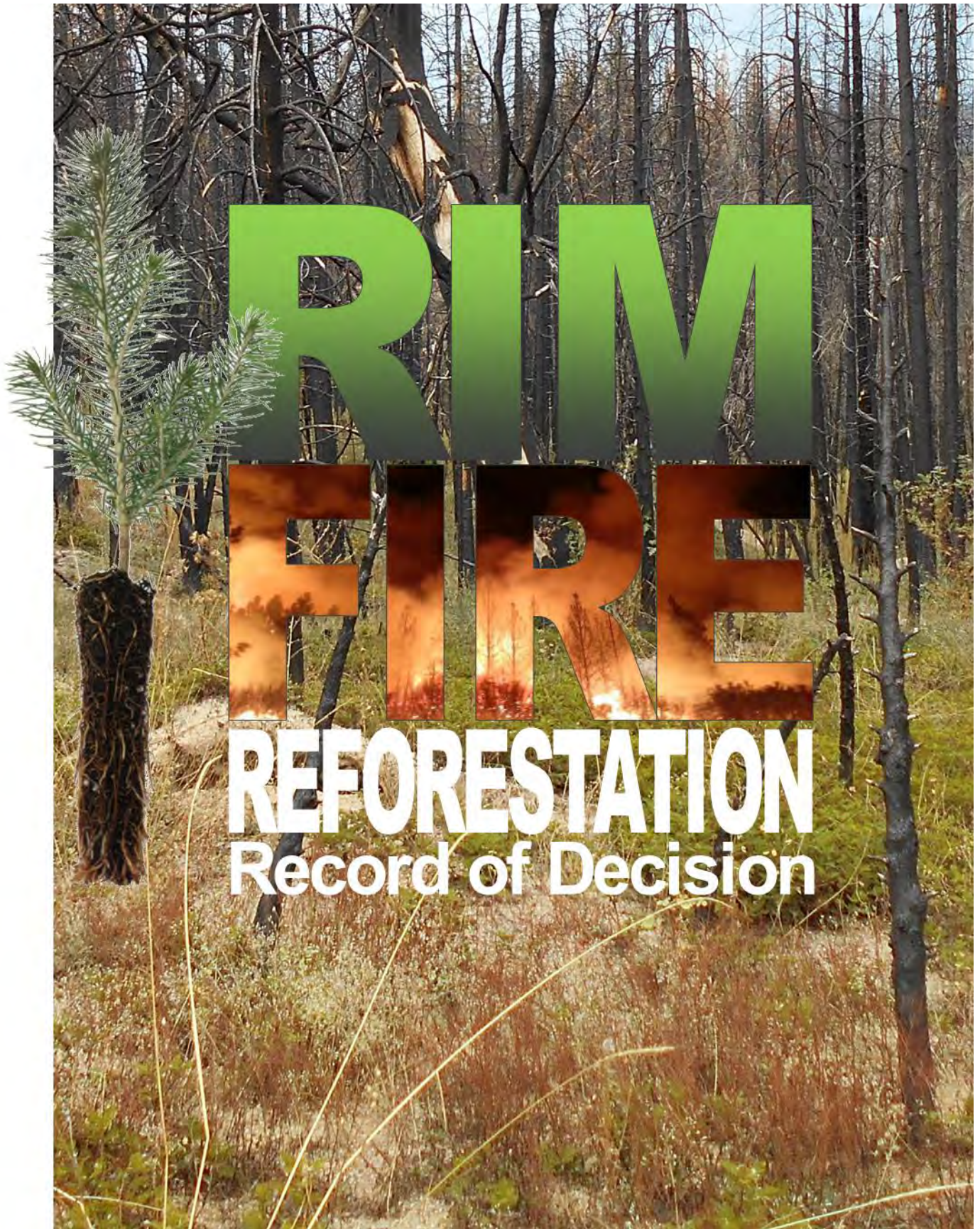




United States Department of Agriculture



Forest Service

Stanislaus National Forest

R5-MB-279

August 2016



# Rim Fire Reforestation (45612)

## Record of Decision

### Stanislaus National Forest

**Lead Agency:** USDA Forest Service

**Cooperating Agencies:** None

**Responsible Official:** Jeanne M. Higgins, Forest Supervisor  
Stanislaus National Forest  
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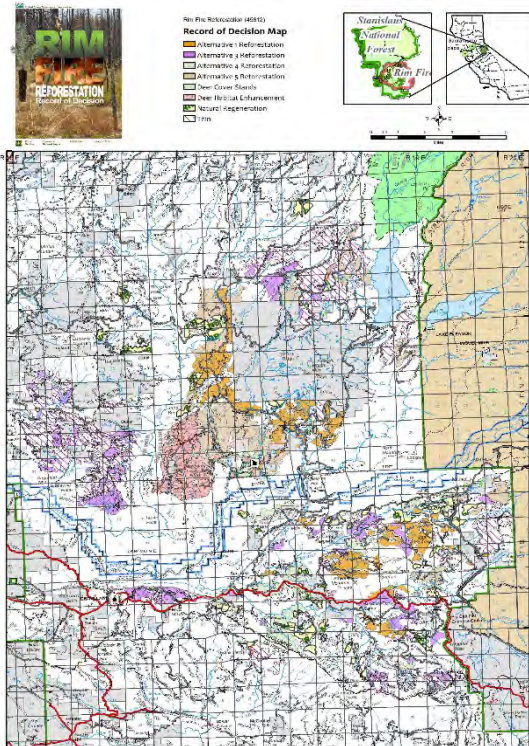
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**Abstract:** An Environmental Impact Statement (EIS) that describes a proposal by the Stanislaus National Forest for about 48,000 acres of treatments within the 2013 Rim Fire is available for public review at the Forest Headquarters; 19777 Greenley Road; Sonora, CA 95370. The EIS discloses the direct, indirect and cumulative environmental effects that would result from the proposed action, a no action alternative and three additional action alternatives. This Record of Decision (ROD) documents the Responsible Official's decision pertaining to the alternatives identified in the EIS. The treatments approved on National Forest System lands within Mariposa and Tuolumne Counties in California include: deer habitat enhancement; natural regeneration; noxious weed eradication; reforestation and, thin existing plantations.





**Front Cover Photo:** the ROD approves reforestation (under Alternative 1) for this 2013 Rim Fire high severity burn area located off Road 1S04 near Sawmill Mountain. The photo shows bear clover, grasses and forbs returning in the foreground and standing dead trees in the background. (Forest Service, October 28, 2015)



**Rear Cover Image:** the page size image of the Record of Decision Treatment Area Map, on the rear cover of this document, shows the general treatment areas included in this decision. Printer size (11"x17") and plotter size (36"x48") Record of Decision maps are available by request or online at: <http://www.fs.usda.gov/project/?project=45612>.

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# 1. Introduction

The Forest Service prepared an Environmental Impact Statement (EIS) for the Rim Fire Reforestation (Rim Reforestation) project in compliance with the National Environmental Policy Act (NEPA) and other relevant laws and regulations. The EIS discloses the direct, indirect and cumulative effects that would result from the alternatives. This Record of Decision (ROD) documents my decision pertaining to the alternatives identified in the EIS. Additional documentation, including more detailed analyses of project area resources, may be found in the project record located at the Forest Headquarters in Sonora, California. The EIS and the supporting project record are incorporated by reference into this document.

I and my staff along with local and statewide collaborators spent the last two years designing a project that helps restore the land impacted by the Rim Fire, the largest conifer forest fire in California history. This decision reflects the diverse views of our interested and involved publics while simultaneously providing for ecological integrity, public safety and socio-economic benefits.

The path to reaching this decision was not an easy one, and I found no simple solution that can fully achieve all the goals that I, the Forest Service and members of the public have for the Rim Fire area. In some instances fuels reduction and site preparation goals are in tension with some views of environmental protection goals; in other instances socio-economic goals are in direct tension with public safety concerns; and, in other instances the needs of one wildlife species are in tension with the needs of another. Recognizing that no perfect decision exists, I did my best to balance all these important goals, with the intent of providing a decision that best serves the public interest.

As discussed in more detail in this ROD and in the lengthy EIS that supports this decision, my main goal for this project, is to “create a fire resilient mixed conifer forest that contributes to an ecologically healthy and resilient landscape rich in biodiversity,” which includes all 5 elements from the Purpose and Need (EIS, p. 7-12): 1) return mixed conifer forest to the landscape; 2) restore old forest for wildlife habitat and connectivity; 3) reduce fuels for future forest resiliency; 4) enhance deer habitat; and, 5) eradicate noxious weeds. I believe that my decision described in the following pages can effectively achieve all these goals.

## 1.01 BACKGROUND

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The Rim Reforestation project is located within the Rim Fire perimeter within portions of the Mi-Wok and Groveland Ranger Districts on the Stanislaus National Forest (T3N-T2S, R16E-R19E; MDBM). The project area includes National Forest System (NFS) lands within the fire, but does not include Wilderness or any private, state or other federal lands (Figure 1.01-1). The Rim Fire started on August 17, 2013 in a remote area of the Stanislaus National Forest near the confluence of the Clavey and Tuolumne Rivers about 20 miles east of Sonora, CA. Exhibiting high to extreme fire behavior with multiple flaming fronts, the fire made runs of 30,000 to 50,000 acres on two consecutive days. It quickly spread up the Tuolumne River watershed and its main tributaries: Clavey River, North Fork Tuolumne, Middle Fork Tuolumne, South Fork Tuolumne and Cherry Creek. It also overlapped into the North Fork Merced River. Overall, 98% of the Rim Fire occurred in the Tuolumne River watershed. Over several weeks it burned 257,314 acres, or 400 square miles including 154,530 acres of NFS lands. The fire also burned within Yosemite National Park (78,895 acres), Sierra Pacific Industries private timberland (16,035 acres), other private land (7,725 acres) and Bureau of Land Management (BLM) land (129 acres).<sup>1</sup>

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<sup>1</sup> All acreage figures are based on fire perimeter and land ownership information as of October 24, 2013.

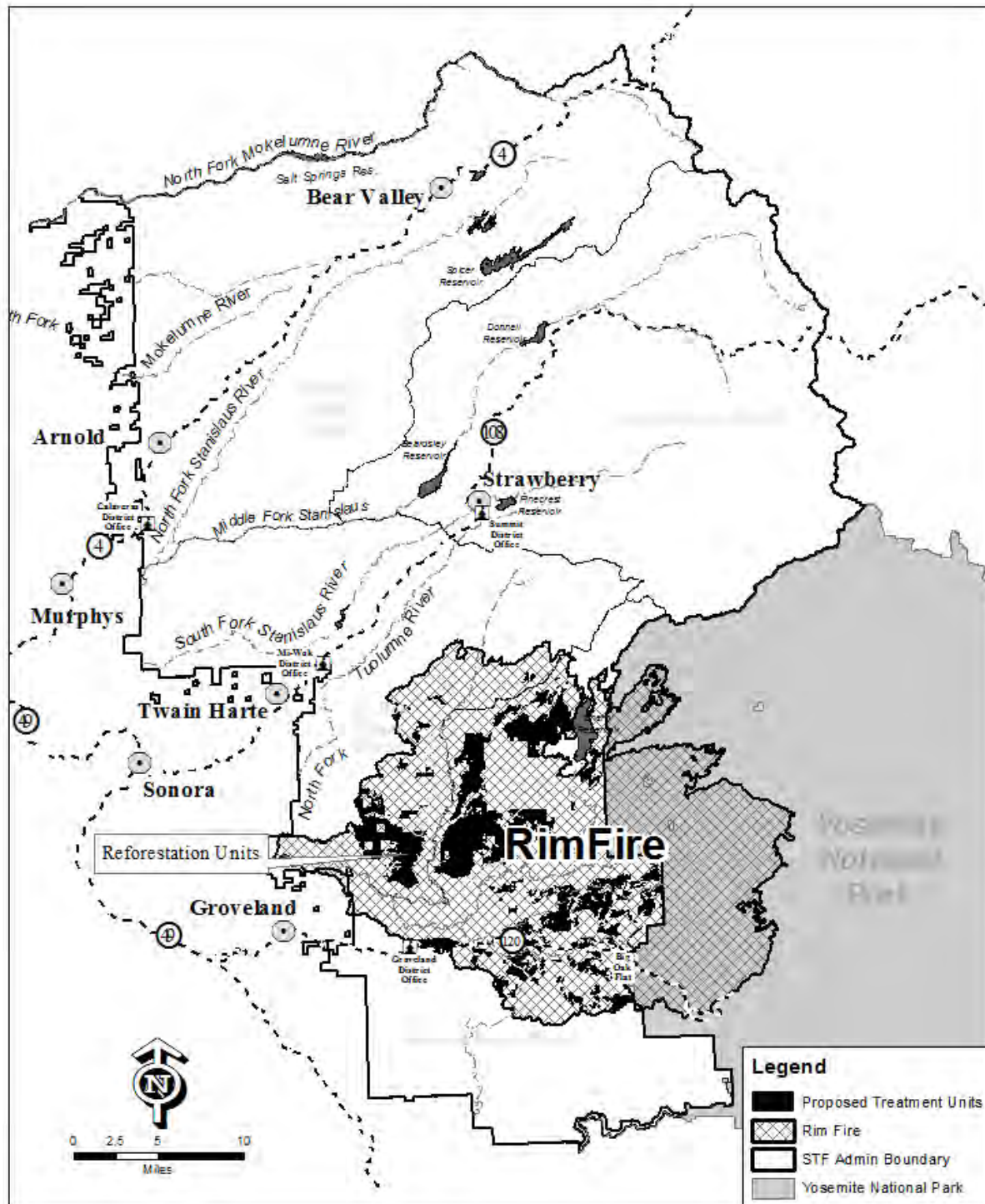


Figure 1.01-1 Rim Fire Reforestation Location Map

The Rim Fire is the third largest wildfire in California history and the largest wildfire in the recorded history of the Sierra Nevada. It is also California's largest forest fire, burning across a largely conifer dominated forest landscape. The two larger fires were wind driven brush fires near San Diego in 2003 and in Lassen County in 2012.

The Rim Fire burned between 1,000 to 7,000 feet in elevation in a mixed severity mosaic pattern through all its principal vegetative communities. It impacted a range of California Wildlife Habitat Relationship (CWHR) vegetation types including grass-oak woodlands, chaparral, lower westside ponderosa pine, mixed conifer forests and high elevation true fir and lodgepole pine. Figure 1.01-2 shows an example of the mosaic burn pattern created by the fire. Reforestation is planned within and adjacent to areas salvage logged or treated for fuels under the Rim Recovery project, within burned 15-to 40-year-old existing plantations and large areas where conifer stocking is low and the site is capable, available and suitable for conifer growth. The mosaic pattern of the fire resulted in areas of high, moderate and low vegetation burn severity, and reforestation focuses on areas where few if any conifers survived to provide forest cover to meet desired future conditions.



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Figure 1.01-2 Mosaic of Vegetation Burn Severity with Different Reforestation Needs

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Wildfires that are unusually large, complex, and resistant to control, such as the Rim Fire, are described as extreme fires or “mega-fires” (Long 2014). In the Research Brief: Impacts of Extreme Fire in the Sierra Nevada, Long (2014) describes the impacts of extreme fires as:

Extreme fires like the Rim fire become giant by spreading rapidly under extreme weather conditions. This extreme fire behavior kills large swaths of trees, including large, old-growth trees that historically survived many lower intensity fires. The resulting patches of dead trees and severely burned soils are larger than what these landscapes typically experienced in recent centuries. Patches of fire-killed trees can become short-term haven for many wildlife species, including deer, woodpeckers and other birds, as well as fire-following grasses, forbs, shrubs, and young trees. However, gains for fire-following species may come at the expense of many old-forest species, such as California spotted owls that have to find new nest sites. Patches of dead trees may be so large that it takes long periods for seeds of coniferous trees to reach the expanses of burned areas and reestablish forests. During that period, shrubs may become dominant, and high-intensity fires may recur before trees have grown enough to survive fire. Such repeated fires may be more likely in areas that have flammable shrubs and heavy fuels resulting from fire-killed trees. As a result, extreme fires can transform large areas of forest into fields of shrubs and small trees that persist for decades or even centuries. Within large patches of dead trees, reestablishing mature forest, understory diversity, and habitat structures within decades may be infeasible.

Another recent publication (Jones et al. 2016) studied the effects of a mega-fire on spotted owls in a long-term demographic study that burned at high severity across 49,000 acres. The researchers found spotted owl site (i.e., territory) extirpation in areas of high severity fire (more than 75% canopy mortality) was seven times higher after the fire than before.

It is important to note that of the 257,314 acres burned in the Rim Fire, about 90,000 acres (35%) experienced high-severity fire based on estimates from the Rapid Assessment of Vegetation Conditions after Wildfire (RAVG) program<sup>2</sup> (EIS, p. 1, 10). The sheer extent of the Rim Fire and proportion of high-severity fire is well outside the natural range of variability; I find this especially concerning because it is greater than 2 to 4 times the estimated historic mean of 5 to 15% (Collins and Stephens 2010; Miller et al. 2012; Mallek et al. 2013). While an uncharacteristically large proportion of the landscape experienced high-severity fire, I also recognize the value of severely burned post-fire habitat (DellaSala et al. 2014 and Swanson et al. 2011). Only a portion (27,979 acres) of the severely burned acres within the entire Rim Fire are proposed for reforestation, leaving the vast majority to recover through natural processes. I focused activities on those areas where it is most essential to have active management to promote ecological restoration and resiliency, the massive acreage of high-severity fire that falls outside the range of natural variation.

### ***Inventoried Roadless Area Unit Boundary Adjustments***

Based on mapping information obtained after publication of the EIS and Draft ROD, the Forest Service discovered portions of six reforestation units (about 22 acres) and five thin existing plantation units (about 13 acres) overlapped into the Tuolumne River Inventoried Roadless Area (IRA). Table 1.01-1 displays the IRA unit boundary adjustments based on the initial EIS Errata and the Draft ROD Errata both published on May 20, 2016 (project record).

Table 1.01-1 Inventoried Roadless Area Unit Boundary Adjustments

Unit	ROD	Treatment	EIS <sup>1</sup> (acres)	Drop IRA (acres)	EIS/ROD <sup>2</sup> (acres)	Drop (%)
I122C	Alternative 3	Reforestation	13.256	8.553	4.703	64.52%
I122E	Alternative 3	Reforestation	24.031	9.777	14.254	40.68%
I123B	Alternative 3	Reforestation	34.901	0.002	34.899	0.01%
I133	Alternative 3	Reforestation	19.050	3.281	15.769	17.22%
I134B	Alternative 3	Reforestation	22.017	0.392	21.625	1.78%
I138	Alternative 3	Reforestation	20.866	0.264	20.602	1.27%
		<b>subtotals</b>	<b>134.121</b>	<b>22.269</b>	<b>111.852</b>	<b>16.60%</b>
I121D	Alternative 1	Thin Existing Plantation	32.105	2.445	29.660	7.62%
I122A	Alternative 1	Thin Existing Plantation	10.967	8.829	2.138	80.51%
I122B	Alternative 1	Thin Existing Plantation	6.310	0.334	5.976	5.29%
I134A	Alternative 1	Thin Existing Plantation	6.450	1.162	5.288	18.02%
I135A	Alternative 1	Thin Existing Plantation	10.964	0.910	10.054	8.30%
		<b>subtotals</b>	<b>66.796</b>	<b>13.680</b>	<b>53.116</b>	<b>20.48%</b>
		<b>Totals</b>	<b>200.917</b>	<b>35.949</b>	<b>164.968</b>	<b>17.89%</b>

EIS=Environmental Impact Statement; IRA=Inventoried Roadless Area; ROD=Record of Decision

<sup>1</sup> As published in the EIS prior to the EIS Errata (May 20, 2016).

<sup>2</sup> Adjusted acres based on the EIS Errata (May 20, 2016) and Draft ROD Errata (May 20, 2016).

<sup>2</sup> RAVG data were used because the Regional Forester issued a memo on February 5, 2015 (USDA 2015g) directing all Pacific Southwest Region Forests to use RAVG data instead of data produced by the Monitoring Trends in Burn Severity (MTBS) program. Refer to Appendix B of the Vegetation Report for further explanation.

## 2. Decision

Based on my review of the Rim Reforestation EIS and its supporting documentation, along with discussions with agency staff and stakeholders, I decided to select a combination of reforestation treatments from each of the four action alternatives (EIS, p. 24-39). My decision, based on community input and referred to as the “Community Alternative” is to select Alternative 1 (Proposed Action) for deer habitat enhancement, natural regeneration, noxious weed eradication and, thin existing plantations; and, a combination of reforestation treatments from Alternatives 1, 3, 4 and 5. This modified decision falls within my authority (36 CFR 220.4(c)) as described in the EIS (p. 15, item 3) which states I may select one of the alternatives after modifying the alternative with additional mitigating measures or combination of activities from other alternatives. My decision is also within the range of alternatives considered in detail since the EIS (p. 67-460) fully describes the effects of each of these reforestation modifications under the action alternatives. Table B.01-1 (Appendix B) lists the reforestation treatment units with the following Reforestation Modifications (Section 2.01) included in this decision.

### **MAP PACKAGE**

A page size image of the Record of Decision Treatment Area Map on the rear cover of this document shows the general treatment areas included in this decision. A printer size (11”x17”) Record of Decision Treatment Area Map and a plotter size (36”x48”) Record of Decision Treatment Units Map showing the detailed actions included in this decision are available by request or online at: <http://www.fs.usda.gov/project/?project=45612>.

## **2.01 REFORESTATION MODIFICATIONS**

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The Community Alternative includes a combination of reforestation treatments described and displayed under Alternatives 1, 3, 4 and 5 (EIS, p. 21-23, 24-30, 33-34, 36-39). Table 2.01-1 displays that each of the alternative treatments for reforestation including: Individuals, Clumps and Openings (ICO); Variable Density; Founder Stands<sup>3</sup>; and, 7 by 14 foot spacing will be implemented on roughly the same amount (about 25%) of area approved for reforestation. My decision on how to reforest each unit is based on the following considerations along with meeting long-term desired conditions and the overall project objective to: *create a fire resilient mixed conifer forest that contributes to an ecologically healthy and resilient landscape rich in biodiversity* (EIS, p. 7-12).

### ***Alternative 1 (ICO)***

- High growth potential sites
- Adjacent to Sierra Pacific Industries (private land neighbor)
- Old Forest Emphasis Areas where large trees and dense canopy are desired as soon as possible

### ***Alternative 3 (Variable Density)***

- Suitable for deep tilling as much as possible for the best chance of seedling survival
- High potential for natural regeneration with surrounding live conifer seed sources
- No herbicides upstream of Camp Tawonga (private land neighbor)
- Areas with less than 40% bearclover cover (responds to public input)
- Create logical “No Herbicide” blocks with other Alternative 3 units

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<sup>3</sup> Similar to founder stands, reforestation for deer habitat enhancement plants conifers on 646 (24.5%) acres of deer cover stands within 2,636 acres of deer reforestation areas.

