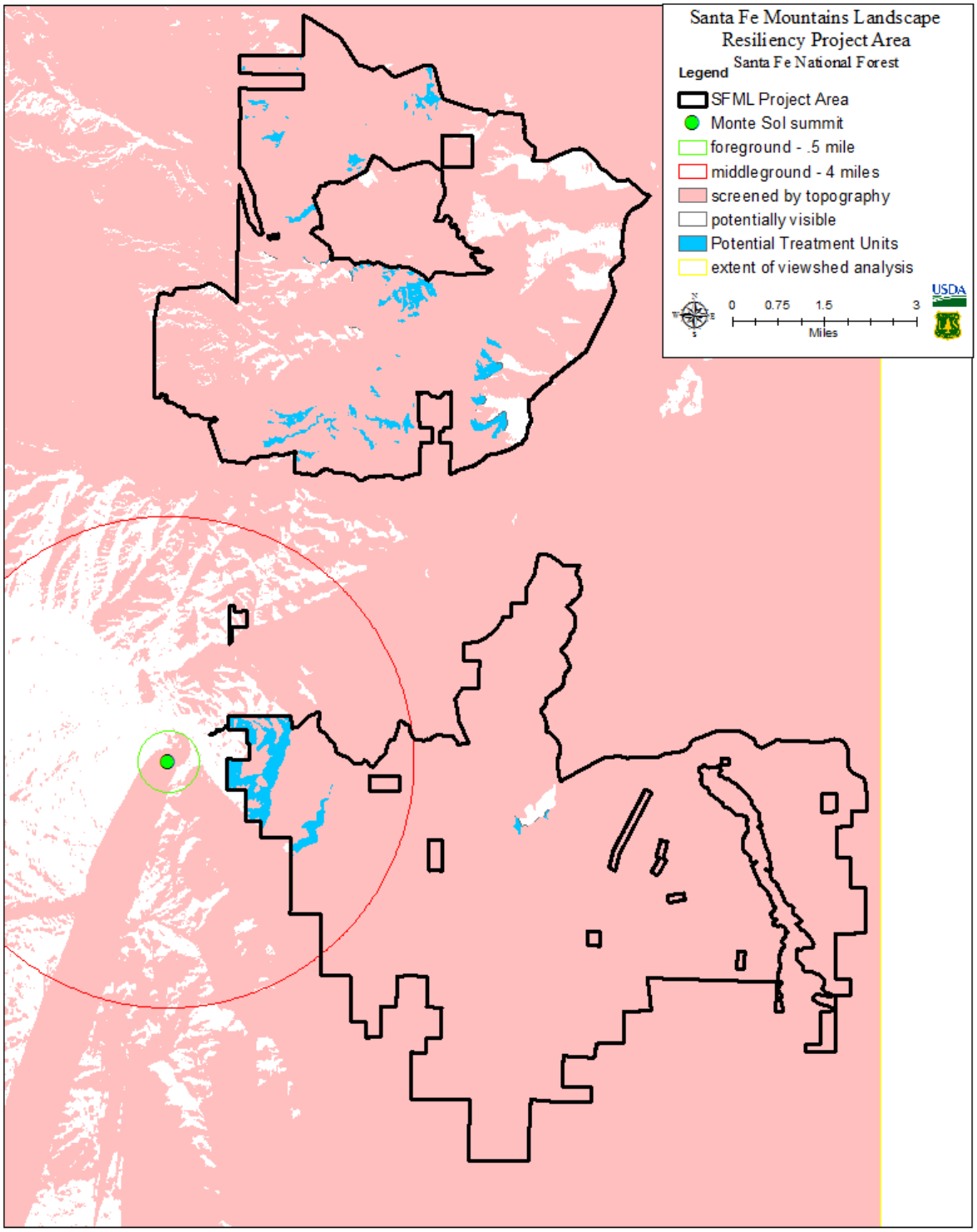

Figure 21 Viewshed analysis from an observation point from the summit of Monte Sol. The seen area is not masked. The area screened by landform is masked in red. Potential treatment units are indicated in blue. A visualization was created for this observation point.

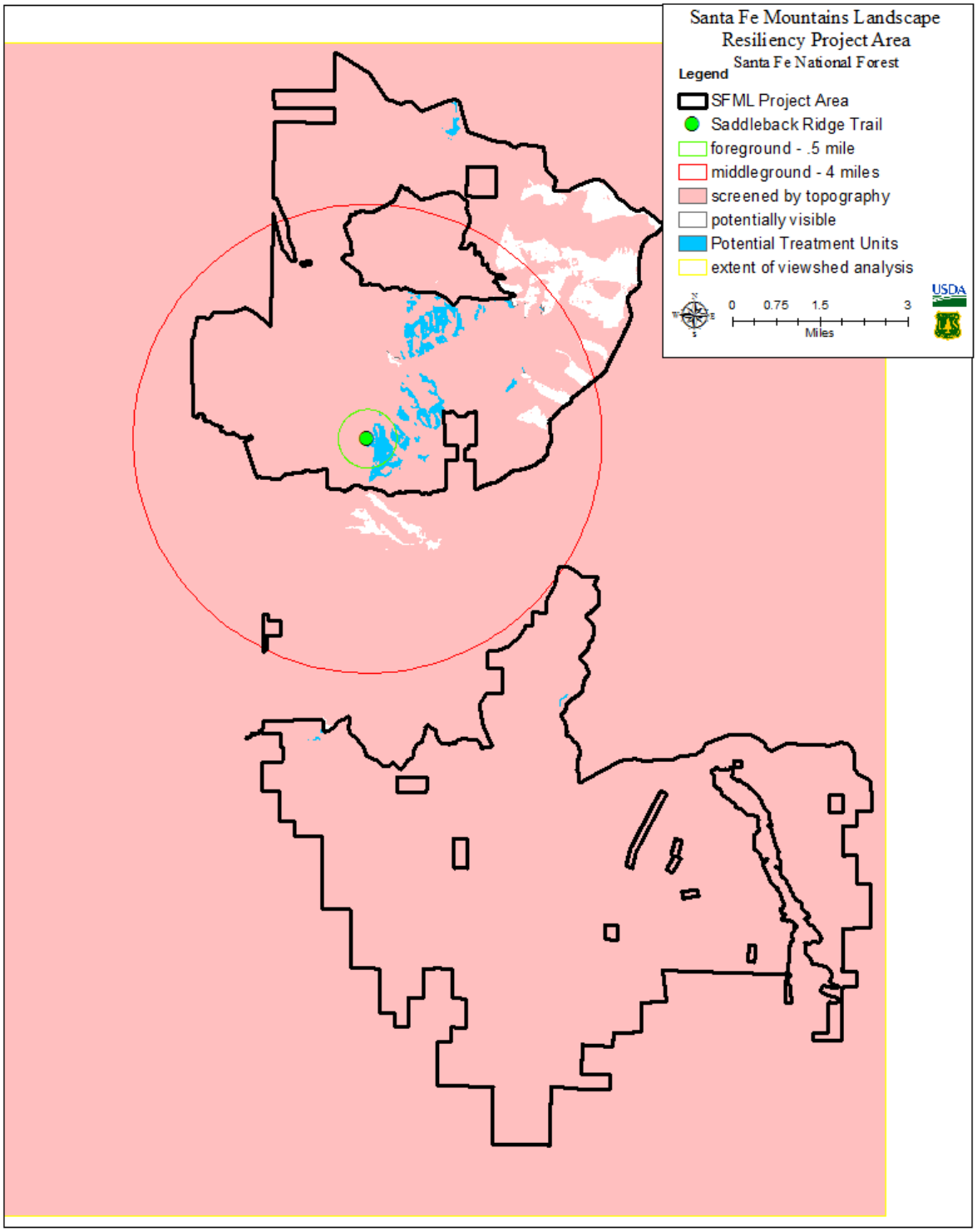

Figure 22 Viewshed analysis from an observation point adjacent to the Saddleback Ridge Trail overlooking the Chamisa Trail. The seen area is not masked. The area screened by landform is masked in red. Potential treatment units are indicated in blue. A visualization was created for this observation point.

