



**File Code:** 1570

**Objection No.:** 18-05-00-0001-O218  
18-05-00-0002-O218  
18-05-00-0003-O218

**Date:** DEC 18 2017

**CERTIFIED MAIL – RETURN  
RECEIPT REQUESTED**

Dear Objector:

The Legal Notice of the objection period for the Power Fire Reforestation Project Environmental Impact Statement (EIS) was published on August 25, 2017. On October 10, 2017, I received objections on the Powers Fire Reforestation Project on behalf of Amador Calaveras Consensus Group (ACCG), Center for Biological Diversity (CBD), John Muir Project (JMP), and Sierra Forest Legacy (SFL).

You were eligible to file an objection and your objection letter was filed during the objection-filing period. I held a resolution meeting with the Eldorado National Forest and objectors on November 13, 2017, SFL declined to attend the meeting due to scheduling conflicts. On December 8, 2017, I conducted a resolution meeting with SFL. The ACCG worked with Eldorado National Forest staff, including District Ranger Rick Hopson to further address their concerns about the project. On December 2, 2017, ACCG withdrew their objection to the project. This letter is my written response to CBD, JMP, and SFL objections.

**Project Summary**

The Power Fire Restoration Project is located in the North Fork Mokelumne River Watershed within the footprint of the 2004 Power Fire area. The Power Fire burned approximately 17,005 acres on the Eldorado National Forest and private timberlands approximately 17 air miles east of Pioneer, California in Amador County. The Power Fire Reforestation Project is located entirely within the fire perimeter on National Forest System lands.

The Eldorado National Forest proposes to plant trees, perform mechanical and herbicide treatments to ensure survival and growth of planted and naturally regenerated forests on approximately 3,500 acres in the Power Fire burn area. The project will reduce fuels, enhance oak regeneration and growth, and reduce the occurrence and spread of invasive plants for the first 6 years post planting. Treatments include 630 acres of mechanical site preparation, 448 acres of targeted area herbicide site preparation which includes, 105 acres of brush cutting (deerbrush), 1080 acres of conifer planting, 516 acres of inter-planting of conifer seedlings, 3,508 acres of herbicide release, 586 of oak stand improvement, as well as control of invasive



plants through manual, mechanical and herbicide treatments. The project proposed activities would accelerate the reestablishment of a fire-resilient, forested landscape to help restore wildlife habitats and provide conditions that support native plant and animal species associated with these ecosystems. The proposed action provides the necessary tools to control or eliminate invasive plant species and to reduce the potential for spread of invasive plants to other areas in the forest.

### **Objection Summary and Responses**

Please see enclosure for the objection points and Reviewing Officer responses.

### **Requested Relief**

You asked to change the project in the following ways:

#### *Sierra Forest Legacy (SFL)*

- a. Fully operationalize the regular use of one or more mulching masticators on a quarter of the project acres for 5 -10 years either to “rescue” at risk seedlings or maintain successful plantation trees, followed by fire. (SFL)
- b. Reconsider our position on the early use of fire in this project, given the results elsewhere in the Sierra Nevada. (SFL)

#### *Center for Biological Diversity/John Muir Project (CBD/JMP)*

- c. Ecological integrity and biodiversity are best maintained by protecting shrub habitat and allowing natural succession to proceed unimpeded. Avoid replanting and using herbicide, or at least greatly reduce the use of herbicide with respect to shrub eradication. (CBD/JMP)
- d. Utilize the best management practices for shrub-nesting species by not disturbing this habitat (shrub cover) for at least 20 years post-fire, to mimic the natural fire return interval in the Sierra Nevada chaparral (Barbour and Major 1988), and to use prescribed fire or managed wildland fire as a complimentary or alternative management tools (Coppoletta et al. 2015). (CBD/JMP)
- e. Prepare a Supplemental EIS to address the recommendations of the Fogg et al. 2017 Report. (SFL)

### **Instructions to the Responsible Official**

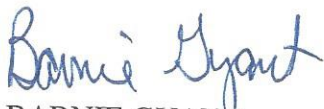
The objection review identified 8 objection issue points within your objection letters. After careful review of the objection issues, there are no instructions for project improvement or changes recommended for the Power Fire Restoration Project. The review looked at several topics including: impact to avian communities caused by planting and herbicide treatments, the use of mastication and fire as a primary treatment tool, the impacts to avian species, and the consideration of a reasonable range of alternatives. Based on the review of the project record, I have determined that the Eldorado adequately addresses the issue brought forward.

## Conclusion

The Forest Supervisor's rationale for this project is clear and the reasons for the project are logical and responsive to direction contained in the Eldorado National Forest Land and Resource Management Plan. As described above, I made a reasonable and appropriate effort to resolve the concerns that were brought forward while maintaining a balanced approach to managing the lands and meeting the purpose of the project.

By copy of this letter, I am instructing Forest Supervisor Laurence Crabtree to proceed with issuance of a Record of Decision for this project. There will be no further review of this response by any other Forest Service or U.S. Department of Agriculture official as per 36 CFR 218.11(b)(2).

Sincerely,



BARNIE GYANT  
Deputy Regional Forester  
Reviewing Officer

cc: Denise Boggs, Larry Glass, Justin Augustine, Laurence Crabtree, Rick Hopson, Jennifer Marsolais, Nevla Brown



## Issue 1:

The projects proposed reforestation practices are concerning because the objector believes that using replanting and herbicides treatments to control or eradicate shrubs would be harmful to essential avian dependent shrub communities. Ecological integrity and biodiversity are best maintained by protecting shrub habitat and allowing natural succession to proceed unimpeded. Fogg et al. 2017 found that increased shrub cover benefited all of the avian communities (JMP/CBD, p. 1).

## Response:

The objectors expressed concerns about the project impacts to shrub habitat. The Power Fire Ecological Framework (Estes and Gross 2015) informed the development of the project (Final Environmental Impact Statement (FEIS), p. B-11). This framework included the following recommendations related to shrub habitat (Estes and Gross 2015, pp. 20-21):

- Release treatments should target shrubs based on species, height, and the extent that are directly interfering with the continued growth of the planted seedlings.
- Maintain post-fire areas that are shrub dominant to provide unique and important resources at the stand level.
- Within planting units, maintain 25% shrub cover in patches that are 5-15 acres in size averaging 40-70% shrub cover in those patches.

