



United States Department of Agriculture

Rim Fire Reforestation (45612) Visual Resource Report

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**Forest
Service**

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3. Affected Environment and Environmental Consequences

3.14 VISUAL RESOURCE

The proposed action states the overall purpose to create a fire resilient mixed conifer forest that contributes to an ecologically healthy and resilient landscape rich in biodiversity and desired future conditions for old forest mosaic, open canopy mosaic and deer emphasis.

Analysis Framework: Statute, Regulation, Forest Plan and Other Direction

Applicable Laws

- 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.
- 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.
- The National Forest Management Act (1976) – This act provides direction that the preservation of aesthetic values is analyzed at all planning levels.

Regulations and Directives

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. The Visual Management System (VMS) has now been replaced by the Scenery Management System; Landscape Aesthetics, A Handbook for Scenery Management, Agriculture Handbook 701: 1995 provides guidance on the scenery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

Forest Plan Direction

Forest wide Standards and Guidelines, Management Practices and Management Area Direction that apply to this project are shown below.

Forest Management Direction for Visual Resources:

Forest Wide Goals

Meet adopted Visual Quality Objectives (VQOs) on all projects. Maintain high visual quality in areas of concentrated public use and in areas seen from major travel routes. Allow management activities in certain areas to dominate the surrounding characteristic landscape, but they should borrow from natural forms and appear as natural occurrences when viewed from background distances. Consider private land concerns during the evaluation of proposed management activities adjacent to privately developed subdivisions and recreation areas. Particular attention will be given to visual quality in the foreground view areas of these private developments as well as any other values relating to their attendant use and enjoyment of the National Forest. (USDA 2010a)

Management Practices

Visual Quality Objectives (VQOs)

VQOs are desired ratings outlined under the Forest Service system of Visual Resource Management. Every acre of National Forest land treated in this Forest Plan fits into one of the classes shown below (No Maximum Modification is included).

1. **Preservation:** Areas managed to meet the VQO of Preservation. Allows ecological changes only. Management activities, except for very low visual impact facilities, are prohibited.
2. **Retention:** Areas managed to meet the VQO of Retention. Provides for management activities which are not readily visually evident. Activities may only repeat form, line, color, and texture which are frequently found in the characteristic landscape. Changes in the qualities of size, amount, intensity, direction, and pattern should not be evident.
3. **Partial Retention:** Areas managed to meet the VQO of Partial Retention. Management activities remain visually subordinate to the characteristic landscape. Activities may repeat form, line, color, or texture common to the characteristic landscape, and may also introduce form, line, color, or texture which are found infrequently or not at all in the characteristic landscape.
4. **Modification:** Areas managed to meet the VQO of Modification. Management activities may visually dominate the original characteristic landscape. However, activities vegetative and land form alteration must borrow from naturally established form, line, color, or texture so completely and at such a scale that its visual characteristics are those of natural occurrences within the surrounding area or character type.

Visual Resource Improvement

Activities carried out on visual rehabilitation to restore facilities, lands, and resources to the visual quality objectives adopted in approved management plans.

Management Area Direction

Table 3.14-1 Management Area VQOs

Management Area	VQO
Developed Recreation	Partial Retention
General Forest	Modification
Near Natural	Retention
Scenic Corridor – Partial Retention	Partial Retention
Scenic Corridor - Retention	Retention
Special Interest Area - Botanic	Retention outside of Wilderness
Special Interest Area – Historic	Retention outside of Wilderness

Management Area	VQO
Wildlife – Furbearer Territories	Retention in foreground Partial Retention in middleground
Wildlife – Spotted Owl Habitat Area	Retention in foreground Partial Retention in middleground

Effects Analysis Methodology

Assumptions Specific to Visual Resource

- This analysis assumes that Forest lands within the project area met the VQOs prior to the Rim Fire.
- This analysis assumes that the portions of the landscape within the project area that were burned in the Rim Fire may not meet the VQOs outlined in the Forest Plan.
- Reforestation of the burned landscapes within the Rim Fire Restoration project boundary should improve the aesthetics of the area in the long-term rehabilitating the forest towards meeting the VQOs.

Data Sources

- Visual Quality Objectives from the Forest Plan (USDA 2010a)

Visual Resource Indicators

Indicators of direct and indirect effects include:

- Whether or not the Visual Quality Objectives of retention, partial retention, and modification would be achieved in the project area.
- Degree of Natural Appearance

Visual Resource Analysis Methodology

During field observations, a variety of photos were taken from various viewpoints. The photos of the existing condition were used in conjunction with descriptions of proposed activities to determine the extent and duration of potential impacts to scenic/ visual resources.

This is a qualitative analysis that does not include acres of proposed activity by VQO. Proposed activities were analyzed based on their potential impacts to visual resources including the duration of impact, and the degree of natural appearance.

This analysis does not include a spatial analysis of proposed management activities and forest plan VQOs.

The terms visual/scenery resources and landscape characteristics are used throughout the analysis and all refer to visual resources.

Spatial and Temporal Bounds

The analysis area is the perimeter of the rim fire.

Duration of short term effects is twenty years and the duration of long term effects is forty years.

The cumulative effects analysis area for this resource is the project area, including both National Forest System lands and those under other ownership. The timeframe for the cumulative effects analysis is forty years.

