

## Salmon River Restoration Council

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Subject: Comments on River Complex Risk Reduction Project Proposal

To: Klamath National Forest  
From: Salmon River Restoration Council

Dear District Luis Palacios and River Complex Risk Reduction Project planners,

Thank you for the opportunity to review and comment on the River Complex Risk Reduction Project. The Salmon River Restoration Council (SRRC) strives to assess, protect, and maintain the Salmon River ecosystem and in particular its anadromous fisheries resources.

The SRRC has several comments and a few points of concern with the Project.

The SRRC is interested in ecologically beneficial post fire management in high severity fire footprints within the Salmon River watershed. We agree with the need to reduce the amount of future dead and

down fuel loading within the areas that burned at high severity, especially in the areas with the largest patch size. We also agree with working to reduce the likelihood of a future fire burning with similar or increased large patch sizes of high severity fire. Working to set up a series of strategic fuel breaks from which prescribed fire can be implemented and future wildfires can be managed, is a critical part of post fire restoration actions to help move us away from a solely fire suppression oriented fire paradigm. We also applaud the desire to improve conditions along identified ingress and egress routes, strategic ridgetop features, and adjacent to private property for future fire management. A focus on improvements within the wildland urban interface in these areas is also needed. The emphasis on retaining remnant hardwoods and shepherding hardwood sprouts into our future shaded fuel breaks and woodlands is appreciated.

The aspects of this proposal that address these issues are important to the communities within the watershed and to the future integrity of the ecological systems there.

While we are behind these aspects of this proposal, we do have issues related to a number of other portions of the project that are outlined below.

### **New road construction, tree harvesting in riparian reserves, and harvest units directly adjacent to wilderness boundary.**

This proposal includes .43 miles of new road construction in the Taylor Creek project area. The Taylor Creek watershed is a heavily roaded tributary. We think that the cost and negative ecological impacts from new road building outweigh any benefits to this project. The two cutting units accessed by these new road portions may be accessed in another less intrusive manner, such as via helicopter. New roads should be avoided within the greater Salmon River watershed as much as possible. This watershed is heavily roaded as is, and a large percentage of these roads are not currently maintained, adding new roads will only lead to further burden to the USFS Salmon Scott District, and the Klamath National Forest in general which struggles to maintain the existing road systems.

The Taylor Creek project contains one helicopter salvage unit that abuts the Trinity Alps Wilderness boundary. Additionally, this harvest unit is very close to the Onion Meadow trail just within the wilderness boundary. We think this unit should be removed from consideration as this significantly impacts wilderness values. If certain snags need to be felled to maintain trails and safe recreational passage, they should be dropped and left in place along the wilderness boundary.

The Taylor Creek watershed has lots of granitic, sensitive soils. This area is already known for road issues and sediment issues related to past road building and logging in the area. Post fire treatments need to take this into account. For this reason, even more than in other more stable landscapes, the idea of logging in riparian areas seems particularly dangerous and detrimental to the ecosystem. If trees are deemed so hazardous that they must be felled, they should be directionally felled and left in place to catch sediment.

### **Trail system maintenance and Recreational Improvements**

While this work is being conducted in this project, attention should be given to the important recreational resources in this area. This area contains a significant amount of recreational hiking trails that are in need of work and maintenance. Most of the abundant trail systems that were heavily impacted

by the River Complex fires fall outside of this current designated project area. If they are not addressed within this project, we hope that the forest greatly increases the amount of trail maintenance that is conducted. There are abundant funding sources that have become available in recent years to address the huge backlog of trail maintenance the west. KNF and the Salmon/Scott Ranger district should work with partners to increase the pace and scale of trail maintenance. This is particularly needed in the Salmon River where 75% of the watershed has burned in the past 15 years, leading to many trail systems in serious disrepair. Existing trail systems should be shown in the project maps moving forward.