Concerns regarding the use of herbicide and its impact of the proposed action on ecological integrity and biodiversity were identified as two of the four significant issues raised during scoping (FEIS, p. 12). The Eldorado National Forest (Eldorado NF) responded to these concerns through analysis of the no action alternative (Alternative 2) and the development and analysis of the 'reduced herbicide' Alternative 3 (FEIS, p. i).

The no action alternative determined that maintaining the current conditions would not met the purpose and need for four of the projects purpose and need for action: because it would not (FEIS, pp. 24-25). The FEIS also concluded that the following purposes and needs for the project would not be met (FEIS, pp. 8-10):

- Reestablish this forested landscape effectively and efficiently.
- Restore wildlife habitats and provide for the native plant and animal species associated with these ecosystems.
- Control and eliminate invasive plant species in the project area to reduce the potential for spread of invasive plants to other areas in the forest.
- Allow the application of herbicides to treat shrubs, grasses and invasive weeds.

The ecological integrity and biodiversity were addressed in the analysis. The Eldorado Forest Land and Resource Management Plan (LRMP) standards and guidelines require silvicultural and fuels reduction treatments applied to plantations to increase stand heterogeneity (FEIS, p. 107). The Botany Report (p. 37), discussed the diversity of plant communities required for all alternatives. The Silvicultural Report (p. 19), explained that while the proposed project treatments may temporarily reduce a number of various plant species, no species would be expected to be eliminated. In addition, the reforestation efforts would promote stand heterogeneity by planting shade intolerant trees and protecting oaks (Silvicultural Report, p. 19). Conversely, under Alternative 2, woody brush would dominate the landscape and leave little opportunity for other species to become established (Silvicultural Report, p. 25).



The analysis discusses how competing vegetation greatly affects tree growth rates. Tree survival and growth in the plantations are at continued risk of mortality due to high levels of competing vegetation and invasive plant species infestations that increase after the fire and salvage logging (FEIS, pp. 8-9). The Forest provided further rationale on why herbicides treatments are needed in the alternative considered, but eliminated from further detail study section of the FEIS (pp. 24-25) and responded directly to herbicide use within the draft Record of Decision (Draft ROD, p. 9):

*“The use herbicides are a well-researched, established, cost effective means to reach these goals. Both the scientific literature and local experience with planting conifer seedlings after numerous fires on the Eldorado National Forest show that herbicide release safely provides for:*

- Increased seedling survival and increased species diversity;*
- Increased species richness and herb and forb cover compared to shrub-dominated stands;*
- Accelerated development of late seral stand components such as large trees, high canopy cover and large dead wood components;*
- Decreased time needed to reach a height and structure where young conifers have an increased ability to withstand low intensity fire;*
- Increased management options, including mechanical treatments and prescribed fire as management or maintenance tools;*
- Increased ability to use direct firefighting tactics during fire suppression.”*

The project planting arrangement calls for trees to be planted individually and in groups (or clusters) and tree placement on the landscape to utilize local microsite conditions to initiate heterogeneity enhancement. Stocking rates on a majority of the project area will be 140-200 trees per acre (Draft ROD, p. 3).

The Migratory Bird Treaty Act (MBTA) report addressed potential impact to a wide variety of bird species. This report concluded that the project would not adversely impact migratory land bird species or their associated habitats due to the variety of habitats contained in the project area, the amount of habitat potential impacted, implementation of the design features, and adherence with LRMP Standards and Guideline (MBTA report, p. 1).

The Forest responded to a comment received by Sierra Forest Legacy in regards to the reduction of shrubs and the negative impact on wildlife habitat in post-fire early seral forest habitat by referring to the results of avian monitoring conducted in the Fred's and Power Fire area (FEIS, p. B-31):

*“Avian monitoring in the Fred's and Power Fire area conducted by Point Blue Conservation Science found that reforestation had a positive effect on early successional bird species ( $P < 0.001$ ), indicating that even when taking salvage logging into account, planting trees may have resulted in increased abundance of some early successional birds (Fogg et al. 2015). Patterns were similar for species richness. The report suggests that planting trees where natural regeneration was poor may offer more habitat structure for nesting and foraging.”*

I find that the Eldorado NF considered comments and incorporated measures to reduce the use herbicide in the development of Alternative 3. The Forest concluded that in order to meet the

projects purpose and need, herbicide treatments are needed to control shrubs, grasses and invasive weeds. The responsible official selected the modified Alternative 3 to balance the project objectives described in the purpose and need and the concerns identified through public input: Reduce the amount of herbicide spray as compared to the proposed action, and vary the planting density to emulate the spatial heterogeneity (Draft ROD, pp. 2-3). This alternative differs from Alternative 3 primarily in planting density, type and methods of release in order to retain more shrub habitat (Draft ROD, pp. 2-3).

In addition, I find the agency completed a detailed analysis disclosing the connection between project and species diversity. The responsible official considered the effects of herbicide relative to the purpose and need, and the ecological integrity and biodiversity during the development of Alternatives 1 and 3.

## Issue 2:

Herbicide treatments designed to control shrub cover negatively affected avian species abundance and richness. Analysis from Fogg et al. 2017 indicated that herbicide treatments in Fred's Fire showed 37% higher Early Seral Forest (ESF) bird abundance and species richness at control points compared to treated points. Open Mature Forest (OMF) bird guild showed 50% higher abundance at control points versus treated points and 60% higher species richness. This study shows a significant difference between intact shrub habitat and those that are manipulated to accelerate forest regeneration (JMP/CBD, p. 1).

## Response:

The analysis related to concerns about herbicide treatment and how the alternatives were developed to address these concerns, can be found in Issue 1.