Application of the rehabilitation interim VQO within the project area includes merging some concepts of the Visual Management System with the Scenery management System. As shown above, FSM 2380 includes direction on application of the principles of Landscape Aesthetics, scenery management, and environmental design in project-level planning. Although the Stanislaus Land and Resource Management Plan direction for management of visual resources was developed using the Visual Management System, the current direction is to apply the Scenery Management System. Therefore this analysis combines concepts from both systems related to this project. This analysis was completed using the framework of the USDA Forest Service Landscape Management Series Volume 2, Chapter 1, The Visual Management System.

The Scenery Management System describes the context for scenery management on page 23 of the handbook.

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

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

Application of the rehabilitation VQO for this project combines the concepts of the ecological context of scenery management as described above with the interim VQO of rehabilitation from the Visual Management System. Both systems for visual/ scenery resources are relevant to this project.

Affected Environment

Existing Conditions

Past management activities including but not limited to fire, timber harvesting/ vegetation management, mining, domestic grazing, transportation system construction, fire suppression, prescribed burning and fuels reduction, and insects and disease occurrences have created a mosaic of forested areas interspersed with meadows and some pockets of hardwoods and conifers providing contrast and diversity to the dominant burned landscape.

The Forest has the highest recreation visitation rate of National Forests on the Sierra Nevada western slope. Results of the 2012 National Visitor use Monitoring (NVUM) survey show that the top five recreation activities visitors participated in included viewing natural features, and driving for pleasure. Many popular developed recreation sites are located along the Evergreen Road where scenery is viewed from by visitors driving for pleasure and recreating. Forest Service sites include Dimond O Campground, Middle Fork Day-Use, Carlon Day-Use and Trailhead, and the Peach Growers Recreation Residence Tract. the Evergreen Lodge and, Camp Mather are private recreation developed sites. Other developed recreation sites lay within the perimeter of the Rim Fire include. Campgrounds Lost Claim, Lumsden Bridge, Lumsden, South Fork, Sweetwater, Cherry Valley, Upper and Lower Carlon, and Middle Fork. Other recreation sites include Merals Pool Boat Launches, Rim of the World Vista, Rainbow Pool Day Use Areas, and Cherry Creek. The San Jose Camp special use permit is also within the Rim Fire perimeter where users would have a view of the Forest. Dispersed recreation users recreating on non-motorized system trails and or pursuing motorized recreation opportunities also have views of the landscapes within the rim fire perimeter.

Approximately 154,430 acres of Forest lands were burned in the Rim Fire. This resulted in a mosaic or patchwork of burned trees and shrubs with islands of green surviving trees and shrubs. Figure 1 below was taken from the Rim of the World Vista Point. In contrast the majority of vegetation in Figure 2 remained intact north of Rainbow Pools day use area. Regeneration of shrubs has occurred quickly in portions of the project area. Figure 3 displays shrub regeneration after 2 growing seasons. Lupine meadows have also been quick to regenerate after the burn as shown in Figure 4. Burned areas in the rim fire perimeter do not meet forest plan guidance for VQOs. Therefore, the interim VQO of rehabilitation applies to these areas. Past activities that have altered the landscape characteristics include timber harvesting, natural and prescribed burning, grazing, mining, and endemic insect and disease outbreaks.



Figure 3.14-1 View from the Rim of the World Vista



Figure 3.14-2 Lightly Burned Landscape Surrounding Rainbow Pool Day Use Area



Figure 3.14-3 Shrub regeneration after two growing seasons



Figure 3.14-4 Lupine regeneration in foreground with burned oaks and conifer in the background

Environmental Consequences

Effects Common to All Action Alternatives (1, 3, 4 and 5)

Proposed activities would take around thirteen years to implement. Then it will take another decade for the planted trees to dominate the landscape. Given these factors reforestation of the landscape would progress over 2 decades. During implementation of the proposed activities the rehabilitation VQO applies to the project area. Over time as regeneration occurs the modification VQO could be achieved, and as the work in the unit progresses, the VQO of partial retention would be met, and eventually retention would be met. In alternatives 1 and 3 multiple prescribed burns may be ignited during the annual period of time when the forest performs prescribed burning. The individual burns would not last long, however burning in the project area could occur for 5 consecutive years.

These activities may be visible in all distance zones from popular developed recreation sites or roads and trails in the project area. Proposed management activities that occur in the foreground views would be most noticeable.

Deer Habitat Enhancement

- Reforestation -Natural Regeneration

Natural regeneration occurs in random spacing with a natural diversity of species. This would result in naturally appearing forms, colors, textures, and stands free of unnatural linear features. All VQOs would be met in the long-term as natural regeneration occurs.

- Reforestation - Conifer planting

Planting conifers would accelerate the recovery of vegetation in the project area which is consistent with the rehabilitation VQO. In deer habitat areas planting would be done in clusters spaced 10 to 14

feet apart (Alternative 1). The clusters would appear natural to the average forest visitor and would meet all VQOs in the long-term.

- Thin
 - Create openings around established oaks or groups of oaks (live trees or saplings greater than or equal to six inches dbh) by removing conifers within 30 feet of the bole to allow oak to flourish.
 - Create thermal cover by thinning individual conifer trees 17 to 23 feet apart.
 - Create hiding cover by clumping conifers with an average of 30 feet between clumps. Average four to seven conifers per clump with each acre having equal proportions of each clump size. Trees within the clumps should be 10 to 12 feet apart.

