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Sent to:
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**cc: Ara Marderosian
Stephen A. Montgomery
Joe Fontaine
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Subject: Shirley Fire Salvage Scoping Comments for Sequoia ForestKeeper® & Kern-Kaweah Chapter of the Sierra Club

Sequoia ForestKeeper® (SFK) and the Kern-Kaweah Chapter of the Sierra Club (the Club) thank you for the opportunity to comment.

Thank you for providing a better-quality, detailed map of the project area.

1. There are Extraordinary Circumstances, precluding the use of Categorical Exclusion – the proposed listing of the Pacific fisher under the Endangered Species Act (ESA).

The Shirley Fire Salvage project cannot be categorically-excluded from analysis in an Environmental Assessment (EA) or Environmental Impact Statement (EIS) because the Pacific fisher (*Pekania pennanti*), a proposed threatened species under the ESA,¹ resides in or adjacent to the project area. This extraordinary circumstance requires a full NEPA analysis. See 36 C.F.R. § 220.6(a) (“A proposed action may be categorically excluded from further analysis and documentation in an EIS or EA only if there are no extraordinary circumstances related to the proposed action”).

Resource conditions. (1) Resource conditions that should be considered in determining whether extraordinary circumstances related to a proposed action warrant further analysis and documentation in an EA or an EIS are: (i) Federally listed threatened or endangered species or designated critical habitat, *species proposed for Federal listing or proposed critical habitat*, or Forest Service sensitive species”

Id. at § 220.6(b) (emphasis added).

While “[t]he mere presence of one or more of these resource conditions does not preclude use of a [CE] ... [i]t is the existence of a cause-effect relationship between a proposed action and the potential effect on these resource conditions, and if such a relationship exists, the degree of the

¹ The proposed rule for listing the Pacific fisher as threatened was published on October 7, 2014. See 79 Fed. Reg. 60419 (Oct. 7, 2014).

potential effect of a proposed action on these resource conditions that determines whether extraordinary circumstances exist.” *Id.* at § 220.6(b)(2).

a. There is a cause-effect relationship between the proposed salvage logging, the Pacific fisher, and its habitat.

In the Shirley Fire Salvage project area, such a cause-effect relationship between the proposed logging and the Pacific fisher exists because fishers have been documented using burned areas for foraging, and perhaps even as resting habitat, especially if they are directly adjacent to unburned habitat areas. The Shirley Fire Salvage units, as proposed, are directly adjacent to the boundary of the fire area, and thus the fishers are likely to use the salvage units.

According to recent scientific research, Pacific fishers were detected in burned areas in the McNally Fire area on the Kern Plateau. *See* Hanson (2013), attached as Exhibit A. Moreover, additional research indicates that Pacific fishers avoid treated/logged areas. *See* Garner (2013), attached as Exhibit B, and Truex and Zielinski (2013), attached as Exhibit C.

In his study of fisher habitat use on the Kern Plateau, Dr. Hanson

found that fishers selected Sierran mixed-conifer forests in both post-fire and unburned areas, and selected closed-canopied, mature/old forest in unburned forests, as well as burned forests that had this structure in the pre-fire condition. *When fishers were near burned/unburned edges, they selected the within-fire side.* Fishers used dense, mature/old forest that experienced moderate/high-severity fire at the same level as unburned dense, mature/old forest, and both males and females were found deep inside large fires—several km from the fire perimeter. These results indicate that fishers may benefit from the structural complexity of such post-fire habitat for foraging.

Hanson (2013) (abstract) (emphasis added). And since the salvage units are directly adjacent to the burned/unburned edges (see project map), it is likely that the fishers would selectively use the within-fire side for foraging. This, however, is less likely if salvage logging is allowed:

There were significant negative effects of treatment on predicted resting habitat suitability at both study areas, and highly significant effects on canopy closure.... The influence of canopy reduction on resting habitat suitability likely accounted for the significant treatment effects at both areas....

Truex and Zielinski (2013) p. 88 (PDF p. 4). Garner’s research found that “when selecting microsites within their home ranges, fishers tend to avoid using sites within 200 meters of a treated area.” Garner (2013), p. ii. Garner found that “as fishers are selecting foraging and resting sites within their home ranges ..., they tended to avoid treated areas in favor of sites within untreated forest, corroborating previous findings (Truex and Zielinski 2013).” *Id.*, p. 41.