The FEIS analysis included discussions on the amount of early seral stage habitat that would be impacted by the project. Within the western bumble bee analysis, it was estimated that the Power Fire area has in excess of 9,500 acres of early seral stage habitat; impacts would occur on approximately 40% of the existing habitat (FEIS, p. 201). The analysis concluded that 160 acres (35%) of the total 450 acres of suitable fox sparrow habitat within the Power Fire area would be impacted for a limited time (FEIS, p. 205; MIS p. 18). The FEIS/Management Inventory Species (MIS) report explained that proposed treatments would impact only a portion of the habitat type (FEIS, p. 205; MIS p. 19). The analysis continued to say that since some portion would persist for the next 5-10 years, the proposed actions would not be expected to change the species trend, contributing a negligible increase in adverse cumulative effect to the fox sparrow habitat type/species (FEIS, p. 205; MIS p. 1). Project effects on mountain quail would not be immediate. In the short term, 1-25 years, the proposed activities in these alternatives would not greatly change the amount of early to mid-seral habitat available to quail. Some mid-seral habitat would persist 15-30 years post implementation (FEIS, pp. 207-208).

The Migratory Bird Treaty Act (MBTA) report addressed potential impact to a wide variety of bird species. This report concluded that the project would not adversely impact migratory land bird species or their associated habitats because of the variety of habitats contained in the project area, the amount of habitat potentially impacted, implementation of the design features, and adherence with LRMP Standards and Guideline (MBTA report, p. 1).

The projects design criteria included the following protection measures (MBTA, p. 1 and FEIS pp. 22-23):



- Limited operating periods for California spotted owl and northern goshawk.
- No planting in California spotted owl habitat.
- No planting would occur within 20 feet of the drip line of mature living oaks, the dominant stem of stump sprouting oaks, and oak sapling stems greater than or equal to 1 inch in diameter.

The Forest responded to a similar concern within the Response to Comments document regarding shrub treatments and impacts to birds:

*“Avian monitoring in the Fred’s and Power Fire area conducted by Point Blue Conservation Science found that reforestation had a positive effect on early successional bird species ( $P < 0.001$ ), indicating that even when taking salvage logging into account, planting trees may have resulted in increased abundance of some early successional birds (Fogg et al. 2015). Patterns were similar for species richness. The report suggests that planting trees where natural regeneration was poor may offer more habitat structure for nesting and foraging (FEIS, p. B-31).”*

The Power Fire Ecological Framework (Estes and Gross 2015) informed the development of the project (FEIS, p. B-11). Recommendations for shrubs from in this report include (Estes and Gross 2015, pp. 20-21):

- Release treatments should target shrubs based on species, height, and the extent that are directly interfering with the continued growth of the planted seedlings.
- Maintain post-fire areas that are shrub dominant to provide unique and important resources at the stand level.
- Within planting units, maintain 25% shrub cover in patches that are 5-15 acres in size averaging 40-70% shrub cover in those patches.

The Forest developed a modified Alternative 3 to include a planting strategy where trees would be planted individually and in groups (or clusters) and tree placement on the landscape would utilize local microsite conditions to initiate heterogeneity enhancement (Draft ROD, p. 3).

I find the responsible official weighed the impact of herbicide treatments on shrubs and the changes in avian species abundance and made the decision that best meets the purpose and need to re-establish a forested landscape. The analysis included a discussion of the potential impacts to a number of bird species and concluded that application of herbicides would be required to help reach the desired shrub cover. The Power Fire Ecological Framework (Estes and Gross 2015) was used to develop the recommendations related to shrub treatments (FEIS, p. B-11). The various arrangements of tree plantings for the project was selected to help retain more early seral stage habitat.

### Issue 3:

The Power Fire project should be re-evaluated to focus on early seral reserve using mostly managed wildfire and prescribed fire as the primary tool. The findings provided by Fogg et.al (2017) indicate new information specific to the Power Fire area that would require at least an EIS to address its findings (JMP/CBD, p. 2).

### Response:

The Eldorado NF considered but eliminated from detailed study, two alternatives that included the use of prescribed fire treatments as documented in the FEIS (pp. 24–31). Both alternatives did not meet the purpose and need for the project to effectively and efficiently reestablish a forested

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landscape that is also fire resilient. The current vegetation conditions was determined to likely to lead to extensive mortality of existing conifer regeneration where it exists.

The Eldorado NF used the Power Fire Ecological Framework (Estes and Gross) to help develop the reforestation strategy of Alternative 3 employing techniques that depart from “traditional” silviculture practices by planting fewer trees per acre in varying arrangements (FEIS, p. B-29). The framework included recommendations for early seral stage islands (Estes and Gross, p. 21). The planting arrangement for the project under modified Alternative 3 has a reduced stocking rate of 140-200 trees/acre with trees planted in clusters of 2-10 trees (Draft ROD, p. 3).

The project record included the 2015 Avian Monitoring in the Fred’s and Power Fire Areas (Fogg et al. 2015). This report included post-fire management recommendations (Fogg et al. 2017, pp. 3-5). The last report received by the forest, the 2015 report, did not include an analysis of effects of herbicide treatments in the Fred’s Fire area and effects on the avian community.

An adjacent project, the Power Fire Fuels Maintenance Study, which is listed as a foreseeable future action in Table 3.1 of the FEIS (p. 39) proposes to treat remnant stands of green forest within the Power Fire landscape, conducting prescribed fire treatments on approximately 4,000 acres of mixed conifer and red fir forests that burned at low to moderate severity during the 2004 Power Fire, which would help reduce high severity fire threats to mature tree patches.

The Eldorado NF considered the use of fire as the primary management tool, but eliminated from further detailed study since using fire would not meet the purpose and need to control, eliminate and reduce the spread of invasive plant species in the project area (FEIS, p.10). The reintroduction of fire and subsequent restoration fire treatments in the Power Fire area will be developed in a separate project document (FEIS, p. 4). The Eldorado NF developed a planting strategy that will assist in retaining some early seral stage forest habitat and density to emulate the spatial heterogeneity of forest conditions that would have been created by topography’s influence on fire frequency and intensity (Draft ROD, pp. 2-3).

I find the project analysis included consideration of using managed and prescribe fire as the primary tool, but concluded that the use of fire would not be the most effective treatment for controlling invasive species. The Forest received the 2017 Fogg. et al. report after the publication of the draft ROD and is considered as new information that was not available at the release of the NEPA document. The responsible official has agreed to consider the literature provided before signing a final decision.