Direct effects of thinning and removal of conifers near oaks and reducing the shrub/understory component include opening up the stands to an open park-like vegetative mosaic and enhancing of species diversity. These activities are compatible with the rehabilitation VQO and would aid in the progression of restoring the landscape characteristics and enhancing the visual quality. “The amount of visual access, or how far one can see into a forest, also has been found to be a significant predictor of landscape preference... As the density of smaller trees increases, visibility and scenic beauty decrease.” (Ryan 2005) Clumping of conifers to increase hiding cover also creates additional visual variety in the stands, which would assist in meeting long-term VQOs. Thinning densely stocked stands improves and rehabilitates the scenic character of the stand.

- Thin and Reforestation

This combination of treatments would result in all of the effects described above for reforestation and thinning.

Reforestation outside of Deer Habitat Areas

Site Preparation Management Activities

- Deep Till and Forest Cultivate (Subsoil)

Deep tilling on slopes less than 35% and forest cultivating would be noticeable when viewed from all foreground and middleground distance zones. With the re-growth of shrubs, grasses, wildflowers and other herbaceous plants the effects of deep tilling and forest cultivation would last about 2 growing seasons. In areas with slower re-growth these activities would be noticeable around 3-4 growing seasons. This site preparation treatment would assist in meeting the long-term VQO's and is appropriate under the interim rehabilitation VQO.

- Fuels Reduction with Feller Buncher

Direct effects to visual resources from the use of tractor logging removal methods would include visible evidence of slash on the ground, soil disturbance, and other signs of disturbance associated with use of machinery for project implementation for one or two growing seasons. “Residual woody debris is one of the most significant predictors of negative perception of scenic beauty.” (Ryan 2005) Indirect effects to forest visitors from mechanical logging systems and machinery working on roads includes the sights, sounds, and smells of equipment operating in the Forest for approximately 6 years during the operating seasons.

- Fuels Reduction by Hand Cut, Hand Pile and Burn

Direct effects to visual resources from hand cutting and piling would include evidence of slash on the ground. See the effects described below for prescribed fire for the burning portion of this treatment.

- Fuels Reduction by Machine Pile and Burn

Direct effects to visual resources from machine piling would include visible evidence of slash on the ground, soil disturbance, and other types of evidence of where machinery was working for one or two growing seasons. “Residual woody debris is one of the most significant predictors of negative perception of scenic beauty.” (Ryan 2005) The effects of burning would be the same as described under prescribed fire below.

- Fuels Reduction by Mastication

The shrub component in these areas would be heavily reduced, creating a strong contrast between soil colors and herbaceous plants in the landscape immediately after mastication has occurred. Within one to two growing seasons, the cut shrubs would re-sprout. This site preparation treatment would assist in meeting the long-term VQO's and is appropriate under the interim rehabilitation VQO.

- Fuels Reduction by Chemical Site Preparation

This treatment would reduce vegetation that would compete with regeneration of the conifer saplings. Although this treatment is different than mastication the resulting effects to visual resources is essentially the same. This site preparation treatment would assist in meeting the long-term VQO's and is appropriate under the interim rehabilitation VQO.

- Prescribed fire (broadcast burning and jackpot burning)

Short-term direct effects from prescribed burning include the presence of black and charred vegetation and sometimes soils. “While prescribed burning can mimic natural disturbance, like a wildland fire it can leave a forest blackened and charred and is perceived negatively by the public.” (Ryan 2005) This effect is overcome within one year, and would only have a short-term effect as seen by the average forest visitor. Multiple prescribed burns may be ignited during the annual period of time when the forest performs prescribed burning. The individual burns would not last long, however burning in the project area could occur up to 5 consecutive years.

The burning would be done in a random pattern creating a mosaic of burned areas across the landscape. Long-term direct effects from broad scale, low to moderate intensity underburning in thinning units and surrounding locations would reduce fuel loading and promote regeneration of trees, shrubs, wildflowers and other herbaceous plants. This activity would diversify the vegetative mosaic in regards to vegetative forms, natural appearing lines, and additional colors and textures in the forest stands.

Short-term indirect effects from prescribed burning include views of the fire and smoke, and forest visitors may smell the smoke.

Plant Conifers and Release and prescribed fire

Conifer planting would vary by the type and location on the landscape. Release consists of hand grubbing to remove the vegetation in a 6 foot diameter circle around the tree, or application of herbicides to keep fast growing vegetation from overcoming the seedlings. Figure 5 displays the immediate effects of hand grubbing around the seedling. It is anticipated that application of herbicides would result in similar visual effects. Grasses and shrubs would cover these areas treated for release within 1 to 2 growing seasons.



Figure 3.14-5 Hand Grubbing around Seedling

Thin for ICO Structure within Existing Plantations

Effects would be the same as described above for thinning in deer habitat enhancement units.

Emergency Travel Routes

Conifers would be planted within 12 feet of emergency travel routes except conifers 16 inches dbh and larger. This would result in triangular clump of trees with openings on both sides and additional space around oaks. Remaining conifers would be pruned 10 feet up the bole. Figure 2.02-2 displays the planting pattern. When forest visitors look at the stands perpendicular to their travel route in the foreground the stands will seem to undulate and appear mostly natural as they move through the landscape with a short duration of view. If the visitors are going slower or have a longer duration of view they could notice the straight lines of the planted trees which could appear un-natural. Views of the Forest in the middleground for travelers with a short duration of view would appear natural. The species diversity would add variety in form, line, colors and texture of the vegetative mosaic.