**Alternative 4 (Founder Stands)**

- Ridgetops where open canopy forests historically exist with potential top down seed dispersal
- Adjacent to deer habitat enhancement units (Deer Cover Stands) with similar planting prescriptions (20-25% of each unit) and similar prescribed fire treatments
- Steep areas with difficult access that would limit long-term maintenance

**Alternative 5 (7'x14')**

- High growth potential sites
- Adjacent to Sierra Pacific Industries (private land neighbor)
- Old Forest Emphasis Areas where large trees and dense canopy are desired as soon as possible
- Meets San Francisco Public Utility Commission (SFPUC) municipal watershed concerns for rapid successful reforestation

Table 2.01-1 Community Alternative: Conifer Planting Prescriptions by Alternative Selected

Conifer Planting Prescriptions (acres)	Alternative 1 (Proposed Action)	Alternative 3	Alternative 4	Alternative 5	Decision Totals	%
Plant Conifers (ICO)	6,236	NA	NA	NA	6,236	26.08
Plant Conifers (Variable Density)	NA	5,150	NA	NA	5,150	21.53
Deer Cover Stand 25%; Founder Stand 20% <sup>1</sup>	2,636	NA	3,337	NA	5,973	24.98
Plant Conifers (7'x14')	NA	NA	NA	6,556	6,556	27.41
<b>Totals</b>	<b>8,872</b>	<b>5,150</b>	<b>3,337</b>	<b>6,556</b>	<b>23,915</b>	<b>100.00</b>

ICO=Individuals, Clumps and Openings

<sup>1</sup> Base acres shown for comparison purposes include conifer planting and prescribed fire in surrounding areas: reforestation in deer habitat plants conifers on 646 (24.5%) acres of deer cover stands within 2,636 acres of deer reforestation areas; and, reforestation in Alternative 4 plants conifers on 669 (20%) acres of founder stands within 3,337 acres of founder stand areas.

## 2.02 DECISION COMPONENTS AND APPROVED ACTIONS

I selected the Community Alternative because it meets the elements of the Purpose and Need (EIS, p. 7-12), while responding to public input and addressing significant issues related to herbicides and reforestation methods (EIS, p. 17-18). I will further explain the reasons for my decision in Section 3 (Reasons for the Decision), but first I would like to describe my decision according to the following decision components and approved actions.

The EIS (p. 7-12) describes five needs based on Forest Plan Direction, 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 Desired Future Conditions. The needs include: 1) Return Mixed Conifer Forest to the Landscape; 2) Restore Old Forest for Wildlife Habitat and Connectivity; 3) Reduce Fuels for Future Fire Resiliency; 4) Enhance Deer Habitat; and 5) Eradicate Noxious Weeds. The Community Alternative meets all of these objectives.

The Community Alternative includes the approved actions framed within the following “Decision Components” which are described in detail as activity groups in the EIS (p. 12-14, 20-23). Each decision component describes how the Community Alternative compares to the original Alternatives described in the EIS (p. 24-39). The approved actions listed below generally track with the Primary Objectives, but in some instances, the actions may achieve multiple objectives (e.g., prescribed fire both reduces fuels and enhances deer habitat).

Table 2.02-1 displays the decision components and treatments approved by alternative selected under the Community Alternative.<sup>4</sup>

Table 2.02-1 Community Alternative: Decision Components and Treatments by Alternative Selected

Decision Components and Treatments (acres)	Alternative 1 (Proposed Action)	Alternative 3	Alternative 4	Alternative 5	Decision Totals
<b>Deer Habitat Enhancement<sup>1</sup> (total)</b>	<b>3,833</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>3,833</b>
Reforestation in Deer Habitat	2,636	NA	NA	NA	2,636
Site Preparation	2,636	NA	NA	NA	2,636
Feller Buncher	39	NA	NA	NA	39
Machine Pile and Burn	25	NA	NA	NA	25
Manually Apply Herbicides (Glyphosate)	646	NA	NA	NA	646
Plant Conifers (Deer Cover Stand 25%)	646	NA	NA	NA	646
Release (includes Glyphosate)	646	NA	NA	NA	646
Prescribed Fire (deer habitat enhancement)	3,833	NA	NA	NA	3,833
Natural Regeneration in Deer Habitat	33	NA	NA	NA	33
Thin Existing Plantations for Deer Habitat	1,164	NA	NA	NA	1,164
Feller Buncher	1,153	NA	NA	NA	1,153
Hand Cut; Hand Pile and Burn; Jackpot Burn	22	NA	NA	NA	22
<b>Natural Regeneration</b>	<b>4,031</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>4,031</b>
<b>Noxious Weed Eradication<sup>2</sup></b>	<b>5,714</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>5,714</b>
<b>Reforestation<sup>3</sup> (total)</b>	<b>6,236</b>	<b>5,150</b>	<b>3,337</b>	<b>6,556</b>	<b>21,279</b>
Site Preparation	6,236	5,150	933	6,556	18,875
Deep Till and Forest Cultivate (subsoil)	1,750	1,531	NA	2,132	5,413
Feller Buncher	1,067	1,743	276	721	3,807
Hand Cut; Hand Pile and Burn; Jackpot Burn	85	230	265	194	774
Machine Pile and Burn	746	541	259	617	2,163
Manually Apply Herbicides (Glyphosate)	4,486	NA	933	4,424	9,843
Mastication (shred)	108	1,047	0	734	1,889
Plant Conifers (ICO)	6,236	NA	NA	NA	6,236
Plant Conifers (Variable Density)	NA	5,150	NA	NA	5,150
Plant Conifers (Founder Stand 20%)	NA	NA	669	NA	669
Plant Conifers (7'x14')	NA	NA	NA	6,556	6,556
Release (includes Glyphosate)	6,236	NA	933	6,556	13,725
Release (no herbicides)	NA	5,150	NA	NA	5,150
Prescribed Fire (young plantations)	6,236	5,150	NA	NA	11,386
Prescribed Fire (surrounding Founder Stands)	NA	NA	2,404	NA	2,404
Thin New Plantations	NA	NA	NA	6,556	6,556
<b>Thin Existing Plantations</b>	<b>12,756</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>12,756</b>
<b>Management Requirements (total treatments)<sup>2</sup></b>	<b>32,570</b>	<b>5,150</b>	<b>3,337</b>	<b>6,556</b>	<b>47,613</b>

<sup>1</sup> Deer habitat enhancement treatments overlap and are not additive.

<sup>2</sup> Noxious Weed Eradication and Management Requirements overlap other treatments and are not additive.

<sup>3</sup> Reforestation treatments overlap and are not additive (refer to EIS (p. 26-30, 34) for Strategic Fire Management Areas).

### ***Deer Habitat Enhancement***

The Community Alternative approves 3,833 acres (Table 2.02-1) of Deer Habitat Enhancement under Alternative 1 (EIS, p. 20-21, 24). Oaks are favored throughout all deer habitat units.

### **REFORESTATION IN DEER HABITAT**

The Community Alternative approves site preparation, planting, release, prescribed burning and adaptive management in order to promote successful reforestation in deer habitat. This approach is similar to the founder stand concept described under Alternative 4. Similarities include planting groups of trees on only about 20% of each unit and the early introduction of prescribed fire in

<sup>4</sup> Refer to EIS Errata (June 30, 2016) and Draft ROD Errata (May 20, 2016)

adjacent areas. Hiding cover will be planted in discrete stands up to 25 acres in size using a cluster planting design and thermal cover will be planted in discrete stands up to 5 acres in size with trees spaced 10 to 14 feet apart. More open stand conditions increase the effectiveness of hiding cover areas, and dense canopy cover provides thermal cover to protect deer from inclement weather. Both hiding and thermal cover stands will be strategically placed in close proximity to high quality foraging habitat (oak, grass and shrubs).

#### **THIN FOR HIDING AND THERMAL COVER STRUCTURE WITHIN EXISTING PLANTATIONS IN DEER HABITAT**

Within existing plantations, prescribed fire and thinning will be used to create openings around established oaks or groups of oaks to allow these trees to flourish. Hiding cover will be created by clumping conifers and thermal cover will be created by thinning individual conifer trees, which will create the desired structure for deer habitat.

#### ***Natural Regeneration***

The Community Alternative approves 4,031 acres (Table 2.02-1) of Natural Regeneration under Alternative 1 (EIS, p. 21, 24; Table E.02-1, p. 583-584). In areas with high potential for natural seeding from live green trees, the Forest will monitor for five years post-fire to determine if sufficient natural regeneration occurs (EIS, p. 21). If seedling density, species and dispersal is similar to the Desired Future Condition, the area will be considered naturally regenerated. If this does not occur within 5 years post-fire, then site preparation, planting and release treatments will be completed as necessary. In natural regeneration units, fuel reduction treatments will be implemented where fuels exceed the fire and fuels management requirements. Release treatments may be used with natural regeneration if vegetation competition is prohibiting growth and impacting seedling survival.

#### ***Noxious Weed Eradication***

The Community Alternative approves 5,714 acres (Table 2.02-1) of Noxious Weed Eradication under Alternative 1 (EIS, p. 21, 24; Map 4). This primarily involves utilizing an Integrated Pest Management (IPM) approach as the adaptive management strategy for weed eradication. Methods for removing noxious weeds include burning, targeted grazing, grubbing, herbicides and hand pulling. On the Jawbone Lava Flat area, weed eradication will involve prescribed fire, targeted grazing and/or directed herbicide applications until noxious weeds are eliminated. Where non-herbicide treatments such as hand pulling or grubbing can be effective (i.e., bull thistle in meadows) these are the preferred treatment methods. Where herbicides are required to eradicate weeds, backpack sprayers will be used for direct application with Environmental Protection Agency (EPA) approved herbicides (glyphosate, clopyralid, aminopyralid and clethodim) to target noxious weeds and invasive non-native pest plants in and adjacent to units. Treatments will include yearly applications to prevent seed production and eventually eliminate the weed seed banks.

#### ***Reforestation***

The Community Alternative approves 21,279 acres (Table 2.02-1) of Reforestation under a combination of Alternatives 1, 3, 4 and 5 (EIS, p. 21-30, 33-34, 36-39). Reforestation treatments are nearly equally divided, with Alternatives 1, 3, 4 and 5 being applied to about 25% of the reforestation acres (Table 2.01-1). Reforestation of the treated acres will use adaptive management tools to reduce fuels, prepare the site for planting, plant conifers, release them from competition and re-introduce prescribed fire into the young plantations. Site preparation, conifer planting, release and prescribed fire will occur as described in the EIS (p. 24-39) for each alternative.

#### **SITE PREPARATION**

Site preparation treatments include the same feller buncher, hand cut, hand pile and burn, machine pile and burn, mastication and prescribed fire treatments as described in the EIS (p. 12-14, 20-23) for each alternative. Deep till and forest cultivate (subsoil) treatments will not occur in Alternative 4 units



because of the small size of the planting areas, but will occur where appropriate in units assigned to Alternatives 1, 3 and 5. Herbicides (glyphosate) could be manually applied for site preparation in units assigned to Alternatives 1, 4 and 5, but not in units assigned to Alternative 3.

### **PLANT CONIFERS**

Table 2.01-1 displays conifer planting prescriptions by alternative selected under the Community Alternative. Alternative 1 units implement an ICO planting pattern with variable composition and density based on landscape position, Strategic Fire Management Areas (SFMA), fuelbreaks and desired future conditions (Old Forest Emphasis or Open Canopy Mosaic). Alternative 3 units implement variable density planting. Alternative 4 units implement a founder stand approach by planting only about 20% of each unit in 2 to 10 acre areas with 20 to 40 variably spaced clusters per acre. Alternative 5 units implement planting on 7 by 14-foot spacing regardless of landscape location and SFMA. The EIS (p. 24-38) provides additional details about planting design.

**Strategic Fire Management Areas:** Each alternative treats SFMAs differently and the reforestation activities will vary by alternative selected as described in the EIS (p. 24-38).

**Oak Buffers:** Oak buffers are the same for Alternatives 1, 3 and 5. Conifer planting will be offset 25 feet from the bole of remnant oaks or regenerating oak aggregates regardless of topographic position at up to 5 oaks per acre. Herbicides will not be applied within 20 feet of oaks. Because Alternative 4 only plants 20% of each unit, oaks will be more easily avoided to ensure remnant and regenerating oaks are retained and contribute to diversity in these units.

**Meadows:** Meadow buffers and specific planting patterns and densities are prescribed for Alternatives 1 and 3. No conifers will be planted within 25 feet of a meadow edge and a minimal number of small groups will be planted 25 to 100-feet from of the meadow edge. Alternative 5 only prescribes a no-plant buffer of 25 feet from meadow edges. Meadow buffers do not apply to Alternative 4 because only 20% of each unit will be planted and meadows will be easily avoided.

### **RELEASE**

Release improves the survival and growth rates of conifer seedlings by reducing competition for soil moisture, light and nutrients. The adaptive management trigger for release is when more than 20% of the land is vegetated with grass or shrubs. For Alternatives 1, 4 and 5 herbicides (glyphosate) will be manually applied to competing vegetation. For Alternative 4, release applications will include the planted areas and a buffer of 50 feet around Founder Stands. Because no herbicides are prescribed in Alternative 3, release will be accomplished by manually grubbing vegetation in a five foot radius circle around each seedling up to twice a year and over several consecutive years where necessary for seedling survival and growth.

### **PRESCRIBED FIRE**

Alternatives 1 and 3 introduce prescribed fire into young plantations within the first 10 years. Alternative 4 treats about half of the areas adjacent to the reforested polygons with prescribed fire within one fire return interval (about 10 years). Fire is returned to the remaining areas in the second decade and is then repeated over time. The young plantations are not burned through during this implementation. Alternative 5 does not include prescribed fire in new plantations.

### **THIN NEW PLANTATIONS**

Alternative 5 is the only alternative that thins new plantations where desired ICO or fuelbreak structure is not created through oak buffers, riparian species, seedling mortality and other factors. In units assigned to Alternative 5, thinning could be initiated as early as 7 years post-planting, once the trees have expressed dominance and site occupancy.

### ***Thin Existing Plantations***

The Community Alternative approves 12,756 acres (Table 2.02-1) of Thin Existing Plantations under Alternative 1 (EIS, p. 23, 30). Thinning for ICO structure within existing plantations will involve treatment either by feller buncher, masticator or hand cutting. Prescribed fire (understory burning) will be done before mechanical activities. Thinning treatments will create openings around oaks and other hardwoods to allow these species to flourish and to create open areas within the ICO structure. Plantation thinning will remove all conifers except healthy sugar pine within 25 feet of meadows, and utilize a similar prescription as described under planting on the remaining 75 feet from the meadow's edge. Conifers within 20 feet of riparian obligate vegetation along perennial and intermittent streams will be removed, with the exception of sugar pine without evident blister rust. Conifers less than 16 inches diameter breast height (dbh) and within 12 feet of an Emergency Travel Route will also be removed. Atop primary ridges and fuelbreaks, conifers will be thinned to a 30-foot spacing and provide a 30-foot buffer around oaks. Where feasible, but no closer than one mile apart, helispots are incorporated into thinning design by expanding upon existing openings.

### ***Management Requirements***

Appendix A lists the Management Requirements guiding the implementation of the Community Alternative as they apply to each decision component and each reforestation modification. These requirements are designed to ensure compliance with the Forest Plan and to minimize or avoid adverse impacts.

## **3. Reasons for the Decision**

I will explain the reasons for my decision in this section. Overall, I believe that my decision meets the purpose and need, addresses significant issues, responds to project input from stakeholders and provides a means of improving resource conditions while simultaneously providing for other important objectives.

I considered five important factors prior to reaching my decision. First, my primary considerations are meeting the overall project objective and moving resource conditions toward desired conditions while providing resource and public benefits (Section 3.01). Second, I made every effort to fully achieve all the components identified in the Purpose and Need (Section 3.02). Third, I relied heavily on the results of collaborative community discussions, dialog and public input during scoping on the proposed action (Section 3.03). Fourth, I fully considered all comments on the DEIS (Section 3.04). Fifth, I considered and included a wide range of detailed requirements minimizing effects while still implementing the project (Section 3.05). In summary, I believe the Community Alternative was crafted to accomplish all five factors.

### **3.01 OVERARCHING CONSIDERATIONS**

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As discussed in more detail in this ROD and in the EIS (p. 7-12), the overall project objective is to: ***create a fire resilient mixed conifer forest that contributes to an ecologically healthy and resilient landscape rich in biodiversity.*** In this section, I will describe how my decision to select the Community Alternative meets that overall project objective and moves resource conditions toward desired conditions in order to provide resource and public benefits. In this section, I also identify the consequences of not implementing the project (no action) and the consequences of delayed implementation.

## Resource and Public Benefits

The Rim Fire significantly impacted resource conditions, including wildlife habitat, watershed health and forest structure. The Forest Service has a responsibility to meet objectives for resource conditions, thus my foremost consideration is to ensure that my decision will accomplish these resource objectives.

Due to the severity of the Rim Fire, existing conditions do not meet resource objectives. Several sensitive wildlife species lost critical habitat due to extensive amounts of severely burned mature trees. In addition, few mature live trees are left to provide a seed source for natural conifer regeneration within large portions of the fire area. My decision to reforest is intended to provide a mechanism for establishing a diverse healthy forest suitable for wildlife habitat. My decision includes shaded fuelbreaks along key roads and strategic locations, large blocks of forest with lower tree densities adjacent to critical areas, heterogeneous forest structure throughout the area allowing prescribed and natural fire within fuelbreaks and strategic fire management areas. In doing so, my decision will provide areas where wildfire can be slowed or stopped and provide safe locations for firefighters during wildfires and strategic locations for conducting prescribed burning.

In selecting the Community Alternative, I recognized an opportunity to craft an alternative that includes a combination of the four reforestation methods in a way that best meets the primary objective to ***create a fire resilient mixed conifer forest that contributes to an ecologically healthy and resilient landscape rich in biodiversity***. I asked forest staff to identify reforestation treatments based on designs described in Alternatives 1, 3, 4 and 5, and on other factors that deserve consideration such as: resource needs; desired future conditions; potential treatment effectiveness; landscape position; private inholdings; potential natural regeneration; and, implementation logistics. For example, units with the Old Forest Mosaic desired condition were more likely to be assigned to Alternatives 1 and 5 because the analysis indicates that these alternatives are likely to result in Old Forest conditions more rapidly than Alternatives 3 or 4. Because I believe the Alternative 1 proposals for deer habitat enhancement, noxious weed eradication, natural regeneration and thin existing plantations are likely to be successful in meeting objectives and because they were less controversial and debated, the Community Alternative retains Alternative 1 prescriptions for those activities.

While most members of the public agree that this landscape should be reforested, few agree on how best to accomplish this work. Neither the community nor I found a simple solution for resolving this disagreement, but understanding the importance of listening to what others value, the community reached a compromise. As such, I did my best to accommodate the variety of public interests with this decision. In making this decision, it is my intent to simultaneously meet the project's purpose and need and provide a way to respond to the wide range of public input. I realize that my decision will not please every member of the public; however, I believe it strikes a reasonable balance that is responsive to the vast majority of public input I received, and is the best solution to achieve the multiple public benefits for which this project was designed.

Implementing the Community Alternative would accelerate the development of conifer forest in severely burned areas within the Rim Fire (EIS, p. 290). Currently, an excess of shrub and oak dominated early seral conditions exist within this area compared to historic estimates (EIS, p. 252). Implementing reforestation under Alternatives 1, 3, 4 and 5 on roughly an equal number of acres will promote a variety of planting densities and patterns across the Rim Fire. This will increase landscape heterogeneity and accelerate development of conifer forest in areas that would otherwise remain dominated by shrubs and hardwoods in the long-term (EIS, p. 288-290). Fully implementing reforestation under the four action alternatives will still leave a substantial amount of early seral and complex early seral forest to regenerate naturally, especially considering that the acres planted using the founder stand concept will not plant 75 to 80% of the area (EIS, p. 36, 283, 290). As directed by the Forest Plan (USDA 2010, p. 11, 43), the Community Alternative would restore forest species

composition by promoting shade intolerant ponderosa pine and sugar pine as opposed to white fir and Douglas-fir (EIS, p. 290). This is especially important considering the very low levels of natural sugar pine regeneration in the project area. Sugar pine makes up only 1% of all natural conifer regeneration. Planting rust-resistant seedlings would increase its abundance and help address the decline of this species. Maintaining genetic diversity will ensure its long-term capacity to adapt and survive future natural disturbances and large scale threats to its sustainability (EIS, p. 264). Treatments are designed to help protect forest stands through the incorporation of fuelbreaks and emergency travel routes that aid in fire suppression effectiveness, reduce fireline intensity and increase the likelihood of tree survival (EIS, p. 125).

The Community Alternative will accelerate the restoration of old forest composition and structure providing critical habitat for sensitive wildlife species such as the California spotted owl, northern goshawk and fisher (EIS, p. 10, 378-379, 399, 420). These species were considered when determining the placement of reforestation units under Alternatives 1, 3, 4 and 5 ensuring the reestablishment of forest connectivity essential for wildlife dispersal, migration and use across the landscape. Reforestation in critical winter deer range will provide important hiding and thermal cover, maximizing the access to high quality foraging habitat (EIS, p. 455). Portions of Alternative 4 units and those areas that experienced moderate to high severity fire not proposed for reforestation would continue to provide benefits to species that utilize complex early seral forest and chaparral including two Management Indicator Species (MIS): black-backed woodpecker (EIS, p. 442-452, 650-653; MIS Report p. 15-18) and fox sparrow (EIS, p. 659; MIS Report p. 8-12).

The Community Alternative will create more forested acres with larger trees, resulting in greater timber yields within the next 50 to 60 years compared to no action (EIS, p. 290). Based on prescribed planting densities and expected seedling mortality rates, the majority of the project area will not reach density levels of concern until about the same time that trees begin reaching merchantable sizes (EIS, p. 267, 287-289). As a result, the likelihood of needing precommercial thinning is reduced and future management feasibility is increased by being able to recoup management costs through harvesting merchantable sized trees (EIS, p. 234-235, 289). Given that the Community Alternative will result in more forested acres with more large trees than Alternative 2 (No Action), it will have a greater present net benefit (PNB). All of the action alternatives are estimated to produce a greater PNB than Alternative 2 (EIS, p. 191). Similarly, all of the action alternatives would result in more jobs created than Alternative 2 (EIS, p. 191).

Aside from reforestation, the Community Alternative will also thin existing plantations that survived the Rim Fire and treat noxious weeds. Thinning existing plantations will reduce stand densities and increase the resiliency of the residual trees to wildfire, insects and diseases, and drought (EIS, p. 123, 265-266). Currently, an overabundance of closed canopy mid-seral conifer forest exists throughout the Rim Fire landscape compared to historic estimates (EIS, p. 252). Thinning these plantations would move many of them into an open canopy condition and accelerate development of large trees that are more characteristic of late-seral conditions (EIS, p. 265, 268-269). Noxious weed treatments will reduce the risk of spread of these invasive species from high to moderate (EIS, p. 132).

Thinning existing plantations and eradicating noxious weeds will also result in benefits to wildlife. Creating structural diversity and a habitat mosaic with individual trees, clumps of trees and openings where it does not currently exist and focusing on releasing oaks, an important component of mixed conifer forest and wildlife habitat will have a positive impact on many wildlife species. Residual trees are expected to grow faster and understory vegetation will become established, improving habitat conditions for species such as spotted owls, goshawks and fisher as well as their prey (EIS, p. 378, 390-391, 399-400, 420). After treatments, these plantations are expected to be more resilient to fire. Jones and others (2016) demonstrate that mega-fires such as the Rim Fire are a threat to spotted owls and other old-forest associated species and postulate that “forest ecosystem restoration and old-forest species conservation may be more compatible than previously believed” (Jones et al. 2016, p. 305).

