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Comments: March 8, 2022

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Subject: Creek Fire Ecological Restoration Project Comments

Via: https://cara.fs2c.usda.gov/Public//CommentInput?Project=60422

Dear Dean,

Thank you for the opportunity to comment on the Creek Fire Ecological Restoration Project as described in your March 3 pre-NEPA letter. You are requesting comments on the scope of work to be included in this very large forest restoration project to help with your planned formal NEPA analysis later this spring.

AFRC is a regional trade association whose purpose is to advocate for sustained yield timber harvests on public timberlands throughout the West to enhance forest health and resistance to fire, insects, and disease. We do this by promoting active management to attain productive public forests, protect adjoining private forests, and assure community stability. We work to improve federal and state laws, regulations, policies, and decisions regarding access to and management of public forest lands and protection of all forest lands. Our members have their operations in communities adjacent to the Sierra NF and the management on these lands ultimately dictates not only the viability of their businesses, but also the economic health of the communities and the health of the forest itself.

Purpose & Need for the Creek Fire Restoration Project

AFRC is glad to see the Sierra NF proposing forest restoration and rehabilitation of the huge Creek fire burn. These lands are needed to provide timber products to our membership, to the larger California building industry, and to sequester large amounts of carbon in the future. Of particular importance is how those treatments effect the long-term sustainability of the timber resources on Forest Service managed land. AFRC has voiced our concerns many times regarding the long-term sustainability of the timber supply on Forest Service land and how the current management paradigm is affecting this supply. Lands designated for commercial timber production are those lands where our members can depend on a sustainable supply of timber products. We have submitted extensive comments on the revised Sierra NF Forest Plan (Draft) which should also be considered as you start the NEPA process for this project.

We would like to include several technical reports and relevant information in the project record for your consideration as follows

Technical reports from both 2010[1] and 2012[2] completed for the Forest Service determined, among other things, that:

* The forest products sector helps sustain the social, econom[shy]ic, and ecological benefits of forestry in the United States.
* Product revenues sustain economic benefits that include jobs and income.
* Ecological and social benefits can be supported by timber revenue to landowners that help keep land in for[shy]ests and by forest treatments that can help maintain ecologi[shy]cal functions.
* Wood products fulfill fundamental needs per capita and have remained competitive with alternate means of meeting those needs.
* US lumber production and demand is expected to increase through 2040.

Furthermore, as we will discuss later in this letter the importance of our members' ability to harvest and remove timber products from future timber sales generated from this project is paramount. We would like the Forest Service to recognize this importance by adding economic viability & support to the local infrastructure to the purpose and need of the Creek Restoration project. Supporting local industry and providing useful raw materials to maintain a robust manufacturing sector should be a principal objective to any project proposed on Forest Service land. As the Forest Service surely knows, the "restoration" treatments that are desired on these public lands cannot be implemented without a heathy forest products industry in place, both to complete the necessary work and to provide payments for the wood products generated to permit the service work to be completed.

*Matrix is the westside term for lands where sustained-yield management should occur. I'm not entirely sure how it is named on the eastside and in other Regions.

Riparian Reserve Management

It has been well documented that thinning in riparian areas accelerates the stand's trajectory to produce large conifer trees and has minimal effect on stream temperature with adequate buffers. Removal of suppressed trees has an insignificant short-term effect on down wood, and ultimately a positive effect on long-term creation of large down woody debris and large in stream wood, which is what provides the real benefit to wildlife and stream health. We encourage the Forest Service to focus their riparian reserve treatments on a variety of native habitats. Utilization of gap cuts to promote early seral habitat in the reserves, treatments to diversify all areas of the reserve, and prescriptions that account for the full range of objectives the fire safe forest of the future should be considered.

The tradeoffs that the Forest Service will likely be considering through the ensuing environmental analysis will be between achieving these forest health benefits and potentially having adverse impacts to streams. These impacts to streams typically include stream temperature, wood recruitment, and sedimentation associated with active management. We would like the Forest Service to review the literature cited below and incorporate its findings into your environmental analysis that will shape the level of management permitted to occur in riparian reserves.

Stream temperature

Janisch, Jack E, Wondzell, Steven M., Ehinger, William J. 2012. Headwater stream temperature: Interpreting response after logging, with and without riparian buffers, Washington, USA. Forest Ecology and Management, 270, 302-313.