Primary Ridges and Fuelbreaks- (330 Feet wide)

Forested areas would be planted to approximately 13-17 foot-crown spacing for 150 feet from the 30 foot strip along both sides of the ridge resulting in a canopy with a park-like setting. In the long-term views in middle ground and background of primary ridge and fuelbreak treatments would be similar in appearance to a ski area run if the 30 foot width is consistent and the edges don't vary. The inclusion of the 75 foot clearance for helispots would create additional diversity regarding the forms and lines of the vegetative mosaic. "To meet visual quality objectives successfully, fuelbreak design must subdue unnatural contrasts and borrow from natural form, lie, color and texture." (USDA 1985) In the long-term the maximum modification and potentially the modification VQOs would be met.

Primary Ridge outside of SFMA (250 Feet wide)

The effects of developing a primary ridge outside of SFMA to a 250 width are essentially the same as described above for primary ridges and fuelbreaks 330 foot wide exception that fuelbreak is 80 feet narrower.

Mid Slope Open Canopy Mosaic in SFMA

Plant individual trees on a 10 to 14 foot spacing, plant 5 rows and skip 1 row in both directions creating a macro-cluster of 25 trees as shown in Figure 2.02-4. The macro clusters would be planted in a geometric pattern across mid-slopes of the landscape. The more diverse the topography is in these planting areas the more natural the pattern would appear. Not all planted trees are expected to survive. In areas with deep tilling and forest cultivation followed by herbicide application about 75% survival is anticipated after 3 years. In areas with deep tilling, forest cultivation and hand grubbing release treatments about 50% survival is expected after 3 years. Over time as the amount of surviving seedlings decreases the macro-clusters would appear more natural with variety in the edge of the clusters and spacing of trees. This would improve the form, and line of the clusters and overall units. Views of this treatment in the foreground and middleground may not appear natural after about 6-8 years when conifers would be about 5 feet tall unless travelers had a short duration of view. When the planted trees are tall enough to be noticeable about 6-8 years when conifers would be about 5 feet tall the planting pattern could also be noticeable in the middleground distance zone. This planting design would move the landscape towards meeting the long-term VQO's and is appropriate under the interim rehabilitation VQO. As the plantations mature and natural processes include natural regeneration along with mortality the plantations would appear more natural. Figure 6 displays an image of a fifty year old plantation.



Figure 3.14-6 Image of a Fifty Year old Ponderosa Pine Plantation within the Rim Fire Perimeter

Mid Slope Open Canopy Mosaic outside SFMA

This treatment would create micro-clusters of 4 trees as shown in Figure 2.02-3. The micro-clusters would have 14 feet between outside trees, 7 feet to the middle tree and 26 feet between cluster centers. Closest tree to tree is 12 feet and farthest tree to tree is 27 feet resulting in about 257 trees per acre. The more diverse the topography is in these planting areas the more natural the pattern would appear. Over time as the amount of surviving planted trees decreases the micro-clusters would appear more natural with variety in the edge of the clusters and spacing of trees. This would improve the form, and line of the clusters and overall units. Views of this treatment in the foreground and middleground may not appear natural after about 6-8 years when conifers would be about 5 feet tall unless travelers had a short duration of view. When the planted trees are tall enough to be noticeable in these distance zones. This planting design would move

the landscape towards meeting the long-term VQO's and is appropriate under the interim rehabilitation VQO.

Mid-Slope Old Forest Mosaic within SFMA

This planting design includes macro clusters of 100 trees per cluster. Trees would be planted on a 10 to 14-foot spacing, plant 10 rows and skip 1 row in both directions over about 903 acres resulting in 250 trees per acre. The larger planting design would appear more natural to forest visitors than the mid-slope open canopy planting designs since the planting pattern is much larger and would be less noticeable than the smaller patterns. After 3 years about 75 trees per cluster would remain in areas prepared with herbicides, and about 50 trees per cluster in areas with hand grubbing. The surviving trees in individual clusters would have less of a geometric shape than the original planting pattern. This would improve the form, and line of the units. Views of this treatment in the foreground and middleground may not appear natural after about 6-8 years when conifers would be about 5 feet tall unless travelers had a short duration of view. When the planted trees are tall enough to be noticeable the planting pattern may also be noticeable in these distance zones. This planting design would move the landscape towards meeting the long-term VQO's and is appropriate under the interim rehabilitation VQO.

Mid-Slope Old Forest Mosaic outside SFMA

This planting pattern has individual trees with a 10 to 14-foot spacing resulting in 303 trees per acre over about 5,587 acres. After 3 years about 227 trees per acre would remain in areas prepared with herbicides, and about 151 trees per acre in areas with hand grubbing. Views of this treatment in the foreground and middleground may not appear natural after about 6-8 years when conifers would be about 5 feet tall unless travelers had a short duration of view. When the planted trees are tall enough to be noticeable the planting pattern may also be noticeable in these distance zones. This planting design would move the landscape towards meeting the long-term VQO's and is appropriate under the interim rehabilitation VQO.

Drainage

This planting pattern has individual tree with 10 to 14-foot spacing in a 300-foot wide planting area resulting in 303 trees per acre. Where a road crosses a drainage, the Emergency Travel Routes prescription takes precedence. The effects to visual resources are the same as described for the mid-slope old forest mosaic outside SMFA planting patter with the exception of including some emergency travel route treatments. See above for effects from emergency travel route treatments.