These restorative treatments are expected to benefit old-forest associated species through the maintenance and development of mature green forest in the short and long-term. In addition, thinning within deer emphasis units will result in more navigable open stand conditions (EIS, p. 456). Treatments will result in beneficial impacts on individual fitness through increased forage availability and quality, as well as the potential reduction in susceptibility to predation across the critical winter range. Noxious weed treatments will result in an increased abundance of native vegetation preferred by herbivores such as mule deer, improving habitat conditions (EIS, p. 456).

Treatments under the Community Alternative will also improve visual quality by restoring the vegetative mosaic within the Rim Fire compatible with the Rehabilitation Visual Quality Objective (VQO). In the long-term the Retention, Partial Retention and Modification VQOs could be achieved (EIS, p. 300).

### **Consequences of Not Implementing the Project (No Action)**

The overall consequences of not implementing the project are the same as the summary of reasons for not selecting Alternative 2 (No Action) in Section 4.01 and the effects disclosed in the EIS under Alternative 2. The EIS (Table 2.05-5, p. 53-55) provides a summary comparison of effects for selected indicators under each alternative.

The Rim Fire burned across a vast area, creating an array of post-fire conditions including many patches of forest that experienced moderate and high severity fire. High-severity fire leaves behind many biological legacies such as standing dead trees, large down woody debris and a diverse understory community of post-disturbance vegetation (EIS, p. 35, 253). Burned forest provides crucial habitat for an array of snag and shrub dependent wildlife species including black-backed woodpecker (EIS, p. 442-452, 650-653; MIS Report, p. 15-18) and fox sparrow (EIS, p. 659; MIS Report, p. 8-12).

The black-backed woodpecker is the MIS representing snags in burned forest, also known as complex early seral habitat. Although the Community Alternative reforests up to 2,260 acres of that habitat (EIS, p. 451), a management requirement (Appendix A, item 31(g)) prohibits removal of snags within the units until 2021, eight years post-fire. The Community Alternative retains about 8,066 acres of early seral habitat on NFS lands (EIS, p. 451; MIS Report, p. 8, 16); Yosemite National Park also provides about 17,500 acres of complex early seral habitat within the project analysis area (EIS, p. 445). The fox sparrow is the MIS representing avian species associated with chaparral habitat. All pre-fire chaparral habitat will be retained along with another 9,000 acres of chaparral habitat created by the Rim Fire, resulting in an increase of chaparral habitat across the landscape (MIS Report, p. 9). Those retention areas would continue providing habitat for fire dependent species.

Some members of the public expressed strong interest in allowing natural post-fire succession to proceed free of human intervention to promote natural biodiversity and ensure that species dependent on burned forest habitat can thrive. I agree that it is important to retain burned forest habitat for those reasons; however, I believe taking no action would directly conflict with other resource needs such as promoting fire and drought resilient ponderosa pine and sugar pine, a fire resilient and heterogeneous landscape, development of old forest habitat, timber production and economic sustainability.

The Rim Fire exhibited high to extreme fire behavior and made runs of 30,000 to 50,000 acres on two consecutive days, creating uncharacteristically large patches of severely burned forest (EIS, p. 1). Immediately after the fire, vegetation (including shrubs, grasses, forbs and noxious weeds) rapidly responded in burned areas. Although a variety of grasses, forbs and even conifers establish after wildfire, sprouting shrubs and oaks quickly overtop them and increase in abundance (EIS, p. 272). These uncharacteristically large patches already have high levels of tall sprouting shrubs and oaks, but conifer regeneration is highly variable, and occurs at much lower densities compared to areas that experienced lower burn severities (EIS, p. 120, 122-123, 256-259). While conifer seed dispersal and

establishment is possible and is occurring, succession from shrub and oak vegetation to conifer forest is a slow process that can require several decades or even longer (EIS, p. 241-242, 272). Numerous examples of slow succession to conifer forest following high-severity wildfire both are evident in the scientific literature (e.g., Crotteau et al. 2013; Nagel and Taylor 2005; Russell et al. 1998; Shatford et al. 2007) and here on the Stanislaus National Forest (EIS, p. 7, 123, 272-273). Some level of this slow post-fire succession contributes to landscape heterogeneity, but an uncharacteristically large amount will occur in the Rim Fire landscape if no action is taken. Historic mean high-severity patch sizes ranged from 4.2 to 22.5 acres with the majority of the patches being less than 10 acres (EIS, p. 10-11). Reforestation units focus primarily on larger high-severity patches, leaving numerous smaller and some larger patches to develop without human intervention and contribute to landscape heterogeneity. Even if the Community Alternative is fully implemented, early seral conditions would still be abundant throughout the Rim Fire landscape falling closely within estimated historic ranges (EIS, p. 271, 282, 286, 288).

Figure 3.01-1 shows an example of an area burned in the same 1987 fire with an unplanted field adjacent to actively reforested land where the prescription included mechanical site preparation followed by herbicide release and inter-planting. While the planting density and pattern in the example significantly differ from that proposed in this project, it demonstrates the ability to accelerate succession from chaparral to conifer forest.



Figure 3.01-1 2014 view of private land (brush) and NFS land planted in 1993

Under Alternative 2 (No Action), the scenic attractiveness component of the landscape character may change if the vegetative composition were dominated by shrub species throughout an uncharacteristically large area. This would be outside of the historical range of variation, and it may take decades to meet the desired landscape character and VQOs under Alternative 2 (EIS, p. 300).

Where natural conifer regeneration is occurring, it is often dominated by shade-tolerant white fir and Douglas-fir (EIS, p. 256-257). A shift from pine to fir dominance in conjunction with high shrub cover is more likely to promote conditions conducive with high-severity fire rather than a frequent low- to mixed-severity fire regime (EIS, p. 274-275, 277-278). If a cycle of high-severity fire

continues, shrub dominated patches would persist and expand (EIS, p. 275). This is concerning to me given the uncharacteristically large extent and proportion of high-severity burn in the Rim Fire (EIS, p. 10-11) and the overabundance of early seral and chaparral vegetation compared to historic estimates (EIS, p. 252-254, 278-279). Where conifers are regenerating, high tree densities and shrub cover would result in slow tree growth rates, delaying development of old forest habitat (EIS, p. 272-273).

Prolonging the establishment of mature forest reduces the amount of suitable habitat available to forest dependent species such as California spotted owls, goshawks and fishers in the long-term (EIS, p. 380-381). It also decreases the amount of habitat connectivity across the landscape, reducing the ability of wildlife species to access isolated suitable habitat (i.e., green islands). Not thinning existing plantations would also reduce the habitat capability of these areas in the short and long-term because they currently lack required structural diversity. Additionally, these areas will continue to be at risk of loss to wildfire which is known to threaten the distribution and abundance of species such as California spotted owls, goshawks and fishers (EIS, p. 374, 397, 417; Jones et al. 2016).

Taking no action would result in none of the proposed fuelbreaks, emergency travel routes or strategic fire management areas being created or maintained over time, resulting in less safe ingress/egress routes for fire fighters during wildfire events (EIS, p. 123). Additionally, existing plantations that survived the fire would not be thinned and remain vulnerable to wildfire, insects and disease, and drought (EIS, p. 123, 277). The possibility of future reburns under higher fuel loadings would likely lead to soil erosion and sedimentation more severe than that caused by project activities (EIS, p. 339).

Without reforestation, large areas will require several decades or longer to reforest naturally, providing the least timber within the next 50 to 60 years (EIS, 277-278). As a result, future management would be more costly and difficult, reducing our ability to cost-effectively perform fuels management and contain wildfires. Reduced timber production could also create additional pressure to close sawmills, biomass energy plants or other components of the forest products infrastructure within Mariposa and Tuolumne counties resulting in long-term adverse effects on the regional economy (EIS, p. 184).

### **Consequences of Delayed Implementation**

Many fire-adapted shrub and hardwood species that exist in the project area rapidly sprout and grow following wildfire. Given the uncharacteristically large extent and severity of the Rim Fire (EIS, p. 10-11), large areas of tall, dense shrubs have already become established (EIS, 123, 258-259). Figure 3.01-2 shows competing vegetation is already 5 feet tall on some sites, making herbicide application more difficult with each passing year.

The longer sprouting shrubs and other competing vegetation grow unhindered, the more difficult, time consuming and costly it becomes to reforest. For safety reasons the brush must be shorter than the people applying the ground herbicide applications. If these treatments are delayed, the competing vegetation will continue to grow requiring more expensive treatments such as mechanical shredding before herbicide applications. This is why some community members expressed concern that the Forest proceed as quickly as possible to begin reforestation work (EIS, p. 638).

I plan to begin reforestation treatments in those areas already salvaged under the Rim Recovery and Rim Hazard Tree projects. With previous heavy machinery use, these salvaged areas show lower conifer seedling densities (EIS, p. 240, 257). These areas should be reforested first because most of the fuels were removed and the competing vegetation has not yet fully recovered, increasing the efficiency of site preparation treatments and reducing associated costs.

Another challenging aspect associated with reforestation is timing the sowing of seedlings. It is common practice to sow seedlings at a Forest Service nursery and grow them for one or two years

before they are lifted and ready for planting. Sowing orders for one-year old seedlings, which will be used for this project, must be made two years before they are ready for planting. Given the strong community support to reforest and the necessity of planting as soon as possible before competing vegetation gets too big, a sowing order was placed last year.

I expect project implementation to begin in August 2016 with a site preparation contract to complete the work needed to plant 1,122 acres of trees next spring. The contract will include piling of the remaining non-merchantable dead trees under the 2014 Rim Recovery decision (USDA 2014) and deep tilling and forest cultivating under the Community Alternative.

This work must be done in late summer/early fall to be effective and avoid wet weather conditions. Planting must occur in the early spring of 2017 when soil moisture is at its highest. Planting these locations will be more difficult if site preparation is delayed. If planting is postponed in 2017, the seedlings will grow an additional year at the nursery, which increases costs. Missing the 2017 planting target would have a ripple effect which would further delay reforestation treatments in subsequent years. For example, the sowing order for acres scheduled for planting in 2018 must be made this fall. Any delay in implementation this year or next year would disrupt planting in 2018 and lead to more increased costs associated with this year's sowing order and treatment of larger brush.

Delays to beginning implementation will also disrupt the balance between workflow, workforce and budgets. Forest staff worked tirelessly to acquire grant funding and schedule work that coincides with completion of salvage sales and to address staffing needs for successfully completing the work. Over the past two years, Forest staff worked with the state of California and other local groups including Yosemite Stanislaus Solutions (YSS) and Tuolumne County to apply for a National Disaster Resiliency Competition (Housing and Urban Development) grant. Reforestation is a key component of the grant which will soon be awarded to the State of California; however, the grant has strict timeframes and requirements for completing the deliverables and outcomes. Delaying implementation could negatively impact the ability of the Stanislaus to complete the work stipulated in the grant agreement, potentially impacting this substantial funding and learning opportunity.



Figure 3.01-2 July 2015 photo of deerbrush sprouting in a high severity burn portion of the Rim Fire



## 3.02 ACHIEVEMENT OF THE PURPOSE AND NEED FOR ACTION

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In this section, I will describe how my decision to select the Community Alternative meets each of the important objectives contained in the Purpose and Need (EIS, p. 7-12).

### **Purpose**

As previously stated, the overall objective of the Rim Reforestation project is to: *create a fire resilient mixed conifer forest that contributes to an ecologically healthy and resilient landscape rich in biodiversity.*

The Community Alternative will establish forests in the Rim Fire area with a desirable mix of conifer species that are planted in an array of densities to promote development of a heterogeneous forested landscape, which is critical to restore connectivity of habitat for wildlife movement and expansion. This alternative also includes shaded fuelbreaks along key roads and strategic locations, forest with lower tree densities adjacent to critical areas and frequent prescribed fire beginning within the next 10 years. Such features located across the landscape provide areas where fire can be slowed or stopped and provide safe locations for firefighters to utilize during wildfires. They also provide strategic locations for prescribed fire which is an integral part of this decision.

### **Desired Future Conditions**

My decision will move the landscape toward the desired future conditions by increasing its capacity to adapt and survive natural disturbances, especially under changing and uncertain future environmental conditions, such as those driven by climate change and human use. My decision approves relatively short-term (about 10 years) activities that will incrementally move toward these long-term (60 to 100 years) goals, returning healthy vigorous trees in a mosaic of forest conditions across the landscape. This includes creating Old Forest Mosaic, Open Canopy Mosaic and Deer Emphasis conditions.

#### **OLD FOREST MOSAIC**

The Old Forest Mosaic condition is heterogeneous Sierran mixed-conifer forest based on topographically driven variations in plant water availability. Moderate to high stand densities, a greater proportion of large clumps and generally small openings characterize this area. These areas contain high levels of horizontal and vertical diversity composed of roughly even-aged vegetation groups varying in size, species and structure. They contain patches of large trees, an average of 60% to 80% canopy cover and diverse multi-layered canopy and vegetative species.

#### **OPEN CANOPY MOSAIC**

The desired long-term Open Canopy Mosaic forest condition is heterogeneous stands tolerant of high frequency low-to-mixed intensity fire with an emphasis on fire resiliency. When compared with Old Forest Mosaic, these areas have a larger proportion of individual trees and small clumps with large and frequent openings. The primary desired condition is widely spaced and highly drought tolerant ponderosa pines and oaks on south facing slopes and ridge tops. Mixed species are present in drainages. Average canopy cover ranges from 40% to 50%. These conditions support the fire and fuels objectives while maintaining wildlife habitat and connectivity across the landscape. Fire hazard, SFMAs, wildlife habitat needs, topographic position and soil characteristics guide the relative proportion of open stand density, canopy cover and opening size and frequency.

#### **DEER EMPHASIS**

The desired long-term Deer Emphasis condition is a heterogeneous mosaic of forested and high quality forage habitat throughout the mule deer winter range and migration corridors, tolerant of low-to-mixed severity fire. Forest areas, primarily ponderosa pine, are found in close proximity, but

separated from oaks, a primary emphasis within these units. Forest habitat is comprised of both hiding and thermal cover. Hiding cover is designed to conceal deer from predators and consists of open stands with a canopy cover less than 50% in discrete locations up to 25 acres in size. Thermal cover is designed to provide protection from inclement weather and consists of denser stands with an average canopy cover of 60% or greater in discrete locations up to 5 acres in size.

## **Needs**

Based on the overall objective to *create a fire resilient mixed conifer forest that contributes to an ecologically healthy and resilient landscape rich in biodiversity*, the forest identified the need to 1) Return Mixed Conifer Forest to the Landscape, 2) Restore Old Forest for Wildlife Habitat and Connectivity, 3) Reduce Fuels for Future Fire Resiliency, 4) Enhance Deer Habitat, and 5) Eradicate Noxious Weeds. The following sections explain how the Community Alternative meets each of these important objectives.

### **1. Return Mixed Conifer Forest to the Landscape**

My decision will promote the re-establishment and recovery of conifer forests with diverse structure and composition to quickly meet future needs for wildlife, recreation, watershed and timber while taking into account potential pressures of a changing climate. This landscape will have an increased capacity to adapt and survive natural disturbances, especially under changing and uncertain future environmental conditions, such as those driven by climate change and human use. This decision includes actions to achieve short-term goals (up to 10 years) including activities that incrementally move toward these long-term (60 to 100 years) objectives, returning healthy vigorous trees in a mosaic of forest conditions across the landscape. (Old Forest Mosaic, Open Canopy Mosaic and Deer Emphasis Desired Future Conditions)

### **2. Restore Old Forest for Wildlife Habitat and Connectivity**

My decision will restore old forest composition and structure to provide critical habitat for sensitive wildlife species such as the California spotted owl, northern goshawk and fisher. This includes restoring habitat connectivity essential for wildlife dispersal, migration and use of suitable habitat across the landscape. (Old Forest Mosaic and Open Canopy Mosaic Desired Future Conditions)

### **3. Reduce Fuels for Future Fire Resiliency**

My decision will reduce the fuel load that exists from standing dead trees and re-sprouting brush, including portions of the burned area within existing older plantations. It re-establishes open canopy forest stands to safely reintroduce fire into the landscape through fuels and vegetation management. (Open Canopy Mosaic Desired Future Condition)

### **4. Enhance Deer Habitat**

My decision will restore forested conditions within critical winter deer range, providing hiding and thermal cover essential for over-wintering deer. (Deer Emphasis Desired Future Condition)

### **5. Eradicate Noxious Weeds**

Finally, my decision will prevent new infestations of noxious weeds and the spread of existing weeds as the result of project activities. The goal is to reduce the quantity and extent of noxious weeds, and manage their adverse impacts on ecosystem structure and function, fine fuels, young seedlings and biodiversity and native plants.

### 3.03 RESPONDS TO SIGNIFICANT ISSUES

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In this section, I will describe how my decision to select the Community Alternative responds to the significant issues (EIS, p. 17-18) raised during scoping, as described in this document (Section 5.01 and Section 5.02) and in the EIS (p. 15-17).

#### 1. *Herbicides*

The proposed herbicide applications may adversely affect human and other natural resources.

##### 1.1 *Human Health*

- a. Toxins may contaminate the water supply, food chain and land, impacting residents and visitors through reproductive and developmental harm.

I received public input about the use of herbicides, including support for Alternative 3 which does not propose the use of herbicide. Herbicides are utilized for site preparation and release because many of the species within this landscape that compete for water with the newly planted or naturally regenerating seedlings sprout and are extremely difficult to control through hand grubbing. The herbicides identified for use in this decision can be applied safely and effectively and I included several management requirements to ensure this outcome (Appendix A). My staff fully analyzed the potential harmful effects of glyphosate throughout the effects analysis in the EIS (p. 67-460) and in the Human Health and Ecological Risk Assessment (EIS, p. 533-552). This analysis did not show any substantial health risks to workers, the general public or wildlife species. The only scenarios that might reach a “level of concern” according to EPA standards include consumption of highly contaminated vegetation or water (EIS, p. 544). Such occurrences are extremely unlikely given management requirements that would prevent such exposure (Appendix A). Because I understand some people continue to have concerns about the safety of any chemicals used in our environment, the amount of herbicides used will be minimized through an adaptive management approach in Alternatives 1, 4 and 5. Herbicides will only be used for site preparation and release when greater than 20% of the land is vegetated by competing vegetation (EIS, p. 21) and this competing vegetation cannot be effectively controlled with other treatments or where deep tilling and cultivating are not be appropriate. My decision to approve Alternatives 1, 3, 4 and 5 on about 25% of the units eliminates the use of herbicides on areas approved for reforestation (Alternative 3), dramatically reduces the use on areas approved for reforestation (Alternative 4) because of the limited amount of acreage actually planted and uses adaptive management to minimize the use of herbicides on the areas remaining (Alternatives 1 and 5).

##### 1.2 *Native Species Health and Diversity*

- a. Herbicides may irretrievably alter natural post-fire successional habitat causing loss of significant biodiversity.

My decision to approve Alternatives 1, 3, 4 and 5 on about 25% of the units eliminates the use of herbicides on about ¼ of the area approved for reforestation (Alternative 3), dramatically reduces the use on areas approved for reforestation (Alternative 4) because of the limited amount of acreage actually planted and uses adaptive management to minimize the use of herbicides on the areas remaining (Alternatives 1 and 5). Within the 257,314 acre Rim Fire, a maximum of 39,595 acres are scheduled for herbicide treatments including: 13,725 acres of Reforestation; 646 acres of Reforestation in Deer Habitat; 4,031 acres of Natural Regeneration; 5,714 acres of Noxious Weed Eradication; and, 15,479 acres of reforestation on private land (EIS, p. 517, 519). This may be over-estimated because many of the Natural Regeneration units will likely not require herbicide applications and the majority of the Noxious Weed Eradication acres overlap with reforestation units (EIS, p. 24). Therefore, herbicides would not pose any risk to post-fire successional habitat or biodiversity on the remaining 217,719 acres within the Rim Fire perimeter.

- b. Application of glyphosate formulations and other less understood herbicides may have negative direct, indirect and cumulative effects on aquatic species and terrestrial wildlife including: mortality; impaired growth and development; modified behavior; and, physiological or morphological effects.

In making my decision, I gave strong consideration to the effects of this project and each of the alternatives on sensitive resources, including aquatic species and terrestrial wildlife. As previously discussed, my decision to select a combination of the four action alternatives will involve only minimal application of glyphosate to ensure reforestation success. My decision also includes management requirements for stream buffers and Limited Operating Periods (LOPs) to further protect aquatic species and terrestrial wildlife.

## **2. Reforestation Method**

The proposed reforestation methods may adversely affect human and other natural resources.

### **2.1 Local Economy**

- a. Reforestation at low rates may take too long to reclaim control of the brush and competing vegetation.

My decision to select a combination of alternatives will result in variable stocking densities throughout the area. In some units, planting densities and other treatments are more likely to result in a higher number of trees per acre that will more quickly control brush and competing vegetation. In other units, such as those adjacent to Founder Stands or under Alternative 3 where survival will be much lower, brush and other competing vegetation will be more prevalent. Forest staff considered these factors when assigning units to each alternative in an attempt to ensure success and increase efficiency.

- b. Future budgets may not provide adequate funding to control competing vegetation or thin trees.

The initial planting densities for all of the alternatives is relatively low compared to traditional planting densities and industry standards especially after factoring in oak and other buffers. I initially proposed planting fewer seedlings per acre in order to eliminate the need for pre-commercial thinning, thus the first treatment would be when trees are of a size to be commercially harvested. Only treatment units assigned to Alternative 5 include pre-commercial thinning. My decision responds to this issue because it approves different reforestation techniques, providing an opportunity to explore cost efficiencies and better understand the relative cost effectiveness of the different reforestation and release treatments. Additional cost savings may be realized because unit assignments were based to some extent on logistics or ease of implementation, which is directly related to cost.

- c. Low density planting may not provide a sustainable, long-term supply of wood needed to maintain the forest products infrastructure in Tuolumne County.

My decision responds to this issue because it does not implement low-density planting in all units. The planting density and design will be different in each 25% of the reforestation units. A fair number of the units will be planted more densely. While it is possible that a decision to select a single alternative may have resulted in more or less timber outputs in the long-term, my decision to reforest the Rim area with the Community Alternative will ultimately contribute to a long-term supply of wood needed to maintain the forest products infrastructure in Tuolumne County.

### **2.2 Native Species Health and Diversity**

- a. High density planting may limit fire use and foster unhealthy landscapes lacking biodiversity with reduced resiliency to drought, insects and wildfire.

No high density planting is included in this decision as oak and other buffers are factored into the initial trees per acre. Historically on the Stanislaus National Forest, up to 680 trees per acre were planted and inter-planting was also done to maintain these high densities during the developing stages of new plantations. None of these past practices are included in my decision. My decision approves variable planting densities both within and between alternatives, and even under Alternative 5,

requires oak and other buffers to break up the more standard tree planting pattern. The primary objective is to create a healthy landscape and increase diversity. My decision includes special considerations for fuelbreaks and fire management areas, early and frequent use of fire in most units and early plantation thinning in Alternative 5 units to maintain a healthy landscape that is more resilient to disturbance.

- b. Low density planting may reduce wildlife hiding cover subjecting wildlife to increased vehicle related mortality, predation and poaching.

My decision considers wildlife hiding cover. Deer habitat enhancement treatments will be implemented according to Alternative 1, which provides necessary hiding and thermal cover for deer. Unit assignments considered wildlife habitat needs, and the variable planting densities and planting designs will provide a mosaic of forest densities across the landscape, including some trees planted near roads which will provide wildlife hiding cover to reduce vehicle related mortality, predation and poaching.