Key points of the Janisch paper include:

* The amount of canopy cover retained in the riparian buffer was not a strong explanatory variable to stream temperature.
* Very small headwater streams may be fundamentally different than many larger streams because factors other than shade from the overstory tree canopy can have sufficient influence on stream temperature.

Anderson P.D., Larson D.J., Chan, S.S. 2007 Riparian Buffer and Density Management Influences on Microclimate of Young Headwater Forests of Western Oregon. Forest Science, 53(2):254-269.

Key points of the Anderson paper include:

* With no-harvest buffers of 15 meters (49 feet), maximum air temperature above stream centers was less than one-degree Celsius greater than for unthinned stands.

Riparian reserve gaps

Warren, Dana R., Keeton, William S., Bechtold, Heather A., Rosi-Marshall, Emma J. 2013. Comparing streambed light availability and canopy cover in streams with old-growth versus early-mature riparian forests in western Oregon. Aquatic Sciences 75:547-558.

Key points of the Warren paper include:

* Canopy gaps were particularly important in creating variable light within and between reaches.
* Reaches with complex old growth riparian forests had frequent canopy gaps which led to greater stream light availability compared to adjacent reaches with simpler second-growth riparian forests.

Wood Recruitment

Burton, Julia I., Olson, Deanna H., and Puettmann, Klaus J. 2016. Effects of riparian buffer width on wood loading in headwater streams after repeated forest thinning. Forest Ecology and Management. 372 (2016) 247-257.

Key points of the Burton paper include:

* Wood volume in early stages of decay was higher in stream reaches with a narrow 6-meter buffer than in stream reaches with larger 15- and 70-meter buffers and in unthinned reference units.
* 82% of sourced wood in early stages of decay originated from within 15 meters of streams.

Sedimentation

Rashin, E., C. Clishe, A. Loch and J. Bell. 2006. Effectiveness of timber harvest practices for controlling sediment related water quality impacts. Journal of the American Water Resources Association. Paper No. 01162

Key points of the Rashin paper include:

* Vegetated buffers that are greater than 33 feet in width have been shown to be effective at trapping and storing sediment.

Dry Forests (This paper also applies to California Forests)

Messier, Michael S., Shatford, Jeff P.A., and Hibbs, David E. 2011. Fire Exclusion effects on riparian forest dynamics in southwestern Oregon. Forest Ecology and Management. 264 (2012) 60-71.

Key points of the Messier paper include:

* Fire exclusion has altered the structure, composition, and successional trajectory of riparian forests in fire-prone

landscapes.
* Fire exclusion has been associated with increase in tree density and recruitment of shade-tolerate species that may replace large diameter, more decay-resistant Douglas-fir trees.
* A hands-off management regime for these riparian forests will have ecologically undesirable consequences.

Collectively, we believe that this literature suggests that there exists a declining rate of returns for "protective" measures such as no-cut buffers beyond 30-40 feet. Resource values such as thermal regulation and coarse wood recruitment begin to diminish in scale as no-cut buffers become much larger. We believe that the benefits in forest health achieved through density management will greatly outweigh the potential minor tradeoffs in stream temperature and wood recruitment, based on this scientific literature. We urge the Forest Service to establish no-cut buffers along streams no larger than 40 feet and maximize forest health outcomes beyond this buffer.

Road Decommissioning

An intact road system is critical to the management of Forest Service land, particularly for the provision of timber products. Without an adequate road system, the Forest Service will be unable to economically restore and reforest the Creek Fire and offer and sell timber products to the local industry. If road decommissioning is proposed during the NEPA process it will likely represent a permanent removal of these roads and likely the deferral of management of those forest stands and reduce the amount of carbon that reforested stands can be expected to sequester. that they provide access to. The land base covered in the project area is to be managed for a variety of forest management objectives. Removal of adequate access to these lands compromises the agency's ability to achieve these objectives and is very concerning to us.

We would like the Sierra NF to carefully consider the following three factors when deciding to decommission any road in the project area:

1. Determination of any potential resource risk related to a road segment
2. Determination of the access value provided by a road segment
3. Determination of whether the resource risk outweighs the access value (for timber management and other resource needs).
4. Access for future fire suppression equipment.

We believe that only those road segments where resource risk outweighs access value should be considered for decommissioning.