### Issue 3a:

Mastication or herbicide treatments used to reduce shrub cover could be more strategically focused near mature tree patches to help reduce future high severity fire threats (JMP/CBD, p. 2).

### Response:

The Eldorado NF considered and analyzed the effects of the action alternatives to meet the purpose and need of the project. The proposal will plant trees, perform mechanical and chemical treatments to ensure survival and growth of planted and naturally regenerated forests, reduce fuels, enhance oak regeneration and growth, and reduce the occurrence and spread of invasive plants in portions of the Power Fire area (FEIS p. 10).



The proposed action was designed to primarily reforest previously salvage logged areas where the density of snags would not create safety risks for workers (FEIS p. 10). The proposal avoids treatments in designated Wilderness, presently suitable spotted owl habitat, areas with low post fire tree mortality, and areas of moderate to high mortality that were not salvage logged and are too steep for mechanical site preparation (FEIS p. 10).

The recommendation from Fogg et al. (2017) that is cited in the objectors comment relates to management of remnant stands of green forests within post-fire landscapes, which is outside of the scope of this project, because it does not meet the primary objectives of the project which are to “... *move the project area from its existing condition, which is primarily early-seral conditions, toward the desired future conditions...*” (FEIS p. 8) of a forested landscape that is fire resilient, provides a defendable buffer against fires between wildlands and communities, and is suitable habitat for old forest species (FEIS Table 1.1).

An adjacent project, the Power Fire Fuels Maintenance Study (listed as a foreseeable future action in Table 3.1 of the FEIS (p. 39)) proposes to treat remnant stands of green forest within the Power Fire landscape, conducting prescribed fire treatments on approximately 4,000 acres of mixed conifer and red fir forests that burned at low to moderate severity during the 2004 Power Fire, which would help reduce high severity fire threats to mature tree patches.

I find the Eldorado NF included activities related to this recommendation from Fogg et al. (2017) into their restoration strategy for the area burned by the 2004 Power Fire as demonstrated by the proposed Power Fire Fuels Maintenance Study project. The project record showed that treatment in mature tree patches occurred where conditions were appropriate, i.e. outside of suitable owl habitat, in low post fires tree mortality areas, and outside of steep slopes.

### Issue 3b:

The best management practices for shrub nesting species would be to avoid disturbing the habitat for at least 20-years post fire (JMP/CBD, p. 2).

### Response:

The reference regarding the Best Management Practices (BMPs) for shrub nesting species is found in the 2015 Avian Monitoring in the Fred's and Power Fire Areas report (Fogg. et al. 2015). The report (Fogg. et al. 2015, p. 24) states that best management practices to reduce impacts to shrub-dependent species would avoid disturbing shrub habitat for at least 20 year post-fire, to mimic the natural fire return interval in Sierra Nevada chaparral (Barbour and Major 1988). Forest Service BMPs do not explicitly direct forests to avoid disturbing shrub habitat for at least 20-years post fire (FSH 2509.22).

The Forest considered two alternative (Alternative 2, no action) that would not treat shrubs and determined the options would not meet the projects purpose and needs to reestablish forested landscape effectively and efficiently. Management of competing vegetation including shrubs is considered essential to assuring continued survival and growth of the remaining conifer seedlings and would allow planting in units currently understocked to meet the desired future conditions across all land allocations (FEIS, pp. 8-9).

The project's analysis included potential effects on shrub habitat for fox sparrow, a management indicator species (FEIS pp. 204-205; Management Indicator Species (MIS) report, pp. 18-20). The

analysis concluded that 160 acres (35%) of the total 450 acres of suitable fox sparrow habitat within the Power Fire area would be impacted for a limited time. The FEIS/MIS report explained that that proposed treatments would impact only a portion of the habitat type (FEIS, p. 205; MIS p. 18). The analysis continued to say that since some portion would persist for the next 5-10 years, the proposed actions would not be expected to change the species trend, contributing a negligible increase in adverse cumulative effect to the fox sparrow habitat type/species (FEIS, p. 205; MIS p. 18).

The MBTA report prepared for the project addressed potential impact to a wide variety of bird species. This report concluded that the project would not adversely impact migratory land bird species or their associated habitats due to the variety of habitats contained in the project area, the amount of habitat potential impacted, implementation of the design features, and adherence with LRMP Standards and Guideline (MBTA report, p. 1).

I find the Forest adequately analyzed for the avoidance of shrub treatment within the project documents. The responsible official concluded that in order to meet the project purpose and need, shrub management in certain areas within the project is necessary to help reestablish forested landscape effectively and efficiently. The Eldorado NF provided an analysis of potential impacts to shrub nesting birds. It was estimated that 35% of the fox sparrow habitat within the Power Fire area would be impacted by the project and explained how the project activities will result in a negligible impact to the habitat type/species.

### Issue 3c:

It is arbitrary to dismiss our alternative ideas (regularly maintain planted areas with a mulching masticator followed by fire) without analysis and without a trial for some reasonable period (SFL, p.3).

### Response:

The Eldorado NF utilized a document entitled *Review of Silvicultural Methods* (prepared by Bob Carroll, Silviculturalist, dated March 1, 2016). This document was a pivotal source of information influencing the development of the proposed action and alternatives in terms of the effectiveness of alternative treatment options to meet the project purpose and need. The Carroll Review concluded that mowing/mechanical removal of brush would be infeasible for three reasons:

- 1) Terrain limitations by the presence of rocks/logs (Carroll Review, p. 5). The report explained that steep (30-35%) slopes cover a substantial portion of the project area inhibits mechanical subsoiling and/or disking treatments to reduce bear clover and other shrubs (Carroll Review, p. 3).
- 2) The presence of already planted seedlings could be damaged or destroyed through mowing (Carroll Review, p. 5), approximately 2,500 of the 3,508 acre project area (71%) has previously been planted (FEIS p. 14).
- 3) The ability of a number of the target 'competitor' species to rapidly re-sprout after mowing/mulching, rendering this method ineffective without frequent maintenance (Carroll Review pp. 3-5).