Meadows (25-50ft)

Remove all conifers less than 24 inches dbh, except healthy sugar pine without evident blister rust, within 25 feet of meadow edges. From 25 to 50 feet of the meadow edge, leave 4 clumps of 5 conifers, evenly dispersed around the meadow or space clumps 150 feet apart around larger meadows.

Meadows (50-100ft)

Between 50 to 100 feet, leave 4 clumps of 10 conifers evenly dispersed around the meadow and off-set from those retained within the first ring or for larger meadows space clumps mid-point of the interior ring, about 150 feet apart. Figure 6 shows an example of how the meadow strategy would look on the landscape. Beyond the 100 feet, resume ICO prescription.

Effects to visual resources include enhancing the meadow component of the vegetative mosaic by decreasing conifer encroachment, retention of small clumps of conifers near the meadow and further away from the core of the meadow retaining larger clumps of conifers. Meadow treatments would also add spatial variety into the stands while emphasizing oaks and stands of other hardwoods. All VQO's would be met with implementation of this activity

Herbicides and Noxious Weed Treatments

The treatment of noxious weeds would decrease competition for native vegetation to naturally reclaim the landscape. All noxious weed treatments including application of herbicides would assist in the rehabilitation of the landscape to eventually meet the forest plan VQOs.

Areas without Reforestation Treatments

Approximately 10,635 acres of potential conifer forest land are not being proposed for any reforestation treatment. These areas could become dominated by shrub woodland that would be uncharacteristic of the area and outside of the natural range of variability for vegetation.

Appearance of the Landscape over Time

Short-Term Direct Effects

During the first 5 years after planting most trees would be less than 5 feet tall and not very apparent in middleground views. In foreground views the individual trees would be noticeable but the geometric planting patterns wouldn't be noticed that close to the plantations. Individual trees and plantations would not be noticeable in the background distance zone in this timeframe.

As the trees mature and become more obvious in the middleground the geometry of the plantations would be more apparent and may look unnatural when viewed for a long duration of time when the plantations are between 15 to 20 years old and trees are about 15-30 feet tall. Areas which could provide long duration views include developed recreation sites and trails and roads where visitors move slowly through the landscape. These areas would appear natural when viewed from the background distance zone.

Plantation patterns would be less noticeable the more undulating the topography is in all distance zones and over time.

Long-Term Direct Effects

As plantations become older than 20 years and the trees grow taller the geometry of the plantations would diminish in the middleground views and appear natural to forest visitors.

Plantation patterns would be less noticeable the more undulating the topography is in all distance zones and over time.

Alternative 1 (Proposed Action)

DIRECT AND INDIRECT EFFECTS

Potential effects to visual resources are described above for all proposed activities under Effects Common to all Action Alternatives.

Short and long-term effects are the same as described above.

CUMULATIVE EFFECTS

Ongoing and reasonably foreseeable activities that would occur within the analysis area include hazard tree removal, weed treatments, road and trail maintenance, commercial guided recreation and special events, firewood cutting and continued use of grazing allotments. When considered with the recent Rim Fire Recovery efforts, portions of the vegetative mosaic across the landscape within the project area would be in a state of transition from salvage, hazard tree removal and the restoration activities over the next 2 decades.

Since there are no regulations for scenic resource management on private lands, the effects of ongoing private development adjacent to Forest lands can sometimes have negative effects on scenic

resources of the continuous landscape. When activities on private land are designed to limit impacts to scenic resources, the differences between private lands and Forest lands are less noticeable. The private timber industry lands that were salvage logged, deep tilled, sprayed and planted immediately after the Rim Fire are noticeably distinct from NFS lands and should return to a forested condition far sooner than on Forest lands.

ADVERSE EFFECTS

No adverse effects to visual/scenery resources are expected to result from the implementation of the proposed activities.

IRREVERSIBLE & IRRETRIEVABLE COMMITMENTS OF RESOURCES

No irreversible or irretrievable commitments of visual/scenery resources are expected to result from the implementation of the proposed activities.

Conclusions:

The proposed management activities to restore the vegetative mosaic within the Rim Fire Perimeter are compatible with the interim rehabilitation VQO. In the long-term the VQOs of retention, partial retention, and modification could be achieved.

Alternative 2 (No Action)

If Alternative 2 is chosen no vegetation treatments would occur. There would not be an opportunity to regenerate new stands to a desired species mix and density. The quality of the scenic characteristics would take a lot more time as natural regeneration would take place. The landscape would be dominated by continuous woody shrubs precluding the possible establishment of diverse forest habitat. This shrub dominated vegetative mosaic along with the standing and down dead trees would create a risk of high intensity fire.

ENVIRONMENTAL TRENDS

Anticipated trends include rapid re-growth of the shrub vegetative component. Minimal natural regeneration of conifers is anticipated. The landscape within the rim fire perimeter would be dominated by a mix of shrub species. Brush is beginning to dominate some sites which inhibits conifer survival and growth. The scenic attractiveness component of the landscape character may change if the vegetative composition would be dominated by shrub species. A landscape dominated by the shrub component would be outside of the historical range of variation for vegetation. It may take decades to meet the desired landscape character and visual quality objectives for the project area under this alternative. The scenic attractiveness component of the landscape character may change if the vegetative composition is dominated by shrub species.