The use of mastication as a fuels treatment along existing trails should be discouraged. There is only a small section of fuels reduction along trail systems included in the project; there is no need to use a masticator to complete this work. Manual fuels treatments (cut, pile, and pile burn) are much more appropriate in these areas both visually, ecologically and for safety concerns. Mastication will retard the regrowth of wildflowers, grasses, and forbs, and will leave intense fuel loading, albeit rearranged, along trail systems making them less safe as egress routes, than manual fuels reduction.

#### **Work within the Orleans Released Roadless Area should be limited.**

Any mechanical operations within the roadless area that are not associated with WUI protection related work and/or manual fuels reduction should be removed from the project. The minor work in the portion of Orleans 5 will not greatly add significance to the work here and will negatively affect the roadless characteristics of the Orleans Roadless Area. It is difficult to see on the project maps where these proposed treatments are located. It would have been easier to discern if the Roadless Areas were included on maps.

#### **Site Preparation and reforestation hinders implementation of prescribed fire and has proven to be ineffective in assisting with the development of fire resilient forests or mature commercial plantations.**

This proposal includes 1,728 acres of reforestation. While reforestation projects are a common response to a wildfire, they are not, in many cases, of significant ecological benefit and can actually be of ecological detriment when typical plantation-style reforestation methods are used to densely restock with a species mix that may not be reflective of the native forest, or that may burn at higher severity than natural forests in future fire events. If reforestation practices must occur, we feel that there should be a priority placed on species that increase the heterogeneity of the forest. Within these planting areas there should be an emphasis on disease and pathogen resistant trees, and rare endemic conifers including; sugar pine, pacific yew, and a focus on the re-introduction of hardwood species. Additionally, we would like to see areas that have a significant hardwood component removed from consideration for conifer reforestation. Large portions of the Salmon River watershed that were historically hardwood dominated are now in severe decline. While the extent of this loss is unknown, botanists and foresters working on the nearby Bear Country Project (being planned on Klamath National Forest) recently observed that at least half of this project's potential timber units in the Matthews Creek watershed (tributary to South Fork Salmon River) contained significant patches of what was obviously deciduous oak or pine-oak before being overtaken in the past several decades by dense conifer forest (primarily Douglas-fir). Understory grass, forb, and shrub diversity is substantially lower in the dense conifer forest that overtakes these woodlands. One of the most effective ways of restoring oak woodlands, especially black oak woodlands, is through high severity fire, allowing the tree boles and root systems to resprout and get

a leg up on conifers who are forced to sprout from seed (Cocking et al., 2014, *Long-term effects of fire severity on oak.*). Given the already apparent and predicted warming and drying trends of climate change and the historical greater abundance of oak woodlands and hardwood dominated forests in this area, an effort should be made to help return these post fire landscapes to a more resilient, hardwood dominated system, rather than spending resources to return the landscape to the conifer dominated system of the post-fire suppression landscape.

Experience on the Salmon River watershed in recent decades shows that reforestation has become largely ineffective due to the increasingly frequent fire return interval of large landscape level fires. While some plantations have reached the age for a commercial thin on the Salmon River, these have almost always been on the smaller side and not really commercially viable if they were not paired with logging of mature non plantation forests. Plantations rarely, if ever, have a chance to reach the age of true commercial viability in this remote landscape before re-burning. Moreover, the presence of plantations (especially young ones) hinders the implementation of prescribed fire, since it takes several decades for the trees to reach an age where they can withstand prescribed fire without significant mortality. Additionally, plantations burning at high intensity can pose a risk to neighboring natural stands, increasing the likelihood of damaging fire effects in these more mature natural stands. From recent forestry projects on the Salmon River it appears that foresters are modeling tree survival in plantations at a 30 year return interval before fire occurs. In a landscape where prehistoric fire intervals were closer to a 5-15-year fire return interval, recent large fires events have re-burned extensive plantations at high severity, often making plantations more of a liability than a benefit over time.