The Eldorado NF incorporated mastication for site preparation as part of the proposed action where appropriate (ROD, p. 4; Carroll Review, p. 2). Since growth characteristics vary between species, the Responsible Official concluded that utilizing pre-cutting deer brush treatments more effectively met the need of species reestablishment treatments while also addressing public concerns over the volume of herbicide (ROD, p. 13).



In addition, the Forest's rationale for not incorporating the use of prescribed fire as part of the proposed action is documented in the FEIS (FEIS, pp. 25-30). Prescribed fire was eliminated from detailed study because it does not meet the purpose and need (FEIS, p. 26), and is partly duplicative of a concurrent project that reintroduces fire within the project area (Power Fire Fuels Maintenance Study) (FEIS p. 39). In the discussion, the FEIS analysis included fire mortality rate for young plantations (pp. 27- 28); the delay in mature forest development because of natural regeneration and founder stands rates (FEIS, p. 28); and comparison of past fire reforested areas to unplanted area (p. 29).

The objector's request for implementing an alternative approach under a trial period does not align with the purpose and need for the project to effectively and efficiently reestablish a forested landscape that is fire resilient (FEIS, pp. 8- 9). In the ROD (p. 9), the Responsible Official points to the use of herbicide as "*a well-researched, established, cost effective means to reach these goals.*"

I find that the agency's decision is not arbitrary and is based on supporting documentation and analysis in the project record. The project record shows that the agency studied a range of alternatives, and developed those appropriate to meet the purpose and need. The agency has clearly documented the rationale for not incorporating prescribed fire into the proposed action and alternatives.

#### Issue 4:

The FEIS failed to adequately address and take a hard look at a reasonable range of alternatives which is a violation of NEPA (40 CFR 1502.14) (SFL, p.2). The Forest Service did not accurately or adequately address using low-ground pressure mulching masticators to address the issue of shrub competition in the Power Fire landscape for managing reforestation. The mastication tools identified by the objector was a suggested not required tool to use to for regular maintenance of brush fields in planted areas, fuel break maintenance, and fire line construction areas. A low ground pressure mulching masticator would replace the need for herbicide use, utilize the chop and lay method, and allow for reintroduction of fire in these areas (SFL, p.2).

#### Response:

Public involvement for this project has led to the development of several alternatives, including one derived from comments received on the DEIS (FEIS, pp. 25-31). The alternative, "Prescribed Fire, Natural Regeneration, Limited Cluster Planting Alternative" was intended to address the issues raised by Sierra Forest Legacy (SFL) in their comments to the DEIS (FEIS, p. B-3/6).

The FEIS provides a rationale for eliminating Prescribed Fire, Natural Regeneration, Limited Cluster planting alternative from detailed study. Prescribed fire was eliminated from detailed study because it does not meet the purpose and need (FEIS, p. 26), and is partly duplicative of a concurrent project that reintroduces fire within the project area (Power Fire Fuels Maintenance Study) (FEIS p. 39). In the discussion, the FEIS analysis included fire mortality rate for young plantations (pp. 27- 28); the delay in mature forest development because of natural regeneration and founder stands rates (FEIS, p. 28); and comparison of past fire reforested areas to unplanted area (p. 29).

However, there is minimal information in the FEIS or response to comments that directly analyzes the use of mastication or mulching for release treatments or compares it to herbicide release. The FEIS states that hand grubbing has not been effective at controlling vegetation (p. B-2/4; pp. 26-31); that the forest owns mastication equipment and mastication is a proposed site preparation treatment in Alternative 3, but it does not address why the treatment isn't proposed for release (p. B-5/4).



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The document titled “Review of Alternative Silvicultural Methods” (prepared by Bob Carroll, Silviculturalist, dated March 1, 2016) identified a small amount of non-sprouting manzanita present in the Power Fire area (p. 2); as a result it’s concluded that mechanical removal with mastication is not feasible because of high likelihood of damage to planted trees (Carroll Review, p. 4). The Carroll Review also states that mulching planted trees directly is costly and has not proven to be the most effective at treating woody brush species, but may be effective for grasses and forbs (p. 5).

I find that supporting information included in the project record was used to adequately address a reasonable range of alternatives. The supporting information provided a full explanation discussing the feasibility of mulching and mastication compared to herbicide use as vegetation control treatments.

### Issue 4a:

The Forest Service offered no specific example describing how low ground pressure mulching masticator are used for the management of shrub fields and provided an arbitrary and meaning less response to our concerns. NEPA requires the Forest Service “rigorously explore and objectively evaluate” of all reasonable alternatives 40 CFR §1502.14 (a) (SFL, p. 2).

### Response:

Public involvement for this project has led to the development of several alternatives (see analysis section, Issue 4 for description). The alternative, “Prescribed Fire, Natural Regeneration, Limited Cluster Planting Alternative” was intended to address the issues raised by Sierra Forest Legacy (SFL) in their comments to the DEIS (FEIS, p. B-3/6). In its objection, SFL states that the Forest Service did not evaluate this alternative sufficiently before eliminating it from detailed study.

The FEIS provides five pages of information supporting the decision to eliminate prescribed fire alternative from detailed study because it doesn’t meet the purpose and need (FEIS, p. 26/1), and because the decision to reintroduce fire to the project area is covered under another project (Power Fire Fuels Maintenance Study; FEIS p. 39). In the discussion, the FEIS states how fire can cause high mortality to young plantations (pp. 27/1 -28/1); why relying on natural regeneration and founder stands could delay the development of a mature forest and slow growth of young trees (FEIS, pp. 28/2-3); and how reforested areas on past fires on the Eldorado National Forest have compared to unplanted areas (p. 29/3).

One component of the dismissed alternative not fully discussed is bullet seven (p. 36) of the FEIS, which proposes the use of mulching masticator machines to control competing vegetation. The use of mastication is proposed as a site preparation treatment in both Alternatives 1 and 3 (FEIS, p. 16; p. 19). However, it is not discussed in the FEIS, ROD, or Silviculture report as a method of vegetation control or release after planting; thus this component distinguishes it from the fully developed alternatives. The titled “Review of Alternative Silvicultural Methods” addresses the use of mulching and mechanical removal of competing vegetation (prepared by Bob Carroll, Silviculturalist, dated March 1, 2016). This document describes various reasons that “mowing/mechanical removal” of competing vegetation is not proposed in the Power Fire, including: terrain, rocks, logs, and the presence of sprouting vegetation (Carroll Review, p. 5).