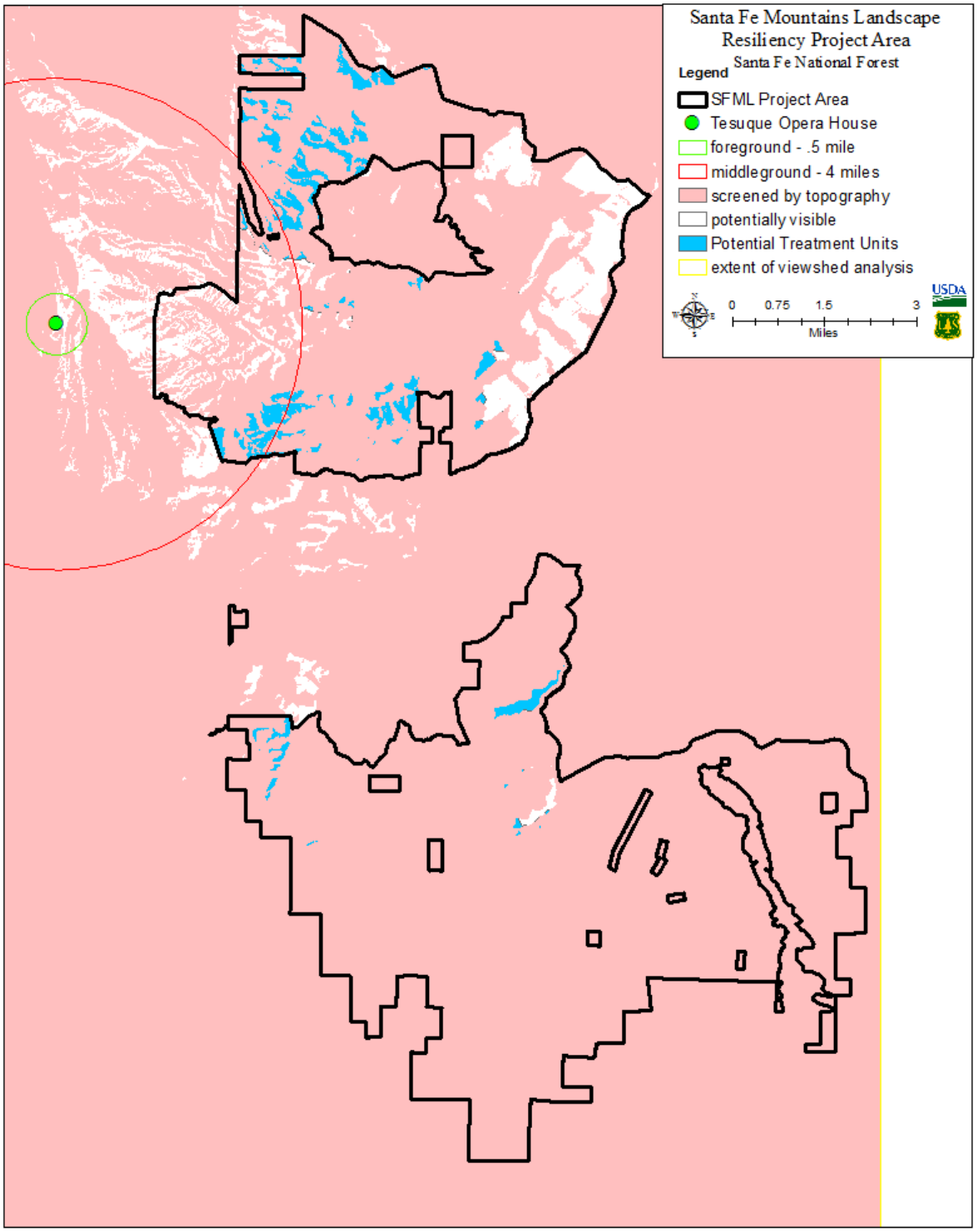

Figure 23 Viewshed analysis from an observation point at the Tesuque Opera House. The seen area is not masked. The area screened by landform is masked in red. Potential treatment units are indicated in blue. A visualization was created for this observation point.