### **2.3 Forest Establishment**

- a. Wide and variable spacing and gaps between planted trees may complicate the planting process, favor competing vegetation and delay establishment of a new forest.

My decision to select a combination of the four action alternatives for reforestation treatments may complicate the planting process in some units, but will result in planting diversity across all reforestation units. Competing vegetation may be more prevalent in some units, but is a natural component of many forests and contributes to diversity and structural complexity. The speed at which forest establishment occurs will depend on many factors. The Community Alternative may create a range of tree sizes across the landscape as some units may become established relatively rapidly while others do not. I considered areas where rapid development of a new forest was most critical for creating wildlife habitat and meeting other resource needs, and assigned units accordingly.

### **2.4 Fire Hazard**

- a. High density planting may result in fire-prone trees preventing early and frequent use of prescribed and natural fire.

The Community Alternative responds to this issue by selecting four different planting densities and designs. Units assigned to Alternative 4 will have prescribed fire adjacent to planted stands. Alternatives 1 and 3 will return prescribed fire to plantations within the first 10 years. In units assigned to alternatives with higher density planting (Alternative 5), early thinning will be used to reduce fuels and create more fire-resilient conditions.

- b. Wide and variable spacing and gaps between planted trees may result in areas with undesirable vegetation and increased fuel loadings.

Because my decision will implement four different planting densities and designs, it addresses this significant issue. Not all units will implement wide or variable spacing for planted trees and the use of herbicides will maintain a lower brush component throughout stands under Alternatives 1, 4 and 5. Forest staff considered areas where competing vegetation or fuel loading are more likely to be problematic, and units were assigned to the alternatives accordingly. Management requirements and approved activities in fuelbreaks and strategic fire management areas are designed to reduce the potential for increased fuel loadings.

## **3.04 RESPONDS TO COMMENTS ON THE DEIS**

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In this section, I will describe how my decision to select the Community Alternative responds to the 34 comment letters including eight letters from Federal, State and Local Agencies submitted during the DEIS comment period, as described in this document (Section 5.03) and in the EIS (p. 17).

The Response to Comments (EIS, p. 597-662) addresses topics of interest including Fire and Fuels, Herbicides, Invasive Species, NEPA, Reforestation Planting Density and Planting Design, Watershed and Wildlife. The comments received represented a wide range of viewpoints, and reflect the large amount of interest in the Rim Fire restoration process. Many people wanted me to apply each of the reforestation alternatives across the landscape to create a mosaic of forested conditions and provide a learning laboratory. People have come from all over the country to volunteer their time to replant the burn area and have strong interests in remaining connected to this landscape. Although much of the work will be accomplished with contracts and committed work crews, volunteer efforts remain important to the success of this endeavor. Watching these forests grow and understanding the conditions under which they grow, and tending to them through the use of fire and other treatments is important to the community at large.

Many commenters and potential partners expressed strong interest in studying the outcomes of the actions approved in the Community Alternative. They asked that this project be used as a scientific study to understand how different planting strategies achieve objectives in the long-term. This decision does not preclude that from occurring and I will work with the community and potential research partners to pursue opportunities for research and other studies related to this project.

I fully considered all comments on the DEIS, specifically those providing feedback on all the alternatives prior to making this decision (EIS, p. 623-637; RTCs 49-82). Many commenters expressed a preference for Alternative 1 deer habitat enhancement and natural regeneration treatments, but at the same time pointed out potential advantages and disadvantages of the ICO planting design. Other stakeholders opposed Alternative 1 because of the complexity of the planting design. Alternative 3 received support primarily because this alternative would not use herbicides, but some commenters were concerned that this alternative would plant too densely, would not effectively control competing vegetation and would be costly to implement. On the other hand, some input expressed support for Alternative 4 because it is the least cost prohibitive, incorporates fire use and is ecologically less intensive in terms of the number of acres planted. Other stakeholders strongly opposed Alternative 4 because only 20% of each unit would be planted, which they believe will allow the remaining suitable forestland to be converted to shrub-dominated vegetation. Alternative 5 received support because of the simple, proven planting design and is thought by many to be the most effective; however, others were concerned that the planting would be too dense and the management too intensive. Many project stakeholders believe that each alternative has unique advantages and disadvantages, which in part is why the Community Alternative seemed to be a sensible decision.

### **3.05 MINIMIZING EFFECTS**

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In this section, I will describe how my decision to select the Community Alternative minimizes effects through Proposed Treatments with Adaptive Management (EIS, p. 20-23) and Management Requirements (EIS, p. 30-32, 35, 37, 39-48). The overall effects of implementing the Community Alternative are nearly identical to those described in this document (Section 4.03) for Alternative 1 as the environmentally preferable alternative which is often interpreted as the alternative that causes the least damage to the biological and physical environment, or the alternative which best protects and preserves historic, cultural and natural resources. The EIS (Table 2.05-5, p. 53-55) provides a summary comparison showing that the effects for selected indicators under each of the action alternatives are the same as or similar to Alternative 1. The summary findings for legal and regulatory compliance in this document (Section 6) further support my conclusion that the Community Alternative minimizes the effects of project implementation.

### ***Proposed Treatments with Adaptive Management***

The Forest Service developed the action alternatives to represent a wide range of perspectives designed to address the purpose and need (EIS, p. 7-10) and the issues identified through scoping (EIS, p. 17-18). Next, site-specific prescriptions focused on tree survival and the reintroduction of fire into planted areas while incorporating an adaptive management strategy for implementation (EIS, p. 20-21, 24). Adaptive management is a cycle of making a plan, applying appropriate land management tools with on-the-ground actions, monitoring results and adjusting plans as necessary. The EIS (p. 20-23) identifies and describes detailed treatments that apply to the action alternatives. The actions contained in each group were adjusted appropriately to achieve the desired results with the least adverse impacts. Additionally, to ensure compliance with the National Forest Management Act (NFMA), the Forest Service Handbook and Manual outline specific protocols for conducting survival and growth exams (FSH 2409.26b, Chapter 4; FSM 2470). These protocols will also be used to monitor the effectiveness of treatments and the need to adjust treatments (e.g., apply herbicides or forego application of herbicides) for a period of at least five years following planting (EIS, p. 637-638).

### ***Management Requirements***

The Community Alternative includes the approved Management Requirements listed in Appendix A. Those requirements, guiding implementation of this decision, are designed to ensure compliance with the Forest Plan and to minimize or avoid adverse impacts.

The EIS (Table 2.05-5, p. 53-55) summarizes the effects of the project. Overall, no significant long-term adverse effects are expected. In many cases Management Requirements result in no effects. No effects to cultural resources are expected because of requirements outlined in the Rim Programmatic Agreement (EIS, p. 40, 109). The majority of adverse effects occur in the short-term. Heavy machinery and herbicide applications will likely impact recreation and range resources, causing people to avoid certain areas and changing livestock movement when project work occurs (EIS Table 2.05-5, p. 53-55). Management requirements will help keep visitors and range permittees informed of project activities and to both minimize and mitigate these short-term effects (EIS, p. 31, 137, 139, 143). Implementation will also increase sediment production and potentially effect individual plants and animals. These negative effects, however, will only occur in the short-term during implementation and will not result in a trend toward federal listing or loss of species viability (EIS Table 2.05-5, p. 53-55). Management requirements will help protect individuals of specific sensitive species by avoiding critical habitat or requiring limited operating periods that prevent disturbance during specific times of the year (e.g., EIS, p. 89-90, 161-162, 361, 374-375, 397-398).

Overall, treatments will have both short- and long-term beneficial effects (EIS Table 2.05-5, p. 53-55). The majority of black-backed woodpecker habitat created by the Rim Fire will remain intact. Treatments will restore watershed function and promote riparian obligate species. Noxious weeds and their ability to spread will be reduced, which will improve range conditions. Fuelbreaks, primary ridges and emergency travel routes will improve firefighter safety and along with other treatments create a more fire resilient landscape. Establishment of conifers will occur on more acres and treatments will accelerate tree development, which will result in a greater number of jobs and future timber yield. Conifer species composition will also better reflect historic composition with more shade-intolerant ponderosa pine and sugar pine that are more resilient to drought and frequent fire (EIS Table 3.13-14, p. 290).

## 4. Other Alternatives Considered

The following sections present the other alternatives considered in detail but not selected; the alternatives considered but eliminated from detailed study; and, the environmentally preferred alternative.

### 4.01 ALTERNATIVES CONSIDERED IN DETAIL BUT NOT SELECTED

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The following information briefly describes the alternatives considered in detail along with my reasons for not selecting them. As noted in my decision, I decided to approve reforestation treatments from Alternatives 1, 3, 4 and 5. Since I selected Alternative 1 for the remaining non-reforestation treatments (Deer Habitat Enhancement, Natural Regeneration, Noxious Weed Eradication and Thin Existing Plantations), it is important to note (as described below) those differences and why I did not select those portions of Alternatives 3, 4 and 5.

#### **Alternative 2 (No Action)**

Alternative 2 (No Action) serves as a baseline for comparison purposes (73 Federal Register 143, July 24, 2008; p. 43084-43099). Under Alternative 2 (No Action), no proposed activities would occur. I did not select Alternative 2 (No Action) because:

- It will not accomplish the overall purpose to create a fire resilient mixed conifer forest within 60 to 100 years that contributes to an ecologically healthy and resilient landscape rich in biodiversity.
- It is less likely to result in the desired landscape with an increased capacity to adapt and survive natural disturbances, and would not return healthy vigorous trees in a mosaic of forest conditions across the landscape.
- It does not meet the needs to: return Mixed Conifer Forest to the Landscape; Restore Old Forest for Wildlife Habitat and Connectivity; Reduce Fuels for Future Fire Resiliency; Enhance Deer Habitat; or, Eradicate Noxious Weeds (EIS, p. 9-10).
- It does not move the landscape towards providing a forested condition as desired under the National Forest Management Act of 1976, which states that “It is the policy of Congress that all forested lands in the National Forest System shall be maintained in appropriate forest cover with species of trees, degree of stocking, rate of growth and conditions of stands designed to secure the maximum benefits of multiple use sustained yield management in accordance with land management plans.” (NFMA 1976, Sec. 4. (d)(1)).
- It does not meet Forest Plan Direction goals and strategies that address problems related to old forest ecosystems and associated species (USDA 2010a, p. 11) including:
  - Increasing the frequency of large trees, increasing structural diversity, and improving the continuity and distribution of old forests across the landscape.
  - Restoring forest species composition and structure following large scale, stand-replacing disturbance events.
  - Restoring ecosystems across all land allocations following large-scale catastrophic disturbance events.
- It does not meet Forest Plan Direction standards and guidelines that apply to all Forest lands (USDA 2010a) including:
  - Maintain the species composition of the major forest types (p. 34).
  - Promote shade intolerant pines (sugar and ponderosa) and hardwoods (p. 43).
  - Where possible, create openings around existing California black oak and canyon live oak to stimulate natural regeneration (p. 44).



- It does not meet Forest Plan Direction standards and guidelines that apply to specific management areas (USDA 2010a) including, but is not limited to:
  - Reforest all openings in available, capable, and suitable lands for timber production created by timber harvest, wind, fire, or insect and disease pests (p. 125, 153, 163).
  - Reduce the effect of competing vegetation on the growth and development of desired species on lands available, capable, and suitable for timber production (p. 126, 153, 163).
  - Pre-commercial thinning is a tool that will be used to maintain diversity by improving species composition in many stands. A variety of techniques may be used including mechanical, crushing, piling, shredding, hand cutting, and pesticides. (p. 126, 153, 163)
  - Design cutting methods to obtain specific management objectives for late successional MIS habitat (p. 125, 157, 162).

### **Alternative 3**

Alternative 3 proposed no herbicide use responding to the herbicide issue and a different fuelbreak treatment responding to the reforestation issue of fire hazard. I did not select the treatments for Deer Habitat Enhancement, Natural Regeneration, Noxious Weed Eradication or Thin Existing Plantations within this alternative because:

- Alternative 3 deer habitat enhancement treatments are similar to Alternative 1, except site preparation and release treatments include tilling and hand grub release to replace herbicide use on the 646 planted acres. Tilling and manual grub releases are less effective and less cost efficient compared to herbicide treatments.
- Alternative 3 natural regeneration treatments are the same as Alternative 1, except mechanical site preparation and manual grubbing for release would replace herbicide use. While these units are the most likely to naturally regenerate, many factors will influence the degree of successful regeneration such as suitable climatic conditions correlating with good cone production and seedling survival. As a result, natural regeneration units may express a variety of needs ranging from periodic releases to aid seedling survival to site preparation and planting because the natural regeneration failed. Alternative 1 will provide more flexibility than Alternative 3 in promoting conifer establishment and growth.
- Alternative 3 has a high risk for invasive species spread, whereas Alternative 1 has a moderate risk (EIS, p. 127-134). Implementing this alternative would not eradicate entire noxious weed populations, while Alternative 1 has a high potential to do so. In addition, Alternative 1 minimizes the use of herbicides using Integrated Pest Management (IPM) and Adaptive Management to target weeds with methods that pose the least impacts and are as effective and efficient as possible.
- Thin Existing Plantations treatments are the same as Alternative 1.

### **Alternative 4**

Alternative 4 proposed planting considerably fewer acres and trees and the reintroduction of early and frequent use of prescribed and natural fire within and adjacent to these stands. I did not select the treatments for Deer Habitat Enhancement, Natural Regeneration, Noxious Weed or Thin Existing Plantation treatments within this alternative because:

- Alternative 4 has the same acres of prescribed burning and ICO thinning as Alternative 1; however, this alternative would have only planted 88 acres of deer habitat, 558 acres fewer than proposed under Alternative 1. As a result, only 3.3% of the base reforestation acres (2,636 acres) would be planted, which would not provide adequate hiding and thermal cover for deer.
- Alternative 4 does not include natural regeneration treatments as described in Alternative 1; therefore, if natural conifer regeneration were to fail or not meet desired conditions, no action would occur.

- Alternative 4 has moderate potential for invasive species eradication, whereas Alternative 1 has a high likelihood of invasive species eradication (EIS Table 2.05-5, p. 53-55). Alternative 1 minimizes the use of herbicides using Integrated Pest Management (IPM) and Adaptive Management to target weeds with methods that pose the least impacts and are as effective and efficient as possible.
- Thin Existing Plantations treatments are the same as Alternative 1.

## Alternative 5

Alternative 5 proposed planting at a denser 7-foot by 14-foot spacing throughout deer habitat enhancement areas, natural regeneration units (that required follow up planting) and reforestation units that included thinning into an open mosaic structure. This would result in a 6 to 8-foot by 12 to 16-foot spacing when applied on the ground at 444 trees per acre. Alternative 5 does not include prescribed fire post-planting in new plantations. I did not select this Alternative for Deer Habitat Enhancement, Natural Regeneration, Noxious Weed, or Thin Existing Plantation treatments because:

- Alternative 5 includes similar deer habitat enhancement treatments as Alternative 1 on 3,833 acres, but would call for planting the 646 acres of deer habitat enhancement areas on 7 by 14-foot spacing and uses thinning as early as 7 years post-planting to accomplish the desired structure for deer habitat. While experience on the Stanislaus National Forest and adjacent private forestland has proven that this approach can successfully create desired structures, this alternative does not use prescribed fire in newly established plantations. The role of fire in deer habitat is critical because it reduces fuel loading around mast producing oaks, stimulates regeneration of important shrub and herbaceous vegetation and provides palatable forage for deer.
- Under Alternative 5, all natural regeneration units would be treated using the Alternative 5 reforestation prescription. Alternative 1 allows for natural regeneration and will not actively plant unless monitoring indicates it is not meeting objectives.
- Alternative 5 includes similar noxious weed eradication as Alternative 1 on 5,714 acres, but emphasized the use of herbicides. Alternative 1 minimizes the use of herbicides using Integrated Pest Management (IPM) and Adaptive Management to target weeds with methods that pose the least impacts and are as effective and efficient as possible.
- Thin Existing Plantations treatments are the same as Alternative 1.

## 4.02 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED STUDY

NEPA requires that federal agencies rigorously explore and objectively evaluate all reasonable alternatives and briefly discuss the reasons for eliminating any alternatives that were not developed in detail (40 CFR 1502.14). Public comments and internal scoping suggested the alternatives briefly described below along with a brief response discussing the reasons for eliminating them from detailed study. The EIS (p. 48-50) provides a detailed description of these alternatives considered but eliminated from detailed study along with the reasons why each was eliminated.

### a. Natural Succession

This alternative, based on scoping comments, would allow the forest to recover naturally. This differs from “No Action” by including measures to thin existing plantations. Natural forest recovery occurs through recruitment of new populations from adjacent seed sources rather than planted seedlings. It was considered but eliminated from detailed study because:

- It does not meet the purpose and need to restore old forest for wildlife habitat and connectivity. Some wildlife species rely on dense canopy closure for forage, cover, and nesting. This habitat would only be suitable for early-seral-stage dependent wildlife species.

- It does not meet the purpose and need to return mixed conifer forest to the landscape since many large areas within the burn do not have mature trees to provide a seed source for recruiting seedlings.
- It does not meet the purpose and need of reducing fuels for future forest resiliency. About 6,200 acres of needed fuel treatments would not occur with this alternative. The large amount of fuel in these areas would make future fires difficult to manage and contain, jeopardizing future vegetation resiliency and fire fighter safety.
- Eradicating noxious weeds associated with the proposed reforestation units would not occur on 5,714 acres.

#### **b. Natural Regeneration with Founder Stands**

This alternative, based on scoping comments, will allow much of the forest to recover naturally. Outside complex early seral forest, plant founder stands: small variable-shaped areas less than 2 acres in size within a larger (10-acre total) area. On each of the 2 acres, plant 40 5-tree clusters spaced 6 feet between each tree and spaced 33 feet apart. Planting would not occur within 1,000 feet of an established conifer. On areas where no natural regeneration occurs, between 1,000 and 2,000 feet from established conifers, reforest 63 acres beginning 5 years after the 2013 Rim Fire. Only 20% of the 63 acres (i.e., 13 acres) would be planted. It was considered but eliminated from detailed study because:

- Very few acres were proposed for planting.
- It does not meet the purpose and need to restore old forest for wildlife habitat and connectivity. Some wildlife species rely on dense canopy closure for forage, cover, and nesting. This habitat would only be suitable for early-seral-stage dependent wildlife species.
- It does not meet the purpose and need to return mixed conifer forest to the landscape since it does not promote the quick reestablishment of conifers. The fewer trees planted results in fewer opportunities for trees to grow in the best soil and water microsite conditions.
- It does not meet the Forest Plan Direction for old forest ecosystems to restore forest species composition and structure following large scale, stand-replacing disturbance events.

#### **c. Natural Regeneration with Founder Stands with tighter buffers**

This alternative, based on scoping comments is similar to “b” above. The only difference is the distance to planting areas adjacent to established cone producing conifers. Planting would not occur within 500 feet of established conifers. On areas between 500 and 1,000 feet from established conifers where no natural regeneration occurs, reforest 20% of 866 acres (173 acres) beginning 5 years after the 2013 Rim Fire using the founder stand guidelines. When natural regeneration is not occurring in areas greater than 1,000 feet from live conifer trees, reforest immediately to create founder stands on up to 20% of 47 acres (9 acres). It was considered but eliminated from detailed study because:

- Very few acres were proposed for planting.
- It does not meet the purpose and need to restore old forest for wildlife habitat and connectivity. Some wildlife species rely on dense canopy closure for forage, cover, and nesting. This habitat would only be suitable for early-seral-stage dependent wildlife species.
- It does not meet the purpose and need to return mixed conifer forest to the landscape since it does not promote the quick reestablishment of conifers. The fewer trees planted results in less opportunities for trees to grow in the best soil and water microsite conditions.
- It does not meet the Forest Plan Direction for old forest ecosystems to restore forest species composition and structure following large scale, stand-replacing disturbance events.

**d. Low Density Planting (Plant 40 to 100 Trees per Acre)**

This alternative, based on scoping comments, would incorporate selected aspects of Alternative 1 (Proposed Action). This alternative would plant fewer trees per acre to provide an open pre-settlement condition. It was considered but eliminated from detailed study because:

- It does not meet the purpose and need to restore old forest for wildlife habitat and connectivity. Some wildlife species rely on dense canopy closure for forage, cover, and nesting. This habitat would only be suitable for early-seral-stage dependent wildlife species.
- It does not meet the purpose and need to return mixed conifer forest to the landscape since it does not promote the quick reestablishment of conifers. The fewer trees planted results in fewer opportunities for trees to grow in the best soil and water microsite conditions.
- It does not meet the Forest Plan Direction for old forest ecosystems to restore forest species composition and structure following large scale, stand-replacing disturbance events.

**e. Maximum Acres of Planting**

This alternative, based on scoping comments, would plant all possible areas identified on photos as lacking conifers. Forest recovery occurs through recruitment of new populations from planted augmentation. It was considered but eliminated from detailed study because:

- Poor site conditions for growing conifers such as: existing meadow, poor soil, rocky sites, hot dry south-facing slope, steep slopes, poor access, identified as an area that reburns frequently, fuelbreak locations, wilderness, near natural or Wild and Scenic River corridors.
- Small existing openings with adjacent green trees are within the realm of natural variation and provide diversity on the landscape.
- Already has decent stocking.

**f. One Herbicide Application**

This alternative, based on scoping comments, would incorporate selected aspects of Alternative 1 (Proposed Action). Glyphosate spraying would be limited to either a single site preparation treatment, and then rely entirely on hand grubbing or tree growth to out-perform competition, or to use alternative site preparation techniques coupled with a single herbicide release treatment in year 1 or 2 to give the newly planted tree a boost against competition. It was considered but eliminated from detailed study because:

- It is similar to an alternative already considered in detail (Alternative 1) with effects within the range of the alternative already considered in detail.

**g. Two Herbicide Applications**

This alternative, based on scoping comments, would incorporate selected aspects of Alternative 1 (Proposed Action). A maximum of two spray treatments would occur across every acre planted. This option would allow no more than one site preparation treatment and one release treatment. It was considered but eliminated from detailed study because:

- It is similar to an alternative already considered in detail (Alternative 1) with effects within the range of the alternative already considered in detail.

**h. Spray Areas with 40% or More Bearclover (two applications)**

This alternative, based on scoping comments, would incorporate selected aspects of Alternative 1 (Proposed Action). Glyphosate would only be applied in stands where bearclover covered 40% or more of each acre to be planted or 40% of the overall planting unit; and, only for both site preparation and a single release treatment in the year chosen by Forest staff as most essential for survival based on field visits for a maximum of two applications. It was considered but eliminated from detailed study because:

- It is similar to an alternative already considered in detail (Alternative 1) with effects within the range of the alternative already considered in detail.