Although the Eldorado NF did not provide a specific example for the regular use of low pressure mulching masticators, I find that the Forest clearly explained why using this type of mechanical treatment would not meet the purpose and need or the desired condition of the project. The silvicultural methods review document in the project record provides ample justification to dismiss



## Issue 5:

The Forest Service failed to address the economic issues previously raised by the objectors. The request by the objectors was to complete an economic comparison of reforestation with herbicides to reforestation with mulching machines and fire. The resistance by the Eldorado NF to increase fire use on the landscape created blindness by the Forest to employ an active, science based fire regime to reach the desired condition for the landscape (SFL, p. 3).

## Response:

An economic comparison of reforestation with herbicides to reforestation with mulching machines and fire was not included in the FEIS. A report by the project silviculturalist (Carroll, Review of Alternative Silvicultural Methods, March 1, 2016) concluded that mowing/mechanical removal of brush would be infeasible due to:

- 1) Terrain limitations due to the presence of rocks/logs (Carroll Review, pg. 5).
- 2) The presence of already planted seedlings which could be damaged or destroyed through mowing (Carroll Review, p. 5). Approximately 2,500 of the 3,508 acre project area (71%) have been previously planted (FEIS p. 14).
- 3) The ability of the majority of the target species to rapidly resprout after mowing/mulching, rendering this method ineffective without frequent maintenance (Carroll Review pp. 3-5).
- 4) The Carroll Review (p. 2) indicates that both machine and hand release are more expensive than herbicide application, but does not provide details.

Also, the agency incorporated mastication for site preparation as part of the proposed action where appropriate (ROD, p. 4; Carroll Review, p. 2). Since growth characteristics vary between species, the Responsible Official concluded that utilizing pre-cutting deer brush treatments more effectively met the need of species reestablishment treatments while also addressing public concerns over the volume of herbicide (ROD, p. 13).

I find that the project record supports the elimination of a reforestation with mulching machines and fire alternative from detailed consideration. Additionally, the forest provided some information in the economic analysis about the cost of different treatments.

## Issue 6:

Forest Service acted in an arbitrary manner by failing to take a “hard look” at recent scientific information regarding practices of using fire in younger plantations in nearby by Sierra Nevada forests. It is arbitrary to dismiss our comments and recommendations for pruning and early fall fire applications as a reasonable and feasible alternative for Power Fire Reforestation (SFL, p. 3).

## Response:

The Eldorado NF considered but eliminated from detailed study, two alternatives that include the use of prescribed fire treatments as documented in the FEIS (FEIS, pp. 24 – 31). Both alternatives did not meet the purpose and need for the project because continued competition with early seral vegetation will not allow the most effective and efficient reestablishment of a forested landscape or contribute to the restoration of old forest habitat lost during the Power Fire (FEIS, pp. 24 – 31).

The Forest reviewed and considered scientific literature regarding vegetation management and fire and fuels reduction treatments in Sierra Nevada plantations, along with recent research by Kobziar et al. (2009) that included the use of prescribed fire (FEIS, p. 27). The analysis concluded that:

*“Applying prescribed fire in the project area under the current vegetation conditions is likely to lead to extensive mortality of existing conifer regeneration where it exists (FEIS, p. 25). In addition, the planted and naturally regenerated trees in the Power Fire area are less than ten years old and susceptible to death from cambium scorch due to thin bark. Finally, although mastication can increase canopy base height; it can also increase surface fuel loading and fire intensity over the short term (FEIS, p. 27).”*

The discussion section of Bellows et al. indicates their approach may not be feasible for the Power Fire Reforestation Project because the stand conditions for successful application of prescribed fire to young plantations may differ from the current conditions. The Bellows et al. (2016) study was conducted in 13 – 14 year old plantations at the Blodgett Forest Research Station with “...*treatment histories typical of plantations in the mixed conifer forest where the objective is to establish tree dominance quickly and to maintain high individual tree vigor to meet or exceed desired stocking levels*”. The Power Fire Reforestation project area is described as:

*“Vegetation with areas of naturally regenerated and planted trees within a matrix of shrubs, forbs, and grass; and areas of shrubs where trees are generally absent.” (FEIS, p. 26)...Currently the establishment of grasses, shrubs, and other vegetation, while variable, is approaching 100% cover over the project area. Establishment of greater than 30% cover of vegetation presents a potential lethal environment to the establishment of conifer seedlings (FEIS, p. 9).”*

The site conditions at Blodgett Forest Research Station are similar to the desired conditions that the Eldorado NF hopes to create over the 6-year life-span of the Power Fire Reforestation Project. The project objectives are to accelerate the reestablishment of a forested landscape that is fire resilient (FEIS, p. 8), and the FEIS includes support of the findings presented by the objector that “*The reintroduction of fire is desirable at some point in the future in this project area to aid in fuel reduction, wildfire resilience, and ecological restoration.*” (FEIS, p. 26) Additionally, the Silvicultural report states that a result of the project activities would produce faster growing trees that would provide an opportunity for earlier use of prescribed fire with lower potential for tree mortality (p. 19).

While the Forest concluded that prescribed fire treatments do not meet the purpose and need of this project, there is evidence in the project record that demonstrates interest in reintroducing fire to plantations once conditions in the project area more closely resemble the conditions under which Bellows et al. (2016) and Kobziar et al. (2009) were successful (FEIS, p. 26; Silvicultural Report, p. 19).

I find that the Eldorado NF rigorously explored and objectively reviewed reasonable alternatives and met the standard of taking a “hard look” at recent scientific information in making their decision to exclude alternatives that would rely on prescribed fire to treat plantations in the project area. The rationale and conclusions in the FEIS are supported in the literature and project record.