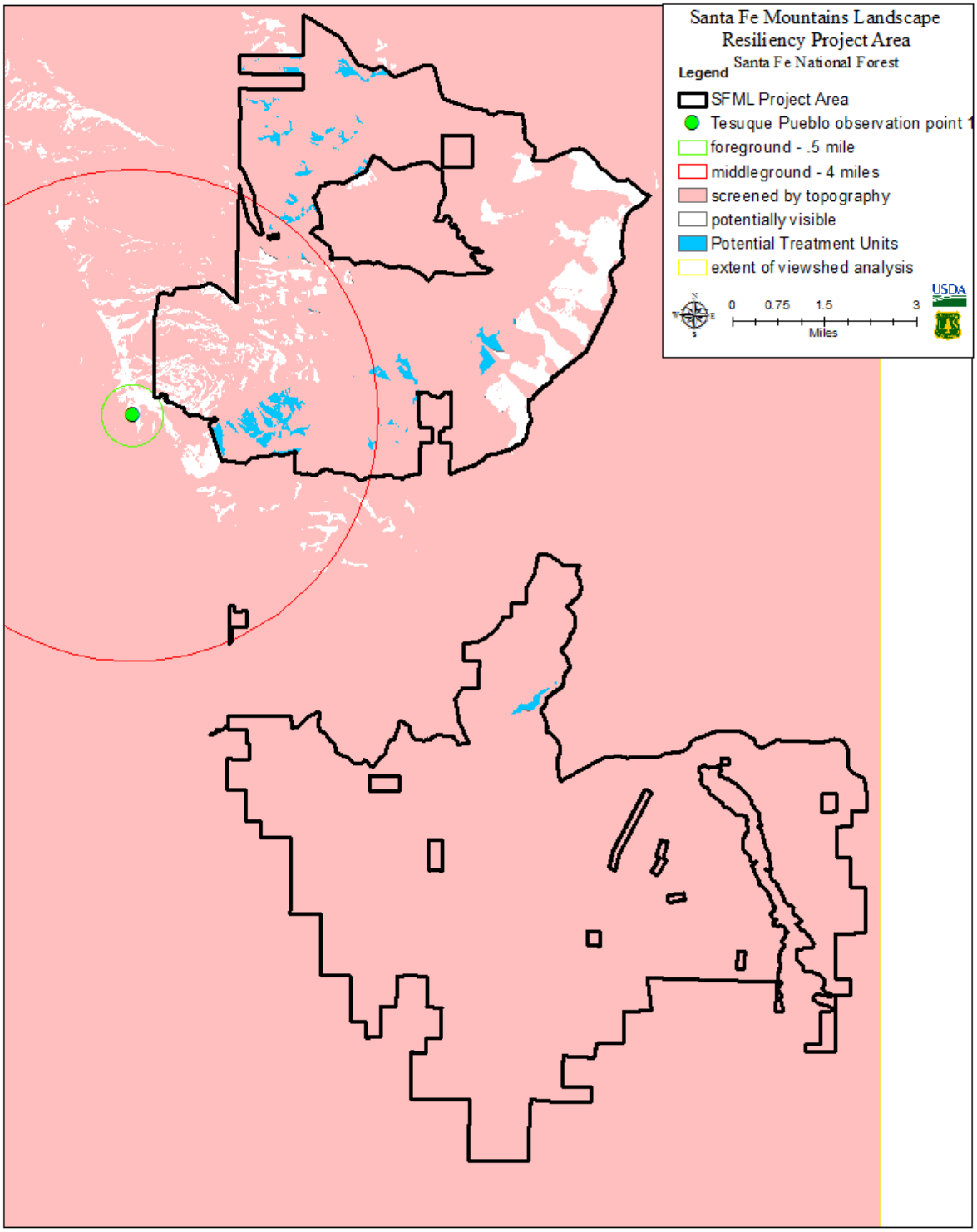

Figure 24 Viewshed analysis from an observation point from Tesuque Pueblo. The seen area is not masked. The area screened by landform is masked in red. Potential treatment units are indicated in blue.

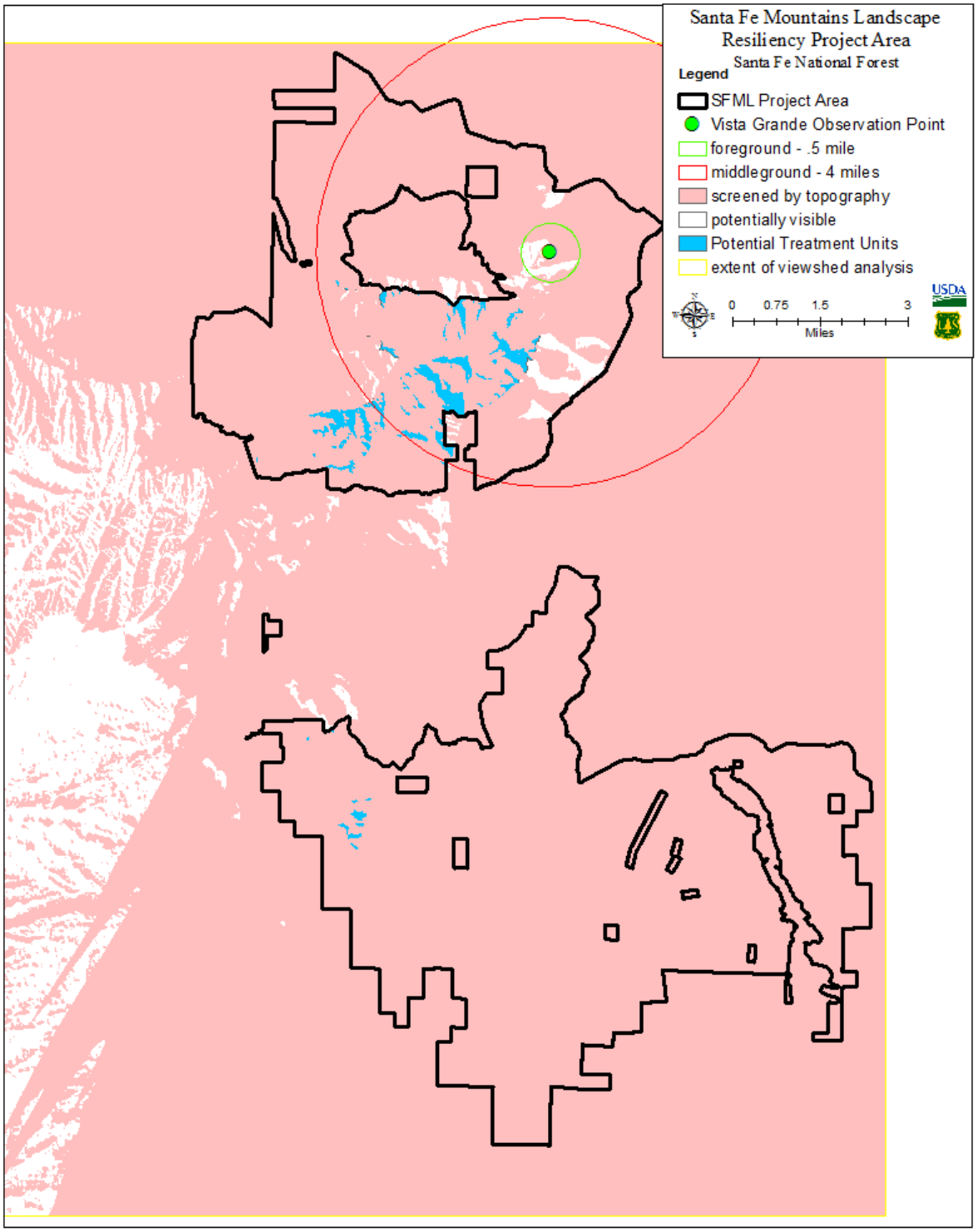

Figure 25 Viewshed analysis from Vista Grande observation point. The seen area is not masked. The area screened by landform is masked in red. Potential treatment units are indicated in blue.

Visualizations

For five observation points, a visualization of how the proposed action would affect scenery, post-implementation was created. A variety of distance zones and vegetation types were selected to display differences in effects. Each visualization is an artistic interpretation of the proposed action, utilizing hypothetical placement of likely thinning and prescribed fire units. The visualizations conceptually depict vegetation conditions in the long-term, after 5 years. The assumption is made that the proposed action would remove 10-30% of the overstory. Figure 26 through Figure 30 are comparisons between existing conditions and proposed conditions from select observation points, Figure 2. Higher resolution simulations are in appendix A. The *Direct and Indirect Effects* section further discusses the proposed action and expected changes to scenery.

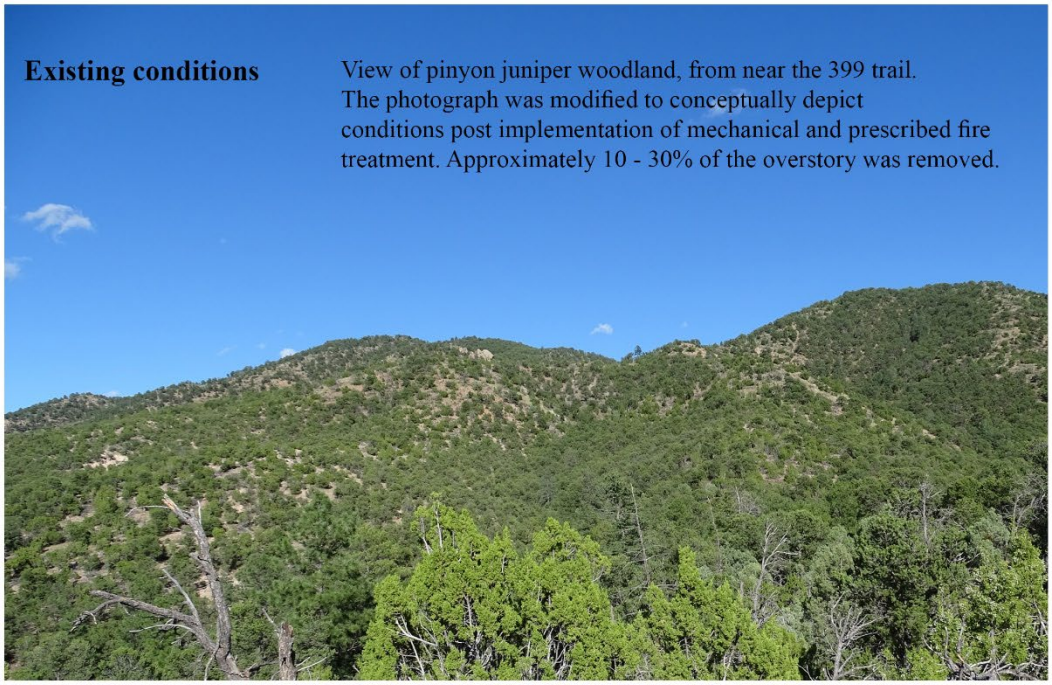

Figure 26 Visualization of the proposed action from an observation point adjacent to the 399 Trail within pinyon juniper woodland. Treatments are within the foreground distance zone, 0 - .5 mile.