While these studies generally described thinning treatments, salvage logging as proposed in the Shirley Fire Salvage project is likely to be more intense than thinning, and so the effects on the Pacific fishers' use of the proposed logging units for foraging would likely be even greater.

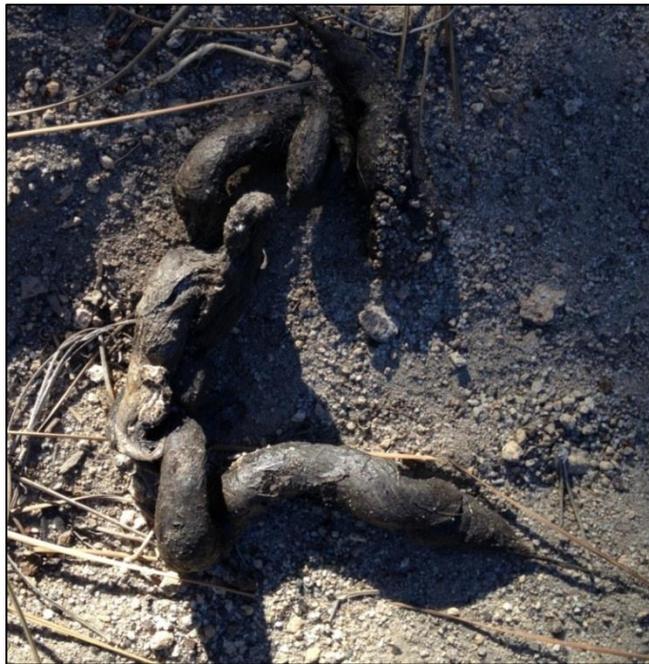
For those reasons, since fisher use burned areas along the *burned/unburned edges* and the *within-fire side*, the degree of the potential effect from salvage logging on the Pacific fisher would likely be significant on the resource conditions, which constitutes an Extraordinary Circumstance precluding the use of a Categorical Exclusion for the Shirley Fire Salvage project.

b. SFK confirms that Pacific fishers use units where salvage logging is proposed.

On October 13, 2014, Alison Sheehey and Ara Marderosian of SFK visited the Shirley Fire Salvage area. There, they confirmed Pacific fishers use the burned units as their habitat. In her report, Alison Sheehey writes:

In Unit 271 very close to the edge of Unit 272, a very fresh scat that appears to be from a Pacific fisher was in an opening near a scorched manzanita.

As a former Forest Service employee, one of my duties was to look for fisher scat. I was trained by Wendy Rannals, Biological Technician, Sequoia National Forest and as my knowledge is dated, I reviewed fisher scat in the book "Tracking and the Art of Seeing: How to Read Animal Tracks & Sign" by Paul Rezendes. According to Rezendes, fisher scat is full of coarse hair, dark, twisted, and overlapping.



I also downloaded this graphic from the Massachusetts Society for the Prevention of Cruelty to Animals website.

http://support.mspca.org/images/lww/wildlifehelp/animals/what_fisher.gif

The Fisher scat specimen was found at the coordinates 35.70176667N, -118.5404194W.

The fresh scat was large and twisted with tapered ends. It was full of coarse fur. In the vicinity there were also tracks and scat of gray fox, mule deer, and black bear. All scat and tracks appeared to be recent, I would estimate less than a week old.

Shirley Fire Report, by Alison Sheehey (Oct. 15, 2014), attached as Exhibit D; *see also* Photo of Scat by Ara Marderosian, attached as Exhibit E. The CBI Fisher Habitat map also confirms a greater than 84% probability of fisher occupancy. *See* Exhibit F, CBI Fisher Map.

2. Cumulative impacts from the Shirley Fire Salvage Project, the adjacent Ice Timber Sale, and other cumulative impacts preclude the use of a Categorical Exclusion.

The Shirley Fire Salvage units either overlap or are directly adjacent to the Ice Timber Sale units. *See* Maps in Exhibit F, p. 1 and pp. 6-8. Therefore this project, combined with the Ice Timber Sale will have cumulative effects on soils, watersheds, and habitat for species like the Spotted Owl and the Pacific fisher. These cumulative effects preclude the use of Categorical Exclusions (CEs), since a CE, by definition, “means a category of actions which do not individually or *cumulatively* have a significant effect on the human environment” 40 C.F.R. § 1508.4. In addition, the effects from fire-fighting and burned area rehabilitation would have cumulative effects in combination with the planned logging activities.