## Issue 7:

The Forest Service suggestion that under-burning young plantations is not a feasible approach, is arbitrary and fails to address existing practices that use fire in plantations in early stage development on Forest Service reforestation projects in the Sierra Nevada (see examples I and ii within letter) (SFL, p. 4).

## Response:

The Eldorado NF considered but eliminated from detailed study, two alternatives that include the use of prescribed fire treatments as documented in the FEIS (FEIS, pp. 24 – 31). Both alternatives did not meet the purpose and need for the project because continued competition with early seral vegetation will not allow the most effective and efficient reestablishment of a forested landscape or contribute to the restoration of old forest habitat lost during the Power Fire (FEIS, pp. 24 – 31).

The Forest reviewed and considered scientific literature regarding vegetation management and fire and fuels reduction treatments in Sierra Nevada plantations, including recent research by Kobziar et al. (2009) that included the use of prescribed fire (FEIS, p. 27). The analysis concluded that:

*“Applying prescribed fire in the project area under the current vegetation conditions is likely to lead to extensive mortality of existing conifer regeneration where it exists (FEIS, p. 25). In addition, the planted and naturally regenerated trees in the Power Fire area are less than ten years old and susceptible to death from cambium scorch due to thin bark. Finally, although mastication can increase canopy base height; it can also increase surface fuel loading and fire intensity over the short term (FEIS, p. 27).”*

The Forest does not suggest that the use of prescribed fire in young plantations is entirely infeasible. The project objectives are to accelerate the reestablishment of a forested landscape that is fire resilient (FEIS, p. 8), and the FEIS includes support of the findings presented by the objector that *“The reintroduction of fire is desirable at some point in the future in this project area to aid in fuel reduction, wildfire resilience, and ecological restoration (FEIS, p. 26).”* The proposed action refers to site preparation and release treatments extending from years one through six across the project area (Tables 3SE.1, 3SE.2; FEIS, pp. 170-172), and as such does not preclude the use of fire after year six, as described in the research papers provided. Additionally, the Silvicultural report states that a result of the project activities would produce faster growing trees that would provide an opportunity for earlier use of prescribed fire with lower potential for tree mortality (p. 19).

I find the Responsible Official considered the effects relative to the purpose and need. There is evidence in the FEIS that an evaluation of SFL’s suggestion of prescribed fire alternative was a part of the reasonable range of alternative, however it was determined the objectives for this project were limited in scope and more concentrated on preparation activities for future fire re-introduction. The information considered and conclusions drawn in the FEIS are supported in the literature and the project record.

## Issue 7a:

It is arbitrary and a violation of NEPA’s requirements for “high quality and accurate scientific information” (40 CFR §1500.1(b) for the Eldorado National Forest to suggest that fire cannot be applied early on in the establishment of young stands in the Power Fire Reforestation project (SFL, p. 5).



## Response:

Sierra Forest Legacy (SFL) provided two sources of information showing evidence where prescribed fire has been applied in young plantations. The examples, from the Big Creek Fire Reforestation (Sierra National Forest 2016) and the UC Blodgett Research Forest (Bellows, et al. 2016), indicate the successful use of prescribed fire in 6-10 year old and 13-14 year old plantations, respectively. A review of the project record did not clearly identify how the forest reviewed these references.

A preliminary review of the FEIS indicates that the new research identified by the objector might not be entirely applicable to the proposed action, for the following reasons:

- 1) The site conditions described as preceding the application of prescribed fire in the two research studies appears to differ notably from the description of existing site conditions in the proposed action. The FEIS states that existing vegetative cover averages over 80% and that *“modeling of potential fire behavior and existing tree mortality shows that current rates of spread and fire intensity ranges from moderate to high, with very high mortality to regenerating trees”* (FEIS, p. 102). In contrast, Bellows et al. states that the treated plantations had been planted at least six years prior, following clear-felling and site preparation. Bellows et al. does not provide information about whether the study site preparation was similar to what is being proposed in Alternatives 1 or 3. There is not enough information to evaluate conditions preceding the Sierra National Forest prescribed burn.
- 2) The discussion section of Bellows et al. indicates their approach may not be feasible for the Power Fire Reforestation Project because the result of the research burns don't appear to align with the stated purpose and need (FEIS, pp. 8-9). To summarize, Bellows et al. (Forest Ecology and Management 376 (2016), p. 198) noted that a high degree of variability in burn effects on damage and mortality should be expected [in young plantations], which does not seem to align with the Eldorado's objective of restoring a fire resistant conifer forest effectively and efficiently (ROD, p. 7). The Record of Decision further states that “faster growing trees would also provide opportunity for earlier use of prescribed fire with lower potential for tree mortality (ROD, p. 8).”
- 3) The proposed action refers to site preparation and release treatments extending from years 1 through 6 across the project area (Tables 3SE.1, 3SE.2; FEIS, pp. 170-172), and as such does not preclude the use of fire after year 6, as described in the research papers provided. The FEIS states that the proposed action is a necessary precursor to the reintroduction of fire and that the agency agrees that the reintroduction of fire is desirable at some point in the future (FEIS, p. B-2).

The agency reviewed the study by Kobziar, et al. (2009), another recent study concerning the application of fire to plantations in the Sierra Nevada (FEIS, p. 27). The Forest Service's summary of this information shows that the agency does not suggest that fire cannot be applied early in the establishment of young plantations, but rather that the application of fire was not appropriate for site specific conditions in project area because *“applying prescribed fire in the project area under the current vegetation conditions is likely to lead to extensive mortality of existing conifer regeneration where it exists.”* This effect is counter to the project purpose and need to effectively and efficiently reestablish a forested landscape that is fire resilient (ROD, p. 7).

I find that the Eldorado NF rigorously explored and objectively reviewed reasonable alternatives and met the standard of taking a “hard look” at recent scientific information in making their decision to exclude alternatives that would rely on prescribed fire to treat plantations in the project area.



## Issue 8:

We remain strongly opposed to the use of chemicals in forest management as such uses promote, homogenous, depauperate landscapes and thwart the reintroduction of fire as a primary management tool and critical ecological process. It violates the important concept of ecological integrity in the 2012 Forest Planning Rule to continually recreate conditions that do not represent natural forest evolution over time (SFL, p. 6).