## 4.03 ENVIRONMENTALLY PREFERRED ALTERNATIVE

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The environmentally preferable alternative is often interpreted as the alternative that causes the least damage to the biological and physical environment, or the alternative which best protects and preserves historic, cultural and natural resources. But, other factors relevant to this determination are provided in Section 101 of NEPA (42 USC 4321) which states that it is the continuing responsibility of the Federal Government to:

- Fulfill the responsibilities of each generation as a trustee of the environment for succeeding generations;
- Assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings;
- Attain the widest range of beneficial uses of the environment without degradations, risk to health or safety, or other undesirable and unintended consequences;
- Preserve important historic, cultural and natural aspects of our national heritage and maintain, wherever possible, an environment which supports diversity and variety of individual choice;
- Achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities; and,
- Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

Based on my consideration of the factors listed above and the effects disclosed in the EIS, I believe that Alternative 1 (Proposed Action) is the Environmentally Preferred Alternative for the following reasons:

- The Forest Service developed Alternative 1 after extensive public involvement. The proposed planting designs which incorporated the ICO concept for mature forest structure (7 different patterns based on landscape position, desired future condition and strategic fire management areas) are unlike anything the Forest Service proposed in the past. The Forest Service strove to be innovative and responsive to those who participated in broad collaborative efforts. This compromise between intensive land management and natural vegetation resiliency is most likely to result in the widest range of beneficial uses of the environment while minimizing resource degradation, risks to health and safety, or other undesirable and unintended consequences.
- Alternative 1 would implement reforestation in the Rim Fire to provide natural resources in the long-term for succeeding generations.
- It would achieve a balance between population and resource use by contributing to the long-term supply of wood products for the local timber industry (important to the local economy).
- This alternative would enhance wildlife habitat (EIS, p. 341-460), increase biodiversity (EIS, p. 231-290), and improve aesthetic values (EIS, p. 291-300), thereby providing for a wide range of beneficial uses.
- Alternative 1 would enhance the quality of renewable resources by establishing healthy forests that would provide timber and other wood products, which contribute to high standards of living for the local population.

## 5. Public Involvement

Public participation is important at numerous points during the analysis process. The Forest Service seeks information, comments and assistance from federal, state and local agencies and individuals or organizations that may be interested in or affected by the proposed action.

Because of the scope and scale of this project public involvement was focused on from the very beginning. The Forest Service engaged two large collaborative groups. One local group, Yosemite Stanislaus Solutions (YSS) includes a wide variety of local county stakeholders including the timber industry, environmental organizations and business leaders. YSS fosters partnerships among private, nonprofit, state and federal entities with a common interest in the health and well-being of the landscape and communities in the Tuolumne River Watershed. The group fosters an all-lands strategy to create a heightened degree of environmental stewardship, local jobs, greater local economic stability, and healthy forests and communities. The other group, known as the Rim Fire Technical Team consists of representatives from state and national environmental organizations, the timber industry and other government entities with a more national or statewide interest base. The Forest Service met with both of these groups on several occasions including field trips into the burn area and all day workshops identifying the long-term goals of this landscape and future desired conditions.

The Forest Service held its first field trip into the Rim Fire on October 16, 2013 with individuals from the Tuolumne Band of Me-Wuk Indians, Central Sierra Environmental Resource Center (CSERC), Sierra Club, Tuolumne County Alliance for Resources and Environment (TuCARE), California Fish and Wildlife Service, Audubon Society, Tuolumne County Supervisors, logging companies, sawmills, Sierra Nevada Conservancy and the local collaborative group YSS. On November 14, 2013 the Rim Fire Technical Team toured the burn area with several stops and discussions with Forest Service managers and researchers. Several field trips and meetings followed focusing initially on the salvage.

The Rim Fire Technical Team held its first reforestation specific workshop on July 10, 2014 in Sacramento, California. This was followed by a two day workshop on August 18 and 19, 2014. Each of these workshops included presentations on reforestation by scientists from the Forest Service Pacific Southwest Research Station (PSW) and other experts followed by small group discussions and proposal development.

On December 16, 2014 a public pre-scoping meeting was held to discuss the initial proposed action developed by the Forest Service. Members of YSS, the Rim Fire Technical Team and others attended (a total of 32 people).

### 5.01 INITIAL PUBLIC SCOPING ON THE PROPOSED ACTION

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The Forest Service conducts scoping according to the CEQ regulations (40 CFR 1501.7). In addition to other public involvement, scoping initiates an early and open process for determining the scope of issues to be addressed in the DEIS and for identifying the significant issues related to a proposed action. This scoping process allows the Forest Service not only to identify significant environmental issues deserving of study, but also to deemphasize insignificant issues, narrowing the scope of the DEIS process accordingly (40 CFR 1500.4(g)).

The Forest Service first listed the Rim Reforestation project online [<http://data.ecosystem-management.org/nepaweb/current-sopa.php?forest=110516>] in the Stanislaus National Forest Schedule of Proposed Actions (SOPA) on October 7, 2014. The project first appeared in the published quarterly SOPA in January 2015. The Forest Service distributes the SOPA to about 160 parties and it is available on the internet [<http://www.fs.fed.us/sopa/forest-level.php?110516>].

I sent a scoping letter and proposed action package to 376 individuals, permittees, organizations, agencies, landowners, and Tribes interested in this project on February 27, 2015. The letter requested specific written comments on the Proposed Action during the initial 45-day designated opportunity for public participation. The Forest Service published a Notice of Intent (NOI) that asked for public comment on the proposal between February 27, 2015 and April 13, 2015 (80 Federal Register 39, February 27, 2015; p. 10663-10664). Interested parties submitted 63 total letters during the comment period. Other interested parties submitted 2 letters (late) after the comment period closed. The Scoping Summary (project record) identifies specific comments and displays how these comments were used to identify issues (EIS, p. 17-18).

Field trips with the Tuolumne Band of Me-Wuk Indians occurred on March 13, 2014 and March 17, 2014 and were followed by a Tribal consultation day on May 9, 2014.

Several public presentations of the scoping package were given to interested groups during the scoping period including the Tuolumne County Alliance for Resources and the Environment (TuCARE) Board of Directors, the local Sierra Club group and the Forest Range Permittees. A workshop was also held on April 8, 2015 and 17 people attended. Public open houses were also held on April 8 and April 10, 2015 where my staff described the preliminary purpose and need for the project as well as proposed reforestation treatments. ID team members participated and answered questions regarding the project and proposed action. They were advertised on local radio stations, in the local newspaper, on the Stanislaus National Forest website, through direct mailings to those on the SOPA mailing list, and to those who showed interest in the project.

### **Significant Issues**

Based on public comments, the Forest Service developed significant issues to formulate and compare alternatives, prescribe mitigation measures, or analyze and compare the environmental effects of each alternative. The EIS (p. 17-18) fully describes the process used to identify these 2 significant issues: 1) Herbicides; and, 2) Reforestation Method.

## **5.02 CONTINUED SCOPING AFTER THE COMMENT PERIOD**

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After the initial 45-day scoping period, the Forest Service continued scoping with interested parties. The Forest hosted a public workshop on July 8, 2015, to share the alternatives developed since the initial scoping, 17 interested individuals attended. Field trips with interested groups and individuals also occurred after the scoping period including one with the Tuolumne Band of Me-Wuk Indians on July 15, 2015. Many presentations were provided to other interested groups including the Lions Club and TuCARE.

## **5.03 DEIS COMMENT PERIOD**

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On November 20, 2015 the Forest Service published the Draft EIS (DEIS), maps and other project information on the internet [<http://www.fs.usda.gov/project/?project=45612>] and sent a letter announcing the DEIS via e-mail (181) or hard copy letter (25) to 206 interested individuals, permittees, organizations, agencies and Tribes including those who submitted unique comments during scoping. The letter requested specific written comments during the 45-day designated opportunity for public participation period that would begin with publication of the Notice of Availability (NOA) of the DEIS in the Federal Register.

The 45-day comment period on the DEIS began with publication of the NOA in the Federal Register on November 27, 2015 (80 Federal Register 228, November 27, 2015; p. 74104). On December 1, 2015 the Forest Service published a legal notice in the Union Democrat announcing the Forest

Service would accept comments for 45-days following the November 27, 2015 publication of the NOA in the Federal Register. During this period, the Forest hosted a public open house on December 3, 2015.

Interested parties submitted 34 comment letters (project record) on the DEIS including one that arrived after the comment period closed. The Response to Comments (EIS, p. 597-662) identifies specific comments and the Forest Service responses to those comments. EIS Appendix L (project record) includes eight letters submitted by Federal, State, and Local Agencies (including elected officials and the Tuolumne Me-Wuk Tribal Council) as comments on the DEIS. The project record content analysis spreadsheet (Comment\_Analysis.xlsx) contains all individual comments.

## **5.04 RESPONSE TO LATE COMMENTS**

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Interested parties submitted late comments after those addressed in the EIS (p. 597-662) including: one petition; 174 similar e-mails; 92 identical postcards; and, 2 other unique comments. The Record of Decision Appendix C, Response to Late Comments (project record) groups similar comments into late comment statements followed by a response.

# **6. Legal and Regulatory Compliance**

My decision to select the Community Alternative complies with the laws, policies and executive orders listed below and described in the EIS (p. 461-465).

## **6.01 FINDINGS REQUIRED BY LAWS AND REGULATIONS**

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### **National Environmental Policy Act**

The National Environmental Policy Act of 1969 (NEPA) requires that all major federal actions significantly affecting the human environment be analyzed to determine the magnitude and intensity of those impacts and that the results be shared with the public and the public given opportunity to comment. The regulations implementing NEPA further require that to the fullest extent possible, agencies shall prepare EISs concurrently with and integrated with environmental analyses and related surveys and studies required by the Endangered Species Act of 1973, the National Historic Preservation Act of 1966, and other environmental review laws and executive orders. Other laws and regulations that apply to this project are described below.

### **Clean Air Act**

The Clean Air Act of 1970 provides for the protection and enhancement of the nation's air resources. No exceeding of the federal and state ambient air quality standards is expected to result from any of the alternatives. The Clean Air Act makes it the primary responsibility of States and local governments to prevent air pollution and control air pollution at its source.

California's plan provides for implementation, maintenance, and enforcement of the primary ambient air quality standards. This project is located in an area designated as non-attainment for Ozone. The burn treatments in the action alternatives will be conducted under an EPA approved California Smoke Management Program (SMP). Under the revised Conformity Rules the EPA included a Presumption of Conformity for prescribed fires that are conducted in compliance with a SMP; therefore, the federal actions conform and no separate conformity determination is indicated (EIS, p. 67-74).



## **Clean Water Act**

The Clean Water Act of 1948 (as amended in 1972 and 1987) establishes federal policy for the control of point and non-point pollution, and assigns the states the primary responsibility for control of water pollution. The Clean Water Act regulates the dredging and filling of freshwater and coastal wetlands. Section 404 (33 USC 1344) prohibits the discharge of dredged or fill material into waters (including wetlands) of the United States without first obtaining a permit from the U.S. Army Corps of Engineers. Wetlands are regulated in accordance with federal Non-Tidal Wetlands Regulations (Sections 401 and 404). No dredging or filling is part of this project and no permits are required.

Compliance with the Clean Water Act by National Forests in California is achieved under state law. The California Water Code consists of a comprehensive body of law that incorporates all state laws related to water, including water rights, water developments, and water quality. The laws related to water quality (sections 13000 to 13485) apply to waters on the national forests and are directed at protecting the beneficial uses of water. Of particular relevance for the Rim Reforestation project is section 13369, which deals with non-point-source pollution and best management practices. As described in the EIS (p.338), the action alternatives result in the maintenance of the applicable beneficial uses of water in the Water Quality Control Plan for the California Central Valley Water Quality Control Board.

## **Endangered Species Act**

Section 7 (d) of the Endangered Species Act (ESA) of 1973 requires that after initiation of consultation required under section 7(a)(2), a Federal agency “shall not make any irreversible or irretrievable commitment of resources with respect to the agency action which has the effect of foreclosing the formulation or implementation of any reasonable and prudent alternative which would not violate subsection (a)(2).”

The Rim Fire started on August 17, 2013. Several days later, it became clear the Rim Fire was a large incident, the forest initiated contact with the USFWS to alert them of potential impacts from the fire or fire suppression activities to listed species, including valley elderberry longhorn beetle and listed or candidate amphibian species. Forest Service biologists conducted a field trip with a USFWS biologist in the Rim Fire burn area on November 4, 2013 to discuss conditions and concerns for listed species.

In February 2015, the Forest Service met with USFWS to discuss numerous projects within the Rim Fire foot print including reforestation. On August 19, 2015 the Stanislaus National Forest formally requested to begin conferencing on the Reforestation project with USFWS.

The Forest Service prepared a Biological Assessment (BA) considering the effects to three federally listed species: California red-legged frog (Threatened), Sierra Nevada yellow-legged frog (Endangered), and valley elderberry longhorn beetle (Threatened) who may occur within the project analysis area in Tuolumne County, California. The project does not lie within a critical habitat unit for the California red legged frog per the Federal Register (March 17, 2010; Volume 75, Number 51) and is not within a proposed critical habitat unit for the Sierra Nevada yellow legged frog per the Federal Register (April 25, 2013; Volume 78, Number 80). The Rim Reforestation project unit specific treatments (EIS, p. 553-596) reflect project management requirements and the content of the BA. The BA requested concurrence with the determination that the overall project “may affect, not likely to adversely affect” the valley elderberry longhorn beetle, and “may affect, likely to adversely affect” California red-legged frog and Sierra Nevada yellow-legged frog. As such, the Forest Service engaged with the USFWS in formal consultation and requested a Biological Opinion (BO) in support of these determinations with the acknowledgement that effects to individuals or habitat are not discountable.

The determination of “may affect, likely to adversely affect” for California red-legged frog and Sierra Nevada yellow-legged frog was limited to 7 locales. Section 7(a)(2) of the ESA requires Federal

agencies, in consultation with USFWS and the National Marine Fisheries Service (NMFS), to insure that their actions are “not likely to jeopardize the continued existence of any” listed species (or destroy or adversely modify its designated critical habitat; 16 USC 1536(a)(2)). As such, my decision is that no operational implementation activities will occur in those 7 locales as part of this decision until such time as formal consultation with USFWS results in issuance of a BO.

### **Environmental Justice**

Executive Order 12898 “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Population” requires that federal agencies make achieving environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health and environmental effects of their programs, policies, and activities on minority populations and low-income populations. As described in the EIS (p. 192), the action alternatives would not disproportionately impact minority or disadvantaged groups.

### **Floodplain Management**

Executive Order 11988 applies to Floodplain Management. Floodplains are found along stream channels throughout the project area. Implementation of this decision would maintain or improve the existing condition of these floodplains by maintaining or improving meadow conditions. The intent of Executive Order 11988 would be met since this project would not affect floodplains in the Rim Reforestation analysis area and thereby would not increase flood hazard. As described in the EIS (p. 339) no measurable changes in stream flow are anticipated from the action alternatives.

### **Migratory Bird Treaty Act**

The Migratory Bird Treaty Act decreed that all migratory birds and their parts (including eggs, nests, and feathers) were fully protected. Under the Act, taking, killing or possessing migratory birds is unlawful. The original intent was to put an end to the commercial trade in birds and their feathers that wreaked havoc on the populations of many native bird species. On January 17, 2001 President Clinton signed Executive Order 13186, directing executive departments and agencies to take certain actions to further implement the Migratory Bird Treaty Act (FR Vol. 66, No.11; January 17, 2001).

The Forest Service and USFWS entered into a memorandum of understanding (MOU) to promote the conservation of migratory birds as a direct response to the executive order (USDA and USFWS 2008). One of the steps outlined for the Forest Service is applicable to this analysis: “Within the NEPA process, evaluate the effects of agency actions on migratory birds, focusing first on species of management concern along with their priority habitats and key risk factors.” The Forest Service additionally agreed, to the extent practicable, to evaluate and balance benefits against adverse effects, to pursue opportunities to restore or enhance migratory bird habitat, and to consider approaches for minimizing take that is incidental to otherwise lawful activities.

This analysis complies with the Migratory Bird Treaty Act but may result in an “unintentional take” of individuals during approved activities. However the project complies with the USFWS Director’s Order #131 related to the applicability of the Migratory Bird Treaty Act to Federal agencies and requirements for permits for “take”.

In addition, this project complies with Executive Order 13186 because the analysis meets agency obligations as defined under the December 8, 2008 Memorandum of Understanding between the Forest Service and USFWS designed to complement Executive Order 13186 (Migratory and Landbird Conservation Report 2015). If new requirements or direction result from subsequent interagency memorandums of understanding pursuant to Executive Order 13186, this project would be reevaluated to ensure that it is consistent.

## **National Forest Management Act**

The National Forest Management Act (NFMA) of 1976 amends the Forest and Rangeland Renewable Resources Planning Act of 1974 and sets forth the requirements for Land and Resource Management Plans for the National Forest System.

The Forest Service completed the Stanislaus National Forest Land and Resource Management Plan (Forest Plan) on October 28, 1991. The “Forest Plan Direction” (USDA 2010a) presents the current Forest Plan management direction, based on the original Forest Plan, as amended. The Forest Plan identifies land allocations and management areas within the project area including: Critical Aquatic Refuge (CAR); Developed Recreation Sites; Developed Non-Recreation Sites; General Forest; Near Natural; Old Forest Emphasis Areas; Protected Activity Centers (PACs); Riparian Conservation Areas (RCAs); Scenic Corridor; Special Interest Areas; Wild and Scenic Rivers and Proposed Wild and Scenic Rivers; Wildland Urban Intermix; and, Wildlife.

The Forest Plan and its amendments were prepared pursuant to the 1982 version of the NFMA planning regulations (36 CFR 219 (1983)). The current regulations, adopted in 2012 supersede those regulations, as well as other versions of the NFMA planning regulations (36 CFR 219.17(c) “This part supersedes any prior planning regulation.”). The current NFMA planning regulations do not apply to this project (36 CFR 219.7(c) “None of the requirements of this part apply to projects or activities on units with plans developed or revised under a prior planning rule ...”). Therefore, the sole NFMA duty applicable to this project is for the project to be consistent with the governing Forest Plan.

The Forest Plan, although developed pursuant to the 1982 planning regulations, did not incorporate any specific aspects of those planning regulations. For example, the Forest Plan includes MIS and was designed to maintain the viability of wildlife species, as required by the former 36 C.F.R. § 219.19 regulations, the Forest Plan did not incorporate any of the particular legal requirements from the 1982 regulations related to MIS or viability. Therefore, the 1982 regulations are not directly applicable to this project.

The Forest Plan Compliance document (project record) identifies the Forest Plan S&Gs applicable to this project and provides related information about compliance with the Forest Plan. Based on that document and other information in the project record, the action alternatives are consistent with the Forest Plan and all other requirements of the NFMA.

## **National Historic Preservation Act**

The National Historic Preservation Act (NHPA) of 1966 is the principal, guiding statute for the management of cultural resources on NFS lands. Section 106 of NHPA requires federal agencies to consider the potential effects of a Preferred Alternative on historic, architectural, or archaeological resources that are eligible for inclusion on the National Register of Historic Places and to afford the President’s Advisory Council on Historic Preservation an opportunity to comment. The criteria for National Register eligibility and procedures for implementing Section 106 of NHPA are outlined in the U.S. Code of Federal Regulations (36 CFR Parts 60 and 800, respectively). Section 110 requires federal agencies to identify, evaluate, inventory, and protect National Register of Historic Places resources on properties they control.

The Stanislaus National Forest developed a specialized agreement: “Programmatic Agreement Among United States Department of Agriculture, Forest Service, Stanislaus National Forest, the California State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding the Program of Rim Fire Emergency Recovery Undertakings, Tuolumne County, California” (Rim PA, project record). This agreement defines the Area of Potential Effects (APE) (36 CFR 800.4(a)(1)) and includes a strategy outlining the requirements for cultural resource inventory, evaluation of cultural resources, and effect determinations; it also includes protection and resource

management measures that may be used where effects may occur. Additionally, this agreement provides opportunities to reforest and remove/eradicate noxious weeds within some sites after consultation with the local tribe.

### **Protection of Wetlands**

Executive Order 11990 requires protection of wetlands. Wetlands within the project area include meadows, stream channels, springs, fens, and shorelines. The EIS (p. 75-108; 301-340) and the Watershed Report (project record) address wetlands and riparian vegetation. This project is consistent with Executive Order 11990 since this project would maintain or improve the condition of wetlands in the Rim Reforestation project area (EIS, p. 301-340).

## **6.02 FINDINGS RELATED TO SPECIAL AREAS**

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As summarized below, my decision complies with the laws, regulations, and policies that pertain to Inventoried Roadless Areas, Special Interest Areas (SIA), Wild and Scenic Rivers, Wilderness and Yosemite National Park.

### **Inventoried Roadless Areas**

My decision does not include any activities within or adjacent Inventoried Roadless Areas (IRAs) except where portions of six reforestation units (I122C, I122E, I123B, I133, I134B, I138) and five thin existing plantation units (I121D, I122A, I122B, I134A, and, I135A) are located near the Tuolumne River canyon rim, adjacent to the Tuolumne River IRA.<sup>5</sup> Nearby short-term project induced noise is consistent with the Roadless Area Characteristics identified in the 2001 Roadless Rule. Therefore, my decision is not likely to result in direct, indirect or cumulative effects on those characteristics. The decision would have no perceivable impact on the existing manageability value of the roadless lands in the analysis area. No new permanent roads would complicate potential Wilderness boundary management. (EIS, p. 63)

### **Special Interest Areas**

With this decision, approved treatments within the Jawbone Falls SIA are limited to those that enhance or protect those cultural values, and no effects are expected in the Pacific Madrone SIA (EIS, p. 229).

### **Wild and Scenic Rivers**

One congressionally designated and two proposed Wild and Scenic Rivers lie within the Rim Fire perimeter. This includes all 29 miles of the designated Tuolumne Wild and Scenic River on NFS lands; the lower half of the Clavey Proposed Wild and Scenic River (24 miles); and, all of the South Fork Tuolumne Proposed Wild and Scenic River (2 miles). With the exception of minor, short-term impacts to the scenic quality from drift smoke, this decision is not expected to change the free-flowing quality of any of the designated or proposed Wild and Scenic Rivers. Maintaining high water quality is also needed to maintain Wild and Scenic values. Management requirements minimize water quality impacts in all of the action alternatives. Wild and Scenic values of each river are expected to be unchanged with this decision. (EIS, p. 221, 229)

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<sup>5</sup> Refer to: EIS Errata (June 30, 2016) and Draft ROD Errata (May 20, 2016)

## Wilderness

A portion of the Emigrant Wilderness is located within the Rim Fire perimeter but outside the project area. Wilderness character is not expected to change or diminish from project activities. Short-term, minor effects to solitude could occur from the sights and sounds of workers or equipment; however, this would be limited to the areas near the Emigrant Wilderness boundary where most visitors have expectations of encountering people and activity. The presence of drift smoke could obscure views and temporarily change the unconfined nature of the Wilderness experience, but this is expected to be minor and not cause long-term effects. Most activities would take place outside the regular Wilderness use season. (EIS, p. 227, 229)

## Yosemite National Park

The Stanislaus National Forest shares a common boundary, much of which is Wilderness, with Yosemite National Park to the east. The National Park Service manages park resources and values to leave them unimpaired for the enjoyment of future generations. This decision will not directly affect park resources. Actions within this decision will improve Forest Service ability to manage future fires, which may indirectly benefit park resources and values. Wildlife habitat improvement activities may benefit Yosemite National Park wildlife populations by providing corridors for wildlife movement on the Stanislaus National Forest. (EIS, p. 64)

## 7. Implementation

Implementation of this decision may begin immediately (36 CFR 218.12(a)).

## 8. Administrative Review Opportunities

This project was subject to the pre-decisional objection process pursuant to 36 CFR 218, Subparts A and B. A legal notice announcing the 45-day objection period on the draft decision appeared in the Union Democrat, the newspaper of record, on April 29, 2016. The Forest mailed notice of the availability of the draft decision to 166 interested individuals, permittees, organizations, agencies and Tribes including the 34 parties who submitted comments on the DEIS. The notice showed that the Draft ROD, EIS, maps and other project information were available by request or, online at: <http://www.fs.usda.gov/project/?project=45612>.