Figure 27 Visualization of the proposed action from an observation point at the Glorieta Exit from I-25. Treatments are within the middleground (.5 – 4 miles) and background distance zones (4 miles – horizon) in ponderosa pine forest.

Figure 28 Visualization of the proposed action from an observation point from the summit of Monte Sol. Treatments are within the middleground (.5 – 4 miles) pinyon juniper woodland and ponderosa pine forest.

Figure 29 Visualization of the proposed action from an observation point along the Saddleback Ridge Trail overlooking the Chamisa Trail, within ponderosa pine forest. Treatments are within the foreground (0 - .5 mile) and middleground (.5 – 4miles) distance zones. The Chamisa Trail becomes more visible.

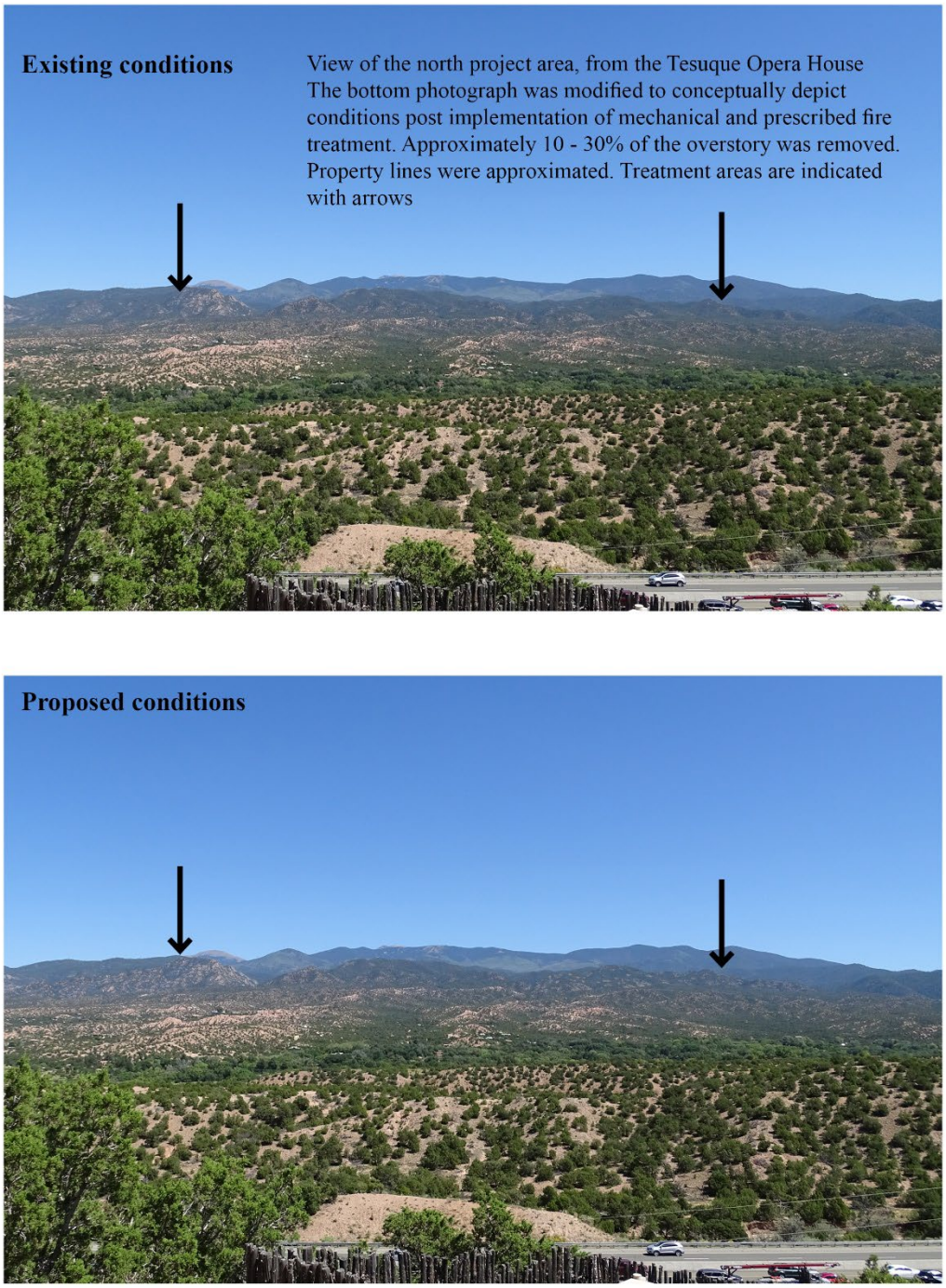

Figure 30 Visualization of the proposed action from an observation point at the Tesuque Opera House. Treatments are within the middleground (.5 – 4 miles) and background distance zones (4 miles – horizon) in multiple vegetation types.

Direct and Indirect Effects of the Proposed Action, Alternative 2

The following section describe the direct and indirect effects of the five elements of the SFMLRP Proposed Action: 1) vegetation thinning treatments, 2) the use of prescribed fire, 3) riparian restoration, 4) the 1.5-mile road close along Forest Service Road 79W, and 5) proposed forest plan amendments.

Vegetation Thinning Treatments

Approximately 18,000 acres of National Forest System lands in the project area would be subject to vegetation thinning. There would be short-term direct and indirect moderate visual impacts from the sights of slash and equipment while the treatments occur. As vegetation is removed, sight lines from roads, trails, streams, recreation use areas and other viewing platforms would be opened to allow for more distant foreground views. Thinning would add also add variety to the existing condition of even textured, closed coniferous canopy in middleground and background distance zones. Treatments would be incremental over time as discrete areas within the project area undergo thinning annually.

During implementation, the scenic character of the project area would temporarily change to a more working landscape setting due to the equipment and vehicles used for thinning and the sights of slash, tree stumps, and woody debris. This would be localized to 750 acres of the project area each year.

In the short term, aspects of scenic quality and visitor experiences would simultaneously be diminished and enhanced within the thinned areas. The existing scenic integrity in these areas would temporarily diminish as vegetation recovers from the thinning. In foreground views, stumps, and slash of cut vegetation would be evident. Visual access, the distance an observer can see from a viewing platform such as road, trail, or other observation point, would immediately increase, adding depth and variety to the view. In middleground views, there would be noticeable contrasts of line, form, and color between treated and untreated areas. The existing condition would be enhanced by adding visual variety to the even-texture of the closed coniferous canopy. Effects of thinning would be expected to be muted in the background distance zone but texture and color contrasts between treated and untreated areas could be evident.