The following Forest-wide direction would not be implemented: Visual Resource Improvement-Activities carried out on visual rehabilitation to restore facilities, lands, and resources to the visual quality objectives adopted in approved management plans.

CUMULATIVE EFFECTS

Ongoing and reasonably foreseeable activities that would occur within the analysis area are listed in Appendix B. When considered with the recent Rim Recovery project, portions of the vegetative mosaic across the landscape within the project area would be in a state of transition from salvage logging, hazard tree removal and the restoration activities over the next decade.

The private timber industry lands planted immediately after the Rim Fire would have a distinctive contrast in appearance to the adjacent NFS lands and would continue to be so in the long-term.

Conclusion:

The following Forest-wide direction would not be implemented: Visual Resource Improvement-Activities carried out on visual rehabilitation to restore facilities, lands, and resources to the visual quality objectives adopted in approved management plans.

Landscape characteristics would appear unnatural in the long-term since a shrub dominated landscape would be outside the historical range of variability for vegetation.

Alternative 3

Compared to Alternative 1, it addresses those issues by proposing: additional human and native species health protections (no herbicides) and a different fuel break ridge treatment responding to the reforestation issue of fire hazard. Because no herbicides would be used for site preparation, release or noxious weed eradication, additional deep tilling and forest cultivation and manual grubbing treatments were added.

DIRECT AND INDIRECT EFFECTS

Potential effects to visual resources from proposed management activities under Alternative 3 are described above under the Effects Common for All Action Alternatives section with the exception of these alternative specific treatments described below. Some of the differences are based on the scale or scope of the specific management activity.

- Release

Additional hand grubbing on about 12,407 acres instead of herbicide application would take place. This would result in a lower survival rate of the planted trees across the landscape. The geometric planting pattern of the deer habitat enhancement areas would be less evident in the landscape over time when viewed from the middleground than in Alternative 1 since fewer trees would survive.

- Site Preparation

Around 3,809 acres more of deep tilling and forest cultivation would occur than in Alternative 1. This would increase the scale of the activity across the landscape. The effects to visual resources are the same as described above for all action alternatives and are compatible with the rehabilitation VQO.

- Plant Conifers

Plant conifers on approximately 21,302 acres using a variable planting design. This includes clumps of trees varying from 5, 15 to 30 trees spaced 6 to 8 feet apart to be planted among single trees spaced 10 to 14 feet apart. The desired condition is to reforest around 200 trees per acre after 5 years of growth. The desired variable densities would create natural appearing stands with forms and lines that would blend into the landscape. When the stands mature to 20 years or older they would appear natural to forest visitors in all distance zones with the proposed planting pattern. This planting pattern would move the landscape towards meeting the long-term VQO's and is appropriate under the interim rehabilitation VQO.

- Strategic Fire Management Areas

Strategic Fire Management Feature fuel breaks are approximately 90 feet across and are bordered by 80 feet of 15-foot by 15-foot planting on each side for a total width of 250 feet (1,586 acres). Within the center of these fuel breaks, plant (14 feet between outside trees, 7 feet to the middle tree and 26 feet between cluster centers) leaving about 32 feet of a no-plant area on each side before beginning the 15-foot by 15-foot spaced planting pattern. This fuel break planting pattern averages 150 trees per acre. Where roads are present within the center of the fuel break, alternate the planting of 4-tree

micro-clusters on each side of the road beginning 12 feet off of the road edge. Emergency Travel Routes and primary ridges that do not include fuel breaks are the same as Alternative 1.

The strategic fire management feature fuelbreak includes a 90 foot strip with one row of 4-tree micro-clusters bordered by 80 feet of trees planted in a 15 by 15 foot-crown spacing. The linear edges of the 90 foot fuelbreak would appear un-natural as the trees matured starting at between 7-10 years when the trees would be at least 5 feet tall. Around half of the trees planted are expected to have survived within 3 years of planting. As the number of live trees decline, the linear features of the fuelbreak would become less apparent including the linear feature of the micro-clumps down the center of the fuelbreak.

The fuelbreaks could be easily noticed in all distance zones but would be more dominant in foreground and middleground views of developed recreation sites and popular roads and trails between 7-10 years when the trees would be at least 5 feet tall. In middleground and background views of primary ridges and fuelbreak treatments could dominate the landscape for decades if the fuelbreaks are maintained. If so, this could potentially meet the modification VQO.

Grubbing would be the most noticeable activity in foreground and middleground views until the trees are 7-10 years old due to the soil contrast with vegetation.

This planting design would move the landscape towards meeting the modification and potentially partial retention VQO's over time and is appropriate under the interim rehabilitation VQO.

CUMULATIVE EFFECTS

Cumulative effects for Alternative 3 are anticipated to be similar to Alternative 1.

Conclusion:

The proposed management activities to restore the vegetative mosaic within the Rim Fire Perimeter are compatible with the interim rehabilitation VQO. In the long-term the VQOs of retention, partial retention, and modification could be achieved.

In the reforestation areas planting would be done with single trees and clumps of trees of various sizes with variable densities depending upon clump size. The variable density planting pattern would create naturally appearing stands with forms and lines that would blend into the landscape. As the stands mature and reach 20 years or older they would appear natural to forest visitors in all distance zones. Alternative 3 would result in more natural appearing landscape characteristics in the deer habitat enhancement areas than Alternative 1 due to the subsequent increase in seedling mortality resulting from hand grubbing for release. The increased mortality would decrease the geometry of the planting patterns of the deer habitat enhancement areas. Alternative 3 strategic fire management fuel break design would make ridge tops with the fuelbreaks appear less natural than in Alternatives 1 and 4.