In fact, the scoping notice recognizes that there will be potential adverse effects from the project, which must be analyzed in combination with other adjacent actions and effects from the fire, fire-fighting and rehabilitation, and other fuel reduction activities. These include soil disturbance and associated water and watershed effects, short-term increased fuel loading, and air quality effects from burning activity fuels. *See* p. 1-2 (“Short-term effects may include soil disturbance associated with use of mechanical equipment and a temporary increase in surface fuels and smoke from burning slash.” “Increases in small woody debris would occur during the period immediately following the salvage harvest.” “Pile burning would occur during periods approved by the air pollution control district, to maximize dispersion of smoke and minimize effects on local residents”).

There can be no question that there will be cumulative impacts from the Shirley Fire Salvage project and other activities, which precludes the use of a CE.

3. Construction or reconstruction of more than 1/2 mile of temporary roads precludes the use of the Salvage CE.

Based on the latest map provided by the Forest Service (see Exhibit G, p. 3), the Forest Service would use several miles of “temporary roads” to access the salvage units, most of which would need to be constructed or reconstructed due to their current overgrown condition. The Salvage CE, however, cannot be used if more than 1/2 mile of road construction is required. *See* 36 C.F.R. § 220.6(e)(13) (“Salvage of dead and/or dying trees not to exceed 250 acres, requiring no more than 1/2 mile of temporary road construction.”).

4. The Forest Service’s plan to use unclassified, non-system trails to access timber would violate the Sequoia Travel Management Plan.

The statement in the scoping notice that no new roads would be constructed is highly misleading. There are NO system roads that access the various units in the project area. Instead, the dashed

grey lines drawn on the map or “temporary roads”, which would be used to access unit boundaries, are either unclassified trails for which motorized use is prohibited or they would be made into temporary roads, which must meet certain standards for construction. See Figure 1. below (or see Exhibit F, pp. 2-3). Use of these trails by logging trucks and other mechanized equipment would therefore violate the Sequoia Travel Management Plan.

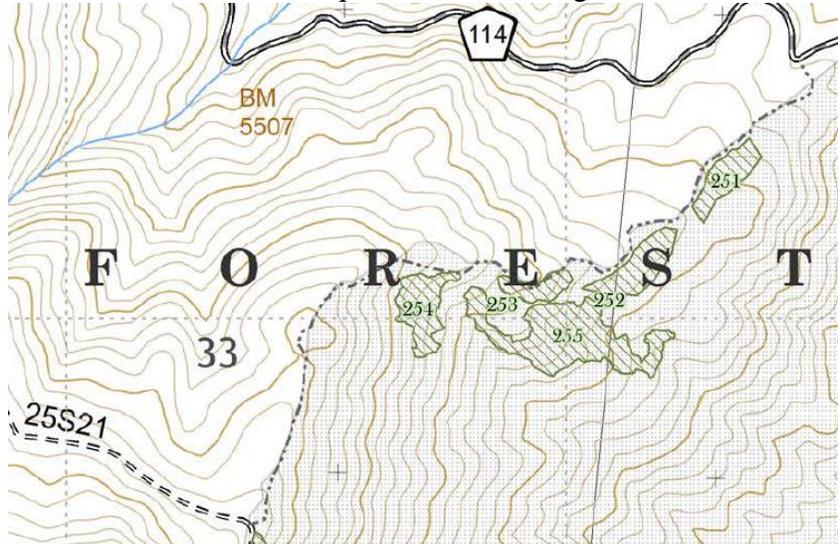


Figure 1. Northern salvage units along unclassified trail between FSR 25S21 and Hwy 114 along Shirley Fire Boundary (dashed grey line)

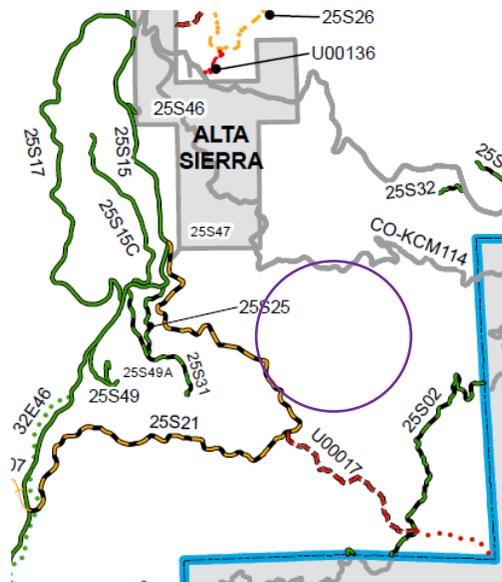


Figure 2. Sequoia TMP, Selected Modified Alt. 3b Map (purple circle is area where northern salvage units are located), see also attached as Exhibit G.