The visual quality objective of retention would be met with one year of implementation with the application of the following best management practices and design features.

- Rec-11: Cut trees flush with trail when they need to be cut on the edge of the trail and road.
- Rec-9: Stumps will be cut to a maximum of 8 inches within 50 feet of National Forest System trails and roads, and as low as possible in all other distances zones.
    - Rationale for including design feature: Cutting tree stumps low to the ground can minimize negative visual impacts (Daniel and Boster 1976).
- Rec-13: Activity-generated fuels (slash) created within 150 ft. of NFS trail and roads would be piled and burned or removed within 2 years of operations and within 1 year for areas managed for a Visual Quality Objective of Retention. Piles would be located a minimum of 100 ft. from trails, roads and trailheads.
    - Rationale for including design feature: Reducing the amount of slash and woody debris after thinning is beneficial for scenic resources, as numerous studies have found that “the public responds negatively to downed wood, slash, and other debris from … thinning (Arthur 1977, Echelberger 1979, Ruddell et al. 1989)” (cited in Ryan 2005, 45).

- Scen-5: Thinning of trees should have a form and shape that simulates natural patterns and openings and edges blended to minimize visibility of unit edges (such as avoiding straight lines, sharp corners, or geometric shapes).Where feasible, the edges of such treatments should be: tied into existing meadows and openings where possible, follow natural topographic breaks and changes in vegetation, or provide feathering that allows gradual transition into the untreated adjacent forest area (as opposed to an abrupt line).
- Scen-9: Mechanical and manual thinning treatments along linear features, such as roads, trails or property lines would be implemented in a manner that does not emphasize straight lines and draw attention to the linear feature.
- Rec-10: Paint and markings, such as butt marks, leave-tree and boundary markings within 150 feet of National Forest System trails, roads, and campgrounds would be applied facing away from these areas to reduce visibility. Flagging would be used in these areas, where practical, to mark unit boundaries and should be removed upon project completion. No leave-tree marking would be applied within 150 ft. of National Forest System trails, roads and use areas.
    - Rationale for including design feature: Obviously human-created boundaries related to vegetation management are perceived negatively by the public (Bradley 1996; Palmer et al. 1993; Schuh 1995)

In the long term, there would be beneficial direct and indirect effects from the vegetation thinning. Thinning would extend the depth of view (visual access) into the forest and create openings for potential vistas. The thinning would allow for larger trees to grow and thrive. Open space would be created, most residual slash and all equipment would be gone. In the long term, visual quality objectives would be met, the characteristic landscape would be enhanced, and the quality of the recreation experience would improve.

Use of Prescribed Fire

Approximately 38,000 acres of National Forest System lands in the project area would be subject to prescribed fire treatments. The following assumptions are made about prescribed fire treatments.

There would be short and long term direct and indirect fire effects such as blackened trunks and burn scars on leave trees. These would introduce dark, contrasting colors into the landscape that can last 10 to 15 years. The understory vegetation is expected to fill in and help blend the fire effects into the landscape over time. Dead and dying woody vegetation from low intensity burning would be a short-term impact, as it typically takes 3 to 5 years to recover. However, herbaceous vegetation would recover more quickly, typically within one growing season. Low intensity smoke causes a temporary lack of visibility and obscures scenery. This type of smoke only occurs only for the duration of the burn and dissipates into the atmosphere, as opposed to smoke from a uncharacteristic wildfire, which can heavily impact air quality and landscape visibility for weeks to smoke from a uncharacteristic wildfire, which can heavily impact air quality and landscape visibility for weeks or months. or months.

In the short term, some people might perceive recently burned areas negatively. However overall, the scenic character would be enhanced by prescribed fire. The effects of prescribed fire are mostly natural appearing as fire typically burns in a mosaic pattern with mixed severity. This creates a mosaic of blackened tree boles, green trees, red needled trees, and pockets of dead trees. This mosaic would introduce visual variety into the existing condition of even-textured closed coniferous canopy by creating openings. Openings would occur when mixed severity causes groups of trees to die. In foreground views, these openings would introduce areas that have more solar gain (sunny and not shaded by canopy). These

sunny areas would break up the forest with vegetation dominated by herbaceous and shrub species. The openings in middleground and background views will add visual variety to the texture and color to the existing condition of closed coniferous canopy. The form of the openings will be natural appearing because they would have been created by fire.

While prescribed fire is mostly natural appearing because it mimics natural process, preparation for prescribed fire units can detract from existing scenic integrity. Firelines constructed to contain prescribed fire, can adversely affect scenic quality. This occurs when firelines create linear features that contrast with the natural appearing scenic character.

Scenic integrity would be expected to diminish in the short-term as the project is implemented. However, changes to the scenery would be incremental as discrete areas would be implemented annually. Scenic integrity and would be expected to be enhanced in the long-term through the introduction of forest openings, visual variety and increased visual access. Design features and best management practices would ensure that the visual quality objective of Retention is met within 2 years.

- Scen-1: A landscape architect or forest scenery specialist would be involved with the treatment unit layout strategy in Sensitivity (Concern) Level 1 areas. The extent of viewsheds from Sensitivity Level 1 areas would be confirmed in the field.
- Scen-12: Fire control line construction would only occur where necessary. Any fire control line constructed would be to minimal standard needed to complete prescribed burning.
- Scen-3: When possible, fire-lines would utilize existing features such as roads and trails (considering stock trails if near the area desired) and natural features (rocks and cliff-faces)
- Scen-4: Fire control lines would be constructed, wherever possible, to reduce the contrast so that they are not noticeable in the middle and background views.
    - Rationale for including design feature: Obviously human-created boundaries related to harvest are perceived negatively by the public (Bradley 1996; Palmer et al. 1993; Schuh 1995).

In the long term, prescribed fire treatments would have beneficial impacts and enhance the scenery resource and therefore the characteristic landscape. The removal of ladder and ground fuels not only reduces risks from wildfires but also helps to produce the conditions that people find attractive, such as open, park-like conditions. By improving forest conditions to accommodate low or moderate fires, the risk of stand-replacing fires is reduced. Low intensity surface fire may have subtle long-term visual impact on the landscape, whereas high intensity stand-replacement wildfires would have long-term, conspicuous visual impacts. Ecologically, the treatments would increase the landscape's resilience to wildfire, disease, and drought and would ensure that the scenic integrity would be enhanced, and visual quality objectives would be met.

Riparian Restoration

In areas where riparian vegetation is in poor condition, or is being encroached with conifers, thinning, prescribed burning, and re-vegetation plantings would occur. Conifers would be cut and removed from riparian areas to allow riparian vegetation to thrive and expand. Non-native species such as Siberian elm, Russian olive, salt cedar, and Tree of Heaven would be cut and removed. Prescribed fire would be introduced in low intensity to reduce understory fuels and promote riparian vegetation growth. Native species such as willow, cottonwood, alder, grasses, and forbs would be planted if natural regeneration is determined to be insufficient following conifer and non-native species removal. Fencing may be installed if needed to protect restored areas if it is determined that riparian vegetation regeneration is being hampered by browsing and grazing.

Effects from proposed riparian restoration treatments would be like thinning treatments except more localized. The treatments are in incised canyons (drainages). This renders the treatments mostly visible in foreground views and no other distance zones. Tesuque Creek treatments would be adjacent to and visible from the Winsor National Recreation Trail. Design features would ensure visual quality objectives are met.

The removal of non-native species and encroaching conifers would increase visual access in the short-term. However, the recruitment of riparian species would further reduce visual access, but increase habitat for wildlife, such as colorful neotropical migrant birds.