Alternative 4

Alternative 4 has considerably fewer planted acres and trees and the reintroduction of early and frequent use of prescribed and natural fire within and adjacent to these stands compared to alternative 1. Thousands of acres, proposed in Alternative 1, would not have initial mechanical fuels treatments and would remain unplanted in Alternative 4. Reforestation would occur on 2,909 acres. Complex early seral forest (17,493 acres) is allowed to develop unassisted except for the use of prescribed fire. No herbicides would be used for noxious weeds, however it would be applied in the release treatments. Deep tilling and forest cultivating is not proposed in this alternative.

DIRECT AND INDIRECT EFFECTS

Potential effects to visual resources from proposed management activities under Alternative 4 are described above under the Effects Common for All Action Alternatives section with the exception of these alternative specific treatments described below. Some of the differences are based on the scale or scope of the specific management activity.

- Release

Manually apply herbicides over 4,058 acres to initially ensure limited vegetation competition to the planted seedlings and to maintain a buffer of 25 feet to 50 feet around Founder Stands. Manage the buffer to maintain a lower brush component to reduce fire spread and increase fire resilience within the planted areas. The effects to visual resources are the same as described above for all action alternatives with the exception that additional areas around founder stands would be treated. The additional treatments would still be in line with the rehabilitation VQO.

- Prescribed Fire

Alternative 4 treats 50% of the reforested areas (7,186 acres) and 50% (8,746 acres) of the complex early seral forest with prescribed fire within one fire return interval (approximately 10 years). Use a tractor to line the plantations prior to burning. Prescribed fire would be returned to the other 50% of the areas (15,932 acres) in the second decade and then repeated through time. The emphasis is on returning fire to this landscape. The effects to visual resources are the same as described above for all action alternatives with the exception that additional areas would be treated with prescribed fire and the use of a tractor line around plantations. The tractor fire line would be noticeable in all distance zones until the end of the first growing season after the fire lines are created. The additional treatments would still be in line with the rehabilitation VQO.

- Plant Conifer Founder Stands

Outside of complex early seral forest, plant founder stands within the same units identified in Alternative 1. Founder stands are small variable-shaped planted areas ranging from 2 to 10 acres in size within a larger area. Plant up to 20% of a contiguous seedling-deficient polygon and leave the remainder unplanted. Plant 20 to 40 clusters per acre spaced an average of 33 feet apart, variably spaced based on site conditions. Within each cluster, plant 5 trees spaced 6 feet between each tree. This provides 100 to 200 trees per acre on a given planted acre.

Plant 200 feet away from known sensitive plant populations. No planting would occur within the designated fuel breaks (based on the Alternative 3 design), Emergency Travel Route corridors, along primary ridges, drainage bottoms, or in the thin and reforest units (surviving older plantations). Focus planting within the mid-slope areas of each unit where natural regeneration is not occurring across the unit.

Planting the seedlings with this strategy would create a natural appearing forest over time which would move the landscape towards meeting the desired VQO's over time and is appropriate under the interim rehabilitation VQO.

CUMULATIVE EFFECTS

Cumulative effects for Alternative 4 are anticipated to be similar to Alternative 1 at a smaller scale.

Conclusion:

Implementing the founder stand planting design across a small portion of landscape would result in natural appearing landscape characteristics. However the portion of the landscape outside of the founder stands would be dominated by shrubs which would be outside of the historical range of variation for vegetation in this area.

The proposed management activities to restore the vegetative mosaic within the Rim Fire Perimeter are compatible with the interim rehabilitation VQO. In the long-term the VQOs of retention, partial retention, and modification could be achieved.

Alternative 5

Alternative 5 includes seedling planting in a dense 7-foot by 14-foot spacing throughout the same 25,331 acres as in Alternative 1.

DIRECT AND INDIRECT EFFECTS

Potential effects to visual resources from proposed management activities under Alternative 5 are described above under the Effects Common for All Action Alternatives section with the exception of these alternative specific treatments described below. Some of the differences are based on the scale or scope of the specific management activity.

- Planting

Planting in deer habitat enhancement areas would be done in a 7 by 14 foot spacing pattern in the same areas as in Alternative 1 on about 705 acres. During the first 5 years after planting most trees would be less than 5 feet tall and not very apparent in middleground views. In foreground views the individual trees would be noticeable but the geometric planting patterns wouldn't be seen that close to the plantations. Individual trees and plantations would not be noticeable in the background distance zone in this timeframe.

As the trees mature and become more obvious in the middleground the geometry of the plantations would be more apparent and may look unnatural when viewed for a long duration of time when the plantations are between 15 to 20 years old and trees are about 15-30 feet tall. Areas which could provide long duration views include developed recreation sites and trails and roads where visitors move slowly through the landscape. These areas would appear natural when viewed from the background distance zone.

- Release

Release activities include use of herbicides as in Alternative 1 plus additional treatments in the natural regeneration areas covering about 25,331 acres. The effects to visual resources are the same as described above for all action alternatives with the exception that additional areas of the natural regeneration units would be treated. This would increase the survival rate of the seedlings improving the scenic characteristics of the landscape. The additional treatments would still be in line with the rehabilitation VQO.