A total of four objections were submitted during the 45-day objection period which ended on June 13, 2016. Three objections supported the proposed decision with one common issue related to potential changes in the proposed decision. One objection opposed the proposed decision with seven issues and additional literature related to the analysis. The Reviewing Officer completed the objection review documented in a letter (August 16, 2016) finding the rationale for the project is clear and the reasons for the project are logical and responsive to direction contained in the Forest Plan.<sup>6</sup> The Reviewing Officer also instructed the Forest Supervisor to proceed with issuance of a Record of Decision and states there will be no further review by any other Forest Service or U.S. Department of Agriculture official as per 36 CFR 218.11(b)(2). The objection related documents, including a review of the additional literature submitted as part of an objection, are located in the project record and available by request.

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<sup>6</sup> When objections are filed during the objection period: the Responsible Official may not sign a final ROD until the Reviewing Officer responds in writing to all pending objections (36 CFR 218.12(a)); and, the Responsible Official may not sign a final ROD until all concerns and instructions identified by the Reviewing Officer in the objection response are addressed (36 CFR 218.12(b)).

## 9. Contact Person

For additional information regarding this project, contact Maria Benech at the Stanislaus National Forest; 19777 Greenley Road; Sonora, CA 95370; or, call (209) 288-6285.

## 10. Signature and Date



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**JEANNE M. HIGGINS**  
Forest Supervisor  
Stanislaus National Forest

August 17, 2016

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Date

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## A. Management Requirements

This Appendix lists the Management Requirements guiding the implementation of the Community Alternative. These requirements are designed to ensure compliance with the Forest Plan and to minimize or avoid adverse impacts. The following groups of requirements apply to all approved activities unless noted otherwise.

### **Air Quality**

1. Complete all burning under approved burn and smoke management plans. Acquire burn permits from the appropriate county Air Pollution Control District(s) which will determine when burning is allowed. The California Air Resources Board provides daily information on "burn" or "no burn" conditions. Design and implement burn plans to minimize particulate emissions.

### **Aquatic Species**

2. Limited Operating Periods (LOPs):
  - a. Prohibit mechanical operations and herbicide applications within 1 mile of areas identified as suitable California red-legged frog (CRLF) breeding habitat during the wet season (the first rainfall event depositing more than 0.25 inches of rain on or after October 15 until April 15).
  - b. Within 300 feet of occupied western pond turtle (WPT) habitat, prohibit all project activities between May 15 and July 15.
  - c. Prohibit equipment operations within 300 feet of Abernathy Meadow and Big and Little Kibbie Ponds from June 1 through July 15 and during periods when these features have no standing water.
3. Aquatic Habitat:
  - a. Do not locate burn piles within 100 feet of suitable CRLF breeding habitat or occupied WPT habitat, or within 50 feet of CRLF non-breeding aquatic habitat.
  - b. Within 1 mile of suitable CRLF breeding habitat and 300 feet of occupied WPT habitat, ignite all burn piles on only one side, not to exceed half the circumference of the pile, on the side furthest from the nearest aquatic feature.
  - c. Do not deep till within 100 feet of aquatic features occupied by WPT unless reviewed by an aquatic biologist.
  - d. Use screening devices on water drafting pumps and use pumps with low entry velocity to minimize impacts to aquatic species. A drafting box measuring 2 feet on all sides covered in a maximum of 0.125 inch screening is required.

### ***Does not Apply to Alternative 3 Reforestation Units***

4. Herbicide Operations:
  - a. Do not refill individual herbicide backpacks within 50 feet of any stream with surface water.
  - b. Do not use stream water for mixing herbicides or for rinsing equipment or containers that have contained herbicide mix.
  - c. Do not apply herbicide formulations within 50 feet of Eleanor Creek or the two ponds on Kibbie Ridge.
  - d. Between June 1 and September 1, avoid herbicide applications within 100 feet of habitats known to be occupied by WPT.
  - e. Do not apply herbicide formulations within 25 feet of streams with known occurrences of foothill yellow-legged frogs unless approved by an aquatic biologist.
  - f. Do not apply herbicide within 107 feet of suitable habitat of Sierra Nevada yellow-legged frogs unless reviewed by an aquatic biologist.

- g. Restrict herbicide type in both upland and near-aquatic suitable habitat for California red-legged frog; permitted herbicides include aminopyralid and glyphosate (aquatic formulation) only.

## **Cultural Resources**

5. Project implementation will comply with the stipulations of the Programmatic Agreement Among the United States Forest Service, Stanislaus National Forest, The California State Historic Preservation Officer, and The Advisory Council on Historic Preservation, Regarding the Program of Rim Fire Emergency Recovery Undertakings, Tuolumne County, California (Rim PA).
6. Flag and avoid all eligible and unevaluated cultural resources during implementation except for the following activities which are allowed under the Rim PA:
  - a. Allow one-end suspension where tree removal within cultural resource site boundaries is found to benefit and improve site protection. In all cases a cultural resource specialist will be present to direct access within site boundaries.
  - b. Non-flammable sites may be burned over. However, consult with the cultural resource specialist to determine if certain cultural features need a reduction in fuel load (e.g., hand thinning) prior to burning.
  - c. The cultural resource specialist will identify sites where tree planting will occur within sites, for erosion control or to shield vulnerable site features.
7. Leave in place any tree inadvertently felled into a cultural site boundary until the incident is evaluated by the cultural resource specialist.
8. Construct all piles outside of identified cultural resource site boundaries.
9. Exclude historic sites with wooden remains from the project area or protect during burning using one of the following: hand or dozer constructed firelines, foam wetting agents, or fire shelter fabric.
10. Do not cut line within flagged areas.
11. Cut and remove vegetation away from the sites to reduce flare-up near the site.
12. Where sites are linear and have excessive wooden features, burn away from sites instead of toward them (blackline sites).
13. Notify the cultural resource specialist if a new cultural site is discovered during project implementation, and cease all activities within 150 feet of the resource until consultations are completed.

### ***Does not Apply to Alternative 3 Reforestation Units***

14. Flag and avoid all eligible and unevaluated cultural resources during implementation except for the following activities which are allowed under the Rim PA:
  - a. Herbicide application within historic sites such as railroad logging camps, logging activity areas, railroad grades, historic trails/roads and ditches is permitted.
  - b. Spot apply noxious weed treatments within prehistoric site boundaries, as long as the herbicide does not affect the use of resources by Native Americans.
15. Place signage, indicating application date and herbicide name, on-site once herbicide treatments begin and leave on-site for 30 days after application ends. Additionally, place a map at the Tuolumne Rancheria Tribal Hall indicating where and when areas were sprayed.

## Fire and Fuels

### 16. Strategic Fire Management Features (SFMF):

- a. Maintain the desired vegetation structure throughout the life of the SFMF on a 5 year rotation and based on site conditions.
- b. Limit woody debris to less than 10 tons per acre on average with a fuel bed depth less than or equal to 12 inches.
- c. Limit the number of down logs greater than 20 inches in diameter to 5 or less logs per acre on average.

### 17. Strategic Fire Management Areas (SFMA):

- a. Maintain the desired vegetation structure on a 5 to 10 year rotation and based on site conditions.
- b. Limit snags to 6 or less per acre on average. Do not leave snags adjacent to SFMFs or roads.
- c. Limit woody debris to less than 20 tons per acre on average.
- d. Limit the number of down logs greater than 20 inches in diameter to 5 or less logs per acre on average.

### ***Apply to Alternative 4 Reforestation Units Only***

18. Outside of strategic areas identified specifically to provide for firefighter safety as part of a landscape-wide and long-term prescribed fire program, no standing dead trees shall be felled or downed wood shall be piled and burned or otherwise removed from areas that meet the desired conditions for complex early seral forest or are important to sustain wildlife.

19. Manage snags and other fuels in strategic areas identified specifically to provide for firefighter safety as part of a landscape-wide and long-term prescribed fire program.

## Invasive Plants

### 20. Reduce risk of weed spread:

- a. All vehicles and equipment that goes off road, clothing, particularly footwear, and transport vehicles must be free of soil, mud (wet or dried), seeds, vegetative matter or other debris that could contain seeds in order to prevent new infestations of noxious weeds in the project area. Dust or very light dirt, which will not contain weed seed, is not a concern.
- b. Treat weed sites prior to implementing mechanical activities, timing the treatments to effectively eliminate seed production in the year of the mechanical activity. Where possible, treat in years prior to the mechanical activity to reduce or eliminate the weed infestations in those sites.
- c. Flag and avoid noxious weed populations if pre-treatment cannot be done. In areas where noxious weeds cover large areas, mechanical treatments can be done within sites, but equipment must be cleaned before leaving the unit.
- d. Do not stage equipment, material or personnel in areas with noxious weed infestations.
- e. After using equipment in infested areas, clean equipment so that it is free of soil, seeds, vegetative matter or other debris prior to being moved off site. Within infested units, conduct project activities in uninfested portions first. In order to move equipment from one infested area to another, the infestations in both areas must be the same species and the new area must have widespread infestations. If both situations are not present, then equipment must be cleaned prior to moving into the next area.
- f. The Forest Service will designate the order, or progression, of unit completion to emphasize treating uninfested units before treating infested units.

## Range

### 21. Protect range resources:

- a. Do not plant within 10 feet of rangeland infrastructures.

- b. Repair to Forest Service standards any serviceable or intact infrastructure that is damaged during implementation.
- c. Provide for site stabilization in areas adjacent to meadows that are disturbed by project activities (fuels treatments, thinning, etc.). Use native seed collected locally from within the project area.
- d. Do not schedule treatments (chemical or mechanical) on more than 20% of the capable rangeland in any allotment and no more than 20% of the total allotment area each year. Grazing allotments with a high proportion of area approved for treatment include Jawbone, Rosasco, Middle Fork, Curtin, and Hunter Creek.

### **Does not Apply to Alternative 3 Reforestation Units**

22. Notify a range specialist at least 8 weeks in advance of application if withholding of grazing is recommended by herbicide product label.

### **Recreation**

23. Protect recreation resources:
- a. No biomass hauling or spray vehicles on Evergreen Road or Cherry Lake Road: from July 3 through July 5; during Memorial and Labor Day weekends (3:00 p.m. Friday through Monday); or, on other weekends (3:00 p.m. Friday through Sunday) between Memorial Day and Labor Day.
  - b. No operations on weekends beginning Memorial Day through Labor Day in areas adjacent to Lost Claim and Sweetwater Campgrounds.
  - c. Identify and protect National Forest System Trails (NFST) during mechanical operations. Restore trails, if damaged, in kind according to Forest Service standards including the placement of rolling dips.
  - d. Do not use water sources in developed recreation sites when open to the public.

### **Sensitive Plants**

24. Protect sensitive plants:
- a. Flag and avoid occurrences of sensitive plants, watchlist plants and forest botanical interest plants. Flag and buffer adequately the occurrences of sun-loving species to avoid future shading by the planted trees.
  - b. Flag and avoid known and new occurrences of sensitive plants except as allowed below:
    - 1. Manual fuel reduction may take place within *Clarkia australis*, *Clarkia biloba* ssp. *australis*, *Mimulus filicaulis* or *Mimulus pulchellus* occurrences only during the dry non-growing period. Pile or scatter all material outside sensitive plant occurrences.
    - 2. Mastication, feller buncher and deep tilling with forest cultivation may be conducted within *Clarkia australis* occurrences only during the dry non-growing period. Do not track masticator through occurrences smaller than 0.25 acre. Minimize tracking in occurrences larger than 0.25 acre. Wherever possible, reach into occurrences with masticator head to conduct the work instead of tracking through.
  - c. Plant Douglas-fir adjacent to *Cyripedium montanum* occurrences to restore the mycorrhizal fungal partnerships necessary for the survival of the *Cyripedium*.
  - d. To protect occurrences of *Peltigera gowardii*, conduct project activities near perennial streams in such a way that sediment is not added to or accumulates within occurrences.
  - e. Do not allow foot traffic by contractors, forest workers or work inspectors within flagged occurrences.
  - f. Protect any new occurrences discovered in the project area.

**Applies to Alternative 3 Reforestation Units Only**

25. Do not deep till and forest cultivate in units BB069, BB071 and BB072. Provide a 500-foot buffer for *Botrychium* species and *Eryngium* sp. nov. Provide a 200-foot buffer for *Cypripedium montanum*, *Mimulus filicaulis* and *Mimulus pulchellus* occurrences.

**Soils**

26. Follow Forest Service Manual 2550 Soil Management R5 Supplement (USDA 2012a) and Forest Plan Direction (USDA 2010a) to identify Soil Management Practices (SMPs) that minimize soil impacts.
- a. Limit skidding with rubber-tired or fixed track equipment to slopes less than 35%; limit low ground pressure tracked equipment (e.g. masticator or feller buncher) to less than 45%; limit dozer piling and other (non-deep tilling) mechanical site preparation to less than 30%, or less than 25% on soils with Erosion Hazard Ratings higher than moderate.
  - b. Replace or recontour soil when excessive soil displacement occurs.
  - c. The soil scientist will monitor ground-based operations occurring between November 1 and June 1 (test for soil moisture and traffic-ability). Ground-based equipment will operate on relatively dry soils of high soil strength, or bearing capacity to prevent soil compaction.
  - d. Maintain a well-distributed soil cover of 50% after site preparation, prescribed fire or release treatments on slopes less than 25%. Maintain 60% cover on steeper slopes and within Riparian Conservation Areas (RCAs). Soil cover consists of duff and litter, basal live plant cover, fine woody debris, surface rocks, and downed logs. Deep tilling (subsoiling) and forest cultivation site preparation treatments are excluded from this requirement and fuel's requirements also take priority in order to ensure fuels reduction on these sites.
  - e. Where existing ground cover is less than desired, some trees may be felled and left in place or masticated into pieces less than 2 feet in length to reduce potential soil erosion and maintain soil productivity.
27. Mechanical Site Preparation:
- a. Use a brush rake for all dozer piling work. Keep the blade about 6 inches above ground level to prevent soil, litter, and duff material from being piled. Piles should be relatively free of soil (less than 10% soil material), and will be re-spread and rebuilt if they do not meet these specifications.
  - b. For deep tilling, ensure that contract specifications plan include the maximum depth of furrowing, a requirement for backblading when the depth of furrowing is exceeded, and winged ripper tool design specifications.
  - c. Perform deep tilling when soils are below their plastic limit throughout the top 18 inches. The soil should crumble when attempting to form a 'ribbon' or roll a thread. In addition, for areas with heavy clay content, do not perform deep tilling when soil is dry; this will allow for proper fracturing of soil without creating excessive disturbance. Examples of soils with heavy clay content include: Jocal (Josephine), Sites, Stump Springs, Musick, and Hoda.
  - d. Deep till along the contour with slope measured in deep tilled furrows being less than 5%. If contour deep tilling cannot be achieved in some areas, select these as sites for vegetated buffer strips.
  - e. Leave a no-till strip below drainage outlets.

**Does not Apply to Alternative 3 Reforestation or Alternative 5 Reforestation Units**

28. Deep Tilling and Forest Cultivation:
- a. On slopes over 20%, maintain at least one 8 to 10-foot vegetated buffer strip for every 100 feet of contour deep tilling or forest cultivation; this area can overlap with the unplanted rows or areas in planting design. In units with only portions identified that are suitable for deep

tilling, consult with a soil scientist to assist in delineating these areas on the ground before the work begins.

- b. For deep tilling units with slopes greater than 15%, leave a buffer strip of 12 feet on the downhill side of roads that may concentrate water and drain onto a deep tilled unit.
- c. Deep till followed by forest cultivation on less than 30% slopes.

***Applies to Alternative 3 Reforestation Units Only***

29. Deep till followed by forest cultivation on less than 35% slopes.

***Applies to Alternative 5 Reforestation Units Only***

30. Deep Tilling and Forest Cultivation:

- a. On slopes over 20%, maintain at least one 8 to 10-foot vegetated buffer strip for every 100 feet of contour deep tilling or forest cultivation; this area can overlap with the unplanted rows or areas in planting design. In units with only portions identified that are suitable for deep tilling, consult with a soil scientist to assist in delineating these areas on the ground before the work begins.
- b. For deep tilling units with slopes greater than 15%, leave a buffer strip of 12 feet on the downhill side of roads that may concentrate water and drain onto a deep tilled unit.
- c. Deep till followed by forest cultivation on less than 35% slopes.

**Terrestrial Wildlife**

31. Snags and down woody material:

- a. Snag retention in Old Forest Emphasis Area (OFEA) and Home Range Core Area (HRCA) units: Retain all hardwood snags greater than or equal to 12 inches diameter at breast height (dbh). Retain an average of 30 square feet of basal area of conifer snags across each unit by starting at the largest snag and working down, with a minimum of four and a maximum of 6 per acre. Do not leave snags along roadsides, critical ridge areas, identified fuelbreaks, or within 1 tree length of any infrastructure.
- b. In general forest units and outside of fuelbreaks, retain: 1) all hardwood snags greater than 12 inches dbh; and, 2) retain the largest conifer snags greater than 15 inches dbh at the rate of 4 per acre on a unit basis.
- c. In existing plantation units and outside of fuelbreaks, retain: 1) all hardwood snags greater than 12 inches dbh; and, 2) retain the largest conifer snags available at the rate of 4 per acre on a unit basis.
- d. Retain 5 of the largest down logs per acre on a unit basis. Use logs greater than or equal to 20 inches dbh and at least 20 feet long to meet this requirement where available. Retained down logs should be greater than 100 feet from roadsides.
- e. Retain all conifer snags greater than 15 inches and hardwood snags greater than 12 inches dbh in units GG063, HH014, R037, and R039.
- f. Inside SFMAs; retain up to 6 hardwood snags greater than 15 inches dbh per acre. Minimize damage to re-sprouting oaks when removing hardwood snags by directionally felling away from the largest sprout where feasible and avoiding hitting the stump while moving the downed material.
- g. Retain high capability habitat for black-backed woodpeckers in units HH029, HH031, K013, K018, L002, L003, L005, N010, and N019 eight years post-fire, beginning reforestation efforts no sooner than 2021.

32. Plant blue oaks if needed to supplement natural regeneration in units R041, S004 T021, and T024.

33. Maintain a LOP prohibiting mechanical operations within 0.25 mile of a protected activity center (PAC) during the breeding season for California spotted owls (March 1 through August 15),

northern goshawks (February 15 through September 15), great gray owls (March 1 through August 15) and within 0.5 miles of the known bald eagle nest (January 1 through August 31) unless surveys conducted by a Forest Service biologist confirm non-nesting status. LOPs may be reduced to a 0.25 mile area around a nest site if surveys are conducted.

34. Prior to pile burning, coordinate with District Wildlife Biologist to ensure disturbance to sensitive species does not occur.
35. Conduct surveys in compliance with the Pacific Southwest Region's survey protocols to establish or confirm the location of the nest activity center for spotted owl, great gray owl and goshawk.
36. Flag and avoid elderberry plants greater than one inch stem diameter in unit Z030. In unit Z030 and other areas:
  - a. Prohibit ground based mechanical operations and burning within 10 feet of flagged elderberry plants.
  - b. Prohibit pile burning and mechanical activities within 100 feet of flagged plants from April 1 through June 30 to avoid fire and dust impacts to valley elderberry longhorn beetles.
  - c. Notify the District wildlife biologist if additional elderberry plants greater than one inch stem diameter are found prior to or during project implementation.
37. Notify the District Wildlife Biologist if any Federally Threatened, Endangered, Candidate species or any Region 5 Forest Service Sensitive species are discovered during project implementation so that LOPs or other protective measures can be applied, if needed.

***Does not Apply to Alternative 3 Reforestation Units***

38. Prohibit herbicide application within 100 feet of elderberry plants.

**Vegetation**

39. Reforestation:
  - a. No planting within 100 feet of power lines.
  - b. Flag and avoid 0.2 acre research vegetation plots with 20-foot buffers across the project area.
  - c. Offset conifer planting 25 feet from all madrone trees, saplings and seedlings.

***Do not Apply to Alternative 3 Reforestation Units***

40. Protect all madrones during herbicide applications. Prohibit herbicide application within 20 feet of madrone trees, saplings and seedlings except where needed for noxious weed eradication.
41. Herbicide Operations:
  - a. Inspect sites prior to herbicide application to ensure that no one is present who is not officially participating in the application process.
  - b. Post signs after application, identifying the date and chemical used, adjacent to units at common entry points. Posted information includes the type of herbicide applied, date of treatment and a contact name and phone number.
  - c. Restrict access into the treated areas until the liquid herbicide solution has dried.
  - d. Follow all label requirements for personal protective equipment (PPE).
  - e. Use minimum protective clothing, unless specified otherwise on the label. This includes: coveralls over shirt and pants, socks, boots, safety glasses or goggles, hardhats and chemical resistant gloves. All clothing will be clean at the start of the day. Change clothing and clean the skin with soap and water if the herbicide mixture penetrates the clothing.
  - f. Provide soap and clean water at the work site. Wash with soap and water immediately after contact with the herbicide mixture. Wash with soap and water before eating, smoking or going to the bathroom.
  - g. To reduce off-site movement, drift, or volatilization, do not apply when the following weather parameters are observed:

- Sustained winds in excess of 5 mph.
- Precipitation, or a 70% or greater chance, predicted within 24 hours.
- Foggy weather
- Excess dew on target plants
- Less than 30% relative humidity
- Temperature that exceeds 85 degrees Fahrenheit
- Temperature inversions that could lead to off-site movement of the herbicide mixture

## Watershed

42. Protect beneficial uses of water through implementation of Best Management Practices (BMPs) in accordance with Regional Water Quality Management Plan (USDA 2011b) and the National BMPs for Water Quality Management on National Forest System Lands (USDA 2012) and the following requirements.
- a. Follow Forest Plan Direction (USDA 2010a) for protection of Riparian Conservation Areas (RCAs) through compliance with the Riparian Conservation Objectives (RCOs). Table A.01-1 provides a summary of the operating requirements for mechanized operations in RCAs.
  - b. Management Requirements Incorporating BMPs and Forest Plan S&Gs: Table A.01-2 presents management requirements pertaining to: erosion control plans; operations in RCAs; road activities; log landings; skid trails; water sources; servicing and refueling of equipment; burn piles; prescribed fire; water quality monitoring; and cumulative watershed effects.

Table A.01-1 Operating requirements for mechanized equipment operations in RCAs

Stream Type <sup>1</sup>	Zone	Width (feet)	MECH <sup>2</sup>	SKID <sup>3</sup>	Operating Requirements
PER/INT/SAF	Exclusion <sup>4</sup>	0-15	Prohibited	Prohibited	N/A
PER/INT/SAF	Exclusion	15-50	Allowed	Prohibited	N/A
PER/INT/SAF	Transition	15-50	Allowed	Prohibited	Remove operation-created debris from stream channels unless prescribed for resource benefit. Retain remaining obligate riparian shrubs and trees (e.g. willows, alder, aspen). Do not damage streambanks with equipment and retain sufficient vegetation to maintain streambank stability.
PER/INT/SAF	Transition	50-100	Allowed	Allowed	Use existing skid trails except where unacceptable impact will result. The number of crossings should not exceed an average of 2 per mile.
PER/SAF	Outer	100-300	Allowed	Allowed	Density and intensity of skid trails will gradually increase as distance increases from the Transition Zone.
INT	Outer	100-150	Allowed	Allowed	Density and intensity of skid trails will gradually increase as distance increases from the Transition Zone.
EPH	Exclusion <sup>5</sup>	0-15	Prohibited	Prohibited	N/A
EPH	Exclusion	15-25	Allowed	Prohibited	N/A
EPH	Transition	25-50	Allowed	Allowed	The number of crossings should not exceed an average of 3 per mile.