If fencing is deemed necessary, to exclude browsing animals, the following best management practice would ensure visual quality objectives are met.

- Scen-2: When fencing is visible from Sensitivity Level 1 travelways and use-areas, consult Forest recreation staff about its design, e.g. form, color and material.

Road Closure

There would be no expected effects to scenery from closing the 1.5-mile section of the 79 W road, other than it would enhance the non-motorized, quiet and solitude of the viewing platform's recreation experience.

Proposed Forest Plan Amendments

The proposed Forest Plan amendments would provide specific guidelines regarding to how vegetation would be manipulated within Mexican Spotted Owl (MSO) and Goshawk habitats (See Chapter 2 of this EA). The guidelines are not expected to result in substantially different effects to scenery resources than those likely by the proposed actions themselves.

Amendments that restrict the timing of activities within MSO or Goshawk habitat would have no effect to scenery resources. Amendments that direct monitoring within MSO or Goshawk habitat would have no effect to scenery resources.

Amendments that affect the structure and composition of vegetation within MSO and Goshawk habitat would be expected to create indirect beneficial effects to scenic resources. The amendments won't drive the removal of vegetation but would make the structure and composition of vegetation more natural appearing when removal is necessary within these habitats. The amendments favor the retention of large trees and large snags, which research has shown people prefer (Ryan 2005, 13). The amendments emphasize the enhancement of riparian habitat which adds variety to the composition of vegetation, such as the addition of deciduous plants and wetland species. Variety of landscape attributes in the right proportion create distinctive scenic attractiveness as defined by the FS policy on scenery management (USDA,1995).

The following is the desired condition for of ponderosas pine and dry mixed conifer forest in Northern Goshawk habitat.

- At the landscape scale (10,000 acres and greater) the ponderosa pine and dry mixed conifer forest is a mosaic of structural states ranging from young to old trees. Forest structure is variable but uneven-aged and open in appearance. Sporadic areas of even-aged structure may be present on 10 percent or less of the landscape to provide structural diversity.

- At the mid-scale (100-1,000 acres) the ponderosa pine forest is characterized by variation in the size and number of tree groups depending on elevation, soil type, aspect, and site productivity. The more biologically productive sites contain more trees per group and more groups per area, resulting in less space between groups. Interspaces typically range from 10 percent in more biologically productive sites to 70 percent in the less productive sites. Tree density within forested areas ranges from 20 to 80 square feet basal area per acre. The tree group mosaic composes an uneven-aged forest with all age class, and structural stages present. Occasionally, patches of even-aged forest structure are present (less than 50 acres). Disturbances sustain the overall age and structural distribution.

- Northern goshawk post-fledging areas (PFAs) should have 10 to 20 percent higher basal area in mid-aged to old tree groups than northern goshawk foraging areas and the surrounding forest. Goshawk nest areas have forest conditions that are multi-aged and dominated by large trees with relatively denser canopies than the surrounding forest. At the fine scale (less than 10 acres) typically trees occur in irregularly shaped groups and are variably spaced with some tight clumps. Tree crowns in the mid-to old-aged groups are interlocking providing for species that require these forest structure conditions. Interspaces surrounding tree groups are variably shaped and composed of a grass, forb, and shrub mix. Some may contain individual trees or snags.

This desired condition is consistent with what people find appealing in forested landscapes. A vegetation composition with a mosaic of age and size classes with irregular-shaped openings and groupings of trees (desired condition) is more visually appealing than uniform, monotonous, dense vegetation (Ryan, 2005, 14). Variety in a landscape creates added interest, when present in moderation, that people value (USDA, 1995). The ability to see into vegetation (visual access) is also a valued attribute (Ryan, 2005, 14).

If the amendments are adopted, then the manipulation of vegetation within MSO and Goshawk habitat would be expected to result in a natural appearing pattern of vegetation within these habitats. With the application of the other design features for the Santa Fe Mountains Landscape Resiliency Project, the affected vegetation would be expected to meet the visual quality objectives as defined in the 1987 Santa Fe forest plan.

Cumulative Effects of the Proposed Action, Alternative 2

Cumulative effects are the impacts resulting from the incremental impact of the proposed action, when added to other past, present, and reasonably foreseeable future actions. The cumulative effects analysis for the Proposed Action includes projects located within analysis area occurring within the past decade and future decade. The area was chosen because this is the approximate distance from where other projects, including the SFMLRP, could be seen.

Past activities that created the current conditions include grazing, the evolving forest management practices related to fire suppression, drought, disease and insect infestations, dispersed and developed recreation, and utility corridor clearing. All these actions would create surface disturbance or visual contrasts on the landscape that would have an impact on scenic resources.

Present and future activities such as vegetation management, fuels management, utility corridor clearing and new utility corridors, and other management activities (e.g. noxious weeds treatments). These activities could occur on private lands as well.

The cumulative effects of past management activities are visible as the existing condition. Vegetation management practices, fire suppression, and grazing have resulted in the current mostly even-aged forest structure, overstocked conditions, and sparse understory trees, shrubs, grasses, and forbs.

Cumulative impacts would be most visible from highly used roads and trails and prominent viewpoints, such as high-elevation areas or summits. Taken together, these activities would have potential to adversely impact the characteristic landscape, and potentially would not meet the visual quality objectives of Retention and Partial Retention and would not enhance scenery when they occur within the project area. However, projects within the project area and in the analysis area would offer long-term benefits to scenery by enhancing the characteristic landscape, meeting the visual quality objectives, and providing scenic benefits.

Table 4lists actions that have the potential to affect scenic attributes, landscape character and scenic integrity considered in the cumulative effects analysis for this project:

Table 4 Actions that May Have Cumulative Impacts to Resources within the Study Area

Action	Summary of Action
Pacheco Canyon Forest Resilience Project	The scope of the project is to thin and use prescribe fire on approximately 2,042 acres northeast of the City of Santa Fe, near several popular recreation sites, including the Big Tesuque Campground, Aspen Vista Picnic Area, and the Santa Fe Ski Basin. Tesuque Pueblo lands are within and northeast of the project area. The purpose of the project is to change stand conditions in predominantly ponderosa pine forests in the Pacheco Canyon area. The actions proposed to accomplish this change would be thinning and burning about 2,042 acres. Decision signed on June 1, 2018.
La Cueva Fuelbreak Project	The purpose of the project is to change fire behavior in treated areas to reduce the risk of a large-scale, high intensity wildfire spreading to or from the communities of La Cueva, Dalton Canyon, and the Santa Fe Watershed. This project proposes creation of a shaded fuelbreak by thinning 995 acres and conducting prescribed burns (pile and broadcast burning) on approximately 1,100 acres. Decision signed on February 4, 2005
County Line Fuel Wood Treatments	The purpose of the project is to improve forest health and wildlife habitat through a combination of thinning and prescribed burning across approximately 900 acres on Borrego Mesa. Decision signed on August 6, 2010
Southern Rowe Mesa Restoration Project	The purpose of this project is to promote a mosaic of healthy forest stands and natural grasslands through thinning and prescribed burning activities on approximately 17,500 acres on Rowe Mesa. Decision signed on February 21, 2013.