And while there is a motorized trail (U00017 or 34E84) that traverses the southern units of the proposal, that trail again is not appropriate for use by logging truck traffic or other mechanized equipment. Further, the “temporary roads” indicated on the map at Exhibit G, p. 3, can hardly be described as roads, since they are overgrown and impassable. Therefore temporary roads into

this area would have to be constructed or re-constructed for use in this project, contrary to statements in the scoping notice. And as discussed above, the construction or reconstruction would amount to more than 1/2 mile, thereby precluding use of the CE for salvage logging.

5. An environmental analysis must be conducted to disclose the impact from mechanical equipment use on project area on soils, streams, and watersheds.

Mechanized logging, especially in burned areas, incurs ecological costs by damaging soils, vegetation, and hydrologic processes. *See* Allen et al., 2002; Graham et al., 1999; 2004; Agee and Skinner, 2005, Beschta et al., 2004 (attached as Exhibit H). Mechanical treatments have impact on soils, runoff, erosion, sedimentation, water quality, and stream structure and function. These effects, their mechanisms, and their aquatic impacts have been extensively and repeatedly documented across the West (e.g., Geppert et al., 1984; Meehan, 1991; USFS et al., 1993; Rhodes et al., 1994; CWWR, 1996, USFS and USBLM, 1997a; c; Beschta et al., 2004). Watershed damage ultimately translates into aquatic damage, especially from logging after a fire.

The collateral impacts of fuel treatments are of considerable concern due to the existing aquatic context. Across the West, aquatic systems are significantly and pervasively degraded (Rieman et al., 2003; Beschta et al., 2004). As a result, many populations of aquatic species, including most native trout and salmonids, have undergone severe contractions in their range and number and remaining populations are now imperiled and highly fragmented (Frissell, 1993; USFS and USBLM, 1997a; Kessler et al., 2001; Behnke, 2002; Bradford, 2005). Additional damage to watersheds and aquatic systems reduces the prospects for the protection and restoration of imperiled aquatic species (USFS and USBLM, 1997c; USFWS, 1998; Karr et al., 2004).

These impacts to soils, streams, and watersheds will be added to the damage done by fire-fighting and from logging the Ice Timber Sale. Impacts from this project must be added to the existing damage to provide an accurate assessment of the adverse effects from using mechanized equipment for logging. Moreover, the use of mechanical equipment on project area soils will greatly set back any natural seedling that is already developing from native seed sources, and the area would be less likely to be capable of natural restoration. Salvage logging also removes the shade that would otherwise be provided for the seedlings that germinate following fire. The opened canopy causes soil heating and desiccation which leads to death of newly sprouted tree seedlings and can create a primary seral change in ecotype. The ensuing change when factored with climate change may lead to permanent conversion of the climax seral stage from mixed conifer to shrubland.

The scoping letter states: “Increases in small woody debris would occur during the period immediately following the salvage harvest. These are likely to decay quickly, benefitting soil organic content, without contributing to the long-term extreme fuel-loading that would occur in the absence of treatment.” Letter, p. 1. Because of drought conditions, however, the likelihood of quick decomposition immediately following the salvage harvest of the small woody debris is low. Moreover, the EA must also consider the increases in fuels and the increased fire danger, if the activity fuels are not burned but are instead left in the forest for years as occurs so frequently in Sequoia National Forest.

And as discussed above, because there will be cumulative effects from the salvage project, the fire, and the adjacent logging from the Ice Timber Sale on soils and watersheds, an EA or EIS must be prepared and these impacts must be disclosed in detail.

6. Scoping should be redone when the Forest Service can provide sufficient information so the public can provide meaningful comments.

NEPA requires that the agency analyze impacts in comparison to an accurate determination of baseline data, such that the Forest Service adequately and accurately describes the “affected environment.” 40 C.F.R. § 1502.15. The necessary baseline data to justify a proposed action must first be provided in a meaningful form to the public before the Forest Service can actually craft its proposed action. Without this baseline information, we are having a difficult time providing meaningful comments or suggesting viable alternatives that could meet the scope of the purpose and need for the project.