SRRC therefore recommends greatly limiting the amount of reforestation that is included in this proposal, if it is included at all. If reforestation is implemented, we strongly recommend waiting to replant until after at least a first pass of prescribed fire has been completed, two intervals of prescribed fire would be better. Avoid site preparation and reforestation in any units that have existing hardwood components, or a nearby seed source that will allow them to naturally revegetate. Planting oak could be a good consideration around fuel breaks given climate change predictions.

Natural revegetation will occur within an ecologically meaningful time frame and will result in a forest with greater species diversity and resilience. This is supported by observation of past natural fire recovery in the Salmon River watershed and by multiple scientific studies. A study titled *Conifer Regeneration after Forest Fire in the Klamath-Siskiyou: How Much, How Soon?* (Shatford et al 2007) looked closely at post-fire conifer regeneration in our area and concluded that natural conifer regeneration exceeded a median density of 1000 stems/hectare out to a distance of 400 m from a seed source before declining farther away. Additionally, brush and hardwoods were not found to inhibit conifer abundance in Douglas-fir forest types nor did broad-leaved species present a challenge to white fir establishment. Donato et al (2009) came to virtually identical conclusions.

We appreciate the language in this proposal allowing for hardwoods to meet stocking guidelines and even going further to think hardwood resprout clumps to encourage single stem hardwoods in a more rapid timeline. We have seen this approach work on private lands in the watershed after high severity fire. We suggest increasing spacing around hardwoods even beyond the 15 feet suggested, especially on the S, E and W sides of the hardwoods. As mentioned above, we encourage not replanting conifers in areas where hardwoods resprouting on their own, and instead treating thinning the hardwood resprout clumps and surrounding brush to encourage a more rapid transition into oak woodlands and mixed hardwood forests.

## **Increase analysis for prescribed fire as a fuels treatment to reduce high severity patch size in future wildfire events.**

We strongly support using recent fire footprints to increase the amount of prescribed fire in the landscape to help reduce the likelihood of these same fire footprints burning in such large, continuous swaths during the driest, hottest conditions. If we are to get ahead the current cycle that we are in of large campaign fires with ever increasing patch sizes of high severity fire, we will need to use every opportunity we can to increase the amount of prescribed fire on the landscape, especially when conditions allow for opportunities with reduced risk. We strongly encourage the use of prescribed fire within recent fire footprints, when fuels accumulate enough to carry fire but are not yet extreme. We believe that recent fire footprints can offer many, lower risk opportunities for larger prescribed burns that can help to reset a healthy fire regime in areas that have been affected by over a century of fire suppression.

Wildfire is always going to be doing the heavy lifting in this remote and rugged terrain. We should take good every opportunity that it gives us to help work with it either in effectively managing it during wildfire events. A great example of this was the considerate use of drones to increase good outcomes during the 2021 River Complex. After the fires, we should be using these same technologies to get fire back on the land at a healthy fire return interval. We should also be using these very recent fire footprints as safe backstops for shoulder season, low intensity prescribed fire, in unburned areas adjacent to them.

The small, targeted size of this project limits the ability to include this kind of prescribed fire planning an analysis in the recent fire footprint. The project only included prescribed fire in fuels and salvage treatment units. There are opportunities to include much more and/or larger, strategic prescribed fire units in this fire footprint and even in this project area. If trail maintenance were included on the ridge trail system along the wilderness boundary, a drone assisted prescribed fire could possibly be conducted bringing fire gently down from that ridge system through the entire South Fork Taylor Creek watershed. Even if this was a patchy burn, before too much fuel accumulates, it could go a long way to decrease the likelihood of the entire watershed burning at such high intensity again in the future.

The recently drafted Salmon River CWPP marks both ridges along the boundaries of the S. Fork Taylor Creek watershed as proposed strategic fuel breaks tying into the private property at the base.

If this level of prescribed fire is not analyzed, then there is really no chance that it will happen. We encourage the KNF and Salmon/Scott Ranger District to work with partners to increase the ability to conduct an increased amount of prescribed fire on the landscape.

Please carefully consider increasing the areas analyzed for prescribed fire in this project, even as prescribed fire as an initial (post fire) entry. More options as we necessarily increase our pace and scale of prescribed fire is better than fewer.