## Response:

The objection states a strong opposition to the use of chemicals (herbicides) in forest management for three primary reasons:

- 1) Herbicides promote homogeneous, depauperate landscapes.
- 2) Herbicides thwart the reintroduction of fire.
- 3) Herbicides thwart critical ecological processes.

Concerns regarding the use of herbicide and its impact of the proposed action on ecological integrity and biodiversity were identified as two of the four significant issues raised during scoping (FEIS, p. 12). The Eldorado NF responded to these concerns through analysis of the no action alternative (Alternative 2) and the development and analysis of the 'reduced herbicide' Alternative 3 (FEIS, p. i). The Responsible Official explained that balancing the project objectives while addressing public concerns over the use of herbicide as an important factor in his decision to select Modified Alternative 3 (ROD, p.11).

The Power Fire Ecological Framework states that *"to various degrees the forest prior to the [Power] fire had been changed from one dominated by large, old, widely spaced trees to one with dense, fairly even aged stands* (Estes and Gross, 2015, p. 5)." The Eldorado NF considered project actions to increase landscape heterogeneity through the development of 3 unique planting arrangements for Alternative 1 (FEIS, p. 15) and 5 additional planting arrangements for Alternative 3 (FEIS, pp. 18-19). The development of 8 planting arrangements shows the forests effort of designing arrangements to avoid the establishment of dense, homogeneous stands (FEIS, p. 15), and to utilize local microsite conditions to initiate heterogeneity enhancement (FEIS, p. 18). The tree species selected for planting would also contribute to stand diversity by tailoring species composition to local topography, aspect, and elevation (FEIS, p. 18) and by planting shade intolerant trees and protecting oaks (Silvicultural Report, p. 19).

The Silviculture report explained that the application of herbicide may temporarily reduce heterogeneity across the landscape through a reduction in the numbers of certain plant species, but no species would be expected to be eliminated (Silvicultural Report, p. 19). In addition, the botany analysis determined that the diversity of plant communities would be maintained under all alternatives (Botany Report, p. 37).

Landscape homogeneity and the project effects on plant diversity were discussed in relation to the results other fires that have occurred within the project area:

*"...Bohlman et al (2016) found native plant species richness following the Fred's Fire, Pilliken Fire, and Cleveland Fire on the Eldorado National Forest was significantly higher in planted areas where shrub cover was lower and planted trees successfully established than in untreated sites. Lower plant species richness was associated with higher shrub cover. In addition to planting and shrub removal, 96% of the treated plots in the two older fires also experienced some level of pre-commercial thinning, a common practice for planted stands*



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*exceeding 20 years of age. Their study on these three wildfires suggests that while retaining some shrub cover for post-fire habitat may be desirable, some level of shrub reduction does favor native plant richness and overall herbaceous cover (FEIS, pg. B-21).*

Conversely, under the No Action Alternative, woody brush is predicted to dominate the landscape, with little opportunity for other species to become established (Silvicultural Report, p. 25).

The second component of this objection issue concerns the potential for herbicide use to thwart the reintroduction of fire. The FEIS analysis explains that if no action occurs, fuels will continue to accumulate over time and the vegetation in the project area would likely be susceptible to high fire intensity under 90th percentile (or, "average worst") weather conditions (FEIS, p. 105). In contrast, for Alternative 1 (FEIS, pp. 102-105) and Alternative 3 (FEIS, p. 106), the predicted flame lengths, rate of spread, and overall fire size would be reduced in treated areas relative to areas of no treatment in Alternative 2. The summary data in Table 2.7 (FEIS, pp. 32-38) compare the effects of the three alternatives across a number of parameters, including tree height and diameter at year 15 and year 50, and the projected flame lengths (flame height, in feet) across project units under different alternatives (FEIS, p. 34). The results concluded that both action alternatives would produce tree sizes and fire behavior more conducive to the reintroduction of fire than the no action alternative. In addition, the FEIS also concludes that the control of competing vegetation leading to faster and taller tree growth would provide an opportunity for earlier use of prescribed fire with lower potential for tree mortality (FEIS, p. 121), which would meet the project need of effectively and efficiently reestablishing a forested landscape that is fire resilient (ROD, p. 7).

The Power Fire Ecological Framework was developed to inform the planning of reforestation and restoration activities within the Power Fire Area (Estes and Gross, p. 1) and contains information relative to the third component of this objection issue, the effect of herbicide upon ecological integrity. In the responses to comments FF1 and VG2, the agency states that the ecological principles in the Framework were incorporated during the development of Alternative 3 (FEIS, p. B-11 and p. B-29), however, the agency does not specifically identify how the Framework concepts were applied.

The agency response to HB3, notes that the combined consideration of the range of effects documented in specialist reports prepared by the interdisciplinary team constitute an evaluation of ecosystem and ecological effects from project activities on non-human resources from the use of herbicides (FEIS, p. B-14). The suite of reports within the project record include terrestrial and aquatic wildlife, botany, soils, fuels, hydrology, silvicultural and cultural resources.

The Responsible Official identifies that ecosystem considerations were a factor in his decision to select Modified Alternative 3, which varies the planting arrangement based on landscape position and desired future stocking to better emulate a fire adapted ecosystem (ROD, p. 11).

Lastly, the objection asserts that the agency has violated the 2012 Planning Rule. The Proposed Action and alternatives are guided by the LRMP, as amended by the 2004 Sierra Nevada Forest Plan Amendment (SNFPA) (FEIS, p. 11). The LRMP was developed under the 1982 National Forest System Land and Resource Management Planning Rule (1982 Planning Rule) (36 CFR 219), and as such, does not violate guidance in the 2012 Forest Planning.

I find that the Eldorado NF considered comments and incorporated measures to reduce the use herbicide in the development of Alternative 3. In addition, the agency clearly discussed the connection between project and species and landscape diversity. The Responsible Official considered the effects of herbicide relative to the purpose and need, and relative to the development of future



stocking that would better emulate a fire adapted ecosystem (ROD, p. 11). I find that the Proposed Action and alternatives are consistent with the applicable 1982 Planning Rule.