Further, desired conditions for the project have not been specified, so commenting on unspecified desired conditions is not possible, requiring scoping to begin again when sufficient information is provided to the public so substantive comments can be submitted.

In addition, unit 255 is not included in the scoping notice, but it is included in one of the three supplementary maps provided to us but not in another. *See* Exhibit G (various maps of Shirley Fire Salvage Units). The scoping letter explicitly states that “the marking of trees for salvage will include all dead and damaged trees *only within the units identified on the attached map*” Letter, p. 1. On the map attached to the letter, unit 255 is not identified, and therefore it cannot be included in the project without revising the scoping notice and putting it back out for public comment to inform us and others more explicitly that additional logging could be included in this proposal.

It is also unclear from the supplementary maps what the status of roads and trails are in the project area. This information should be provided during scoping to the public. Some of these roads are, in reality, only trails or fire lines, and it would not be appropriate to open trails as logging roads just for this project, especially if the trails are user-created.

7. The Forest Service must explain whether some or all of the salvage units were burned by the Shirley Fire or whether they were back-burned by the Forest Service.

According to observations by SFK staff in the field about salvage units, “[f]ive of these units were along a very wide fuel break and the burned habitat appeared to be mostly part of the backfire creating the northwestern most perimeter of the Shirley Fire.” Exhibit D, p. 2. Moreover, according to the scoping letter, the units were “identified as having a 70% probability of mortality....” Letter, p. 1.

This high mortality in units that likely were back-burned by the Forest Service should factor into the decision whether to allow salvage logging of these units. It seems unconscionable to allow the Forest Service and commercial contractors to reap monetary benefits from a fire that was set

by the Forest Service, since a significant portion of the timber receipts will go back into the agency's budgets to pay for staff and additional salvage logging via the Salvage Sale Fund.

8. A priority for the Shirley Fire Salvage Project, as a principle of ecological restoration, should be to maximize improving Pacific fisher habitat.

Snags and downed logs are some of the most important habitat elements for Pacific fishers. Zielinski et al. (2006 [Table 2]) found that fishers selected sites with 15.4 large snags (over 38.1 cm in diameter, or over 15 inches in diameter) on average per 0.5 hectares, or about 12.5 large snags per acre, within Sierra and Sequoia National Forests, including within the Giant Sequoia National Monument. Using the U.S. Forest Service's own Forest Inventory and Analysis (FIA) fixed plots to determine the average snag density across the forested landscape within the fisher's range in Sequoia and Sierra National Forests, Zielinski et al. (2006) found that there were only about 8.7 large snags per acre on average—well below the level selected by fishers.

But the proposed action includes heavy logging, including canopy removal, which would eliminate the very habitat elements that fishers need over the long term. The EA and Wildlife BE must analyze the impacts removing medium and large snags. Moreover the EA and BE must divulge whether the current basal area levels of medium/large snags in the project area meet the levels selected by fishers, or whether they may be lower than optimal. Given the importance of medium/large snag basal area to fishers, this must be carefully analyzed in the EA.

Furthermore, the Wildlife BE and EA must analyze the impacts of logging on large downed log levels, and whether sufficient downed logs of a certain size are available for fishers. Zielinski et al. (2006) found that fishers selected sites with 65 large downed logs (over 25.4 cm in diameter) per hectare, or about 26 logs over 10 inches in diameter per acre. Using the U.S. Forest Service's own Forest Inventory and Analysis (FIA) fixed plots to determine the average large downed log density across the forested landscape within the fisher's range in Sequoia and Sierra National Forests, Zielinski et al. (2006) found that there were only about 19 large downed logs per acre on average within the fisher's range—well below the level selected by fishers. Zielinski et al. (2006) also found that fishers selected sites with 169 cubic meters of large down logs per hectare (2,427 cubic feet per acre), relative to only 118 cubic meters per hectare at FIA plots in general (1,690 cubic feet per acre).

These same habitat elements are also important for the California Spotted Owl, which benefit from and prefer an abundance of large snags and downed logs. And since the project area is adjacent to a Spotted Owl HRCA and PAC the analysis must disclose and analyze whether sufficient habitat elements will be retained for owls.