Action	Summary of Action
Hyde Park Wildland Urban Interface Project	The scope of the project is to thin and use prescribe fire on up to 1,840 acres. The project area is dominated by dense stands of ponderosa pine forests with a lesser component of mixed conifer and pinon-juniper. The project area is located in forests east of the community of Hyde Park Estates, near Hyde Memorial State Park, and adjacent to Black Canyon campground. The purpose of this project is to reduce the risk of uncharacteristic, stand-replacing wildfire and reduce the risk for insect and disease related tree mortality within the project area. Decision signed on March 21, 2018.
Santa Fe Municipal Watershed	The scope of the project is to use a combination of tree thinning and prescribed burning on up to 7,270 acres of national forest and city lands in the Santa Fe Municipal Watershed. The proposal is designed to reduce the risk of a severe crown fire and to restore sustainable forest and watershed conditions in the Watershed. Record of Decision signed in October 2001.
Santa Fe Municipal Watershed Pecos Wilderness Prescribed Burn Project	The project proposes to perform prescribed burns of between 200 and 2,100 acres at one time in ponderosa pine and mixed conifer stands within an approximately 2,900-acre, mid elevation (8,500 – 10,000 ft) treatment area within the Pecos Wilderness. Decision signed on April 28, 2015.
Rowe Mesa II (U.S. Forest Service n.d.)	Fuel treatment to promote a mosaic of healthy forests stands and natural grasslands by thinning and prescribed burning in pinon/juniper, and ponderosa pine trees that have encroached into the understory of woodlands and into meadows of Rowe Mesa. Project initiation 12/19/2018; expected implementation 4/2020.
Century Link/PNM Santa Fe to Los Alamos Fiber Optic Project (U.S. Forest Service n.d.)	Proposal to bury a fiber optic line along Forest Road 24 on Santa Fe National Forest land to a PNM transmission line where it will be carried to DOE facilities to improve service to Los Alamos National Lab and Los Alamos community. Notice of initiation 10/1/2018.
Issuance of Forest-wide Temporary and Priority Special Use Permits (SUPs) for Non-Motorized Over-Snow Activities (U.S. Forest Service n.d.)	Proposal to approve issuance of temporary and priority SUPs for outfitter and guides throughout the Santa Fe National Forest to conduct guided recreation activities related to over-snow uses, including but not limited to cross country skiing and snow shoeing. Notice of initiation 12/1/2019.
Rio Chama Aquatic and Wetland Habitat Restoration Project (U.S. Forest Service n.d.)	Species habitat improvement project to increase diversity and quality of aquatic habitat for fish and invertebrates in Rio Chama downstream from Abiquiu Dam approximately 5.6 miles between Santa Fe and Carson National Forests to point 1.34 miles upstream of Highway 84 bridge. Notice of initiation 10/1/2019; expected implementation 4/2020.
Comexico Jones Hill Exploration (U.S. Forest Service n.d.)	Exploratory drilling operation on unpatented mining claims in Pecos/Las Vegas Ranger District of SFNF. Proposal will cause approximately 5-7 acres of surface disturbance in an area that has been previously disturbed by earlier exploration date. All activities will occur within 1 year of the state date. Scoping was conducted in December 2019; expected implementation 10/2020.

Action	Summary of Action
Pecos Bike Trails (U.S. Forest Service n.d.)	Project to develop trail system and impress access and promote visitor safety in Canada de Los Alamos/Glorieta area. Notice of initiation 11/1/2019; expected implementation 2/2020.
Pecos Rio Grande Cutthroat (RGCT) Trout Restoration (U.S. Forest Service n.d.)	Project to restore RGCT populations to Willow Creek and upper Cow Creek by adding 9 miles of stream to currently occupied distribution. Scoping occurred February 2019.
Non-Forest Service Projects	
Aztec Springs, Phase 2 & 3 (City of Santa Fe, The Nature Conservancy, New Mexico State Forestry)	150 acres of thinning, piling, and prescribed burning activities.
Aspen Ranch (Pueblo of Tesuque)	160 acres of thinning, piling, and prescribed burning activities in ponderosa pine and mixed conifer.
Vigil Grant (Pueblo of Tesuque)	158 acres of thinning, piling, and prescribed burning activities in ponderosa pine and mixed conifer.
Hyde Memorial State Park (New Mexico State Forestry)	Thinning, piling, and prescribed burning across 276 acres in Hyde Memorial State Park.
City of Santa Fe Planned Communities and Infrastructure Projects	Three master planned communities that is projected to absorb most of Santa Fe's growth through 2030 • Tierra Contenta Master Plan (1995) approved as many as 5,200 housing units and to date is 50% completed with up to 2,500 homes and apartment units completed. The western portion of Phase 2 and Phase 3 await construction and includes 400 acres of developable land and 100 acres of open space/parks. • Las Soleras Master Plan (2008) covers 400 acres with most of the land along I-25 slated for commercial and mixed use. Internal portion of master plan are reserved for residential units which could be developed with 1,000-1,500 housing units. • Northwest Quadrant (2010) covers approximately 160 acres of 2,000 acres the city owns in the northwest corner of the city. The Master Plan calls for 750 housing units to the southeast of Highway NM 599. Roadway improvements, trails and urban mixed use and parks (Southwest Activity Node, Las Soleras Park, and South Meadows Park) (City of Santa Fe 2017). Multiple drainage projects are proposed by City of Santa Fe in Council Districts 1, 2, 3, and 4 to be completed in three phases between 2019 and 2022 (City of Santa Fe n.d.).
Santa Fe River Greenway R&PP Lease Project	EA (released 11/21/19) for the conveyance of 23.5 acres of BLM-administered public lands to Santa Fe County under the Recreation and Public Purpose Act (R&PP) for the construction and maintenance of a short segment of the greenway and for bank stabilization of the Santa Fe River. The proposed project will create a greenway of public parks and multi-use recreational trails along the Santa Fe River from Two-mile Reservoir in eastern Santa Fe west to the Santa Fe County wastewater treatment plant, which is located just west of New Mexico Highway 599 (BLM 2019a).

Cumulative Effects Analysis

Cumulative impacts for the analysis area would be of the same type and duration as direct and indirect impacts but would occur on a greater scale. In the short term, these impacts would be adverse but in the long term, they would be beneficial. Visual quality objectives on lands where they are assigned would comply in the long term.

Vegetation treatments, such as the extraction of forest products would have the highest likelihood to have substantial impacts to the scenery within the cumulative effect's analysis area. However, projects on Forest Service System Lands would be designed to meet visual quality objectives. Scenic integrity would be expected to diminish in the short term when projects overlap in space and time. However, when projects are designed to restore ecological conditions, scenic integrity would be enhanced in the long term.

Consistency with Relevant Laws, Regulations, and Policy

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 ensure 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 pertinent to the Santa Fe Mountains Landscape Resiliency Project include the following:

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.

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 Scenery Management System has now replaced the Visual Management System (VMS). However, the handbooks still apply to management of scenic resources.

- National Forest Landscape Management Volume 1. Agriculture Handbook 434: 1973
- Fire, Chapter 6, Agriculture Handbook 608: 1985
- Landscape Aesthetics, A Handbook for Scenery Management, Agriculture Handbook 701: 1995

Land and Resource Management Plan

The 1987 Santa Fe National Forest Land and Resource Management Plan (forest plan) provides the standards and guidelines for vegetation management, and scenic resources.

Goal: Visual Resources

Maintain and enhance visual resource values by including visual quality objectives in resource planning and management activities and designing projects to meet these objectives.

Forestwide Standards:

- A02 During the intensive reconnaissance phase of project planning, verify or refine the Visual Resource inventory. Variety classes and sensitivity levels normally will not change. However, on-site inspection or detailed computer simulation of seen areas may reveal subtleties not sensed in the existing, large scale simulated inventory. Use the revised inventory to guide project design to meet the prescribed Visual Quality Objective, and to update the overall Forest inventory.