Operations

The primary issues affecting the ability of our members to feasibly deliver salvage logs to their mills are firm operating restrictions. As stated above, we understand that the Forest Service must take necessary precautions to protect their resources; however, we believe that in many cases there are conditions that exist on the ground that are not in step with many of the restrictions described in Forest Service EA's and contracts We would like the Forest Service to shift their methods for protecting resources from that of firm prescriptive restrictions to one that focuses on descriptive end-results; in other words, describe what you would like the end result to be rather than prescribing how to get there. There are a variety of operators that work in the Sierra NF market area with a variety of skills and equipment. Developing an EA and contract that firmly describes how any given unit shall be logged may inherently limit the abilities of certain operators. For example, restricting certain types of ground-based equipment rather than describing what condition the soils should be at the end of the contract period unnecessarily limits the ability of certain operators to complete a sale in an appropriate manner with the proper and cautious use of their equipment. To address this issue, we would like to see flexibility in the EA and contract to allow a variety of equipment to the sale areas. We feel that there are several ways to properly harvest any

piece of ground, and certain restrictive language can limit some potential operators. Though some of the proposed restoration area is on slopes over the normal 35% guidelines. there are opportunities to use certain ground equipment such as fellerbunchers and processors such units. Allowing the use of processors and fellerbunchers throughout these units can greatly increase economic viability of salvage and restoration. Tethered-assist equipment is also becoming a more viable and available option for felling and yarding on steep slopes. This equipment has shown to contribute little additional ground disturbance when compared to traditional cable systems. Please prepare your NEPA analysis documents in a manner that will facilitate this type of equipment.

Carbon Literature

We would like to encourage you to consider several documents related to carbon sequestration related to forest management.

McCauley, Lisa A., Robles, Marcos D., Wooley, Travis, Marshall, Robert M., Kretchun, Alec, Gori, David F. 2019. Large-scale forest restoration stabilizes carbon under climate change in Southwest United States. Ecological Applications, 0(0), 2019, e01979.

Key points of the McCauley paper include:

* Modeling scenarios showed early decreases in ecosystem carbon due to initial thinning/prescribed fire treatments, but total ecosystem carbon increased by 9-18% when compared to no harvest by the end of the simulation.
* This modeled scenario of increased carbon storage equated to the removal of carbon emissions from 55,000 to 110,000 passenger vehicles per year until the end of the century.
* Results demonstrated that large-scale forest restoration can increase the potential for carbon storage and stability and those benefits could increase as the pace of restoration accelerates.

We believe that this study supports the notion that timber harvest and fuels reduction practices collectively increase the overall carbon sequestration capability of any given acre of forest land and, in the long term, generate net benefits toward climate change mitigation.

Gray, A. N., T. R. Whittier, and M. E. Harmon. 2016. Carbon stocks and accumulation rates in Pacific Northwest forests: role of stand age, plant community, and productivity. Ecosphere 7(1):e01224. 10.1002/ecs2.1224

Key points of the Gray paper include:

* Although large trees accumulated C at a faster rate than small trees on an individual basis, their contribution to C accumulation rates was smaller on an area basis, and their importance relative to small trees declined in older stands compared to younger stands.
* Old-growth and large trees are important C stocks, but they play a minor role in additional C accumulation.

We believe that this study supports the notion that, if the role of forests in the fight against climate change is to reduce global greenhouse gasses through maximizing the sequestration of carbon from atmospheric CO2, then increasing the acreage of young, fast growing small trees is the most prudent management approach.

Gustavsson, L., Madlener, R., Hoen, H.-F., Jungmeier, G., Karjalainen, T., Kl[Ouml]hn, S., [hellip] Spelter, H. (2006). The Role of Wood Material for Greenhouse Gas Mitigation. Mitigation and Adaptation Strategies for Global Change, 11(5-6), 1097-1127.

Lippke, B., Oneil, E., Harrison, R., Skog, K., Gustavsson, L., Sathre, R. 2011 Life cycle impacts of forest

management and wood utilization on carbon mitigation: knowns and unknowns, Carbon Management, 2:3, 303-333.

McKinley, D.C., Ryan, M.G., Birdsey, R.A., Giardina, C.P., Harmon, M.E., Heath, L.S., Houghton, R.A., Jackson, R.B., Morrison, J.F., Murray, B.C., Pataki, D.E., Skog, K.E. 2011. A synthesis of current knowledge on forests and carbon storage in the United States. Ecological Applications. 21(6): 1902-1924.

Skog, K.E., McKinley, D.C., Birdsey, R.A., Hines, S.J., Woodall, C.W., Reinhardt, E.D., Vose, J.M. 2014. Chapter 7: Managing Carbon. In: Climate Change and United States Forests, Advances in Global Change Research 57 2014; pp. 151-182.