Furthermore, fostering a reforestation goal that overrides snag retention in burned landscapes and emphasizes establishment of tree plantations, as proposed, conflicts with key attributes of complex early seral forests that are required for at-risk species that utilize burned forests. The emphasis on plantation management and the desire to accelerate tree production at the expense of complex early seral habitat is counter to the definition of ecological integrity established by the planning rule. The EA and BE must clearly address the evolution and development of early seral

forests as integral to biodiversity and ecological integrity. In addition to concerns about Pacific fisher viability, the Shirley Fire Salvage Project is in direct conflict with maintaining viable populations of several species as indicated by recent research. Lee et al. (2012) and Clark et al. (2013) found that salvage logging was negatively associated with Spotted Owl occupancy. Bond et al. (2009) found that Spotted Owls use burned forests of all severities for foraging. Roberts et al. (2011) found that low and moderate intensity fire had no effect on Spotted Owl occupancy. Black-backed woodpeckers (BBWO) (Siegel et al. 2013) along with a suite of post-fire species (Hutto 2008, Bond et al. 2012) depend on burned forests to sustain population levels.

Because California Spotted Owls have been documented using burned forests of all severities for foraging (Bond et al. 2009) and have been shown to be adversely affected by salvage logging (Lee et al. 2012, Clark et al. 2013), desired conditions that affect complex early seral habitats will also affect Spotted Owl viability. Conceptually, this presumed desired condition of the Shirley Fires Salvage project could affect Spotted Owl viability and the viability of other old forest dependent species.

The number of Black-backed Woodpeckers (BBWO) occupying recent fire areas (fires that burned from years 2000 to 2010) throughout the Sierra Nevada appears not to exceed several hundred pairs and the number of pairs in the unburned forests of the Sierra is estimated to be between a few hundred to a few thousand (Bond et al. 2012). The primary key ecological characteristics on which this species relies are areas that burned at moderate and high severity within the past 8 to 14 years, an average snag basal area greater than 17 meters squared per hectare, low decay class snags, and burned forest greater than 50 meters from unburned forest for nesting. Because Black-backed Woodpeckers are most often associated with complex early seral forests that were composed of high canopy cover medium and large trees pre-fire that then burned at high and moderate severity, areas that are the primary target of salvage logging operations, there is a significant conflict between providing for BBWO viability and the economic incentives to salvage log their habitat with the Shirley Fire Salvage Project.

Because complex early seral forests provide high quality habitat for a wide range of native flora and fauna, including fisher and Spotted Owls, the EA and BE for the Shirley Fires Salvage Project should also define where in Sequoia National Forest unlogged burned forests areas currently exist to maximize species diversity and provide for ecological integrity for these species of concern.

Even though the scoping letter states that snags will be retained in 95% of the fire area, it fails to state how many snags will remain in the treatment units of the project area.

9. Endangered Species Act (ESA) regulations require the Forest Service to confer with U.S. Fish and Wildlife Service (USFWS) regarding the Pacific fisher.

ESA regulations require that the Forest Service confer with the USFWS with regard to a species proposed for listing under the ESA: “Each Federal agency shall confer with the Service on any action which is likely to jeopardize the continued existence of any *proposed species* The Federal agency shall initiate the conference with the Director [of the USFWS].” 50 C.F.R. §§

402.10(a) & (b) (emphasis added). Here, the Pacific fisher proposal for listing would require an ESA conference with the USFWS.

10. SFK proposes the following alternatives to the proposed action.

a. Develop a small diameter non-commercial fuel treatment alternative.

Since one of the results or purposes of the project, as stated in the scoping letter, is fuel reduction for protecting the adjacent Alta Sierra community, the analysis must include a “non-commercial alternative” based on the requirements of the *Sierra Forest Legacy (SFL) v. Rey* injunction. That case required that “the Forest Service [] include a detailed consideration of project alternatives, including a non-commercial funding alternative, for all new fuel reduction projects not already evaluated and approved as of the date of this Memorandum and Order.” *SFL v. Rey*, 2:05-cv-00205-MCE-GGH, 2:05-cv-00211-MCE-GGH, 2009 WL 3698507 at *5 (E.D. Cal. Nov. 4, 2009) (permanent injunction order). Because the Shirley Fire project includes fuel treatments, the Forest Service must consider a non-commercial alternative in detail.

b. Develop a roadside hazard “fell and leave” treatment alternative.

Because the project proposes to “remove ... hazard trees adjacent to public roads and trails” the analysis should include another alternative that only fells and leaves the hazard trees along roads and trails to avert public safety risks and inhibit sediment flow.