<sup>1</sup> PER=Perennial; INT=Intermittent; EPH=Ephemeral; SAF=Special Aquatics Features (lakes, meadows, bogs, fens, wetlands, vernal pools, and springs)

<sup>2</sup> MECH=Mechanical Harvesting or Shredding (low ground pressure track-laying machines such as feller bunchers and masticators)

<sup>3</sup> SKID=Skidding (rubber-tired skidders and track laying tractors)

<sup>4</sup> The exclusion zone for perennial/intermittent streams starts at: A. The edge of the active channel where slopes rise uniformly from the stream, or at the outer edge of the following features, whichever is the furthest from the stream. B. The first slope-break adjacent to the stream (e.g., stream bank, inner gorge). C. Flat or nearly flat ground adjacent to the channel (e.g., floodplain or terrace). D. Obligate riparian shrub and/or tree communities associated with any of the above. The exclusion zone for SAFs begins at: A. The outer edge of obligate trees, shrubs or herbaceous plants in wet meadows, bogs, fens and springs, or the high water line of lakes and vernal pools. B. The top of the first slope-break immediately adjacent to the special aquatic feature if further than the obligate vegetation or high water line.

<sup>5</sup> The exclusion zone begins at the edge of the channel where slopes rise uniformly or at the edge of the stream bank, whichever is furthest from the stream.



Table A.01-2 Management requirements incorporating BMPs and Forest Plan S&Gs

Management Requirements	BMPs/Forest Plan <sup>1</sup> /Locations
<p><b>Erosion Control Plan</b></p> <ul style="list-style-type: none"> <li>- Prepare a project area Erosion Control Plan (USDA 2011b) approved by the Forest Supervisor prior to the commencement of any ground-disturbing project activities. Prepare a BMP checklist before implementation.</li> </ul>	<p><b>Regional BMPs</b></p> <ul style="list-style-type: none"> <li>2-13 Erosion Control Plans (roads and other activities)</li> <li>1-13 Erosion Prevention and Control Measures During Operations</li> <li>1-21 Acceptance of Timber Sale Erosion Control Measures before Sale Closure</li> </ul> <p><b>National Core BMPs</b></p> <ul style="list-style-type: none"> <li>Veg-2 Erosion Prevention and Control</li> </ul> <p><b>Forest Plan S&amp;Gs</b></p> <ul style="list-style-type: none"> <li>194 (RCO 4)</li> </ul> <p><b>Locations:</b> all areas where ground-disturbing activities occur.</p>
<p><b>Operations in Riparian Conservation Areas</b></p> <ul style="list-style-type: none"> <li>- Delineate riparian buffers (Table A.01-1) within RCAs around all streams and special aquatic features within project treatment units.</li> <li>- Fell trees harvested within RCAs directionally away from stream channels and SAFs unless otherwise recommended by a hydrologist or biologist.</li> <li>- A minimum of 60% well distributed ground cover is desired within 100 feet of perennial and intermittent streams and SAFs.</li> <li>- Project administrator shall coordinate with a hydrologist prior to operating in units BB035, BB050, and BB036 to protect the Bear Gully restoration site, the stream channel downstream of the site, and the alluvial flat.</li> <li>- Exclude mechanized equipment between the near-stream roads that closely parallel both sides of Corral Creek in Units R037 and T005 (1N01 and 1N08 on the west, and 1N74 and 1N74C on the east) unless otherwise recommended by a hydrologist or soil scientist.</li> <li>- Planting: For perennial and intermittent streams, do not plant within 15 feet of the streambank or 20 feet of their associated riparian vegetation, whichever is more.</li> <li>- Exclude dozer operations within 50 feet from the start of the exclusion zone for all perennial and intermittent and SAFs and 25 feet from the start of the exclusion zone for all ephemerals.</li> </ul>	<p><b>Regional BMPs</b></p> <ul style="list-style-type: none"> <li>1-4 Using Sale Area Maps and/or Project Maps for Designating Water Quality Protection Needs</li> <li>1-8 Streamside Zone Designation</li> <li>1-10 Tractor Skidding Design</li> <li>1-18 Meadow Protection During Timber Harvesting</li> <li>1-19 Streamcourse and Aquatic Protection</li> <li>5-3 Tractor Operation Limitations in Wetlands and Meadows</li> <li>5-5 Disposal of Organic Debris</li> <li>7-3 Protection of Wetlands</li> </ul> <p><b>National Core BMPs</b></p> <ul style="list-style-type: none"> <li>Aq Eco-2 Operations in Aquatic Ecosystems</li> <li>Plan-3 Aquatic Management Zone Planning</li> <li>Veg-1 Vegetation Management Planning</li> <li>Veg-2 Erosion Prevention and Control</li> <li>Veg-3 Aquatic Management Zones</li> <li>Veg-4 Ground-Based Skidding and Yarding Operations</li> </ul> <p><b>Forest Plan S&amp;Gs</b></p> <ul style="list-style-type: none"> <li>193 (RCO 2)</li> <li>194 (RCO 3)</li> <li>194 (RCO 4)</li> <li>195 (RCO 5)</li> </ul> <p><b>Locations:</b> All units containing RCAs and SAFs, and specifically the portions of units mentioned in this section.</p>
<p><b>Road Construction and Reconstruction</b></p> <ul style="list-style-type: none"> <li>- Maintain functioning erosion-control measures during road construction and reconstruction and in accordance with the erosion control plan.</li> <li>- Stabilize disturbed areas with mulch, erosion fabric, vegetation, rock, large organic material, engineered structures, or other measures according to specifications in the erosion control plan.</li> </ul>	<p><b>Regional BMPs</b></p> <ul style="list-style-type: none"> <li>2-2 General Guidelines for the Location and Design of Roads</li> <li>2-3 Road Construction and Reconstruction</li> <li>2-8 Stream Crossings</li> <li>2-13 Erosion Control Plans (roads and other activities)</li> </ul> <p><b>National Core BMPs</b></p> <ul style="list-style-type: none"> <li>Road-3 Road Construction and Reconstruction</li> </ul> <p><b>Forest Plan S&amp;Gs</b></p> <ul style="list-style-type: none"> <li>62</li> <li>193 (RCO 2)</li> <li>194 (RCO 4)</li> </ul> <p><b>Locations:</b> all roads to be reconstructed.</p>

Management Requirements	BMPs/Forest Plan <sup>1</sup> /Locations
<p><b>Road Maintenance and Operations</b></p> <ul style="list-style-type: none"> <li>- Maintain road surfaces to dissipate intercepted water in a uniform manner along the road by outsloping with rolling dips, insloping with drains or crowning with drains. Where feasible and consistent with protecting public safety, utilize outsloping and rolling the grade (rolling dips) as the primary drainage technique.</li> <li>- Adjust surface drainage structures to minimize hydrologic connectivity by: discharging road runoff to areas of high infiltration and high surface roughness, armoring drainage outlets to prevent gully initiation, and increasing the number of drainage facilities within RCAs.</li> </ul>	<p><b>Regional BMPs</b> 2-4 Road Maintenance and Operations 2-13 Erosion Control Plans (roads and other activities)</p> <p><b>National Core BMPs</b> Road-4 Road Operations and Maintenance Veg-2 Erosion Prevention and Control</p> <p><b>Forest Plan S&amp;Gs</b> 193 (RCO 2) 194 (RCO 4) <b>Locations:</b> all roads with maintenance or project use.</p>
<p><b>Log Landings</b></p> <ul style="list-style-type: none"> <li>- Re-use log landings to the extent feasible.</li> <li>- Do not construct new landings within 100 feet of perennial or intermittent streams and SAFs or 50 feet of ephemeral streams.</li> <li>- Deep till all landings when biomass operations are complete.</li> </ul>	<p><b>Regional BMPs</b> 1-12 Log Landing Location 1-16 Log Landing Erosion</p> <p><b>National Core BMPs</b> Veg-6 Landings Veg-2 Erosion Prevention and Control</p> <p><b>Forest Plan S&amp;Gs</b> 194 (RCO 4) <b>Locations:</b> Biomass Removal: all landings.</p>
<p><b>Skid Trails</b></p> <ul style="list-style-type: none"> <li>- Use existing skid trails wherever possible, except where unacceptable resource damage may result. Locate skid trails at least 50 feet from perennial and intermittent streams and SAFs and 25 feet from ephemeral streams.</li> <li>- Install waterbars and other erosion control measures as needed on skid trails immediately following completion of biomass operations.</li> <li>- Remove skid trails berms that concentrated flows to improve surface drainage following use.</li> </ul>	<p><b>Regional BMPs</b> 1-10 Tractor Skidding Design 1-17 Erosion Control on Skid Trails</p> <p><b>National Core BMPs</b> Veg-2 Erosion Prevention and Control Veg-4 Ground-Based Skidding and Yarding Operations</p> <p><b>Forest Plan S&amp;Gs</b> 194 (RCO 4) <b>Locations:</b> all ground-based yarding system units.</p>
<p><b>Water Sources</b></p> <ul style="list-style-type: none"> <li>- For water drafting on fish-bearing streams: do not exceed 350 gallons per minute for streamflow greater than or equal to 4.0 cubic feet per second (cfs); do not exceed 20 percent of surface flows below 4.0 cfs; and, cease drafting when bypass surface flow drops below 1.5 cfs.</li> <li>- For water drafting on non-fish-bearing streams: do not exceed 350 gallons per minute for streamflow greater than or equal to 2.0 cfs; do not exceed 50 percent of surface flow; and, cease drafting when bypass surface flow drops below 10 gallons per minute.</li> </ul>	<p><b>Regional BMPs</b> 2-5 Water Source Development and Utilization 2-13 Erosion Control Plans (roads and other activities)</p> <p><b>National Core BMPs</b> WatUses-3 Administrative Water Developments AqEco-2 Operations in Aquatic Ecosystems</p> <p><b>Forest Plan S&amp;Gs</b> 193 (RCO 2) 194 (RCO 4) <b>Locations:</b> all water drafting sites.</p>
<p><b>Servicing, Refueling, and Cleaning Equipment and Parking/Staging Areas</b></p> <ul style="list-style-type: none"> <li>- Allow temporary refueling and servicing only at approved sites located outside of RCAs.</li> <li>- Rehabilitate temporary staging, parking, and refueling/servicing areas immediately following use.</li> <li>- A Spill Prevention and Containment and Counter Measures (SPCC) plan is required where total oil products on site in above-ground storage tanks exceed 1320 gallons or where a single container exceeds 660 gallons. Review and ensure spill plans are up-to-date.</li> <li>- Report spills and initiate appropriate clean-up action in accordance with applicable State and Federal laws, rules and regulations. The Forest Service's hazardous materials coordinator's name and phone number shall be available to Forest Service personnel who administer or manage activities utilizing petroleum-powered equipment.</li> <li>- Remove contaminated soil and other material from NFS lands and dispose of this material in a manner according to controlling regulations.</li> </ul>	<p><b>Regional BMPs</b> 2-10 Parking and Staging Areas 2-11 Equipment Refueling and Servicing</p> <p><b>National Core BMPs</b> Road-9 Parking and Staging Areas Road-10 Equipment Refueling and Servicing Fac-7 Vehicle and Equipment Wash Water</p> <p><b>Forest Plan S&amp;Gs</b> 193 (RCO 1) <b>Locations:</b> designated temporary refueling, servicing and cleaning sites and parking/staging areas.</p>

Management Requirements	BMPs/Forest Plan <sup>1</sup> /Locations
<p><b>Burn Piles</b></p> <ul style="list-style-type: none"> <li>- Place burn piles a minimum of 50 feet away from perennial and intermittent streams and SAFs and 25 feet from ephemeral streams. Locate piles outside areas that may receive runoff from roads.</li> <li>- Avoid disturbance to obligate riparian vegetation.</li> <li>- Do not dozer pile in sensitive watershed areas and on areas where mastication or drop and lop were prescribed under the Rim Recovery Project. Grapple piling<sup>2</sup> is allowed in these areas, but is subject to the mechanized equipment restrictions for RCAs. When grapple piling in sensitive watershed areas, consult a hydrologist or soil scientist if less than 70% ground cover would be retained.</li> </ul> <p><b>Prescribed Fire</b></p> <ul style="list-style-type: none"> <li>- Avoid damage to obligate riparian vegetation (e.g., willows, alders, cottonwoods).</li> <li>- Do not burn over Bear Gully restoration site (contained in parts of units BB035, BB050, and BB036).</li> <li>- In order to maintain the wood component or temporary fences approved under the Rim Rehabilitation and Rim Habitat projects, coordinate with a hydrologist prior to conducting prescribed fire on the following units: M024, M021, M019, M016, R025, R033, I062, I063, I067, N019, T017, T022, S004, Y030, Y027, BB011, I131, I132, I137, M008, R041, R042, R034, Z011, AA001.</li> <li>- Maintain a minimum of 60% ground cover within 100 feet of perennial and intermittent streams and 50 feet of ephemeral streams.</li> <li>- Avoid direct ignition within RCAs, including ephemeral channels; fire may back into the riparian area as long as ground cover is maintained.</li> <li>- Avoid constructing fire lines within RCAs unless there is no alternative. Do not construct new dozer lines within 100 feet of perennial and intermittent streams and 50 feet of ephemeral streams.</li> <li>- Restore constructed fire lines upon completion of prescribed burning and/or prior to each winter when fire lines are exposed to the potential for erosion.</li> <li>- Restoration should consist of water barring hand and dozer lines, re-contouring of benched trails, and deep tilling of detrimentally compacted dozer lines.</li> <li>- No debris or soil that might impede water flow or cause stream bank degradation will be placed in any stream.</li> <li>- Do not bulldoze the surface within SMZs or near streams. Favor hand tools and equipment on steep slopes, fragile soils and in sensitive areas such as Streamside Management Zones.</li> <li>- Install fire lines on the contour as much as possible.</li> </ul>	<p><b>Regional BMPs</b></p> <p>6-2 Consideration of Water Quality in Formulating Fire Prescriptions</p> <p>6-3 Protection of Water Quality from Prescribed Burning Effects</p> <p><b>National Core BMPs</b></p> <p>Fire-1 Wildland Fire Management Planning</p> <p>Fire-2 Use of Prescribed Fire</p> <p><b>Forest Plan S&amp;Gs</b></p> <p>194 (RCO 4)</p> <p><b>Locations:</b> all pile burning areas, sensitive watershed areas. All units that are planned for prescribed fire.</p>
<p><b>Water Quality Monitoring</b></p> <ul style="list-style-type: none"> <li>- Conduct implementation and effectiveness monitoring using the Best Management Practices Evaluation Program (BMPEP) (USDA 2002) and the National Core Monitoring Protocols (FS-990b) (USDA 2012).</li> </ul>	<p><b>Regional BMPs</b></p> <p>7-6 Water Quality Monitoring</p> <p><b>Locations:</b> Monitoring locations will be detailed in a project monitoring plan.</p>
<p><b>Cumulative Watershed Effects (CWE) Analysis</b></p> <ul style="list-style-type: none"> <li>- CWE analysis will be conducted for the project.</li> </ul>	<p><b>Regional BMPs</b></p> <p>7-8 Cumulative Off-Site Watershed Effects</p> <p><b>Locations:</b> All activities within the project watersheds will be analyzed</p>

<sup>1</sup> Forest Plan S&Gs indicate page number from Forest Plan Direction (USDA 2010a).

<sup>2</sup> Grapple piling is a site preparation technique that uses tracked excavator type equipment with an articulating arm equipped with a clam type pincher head that lifts and piles brush and logs. Usually followed by jackpot burning.

**Does not Apply to Alternative 3 Reforestation Units**

43. Management Requirements Incorporating BMPs and Forest Plan S&Gs: Table A.01-3 presents management requirements pertaining to vegetation manipulation by herbicide application.

Table A.01-3 Management requirements incorporating BMPs and Forest Plan S&Gs

Management Requirements	BMPs/Forest Plan <sup>1</sup> /Locations
<p><b>Vegetation Manipulation/Herbicide Use</b></p> <ul style="list-style-type: none"> <li>- Comply with all label and other applicable legal requirements for herbicide use and cleaning and disposal of pesticide equipment and containers. Incorporate a spill contingency plan into the project safety plan and have on site during herbicide application.</li> <li>- To protect streams and special aquatic features, do not apply Glyphosate within the following designated buffers zones: 10 feet from the edge of perennial, intermittent or ephemeral streams; special aquatic features such as springs, seeps and fens; and, obligate riparian vegetation. The 10-foot buffer does not apply if any intermittent stream or ephemeral stream is dry at the time of application.</li> <li>- Do not apply clopyralid, aminopyralid and clethodim within the following designated buffer zones: 50 feet from the edge of perennial, intermittent or ephemeral stream; special aquatic features; and wet areas with standing water at the time of application; 10 feet from the edge of obligate riparian vegetation; 15 feet from the edge of any intermittent or ephemeral stream, or special aquatic features dry at the time of application.</li> <li>- Do not apply clopyralid, aminopyralid and clethodim to areas with high surface runoff potential such as road surfaces, roadside ditches, shallow soils, and rocky or compacted slopes adjacent to perennial or intermittent streams. To avoid excessive leaching, soils should not be saturated at time of application. Soil moisture should be drier than field capacity.</li> <li>- Storage of Herbicides: No storage of herbicides will be allowed on RCAs other than what will be carried in the contractor(s) vehicle to complete each day's work. Mixing and loading will be done in areas where accidental spills will not contaminate streams or other water. Mixing sites will be predetermined by the COR and should be as far from water and on ground as level as possible. Include spill cleanup procedures in all project plans.</li> </ul>	<p><b>Regional BMPs</b></p> <ul style="list-style-type: none"> <li>5-7 Pesticide Use Planning Process</li> <li>5-8 Pesticide Application According to Label Directions and Applicable Legal Requirements</li> <li>5-11 Cleaning and Disposal of Pesticide Containers and Equipment</li> <li>5-12 Streamside Wet Area Protection During Pesticide Spraying</li> </ul> <p><b>National Core BMPs</b></p> <ul style="list-style-type: none"> <li>Chem-1 Chemical Use Planning</li> <li>Chem-2 Follow Label Directions</li> <li>Chem-3 Chemical Use Near Waterbodies</li> <li>Chem-5 Chemical Handling and Disposal</li> </ul> <p><b>Forest Plan S&amp;Gs</b> 193 (RCO 1)</p> <p><b>Locations:</b> all units with applications in RCAs.</p>

<sup>1</sup> Forest Plan S&Gs indicate page number from Forest Plan Direction (USDA 2010a).

## B. Reforestation Treatments

Table B.01-1 lists the reforestation modifications described in the Community Alternative using the legend noted.<sup>7</sup> Table B.01-1 does not include the “reforestation” type treatments included under Deer Habitat Enhancement or Natural Regeneration. Table B.01-1 lists unit E006D which is identified as E007C in the EIS (p. 554, 562, 574).

Table B.01-1 Community Alternative: Reforestation Treatment Units

UNIT	SIZE (acres)	ROD	PRSC	SITE PREPARATION								PLANT	RELEASE		
				FB	MA	FB/MA	MP	HC/HP	HC/JP	DTFC	HERB		HERB	GRUB	PPF
AA008	231	ALT1	ICO								231	231	231		231
AA010	135	ALT1	ICO								135	135	135		135
AA012	22	ALT1	ICO								22	22	22		22
AA015	37	ALT1	ICO								37	37	37		37
AA016	24	ALT1	ICO								24	24	24		24
AA017	47	ALT1	ICO								47	47	47		47
AA018	32	ALT1	ICO						32		32	32	32		32
AA019	50	ALT1	ICO	50							50	50	50		50
AA01B	73	ALT1	ICO		73					73		73	73		73
AA020	63	ALT1	ICO	63							63	63	63		63
BB005	16	ALT1	ICO								16	16	16		16
BB006	65	ALT1	ICO								65	65	65		65
BB007	43	ALT1	ICO								43	43	43		43
BB014	32	ALT1	ICO				32				32	32	32		32
BB016	43	ALT1	ICO								43	43	43		43
BB017	20	ALT1	ICO								20	20	20		20
BB021	125	ALT1	ICO				125			125		125	125		125
BB022	113	ALT1	ICO				113				113	113	113		113
BB024	53	ALT1	ICO						53		53	53	53		53
BB026	19	ALT1	ICO								19	19	19		19
BB029	51	ALT1	ICO							51		51	51		51
BB033	59	ALT1	ICO								59	59	59		59
BB047	41	ALT1	ICO							41		41	41		41
BB049	198	ALT1	ICO				198				198	198	198		198
BB050	44	ALT1	ICO								44	44	44		44
BB051	101	ALT1	ICO								101	101	101		101
BB053	75	ALT1	ICO								75	75	75		75
BB056	12	ALT1	ICO								12	12	12		12
BB059	27	ALT1	ICO	27							27	27	27		27
BB060	29	ALT1	ICO								29	29	29		29
BB062	23	ALT1	ICO							23		23	23		23
BB063	21	ALT1	ICO								21	21	21		21
BB064	24	ALT1	ICO								24	24	24		24
BB065	54	ALT1	ICO							54		54	54		54
BB066	28	ALT1	ICO							28		28	28		28
BB073	21	ALT1	ICO							21		21	21		21
BB075	12	ALT1	ICO							12		12	12		12
BB080	23	ALT1	ICO	23						23		23	23		23
BB23B	2	ALT1	ICO	2							2	2	2		2
BB23C	6	ALT1	ICO	6							6	6	6		6
CC009	17	ALT1	ICO	17						17		17	17		17
CC013	11	ALT1	ICO	11							11	11	11		11

<sup>7</sup> 714=7'x14' Spacing; ALT=Alternative; D25=Deer Cover Stands 25%; DTFC=Deep Till With Forest Cultivation; F20=Founder Stands 20%; FB=Feller Buncher; GRUB=hand removal; HC=Hand Cut; HERB>manual herbicide application; HP=Hand Pile; ICO=Individuals, Clumps and Openings; JP=Jackpot Burn; MA=Masticate; MP=Machine Pile (with dozer); PF=Prescribed Fire; PPF=Post-planting Prescribed Fire; PRSC=Prescription; SP=Site Preparation; ROD=Record of Decision; REL=Release; VAR=Variable Spacing