We believe that, collectively, these four pieces of literature, along with IPCC reports, make a strong case for active forest management. They indicate, among other things, that:

* In the absence of commercial thinning, the forest where this proposed action would take place would thin naturally from mortality-inducing natural disturbances and other processes resulting in dead trees that would decay over time, emitting carbon to the atmosphere. Conversely, the wood and fiber removed from the forest in this proposed action would be transferred to the wood products sector for a variety of uses, each of which has different effects on carbon (Skog et al. 2014).
* Carbon can be stored in wood products for a variable length of time, depending on the commodity produced. It can also be burned to produce heat or electrical energy or converted to liquid transportation fuels and chemicals that would otherwise come from fossil fuels. In addition, a substitution effect occurs when wood products are used in place of other products that emit more GHGs in manufacturing, such as concrete and steel (Gustavasson et al. 2006, Lippke et al. 2011, and McKinley et al. 2011).
* In fact, removing carbon from forests for human use can result in a lower net contribution of GHGs to the atmosphere than if the forest were not managed (McKinley et al. 2011, Bergman et al. 2014, and Skog et al. 2014).
* The IPCC recognizes wood and fiber as a renewable resource that can provide lasting climate-related mitigation benefits that can increase over time with active management (IPCC 2000).
* Furthermore, by reducing stand density, the proposed action may also reduce the risk of more severe disturbances, such as insect and disease outbreak and severe wildfires, which may result in lower forest carbon stocks and greater GHG emissions.

Keely, John E. 2009. Fire intensity, fire severity and burn severity: a brief review and suggested usage. International Journal of Wildland Fire, 18, 116-126.

The paper cited above provides an in-depth consideration of the terms fire intensity and severity. Among other things, the author concluded that "Fire intensity is the energy output

from fire and should not be used to describe fire effects. Fire severity and burn severity have been used interchangeably and operationally have generally emphasized degrees of organic matter loss or decomposition both aboveground and belowground"; and that "empirical studies have defined fire severity operationally as the loss of or change in organic matter aboveground and belowground." We understand the author to be describing fire intensity as the energy and heat output from a fire and fire severity as the degree to which fuels burn. For example, a young stand of trees may burn at a high severity but a low intensity while an 80-year old forest stand may burn at a high intensity but moderate severity.

Timber Salvage

We hope to see the mitigation of as many hazard trees along as many road miles as possible to ensure safe travel routes. We also hope that these trees can be mitigated economically through the recovery of damaged

timber products rather than through alternatives that would create costs instead of generating revenue. It is unclear in the scoping notice of precisely how many miles of roads will receive hazard tree abatement treatments; however, it is our assumption that this level will represent an extremely small proportion of the acres burnt on the Forest. Given the scale, proportion, and magnitude of the overall fire footprint, we strongly recommend that the Forest sell as many felled hazard trees to the local industry for utilization as wood products as possible. Much of your LRMP direction requires the Forest to maintain down woody debris "across the landscape." Please consider the level of coarse woody debris "across the landscape", specifically across the Creek Fire acres burnt, when assessing the need to retain additional down woody debris adjacent to roads. At this scale, there should be no need identified to retain any trees felled because of this project.

Standard utilization specifications used on green Forest Service timber sales will not likely be appropriate for the salvage sales generated from this NEPA analysis. Due to the damaged nature of the timber products being proposed for harvest, there will be an unusually high level of uncertainty by the Forest Service and prospective purchasers of the actual value of those products on the stump prior to harvest. This uncertainly is exacerbated by the fact that additional time for wood deterioration will elapse between the time of purchase and the time of harvest. Therefore, the Forest Service should be developing minimum removal requirements and utilization specifications that align with this uncertainly. Purchasers will recover as much value from these damaged products as possible. Requiring purchasers to recover value that is not available will reduce the likelihood that these sales will successfully sell.

Industry suggests a 50% sound utilization standard for salvage operations. Even a 50% standard means doubling the milling cost if most logs received by the mill are deteriorated, and not mixed with green timber.

It is important that the Forest Service consider all available scientific literature related to both action and inaction following wildfire to enable the decision-maker the ability to assess the tradeoffs of a.) conducting timber salvage; and b.) not conducting timber salvage. We would like the Forest Service to review the literature cited below and incorporate its findings into your environmental analysis.