This would also address safety concerns from the greater incidence of accidents that could cause injury and death to both timber workers and the public from felling trees and hauling them out with logging trucks. Most of the reported accidents are not from naturally-falling hazard trees, but instead are the result of persons either traveling in excess of the safe speeds or incidents involving logging trucks.

c. The project analysis must consider a no-action alternative to maximize the amount of rare habitat types in the Sierra Nevada.

There is a fundamental shortage across the landscape in the Sierra Nevada of what scientists now refer to as “Complex Early Seral Forests” (CESF) or CESF habitat. See Exhibit I – DellaSala et al. (2013). CESF habitat is “created by stand-replacing fire, or lower intensity disturbances such as fires, insects, and windthrow, are underappreciated for their unique biodiversity (Swanson et al. 2010), and, as such, CESFs are not even included as a habitat type in any current vegetation mapping used by the Forest Service (e.g., California Wildlife Habitat Relations).” *Id.*, p. 4; see also *id.*, p. 5 (describing this habitat in detail). The units proposed for logging exhibit characteristics of CESFs and should be so identified in the project area.

Moreover, this habitat may be important for Black-backed Woodpecker (*Picoides arcticus*), a Species of Conservation Concern exemplary of these forests (*id.*, p. 4) and even California

Spotted Owls (*Strix occidentalis occidentalis*), which “preferentially selects high-severity fire areas for foraging (Bond et al. 2009).”

The project analysis must account for any remaining CESFs and must disclose the potentially adverse effects from salvage logging on CESF, as well as the indirect effects on Black-backed Woodpeckers and California Spotted Owls.

11. The environmental analysis must disclose the project’s effects on and contribution to climate change.

The environmental analysis must also discuss how the Shirley project will potentially emit CO₂ that may contribute to climate change or what efforts will be taken to mitigate these emissions, by disclosing and analyzing the carbon emitted from fuel reduction treatments, slash treatments, and biomass collection, hauling, and burning or prescribed burning.

A recent article by Mitchell et al. (2009) describes tradeoffs for managing for carbon storage (a valid goal in any forest management action) versus fuels reduction. That study suggests that, with the exception of some xeric ecosystems (not present in the current project area), “fuel reduction treatments should be forgone if forest ecosystems are to provide maximal amelioration of atmospheric CO₂ over the next 100 years.” *Id.* at 653. For that reason, each alternative should discuss and analyze carbon emissions from implementation, and the no-action alternative should also provide information about the potential for carbon storage from foregoing project implementation.

Depro et al., 2007, found that eliminating logging would result in massive increases in Carbon sequestration. “Our analysis found that a “no timber harvest” scenario eliminating harvests on public lands would result in an annual increase of 17–29 million metric tonnes of carbon (MMTC) per year between 2010 and 2050—as much as a 43% increase over current sequestration levels on public timberlands and would offset up to 1.5% of total U.S. GHG emissions.” (Depro et al., 2007 abstract)

Moreover, Mitchell et al. (2009) found the amount of net carbon released into the atmosphere, on an acreage basis with small diameter thinning for fuel reduction (if used for biomass), puts more carbon into the atmosphere than an average fire, on an acreage basis:

Our simulations indicate that fuel reduction treatments in these ecosystems consistently reduced fire severity. However, reducing the fraction by which C is lost in a wildfire requires the removal of a much greater amount of C, since most of the C stored in forest biomass (stem wood, branches, coarse woody debris) remains unconsumed even by high-severity wildfires. For this reason, all of the fuel reduction treatments simulated for the west Cascades and Coast Range ecosystems as well as most of the treatments simulated for the east Cascades resulted in a reduced mean stand C storage. One suggested method of compensating for such losses in C storage is to utilize C harvested in fuel reduction treatments as biofuels. Our analysis indicates that this will not be an effective strategy in the west Cascades and Coast Range over the next 100 years.

Mitchell et al., 2009 abstract.

In any case, the environmental analysis must disclose the emissions from fuel reduction treatments, associated slash treatments, and biomass collection, hauling, and burning or prescribed burning for each action alternative. For this, the Washington Office of the Forest Service has generated specific direction on how to discuss climate change effects in a NEPA analysis. See *Climate Change Considerations in Project Level NEPA Analysis* (Jan. 13, 2009) (attached as Exhibit B). That document specifically mentions fuel reduction projects in the types of projects that should disclose direct effects on climate change:

- **The effect of a proposed project on climate change** (GHG emissions and carbon cycling). Examples include: short-term GHG emissions and alteration to the carbon cycle caused by hazardous fuels reduction projects, GHG emissions from oil and gas field development, and avoiding large GHG emissions pulses and effects to the carbon cycle by thinning overstocked stands to increase forest resilience and decrease the potential for large scale wildfire.