- Inventory the Visual Absorption Capability (VAC) and Existing Visual Condition (EVC) of the Forest within the first planning period. The EVC Inventory will include identification of those areas which require visual rehabilitation or enhancement.

- A06 Manage for a Visual Quality Objective (VQO) of Retention on all existing and proposed (see Table 12) recreation sites, and the area viewed as foreground from the sites. Apply Vegetation Management Prescription II for these areas (see Table 22 below).

- A13 Manage for Visual Quality Objectives (VQO's) as defined in each Management Area.

- Apply design objectives and guidelines by VQO as defined in USDA Handbooks, National Forest Landscape Management Series.

- For existing and potential developed sites, including the area viewed as foreground from the site, manage for the Visual Quality Objective of Retention.

- Develop vegetation management plans for developed sites. These plans will identify key visual elements for management. Plans will outline the activities to sustain the desired landscape and key visual elements over time.

- Develop Viewshed Corridor Plans for those Sensitivity Level 1 roads specified in each Management Area. These plans will define project level landscape characteristics and identify the key visual elements for management. Plans will outline the activities to sustain the desired scenic landscape character over time.

    - This analysis agrees with the findings of the scenery analysis for the Pacheco Canyon Resiliency and Hyde Park projects (USDA, 2005, 2018). Because of the project's limited visibility from sensitivity level 1 roads, a typical viewshed corridor plan would not be suitable or highly useful for maintaining or enhancing scenic character. However, given the high value of scenery within and adjacent to the project area, the project should be designed and implemented to protect and enhance scenic resources while meeting the project objectives. This documentation will serve the purpose of a corridor plan, address concerns related to scenic resources, and recommend project design features or mitigation measures.

- A13 E07 The following vegetation management prescriptions, only, will be used in visually sensitive areas (foreground and middle ground Retention areas), in proportions indicated in the individual management areas: unless there are conflicts with TES species habitat requirements. TES habitat needs will take precedence over visual resource management.

Management Area Scenery Management Direction:

Visual quality objectives were not digitally mapped for the east side of the Santa Forest National Forest. Figure 31 maps management areas for the project area and are followed by scenery management direction for each management area.

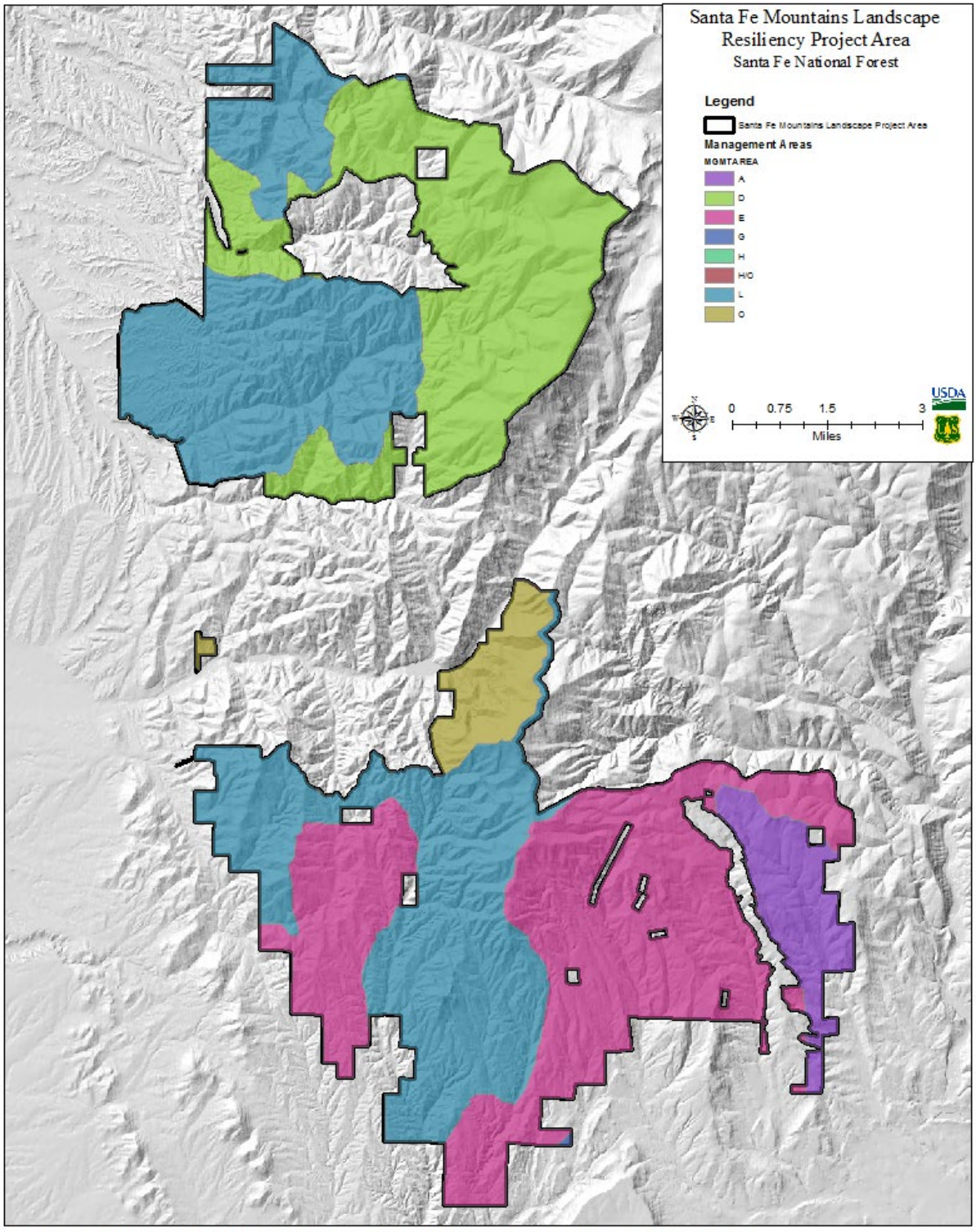

Figure 31 Management Areas of the project area

A: VQO: Retention, Partial Retention, Modification, Maximum Modification.

D: VQO: Retention.

- Manage for a Visual Quality Objective (VQO) of Retention for all resource activities. Develop Viewshed Corridor Plans as a part of project level planning for all vegetation management projects.

E: VQO: Retention and Partial Retention.

G: VQO: Retention, Partial Retention, Modification, Maximum Modification.

L: VQO: Retention.

O: VQO: Retention, Partial Retention,

Conclusion

There would be short-term effects from thinning of vegetation, most notably stumps and slash. Firelines in preparation for prescribed fire would impose linear features on a natural appearing landscape. However, design features would assuage effects and ensure compliance with visual quality objectives. Prescribed fire, that mimics the natural process of mixed-severity fire, would create openings within the existing condition of even-age, even-texture, closed coniferous canopy. Openings would enhance the views from within the project area out and from outside the project in. In the long-term, scenery would be enhanced through increased visual variety and access.

It is anticipated that with the application of design features and based on professional judgement that the scenic character in the Santa Fe Mountains Landscape Resiliency Project area will be maintained and enhanced in the long-term. The beneficial effects described above will occur throughout the project area resulting in long-term scenic quality and scenic character resilience.

Both the No Action and Action Alternative would meet visual quality objectives as defined in the 1987 Santa Fe forest plan.

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