Hydrology
Cole RP, Bladon, KD, Wagenbrenner, JW, Coe Drew B.R. Hillslope sediment production after wildfire and post-fire forest management in northern California. Hydrological Processes. 2020;1-18
Key points/findings of the Cole paper include:

* Sediment yields two years following the fire event were highest in areas that did not include timber salvage.
* Sediment yields were lower on areas that were salvaged.
* Post-fire management resulted in lower rates of erosion and sediment delivery.

Niemeyer RJ, Bladon KD, Woodsmith, RD. Long-term hydrological recovery after wildfire and post-fire forest management in the interior Pacific Northwest. Hydrological Processes. 2020;1-16.

Key points/findings of the Niemeyer paper include:

* Spikes in streamflow and runoff recovered more quickly on timber salvaged areas than on areas not salvaged.
* Post fire land management strategies, including timber salvage, may have increased the rate of hydrologic recovery in the long term when compared to unmanaged areas.

Robichaud PR, Lewis SA, Brown RE, Bone ED, Brooks ES. Evaluating post-wildfire logging-slash cover treatment to reduce hillslope erosion after salvage logging using ground measurements and remote sensing. Hydrological Processes. 2020;1-15.

Key points/findings of the Robichaud paper include:

* Logging slash applied at a rate to achieve a mean ground cover >60% was found to be an effective treatment to reduce post-salvage runoff and soil erosion.

Reforestation

Sessions, J, Bettinger P, Buckman R, Newton M, Hamann J. Hastening the return of complex forests following fire; the consequences of delay. Journal of Forestry. April/May 2004, pp 38-45.

Key points/findings of the Sessions paper include:

* Timber salvage can assist in the hastening of complex mature conifer forests on burnt landscapes.
* Delays in effective timber salvage could destine much of the most intensely burned areas to cycles of shrubs, hardwoods, and recurring fires for many decades.

Hazardous Fuels

Peterson, David W, Dodson, Erich K, Harrod, Richy J. Post-fire logging reduces surface woody fuels up to four decades following wildfire. Forest Ecology and Management. 338 (2015) 84-91.

Key points/findings of the Peterson paper include:

* Post fire logging can significantly reduce future surface woody fuel levels in forests regenerating following wildfires.

Roadside Hazard Tree Removal

AFRC is glad to see the Sierra NF proposing danger tree removal on lands impacted by the ABC Fire. There is opportunity for recovery of trees identified for removal in a manner that will not only address public safety risks but also provide timber products to the local industry and generate income to the Forest Service. This opportunity can only be realized if implementation of the proposed CE is executed in a timely manner and fire-killed timber products are manufactured before their value is lost to decay, stain, or insect damage.

Adequate documentation of the Field Guide for Danger-Tree Identification is advisable given the ongoing challenges by special interest groups against the use of this particular CE for hazard tree removal. Recent court rulings have indicated some confusion regarding the use of the Field Guide to identify hazard trees that have potential to impact roads. In particular, there have been questions regarding whether a specific tree poses an "imminent" hazard. Therefore, we recommend that you highlight and outline certain components of your guidelines in the final Decision-Memo/Notice including:

* Thorough explanation of tree falling dynamics on level ground, including the effects of wind events, force of breakage, and how fallen trees may impact other nearby trees (causing broken tops, etc.)
* Thorough explanation of tree falling dynamics on sloped ground, including the likelihood of downslope trees falling uphill
* Emphasis on how the Danger Tree Guidelines identify both the "Tree Failure Potential" and the "Potential Failure Zone". Specifically note that any given tree has a Failure Zone and describe how that failure zone is determined.

Summary of AFRC Comments

We strongly support implementing all of the proposed actions enumerated on page 3 of your March 3, 2022,

letter requesting comments. All of the nine categories of proposed actions are necessary for successful restoration of the Creek fire area, and are interdependent on each other.

Jerry Jensen

AFRC Contractor, South Sierra

cc: CFA

AFRC Membership

FOOTNOTES:

[1] Ince, P.J.; Kramp, A.D.; Skog, K.E.; Spelter, H.N.; Wear, D.N. 2011. U.S. forest products module: a technical document supporting the Forest Service 2010 RPA assessment. Res. Pap. FPL-RP-662. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory. 61 p.

[2] Skog, Kenneth E.; McKeever, David B.; Ince, Peter J.; Howard, James L.; Spelter, Henry N.; Schuler, Albert T. 2012. Status and Trends for the U.S. Forest Products Sector: A Technical Document Supporting the Forest Service 2010 RPA Assessment. General Technical Report FPL-GTR-207. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory. 35 p.