UNIT	SIZE (acres)	ROD	PRSC	SITE PREPARATION								PLANT	RELEASE			
				FB	MA	FB/MA	MP	HC/HP	HC/JP	DTFC	HERB		HERB	GRUB	PPF	
DD001	54	ALT1	ICO									54	54	54		54
DD002	19	ALT1	ICO									19	19	19		19
DD003	29	ALT1	ICO								29		29	29		29
DD006	52	ALT1	ICO									52	52	52		52
HH001	67	ALT1	ICO									67	67	67		67
HH012	34	ALT1	ICO									34	34	34		34
HH013	64	ALT1	ICO	64								64	64	64		64
HH014	131	ALT1	ICO	131								131	131	131		131
HH015	83	ALT1	ICO									83	83	83		83
HH018	47	ALT1	ICO				47					47	47	47		47
L005	120	ALT1	ICO				120					120	120	120		120
L006	116	ALT1	ICO									116	116	116		116
L007	111	ALT1	ICO									111	111	111		111
L009	66	ALT1	ICO									66	66	66		66
L010	22	ALT1	ICO								22		22	22		22
L011	48	ALT1	ICO								48		48	48		48
P010	61	ALT1	ICO								61		61	61		61
P011	23	ALT1	ICO									23	23	23		23
P014	255	ALT1	ICO	255							255		255	255		255
P021	149	ALT1	ICO									149	149	149		149
P022	61	ALT1	ICO									61	61	61		61
Q002B	248	ALT1	ICO	248								248	248	248		248
Q002D	3	ALT1	ICO	3								3	3	3		3
Q003	21	ALT1	ICO									21	21	21		21
Q004	32	ALT1	ICO									32	32	32		32
Q005	9	ALT1	ICO								9		9	9		9
Q006	24	ALT1	ICO								24		24	24		24
Q007	33	ALT1	ICO								33		33	33		33
Q008	29	ALT1	ICO								29		29	29		29
Q009	88	ALT1	ICO									88	88	88		88
Q010	24	ALT1	ICO									24	24	24		24
Q013	23	ALT1	ICO								23		23	23		23
Q014	24	ALT1	ICO								24		24	24		24
Q015	46	ALT1	ICO								46		46	46		46
Q016	75	ALT1	ICO								75		75	75		75
Q017	73	ALT1	ICO									73	73	73		73
R002	92	ALT1	ICO				92					92	92	92		92
R003	38	ALT1	ICO									38	38	38		38
R004	121	ALT1	ICO	121								121	121	121		121
R005	49	ALT1	ICO								49		49	49		49
R006	39	ALT1	ICO									39	39	39		39
R007B	3	ALT1	ICO				3				3		3	3		3
R007C	16	ALT1	ICO				16					16		16		16
R008	9	ALT1	ICO									9		9		9
R009	19	ALT1	ICO									19	19	19		19
R011	54	ALT1	ICO									54	54	54		54
R012	48	ALT1	ICO								48		48	48		48
R013	41	ALT1	ICO									41	41	41		41
R014B	65	ALT1	ICO									65	65	65		65
R015	15	ALT1	ICO									15	15	15		15
R016	38	ALT1	ICO									38	38	38		38
R019	33	ALT1	ICO									33	33	33		33
R020	13	ALT1	ICO									13	13	13		13
R021	21	ALT1	ICO									21	21	21		21
R022	72	ALT1	ICO								72		72	72		72
R024	85	ALT1	ICO									85		85		85
R025	174	ALT1	ICO								174		174	174		174
R028	17	ALT1	ICO									17		17		17
R030	24	ALT1	ICO									24		24		24
R031	30	ALT1	ICO									30		30		30

UNIT	SIZE (acres)	ROD	PRSC	SITE PREPARATION								PLANT	RELEASE		
				FB	MA	FB/MA	MP	HC/HP	HC/JP	DTCF	HERB		HERB	GRUB	PPF
R032	30	ALT1	ICO								30	30	30		30
R034	33	ALT1	ICO								33	33	33		33
T009	47	ALT1	ICO								47	47	47		47
U003	239	ALT1	ICO								239	239	239		239
U008	15	ALT1	ICO								15	15	15		15
U009	48	ALT1	ICO								48	48	48		48
U010	13	ALT1	ICO	13							13	13	13		13
U011	24	ALT1	ICO								24	24	24		24
U014	5	ALT1	ICO								5	5	5		5
U016	28	ALT1	ICO								28	28	28		28
X021	34	ALT1	ICO								34	34	34		34
Y008	33	ALT1	ICO	33							33	33	33		33
Y010	25	ALT1	ICO		25						25	25	25		25
Y011	10	ALT1	ICO		10						10	10	10		10
Z024	50	ALT1	ICO								50	50	50		50
AA03C	2	ALT3	VAR	2								2		2	2
AA04C	4	ALT3	VAR							4		4		4	4
AA04D	2	ALT3	VAR							2		2		2	2
AA23B	10	ALT3	VAR	10								10		10	10
AA23C	6	ALT3	VAR	6								6		6	6
BB004	59	ALT3	VAR							59		59		59	59
BB010	87	ALT3	VAR							87		87		87	87
BB011	55	ALT3	VAR							55		55		55	55
BB012	87	ALT3	VAR									87		87	87
BB025	32	ALT3	VAR							32		32		32	32
BB035	141	ALT3	VAR							141		141		141	141
BB036	92	ALT3	VAR							92		92		92	92
BB43B	4	ALT3	VAR	4								4		4	4
BB43C	5	ALT3	VAR	5								5		5	5
BB71B	6	ALT3	VAR	6								6		6	6
BB71C	10	ALT3	VAR	10								10		10	10
DD018	17	ALT3	VAR				17				17		17		17
DD04B	8	ALT3	VAR	8								8		8	8
DD05B	3	ALT3	VAR				3				3		3		3
DD05C	5	ALT3	VAR				5				5		5		5
EE03B	8	ALT3	VAR		8							8		8	8
FF001	9	ALT3	VAR									9		9	9
GG001	12	ALT3	VAR									12		12	12
GG002	23	ALT3	VAR									23		23	23
GG021	8	ALT3	VAR									8		8	8
GG026	6	ALT3	VAR									6		6	6
GG032	9	ALT3	VAR									9		9	9
GG048	14	ALT3	VAR		14							14		14	14
GG063	21	ALT3	VAR						21			21		21	21
GG08B	27	ALT3	VAR		27							27		27	27
GG08C	6	ALT3	VAR		6							6		6	6
GG12B	3	ALT3	VAR						3			3		3	3
GG12C	2	ALT3	VAR						2			2		2	2
GG37B	12	ALT3	VAR		12							12		12	12
GG37C	30	ALT3	VAR		30							30		30	30
GG50B	28	ALT3	VAR	28								28		28	28
GG50C	4	ALT3	VAR	4								4		4	4
GG51B	57	ALT3	VAR	57								57		57	57
GG55B	24	ALT3	VAR	24								24		24	24
GG55C	13	ALT3	VAR	13								13		13	13
GG56B	2	ALT3	VAR	2								2		2	2
GG56C	5	ALT3	VAR	5								5		5	5
GG56D	1	ALT3	VAR	1								1		1	1
GG57B	16	ALT3	VAR	16								16		16	16
GG57C	14	ALT3	VAR	14								14		14	14

UNIT	SIZE (acres)	ROD	PRSC	SITE PREPARATION								PLANT	RELEASE		
				FB	MA	FB/MA	MP	HC/HP	HC/JP	DTFC	HERB		HERB	GRUB	PPF
GG58A	2	ALT3	VAR	2							2	2		2	2
H009C	31	ALT3	VAR	31								31		31	31
H011B	11	ALT3	VAR		11							11		11	11
H011D	27	ALT3	VAR		27							27		27	27
H016	24	ALT3	VAR						24			24		24	24
H017	47	ALT3	VAR						47			47		47	47
H032B	17	ALT3	VAR		17							17		17	17
H033B	11	ALT3	VAR		11							11		11	11
H034B	7	ALT3	VAR		7							7		7	7
H039	27	ALT3	VAR						27			27		27	27
H049B	7	ALT3	VAR	7								7		7	7
HH002	93	ALT3	VAR									93		93	93
HH003	116	ALT3	VAR							116		116		116	116
HH006	104	ALT3	VAR							104		104		104	104
HH007	22	ALT3	VAR									22		22	22
HH008	9	ALT3	VAR									9		9	9
HH009	22	ALT3	VAR							22		22		22	22
HH010	41	ALT3	VAR							41		41		41	41
HH011	46	ALT3	VAR							46		46		46	46
HH016	50	ALT3	VAR									50		50	50
HH029	116	ALT3	VAR				116				116	116		116	116
HH037	37	ALT3	VAR						37			37		37	37
HH17B	10	ALT3	VAR	10								10		10	10
HH20C	11	ALT3	VAR		11							11		11	11
HH39B	13	ALT3	VAR	13						13		13		13	13
HH40B	3	ALT3	VAR	3						3		3		3	3
HH42B	16	ALT3	VAR	16						16		16		16	16
HH45D	108	ALT3	VAR				108			108		108		108	108
HH45E	55	ALT3	VAR				55			55		55		55	55
I007B	24	ALT3	VAR					24				24		24	24
I007C	21	ALT3	VAR					21				21		21	21
I009D	51	ALT3	VAR		51							51		51	51
I009E	5	ALT3	VAR		5							5		5	5
I014B	59	ALT3	VAR		59							59		59	59
I015	37	ALT3	VAR		37							37		37	37
I017C	19	ALT3	VAR	19								19		19	19
I020B	24	ALT3	VAR					24				24		24	24
I024C	1	ALT3	VAR									1		1	1
I024D	4	ALT3	VAR	4								4		4	4
I025C	24	ALT3	VAR	24								24		24	24
I025D	6	ALT3	VAR	6								6		6	6
I028B	2	ALT3	VAR	2								2		2	2
I028C	12	ALT3	VAR	12								12		12	12
I029C	6	ALT3	VAR	6								6		6	6
I033B	6	ALT3	VAR	6								6		6	6
I047B	3	ALT3	VAR	3								3		3	3
I047C	11	ALT3	VAR	11								11		11	11
I048B	3	ALT3	VAR									3		3	3
I058B	2	ALT3	VAR	2								2		2	2
I058C	3	ALT3	VAR	3								3		3	3
I058D	13	ALT3	VAR	13								13		13	13
I060B	58	ALT3	VAR	58						58		58		58	58
I061B	12	ALT3	VAR		12							12		12	12
I062C	15	ALT3	VAR		15							15		15	15
I063B	15	ALT3	VAR				15					15		15	15
I063C	3	ALT3	VAR				3					3		3	3
I065A	2	ALT3	VAR									2		2	2
I065C	4	ALT3	VAR									4		4	4
I070A	11	ALT3	VAR	11								11		11	11
I070C	8	ALT3	VAR	8								8		8	8



UNIT	SIZE (acres)	ROD	PRSC	SITE PREPARATION								PLANT	RELEASE		
				FB	MA	FB/MA	MP	HC/HP	HC/JP	DFTC	HERB		HERB	GRUB	PPF
I071B	8	ALT3	VAR	8								8		8	8
I071C	2	ALT3	VAR	2								2		2	2
I072C	45	ALT3	VAR	45								45		45	45
I073B	3	ALT3	VAR									3		3	3
I073C	36	ALT3	VAR	36								36		36	36
I075B	12	ALT3	VAR							12		12		12	12
I075C	2	ALT3	VAR							2		2		2	2
I080B	12	ALT3	VAR	12								12		12	12
I084B	29	ALT3	VAR	29						29		29		29	29
I086B	7	ALT3	VAR	7								7		7	7
I088A	11	ALT3	VAR	11								11		11	11
I089B	22	ALT3	VAR				22			22		22		22	22
I090B	11	ALT3	VAR									11		11	11
I096	20	ALT3	VAR	20								20		20	20
I099B	5	ALT3	VAR	5								5		5	5
I099C	1	ALT3	VAR									1		1	1
I100C	64	ALT3	VAR	64								64		64	64
I101A	5	ALT3	VAR	5								5		5	5
I102B	3	ALT3	VAR	3								3		3	3
I103C	8	ALT3	VAR	8								8		8	8
I104C	23	ALT3	VAR	23								23		23	23
I104D	3	ALT3	VAR									3		3	3
I109B	11	ALT3	VAR	11								11		11	11
I110B	6	ALT3	VAR	6								6		6	6
I111B	8	ALT3	VAR	8								8		8	8
I112B	6	ALT3	VAR	6								6		6	6
I113C	9	ALT3	VAR	9								9		9	9
I121A	3	ALT3	VAR	3								3		3	3
I121B	5	ALT3	VAR	5								5		5	5
I121C	3	ALT3	VAR	3								3		3	3
I122C	5	ALT3	VAR	5								5		5	5
I122D	5	ALT3	VAR	5								5		5	5
I122E	14	ALT3	VAR	14								14		14	14
I123B	35	ALT3	VAR	35								35		35	35
I124B	19	ALT3	VAR	19								19		19	19
I125B	18	ALT3	VAR	18								18		18	18
I126B	14	ALT3	VAR	14								14		14	14
I127	24	ALT3	VAR	24								24		24	24
I128C	16	ALT3	VAR	16								16		16	16
I129	30	ALT3	VAR	30								30		30	30
I130	34	ALT3	VAR	34								34		34	34
I131B	27	ALT3	VAR	27								27		27	27
I132B	54	ALT3	VAR	54								54		54	54
I133	16	ALT3	VAR	16								16		16	16
I134B	22	ALT3	VAR	22								22		22	22
I135B	13	ALT3	VAR	13								13		13	13
I136B	2	ALT3	VAR	2								2		2	2
I136C	22	ALT3	VAR	22								22		22	22
I137B	36	ALT3	VAR	36								36		36	36
I138	21	ALT3	VAR	21								21		21	21
I139	25	ALT3	VAR	25								25		25	25
I140B	40	ALT3	VAR		40							40		40	40
K010C	119	ALT3	VAR									119		119	119
K011B	2	ALT3	VAR									2		2	2
K011C	15	ALT3	VAR	15								15		15	15
K015B	39	ALT3	VAR	39								39		39	39
K018A	75	ALT3	VAR	75								75		75	75
L001	188	ALT3	VAR		188							188		188	188
L002	96	ALT3	VAR	96								96		96	96
L003	100	ALT3	VAR		100							100		100	100

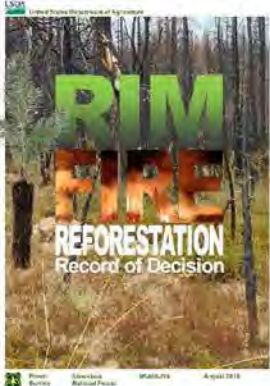
UNIT	SIZE (acres)	ROD	PRSC	SITE PREPARATION								PLANT	RELEASE		
				FB	MA	FB/MA	MP	HC/HP	HC/JP	DTFC	HERB		HERB	GRUB	PPF
M014A	7	ALT3	VAR	7								7		7	7
M014C	9	ALT3	VAR	9								9		9	9
M017C	33	ALT3	VAR				33					33		33	33
M020A	19	ALT3	VAR									19		19	19
M020C	31	ALT3	VAR									31		31	31
V010B	55	ALT3	VAR	55								55		55	55
V012	112	ALT3	VAR				112			112		112		112	112
V014B	23	ALT3	VAR	23								23		23	23
V015	32	ALT3	VAR	32						32		32		32	32
V022B	5	ALT3	VAR	5								5		5	5
V022C	11	ALT3	VAR	11								11		11	11
V022D	11	ALT3	VAR	11								11		11	11
V023B	16	ALT3	VAR		16							16		16	16
V024	237	ALT3	VAR		237							237		237	237
W004B	8	ALT3	VAR	8								8		8	8
W004C	4	ALT3	VAR									4		4	4
X003	20	ALT3	VAR									20		20	20
X013B	2	ALT3	VAR	2								2		2	2
X013C	3	ALT3	VAR	3								3		3	3
X035	67	ALT3	VAR							67		67		67	67
Y002C	86	ALT3	VAR	86								86		86	86
Y014	23	ALT3	VAR		23							23		23	23
Y015	18	ALT3	VAR		18							18		18	18
Y016	17	ALT3	VAR		17							17		17	17
Y018	48	ALT3	VAR		48							48		48	48
Y028	6	ALT3	VAR							6		6		6	6
Y029	52	ALT3	VAR				52			52		52		52	52
Y030	143	ALT3	VAR									143		143	143
Z018	7	ALT3	VAR									7		7	7
BB008	161	ALT4	F20				161				45	32	45		
BB009	24	ALT4	F20								7	5	7		
BB015	48	ALT4	F20				48				13	10	13		
BB020	66	ALT4	F20								18	13	18		
BB076	38	ALT4	F20								11	8	11		
D014	111	ALT4	F20								31	22	31		
E002B	14	ALT4	F20								4	3	4		
E002C	3	ALT4	F20								1	1	1		
E003B	16	ALT4	F20								5	3	5		
E006B	7	ALT4	F20								2	1	2		
E006C	27	ALT4	F20								7	5	7		
E006D	13	ALT4	F20								4	3	4		
FF002	14	ALT4	F20								4	3	4		
FF003	70	ALT4	F20	70							20	14	20		
FF007	96	ALT4	F20								27	19	27		
FF008	68	ALT4	F20								19	14	19		
GG010	41	ALT4	F20								11	8	11		
GG015	19	ALT4	F20								5	4	5		
GG020	265	ALT4	F20						265		74	53	74		
GG023	76	ALT4	F20								21	15	21		
GG025	52	ALT4	F20								15	10	15		
GG027	346	ALT4	F20								97	69	97		
GG031	34	ALT4	F20								9	7	9		
GG034	24	ALT4	F20								7	5	7		
H065	13	ALT4	F20								4	3	4		
H068	54	ALT4	F20								15	11	15		
HH028	18	ALT4	F20								5	4	5		
HH038	93	ALT4	F20	93							26	19	26		
M025	219	ALT4	F20								61	44	61		
T019	36	ALT4	F20	10							10	7	10		
U013	51	ALT4	F20								14	10	14		

UNIT	SIZE (acres)	ROD	PRSC	SITE PREPARATION								PLANT	RELEASE		
				FB	MA	FB/MA	MP	HC/HP	HC/JP	DTFC	HERB		HERB	GRUB	PPF
W002	226	ALT4	F20								63	45	63		
W003	73	ALT4	F20								20	15	20		
X011	22	ALT4	F20								6	4	6		
X014	46	ALT4	F20								13	9	13		
X015	64	ALT4	F20								18	13	18		
X019	73	ALT4	F20								20	15	20		
Y020	50	ALT4	F20				50				14	10	14		
Y025	69	ALT4	F20								19	14	19		
Z006	20	ALT4	F20								6	4	6		
Z008	15	ALT4	F20								4	3	4		
Z011	91	ALT4	F20								26	18	26		
Z013	38	ALT4	F20								11	8	11		
Z014	17	ALT4	F20								5	3	5		
Z016	60	ALT4	F20	60							17	12	17		
Z017	20	ALT4	F20								5	4	5		
Z020	36	ALT4	F20								10	7	10		
Z021	43	ALT4	F20	43							12	9	12		
Z027	88	ALT4	F20								25	18	25		
Z028	137	ALT4	F20								38	27	38		
Z029	32	ALT4	F20								9	6	9		
BB040	13	ALT5	714						13		13	13	13		13
BB041	65	ALT5	714		65						65	65	65		65
BB045	269	ALT5	714				269				269	269	269		269
BB077	9	ALT5	714								9	9	9		
DD007	28	ALT5	714								28	28	28		
DD013	9	ALT5	714								9	9	9		
DD014	13	ALT5	714								13	13	13		
DD015	9	ALT5	714						9		9	9	9		
J001	69	ALT5	714								69	69	69		
J002	243	ALT5	714								243	243	243		
J003	100	ALT5	714								100	100	100		
J004	73	ALT5	714								73	73	73		
J005	161	ALT5	714								161	161	161		
J012	46	ALT5	714								46	46	46		
L008	152	ALT5	714								152	152	152		
L014	155	ALT5	714		155						155	155	155		
M001C	67	ALT5	714			67					67	67	67		
M001E	102	ALT5	714			102					102	102	102		
M001G	182	ALT5	714			182					182	182	182		
M004B	121	ALT5	714	121							121	121	121		
M009B	29	ALT5	714	29							29	29	29		
M010B	29	ALT5	714								29	29	29		
M010D	44	ALT5	714								44	44	44		
M011A	28	ALT5	714								28	28	28		
M017B	62	ALT5	714				62				62	62	62		
M024B	156	ALT5	714	156							156	156	156		
N010B	113	ALT5	714		113				113			113	113		
N019	221	ALT5	714				221			221		221	221		
Q002C	10	ALT5	714	10							10	10	10		
R001	185	ALT5	714								185	185	185		
R017	14	ALT5	714								14	14	14		
R026	48	ALT5	714								48	48	48		
R027	60	ALT5	714								60	60	60		
R029	10	ALT5	714							10		10	10		
R036	17	ALT5	714								17	17	17		
R037	132	ALT5	714						132		132	132	132		
R038	46	ALT5	714							46		46	46		
R039	10	ALT5	714	10							10	10	10		
R046	233	ALT5	714							233		233	233		
S001	282	ALT5	714							282		282	282		

UNIT	SIZE (acres)	ROD	PRSC	SITE PREPARATION								PLANT	RELEASE			
				FB	MA	FB/MA	MP	HC/HP	HC/JP	DTFC	HERB		HERB	GRUB	PPF	
S006	32	ALT5	714									32	32	32		
S007	106	ALT5	714									106	106	106		
T002	52	ALT5	714									52	52	52		
T003	78	ALT5	714									78	78	78		
T004	20	ALT5	714									20	20	20		
T005	116	ALT5	714									116	116	116		
T006	461	ALT5	714								461		461	461		
T007	342	ALT5	714								342		342	342		
T008	32	ALT5	714								32		32	32		
T010	94	ALT5	714									94	94	94		
T011	198	ALT5	714									198	198	198		
T012	71	ALT5	714									71	71	71		
T013	80	ALT5	714									80	80	80		
T014	18	ALT5	714									18	18	18		
T015	64	ALT5	714									64	64	64		
T017	45	ALT5	714									45	45	45		
T025	71	ALT5	714									71	71	71		
U004	50	ALT5	714		50							50	50	50		
U005	18	ALT5	714								18		18	18		
U012	94	ALT5	714									94	94	94		
U015	40	ALT5	714						40			40	40	40		
U018	97	ALT5	714									97	97	97		
U019	130	ALT5	714									130	130	130		
U020	51	ALT5	714									51	51	51		
U021	10	ALT5	714									10	10	10		
X025	12	ALT5	714								12		12	12		
X026	48	ALT5	714								48		48	48		
X028	74	ALT5	714								74		74	74		
X033	65	ALT5	714				65					65	65	65		
X036	240	ALT5	714								240		240	240		
X037	88	ALT5	714									88	88	88		
Z030	44	ALT5	714		44								44	44		
<b>totals</b>	<b>21,279</b>			<b>3,456</b>	<b>1,538</b>	<b>351</b>	<b>2,163</b>	<b>69</b>	<b>705</b>	<b>5,413</b>	<b>9,843</b>	<b>18,611</b>	<b>13,725</b>	<b>5,150</b>	<b>11,733</b>	

714=7'x14' Spacing; ALT=Alternative; D25=Deer Cover Stands 25%; DTFC=Deep Till With Forest Cultivation; F20=Founder Stands 20%; FB=Feller Buncher; GRUB=hand removal; HC=Hand Cut; HERB>manual herbicide application; HP=Hand Pile; ICO=Individuals, Clumps and Openings; JP=Jackpot Burn; MA=Masticate; MP=Machine Pile (with dozer); PF=Prescribed Fire; PPF=Post-planting Prescribed Fire; PRSC=Prescription; SP=Site Preparation; ROD=Record of Decision; REL=Release; VAR=Variable Spacing





- Rim Fire Reforestation (45612)  
**Record of Decision Map**
- Alternative 1 Reforestation
  - Alternative 3 Reforestation
  - Alternative 4 Reforestation
  - Alternative 5 Reforestation
  - Deer Cover Stands
  - Deer Habitat Enhancement
  - Natural Regeneration
  - Thin