- Reforestation

This treatment includes the 4,031 acres of Alternative 1 natural regeneration areas. Reforestation treatments are similar to Alternative 1 and would treat about 25,331 acres total. The effects to visual resources are the same as described above for all action alternatives and are compatible with the rehabilitation VQO.

- Site Preparation

The 25,331 acres proposed for reforestation would be treated for site preparation including application of herbicides. Deep tilling and forest cultivation treatments would be done on about 5,085 acres on slopes up to 35% as in Alternative 1. The effects to visual resources are the same as described above for all action alternatives and are compatible with the rehabilitation VQO.

- Thin New Plantations

If desired ICO structure is not created through oak buffers, riparian species, seedling mortality, and other factors, plantations could be thinned to achieve the desired ICO structure based on landscape position and SFMA. Thinning could be initiated as early as 7 years post-planting once the trees have expressed dominance and site occupancy. Thinning the new plantations would create a more natural appearing stand in all distance zones. This activity is compatible with the rehabilitation VQO.

- Thinning of Existing Plantations

Thinning and understory burning of existing plantations over 12,769 acres would be done to create an open mosaic structure. This treatment is the same as proposed in Alternative 1. The effects to visual resources are the same as described above for all action alternatives and are compatible with the rehabilitation VQO. Direct effects of thinning and removal of conifers near oaks and reducing the shrub/understory component include opening up the stands to an open park-like vegetative mosaic and enhancing of species diversity. These activities are compatible with the rehabilitation VQO and would aid in the progression of restoring the landscape characteristics and enhancing the visual quality. Thinning densely stocked stands improves and rehabilitates the scenic character of the stand.

CUMULATIVE EFFECTS

Cumulative effects for Alternative 5 are anticipated to be similar to Alternative 1.

Conclusion:

The proposed management activities to restore the vegetative mosaic within the Rim Fire Perimeter are compatible with the interim rehabilitation VQO. In the long-term the VQOs of retention, partial retention, and modification could be achieved.

Alternative 5 includes planting the most conifer seedlings of all action alternatives. Long-term effects would result in the most contiguous forested canopy. However, new plantations would be thinned creating a more natural appearing stand in all distance zones. Planting for fuelbreaks and primary ridges within SFMA wouldn't occur resulting in ridge tops that appear more natural than the other action alternatives. However, thinning to create the desired fuelbreak structure would take place when conifers are at age 7. Thinning for fuelbreaks would result in ridge tops that appear less natural than the surrounding landscape.

Summary of Effects Analysis across All Alternatives

All action alternatives are compatible with the rehabilitation VQO and would assist in the progression of restoring the landscape characteristics and enhancing the visual quality. The degree of natural appearance of the management activities varies by alternative. See the table below for a comparison of alternatives.

Table 3.14-2 Comparison of Alternatives

Resource and Indicator	Alternative 1 (Proposed Action)	Alternative 2 (No Action)	Alternative 3	Alternative 4	Alternative 5
Visual Resources: Whether or not the Visual Quality Objectives of retention, partial retention, modification, and	The proposed management activities to restore the vegetative mosaic within the Rim Fire Perimeter are compatible with the interim rehabilitation VQO. In the long-term the VQOs of retention, partial retention,	The scenic attractiveness component of the landscape character may change if the vegetative composition would be dominated by shrub species. A landscape dominated by the shrub component would be outside of the historical	Same as Alternative 1.	Same as Alternative 1 in areas that would be planted. The portions that would be unplanted would be similar to Alternative 2.	Same as Alternative 1.

Resource and Indicator	Alternative 1 (Proposed Action)	Alternative 2 (No Action)	Alternative 3	Alternative 4	Alternative 5
rehabilitation would be achieved in the project area.	modification could be achieved.	range of variation for vegetation. It may take decades to meet the desired landscape character and visual quality objectives for the project area under this alternative. The following Forest-wide direction would not be implemented: Visual Resource Improvement-Activities carried out on visual rehabilitation to restore facilities, lands, and resources to the visual quality objectives adopted in approved management plans.			
Visual Resources: Degree of Natural Appearance	In the long-term implementation of the activities would appear natural eventually meet the forest plan VQOs.	Landscape characteristics would not appear natural in the long-term since a shrub dominated landscape would be outside the historical range of variability for vegetation.	Alternative 3 would result in more natural appearing landscape characteristics than Alternative 1 due to the variable density planting pattern. As the stands mature and reach 20 years or older they would appear natural to forest visitors in all distance zones. Alternative 3 strategic fire management fuel break design would make ridge tops with the fuelbreaks appear less natural than in the other action Alternatives. The increased mortality would decrease the geometry of the planting patterns in the deer habitat enhancement areas.	Alternative 4 would result in natural appearing plantations applying the founder stand concept. However the majority of the landscape falls outside of the regeneration areas and would not appear natural in the long-term since a shrub dominated landscape would be outside the historic range of variation for vegetation	Alternative 5 includes planting the most conifer seedlings of all action alternatives. Long-term effects would result in the most contiguous forested canopy. New plantations would be thinned creating a more natural appearing stands viewed from all distance zones. Planting for fuelbreaks on primary ridges within SFMA wouldn't occur. These rRidge tops would be planted without consideration for fuelbreaks resulting in more natural appearing ridge tops than the other action alternatives prior to thinning around age 7. Thinning for fuelbreaks at age 7 would result in ridge tops that appear less natural than the surrounding landscape.

References

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