## **Strategic Ridgetop Fuel Breaks.**

The strategic ridgetop fuel break proposed in this project is also proposed in the recently drafted 2021 Salmon River CWPP. Links to the DRAFT document can be found here on SRRC's Publications page of our website:

<http://srrc.org/publications/index.php>

<https://drive.google.com/drive/folders/1nqPn2TL4eUY8gUqTILgB4eYk1z-cM0Cz>

We also identify additional strategic ridgetop fuel breaks in the maps that could help to define prescribed fire units.

We discourage the use of mastication in these strategic fuel breaks and would rather promote manual cut/pile/pile burn methods that actually remove the fuels and won't increase residence time and burn severity if they are used as firelines for prescribed or wildfire.

### **Less reliance on mastication as a fuels treatment within the watershed.**

SRRC would like to see less of a reliance on mastication as a fuels treatment within this project area and the Salmon River Watershed in general. Past work in the watershed has been less effective when compared to a traditional cut and pile approach. Research performed by (Reiner et al. 2012) titled *Mastication and prescribed fire influences on tree mortality and predicted fire behavior in ponderosa pine*. Showed a high mortality rate for trees within masticated site units that were then followed by prescribed fire. Mortality was reduced in areas where manual pull back was combined with the mastication. Manual pull back in a large area seems untenable for these sites. Additionally, when adding in the need for manual pullback and additional patrol and mop-up, the potential cost savings of mastication disappear. Therefore, we suggest a heavier reliance on manual fuels reduction and pile burning in these areas requiring treatment.

Mastication, in our experience leads to a false sense of security, but really just kicks the can down the road to a future managers lap. It provides nearly instant visual gratification, but is not actually reducing the fuels, but rather rearranging them. The resulting heavy fuel loading on the ground can have multiple deleterious effects to local forest ecology. It can greatly reduce the reemergence of grasses, forbs, wildflowers and other plants important for wildlife food and biodiversity; creating a locally unusual depth of mulch can lead trees to increase the amount of their feeder roots close to the soil surface rather than deeper in the ground; it can increase the residency time for burns, thus increasing top killing and tree and plant mortality even when it has a lower flame length; it allows burns to "skunk around" for long periods of time and resurface under drier, riskier conditions, making it very difficult for safe prescribed fire; it gives residents and managers a false sense of security with its visual effects that don't correlate with actual fire safety.

This is especially true along strategic fuel breaks. While mastication can moderate fire behavior and in extensive areas can lower flame lengths and possibly drop a crown fire down to the to the ground, it has been found to have higher flame lengths than expected in modeling, and often has both a higher residency time and will burn at very high temperatures, resulting in high tree mortality and lots of heat put off on the fireline. It is not an effective fuel bed to start firing operations from or to try to stop and mop up a fire within.

While there are some situations where mastication may make sense, given that it doesn't actually remove the fuels, it doesn't seem like the cost saving really pan out. We recognize that the USFS has

been struggling with getting through a backlog of piles on the district. We hope that the district can work to find creative ways to engage partners and increase capacity for pile burning. The Karuk Tribe, Mid Klamath Watershed Council and SRRC have been successfully assisting the Six Rivers National Forest with resources to get through a backlog of piles on the forest. Let's work together to find a solution to the pile backlog and not turn to mastication as a means of reducing the pile burned, since in effect, it is just making the fuels less visible.

**Designate areas in low gradient ground units near roadsides as potential areas for the harvest of whole trees for use in fisheries restoration projects.**

SRRC has been working with Klamath National Forest to identify local sources for the acquisition of whole trees with rootwads for fisheries habitat restoration projects, as well as long tree boles without rootwads attached. Small salvage and roadside hazard sales are ideal candidates for this. We request that analysis for the removal of whole trees with rootwads be included in this project and appropriate sites for such be designated. This is in line with Klamath National Forest Plan fisheries resource objectives 9-4 (Project-level planning should review the opportunities available to improve or maintain aquatic habitat) and 9-7 (Work with state, Federal, tribal and community groups to optimize efforts to protect, maintain, and improve aquatic resources, especially anadromous fish species).