Id. at 2. To assist in disclosing these effects, the Forest Service provides tools that can help managers determine the direct contributions of GHG emissions from project burning or treatments. *Id.* at 5 (*FOFEM 5.5, Consume 3.0, and the Forest Vegetation Simulator*). Because the Forest Service has tools or models to effectively calculate emissions, it must disclose these emissions for each of the action alternatives. In addition, the guidance document suggests that the NEPA document include a qualitative effects analysis. *Id.* Such an analysis should include the cumulative effects, quantified in an “individual, regional, national, global” context. *Id.* at 6.

Finally, the guidance suggests that NEPA provides direction on how managers should respond to comments raised during project analysis regarding climate change:

1. Modify alternatives including the proposed action.
2. Develop and evaluate alternatives not previously given serious consideration by the Agency.
3. Supplement, improve, or modify the analysis.
4. Make factual corrections.
5. Explain why the comments do not warrant further agency response, citing the sources, authorities, or reasons which support the Agency’s position and, if appropriate, indicate those circumstances that would trigger agency reappraisal or further response.

Id. at 8. At the very least, because this project includes fuel reduction treatments and burning that will contribute GHG emissions, the EA must include an acknowledgment of carbon emissions and must provide a response to this issue.

Moreover, the analysis should account for and quantify (as part of the cumulative effects analysis) not only the emission from prescribed burning on-site and the emissions from any biomass that is removed from the project area and later burned off-site, but also the contribution

of emissions from transporting this material for off-site burning, and the contribution of emissions from planning and implementing the project by a contractor and by the Forest Service.

This holistic approach to account for GHG emission is necessary to provide managers and the public with the kind of information under NEPA to make informed choices between alternatives and to mitigate for climate change, and to consider and assess the larger picture of GHG contributions from all projects on the national forests that may contribute GHG emissions.

12. Further information should be provided to the public and for the environmental analysis.

Information provided as part of scoping is so limited that it is difficult to comment adequately on the proposal. Please provide us with further information that could help us understand the scope of the project:

- Please provide us with data about the existing conditions for each unit, including:
 - tree density
 - the range of tree sizes and basal area
 - % of current canopy cover
 - the number and size of snags
 - the number or size of large down logs (>12 inch at midpoint)
 - information about the understory for each unit, such as the % of area with shrub cover or in montane chaparral patches
- Please provide us with specific information about what the Forest Service plans to leave after implementation for each unit by action alternative, including:
 - tree density
 - the range of tree sizes and basal area
 - % of canopy cover after thinning
 - the number and size of snags (here's an opportunity to increase the number of snags by girdling trees rather than felling or removing them)
 - the number or size of large down logs (>12 inch at midpoint) (here's also an opportunity to increase the number of large down logs rather than removing them)
 - information about the understory for each unit, such as the % of area with shrub cover or in montane chaparral patches after thinning
- The scoping letter has insufficient information to comment on nests, detections, or home ranges for Spotted Owls, where old forest emphasis allocation are located, and where any condor roosts are located. Please provide more detail about these.
- The scoping letter does not include any information about the extent and quality of Pacific fisher habitat in or adjacent to the project area. Please provide information about any fisher habitat capability in the treatment units or in areas adjacent to treatment units.

13. The Forest Service must use the “best available science” standard

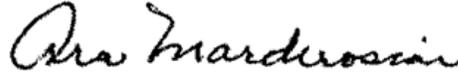
Current Forest Service regulations require that projects that implement forest plans consider the best available science in their analysis. To correctly apply this standard, the Forest Service “should seek out and consider all existing scientific evidence relevant to the decision and it cannot ignore existing data. . . . The Forest Service must determine which data are the most accurate, reliable, and relevant, and that will be reviewed deferentially, but it still must be good science—that is reliable, peer reviewed, or otherwise complying with valid scientific methods.” *Ecology Center v. U.S. Forest Service*, 451 F.3d 1183, 1194, n. 4 (10th Cir. 2006).

This also means that, in the final analysis, the Forest Service must disclose and discuss any science that it rejected as less accurate, reliable, or relevant than the science it actually applied to the project.

For Sequoia ForestKeeper® and the Kern-Kaweah Chapter of the Sierra Club,



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