Ideally this project would include analysis to cover helicopter wood loading of both whole trees with root wads as well as large long tree boles of cut hazard trees as a part of this project. Look to the Happy Camp Ranger District on KNF as an example of how to successfully include this type of critical fisheries habitat enhancement project within a post fire salvage/restoration project. Both the helicopter wood loading and the accelerated large wood recruitment projects in Horse Creek are great examples of post fire forest management directly resulting in important and successful in-stream fisheries restoration and sediment catchment projects in fire torn landscapes. Contact USFS, Happy Camp fisheries biologist Jon Grunbaum for details of how to analyze for this type of project and include it in post fire salvage projects.

This would go a long ways to help to restore the drainages that were impaired by these fires and the decades of fire suppression which has starved them of large wood. We encourage analyzing both helicopter wood loading as well as "chop-and-drop" / accelerated large wood recruitment projects for streams with fisheries resources that were affected by the fires. These streams would include Taylor Creek, East Fork South Fork Salmon River and the upper South Fork Salmon River. SRRC would be happy to work with the district to help create an instream restoration project of this type. SRRC recently completed a fisheries barrier removal project on the lower reach of Taylor Creek, giving increased access to anadromous fish to the creek above.

**Meadow Restoration.**

There are multiple degraded meadow systems within the River Complex Fire footprint and directly adjacent this current project boundary. High mountain meadows are critically important to the resilience of our ecosystem in a myriad of ways. Many of these meadows are degraded from over grazing, incision, and conifer encroachment. Meadows are incredibly important to the future of our river systems and the survival of salmonids in our systems, and they are even more important to have fully functioning in the face of climate change. When functioning properly they act as sponges that hold snowmelt, and precipitation and slowly release it through the dry, hot summer months. When impaired they lose much

of this ability and lose the highly biodiverse systems that they otherwise support. Additionally, restoring meadows after fires allows them to act as true catchment basins to store both water and the large loads of sediment that area coming off of the fire torn slopes. Using beaver dam analog systems and other methods, these impaired meadow systems can go from incised channels to sediment catchment basins that stay wet through the dry season. There is great urgency in the Klamath Region and throughout the mountainous west to restore our meadow systems. We should be incorporating meadow restoration in every environmental analyses where they exist. This project is no exception. SRRC is eager to partner with KNF and the district to design and implement meadow restoration projects within the River Complex footprint. This would be greatly accelerated if even simple fixes were analyzed as a part of this project. NEPA processes are often the biggest hurdle to implementing important restoration in our forests. Why not incorporate them into this project and get a jumpstart of critically important restoration.

### **Fuels Reduction and WUI Treatments.**

While we appreciate the inclusion of manual fuels treatments in WUI zones around the private inholding at the base of South Taylor Creek, the narrow scope of this project leaves out important fuels reduction / post fire cleanup around many other private properties affected by these fires. It is unclear whether the WUI zones directly surrounding the other private properties will receive post fire fuels reduction treatments.

SRRC is currently working on a fuels reduction and oak woodland enhancement project on several properties in the area that were affected by the River Complex fires. There is legitimate concern about the USFS WUI areas around these properties and the risk that they pose. One property that we are working on has extreme fuel loading as a direct result of fire suppression efforts directly on the USFS side of the property line. It is imperative that post fire fuels treatments be conducted within the WUI of affected private properties to reduce the risk from future fire events. See the images below of one such area on the property line of the Lor'o Ranch. These trees were cut and slash were created during fire suppression efforts. This level of fuel loading directly adjacent to private lands and homes is unacceptable and treatments should be included beyond the small footprint of this project.











More post fire fuels manual fuels treatments are needed in the River Complex footprint than are included in this narrow proposal. We encourage expanding the manual fuels reduction and prescribed fire opportunities in this project. It seems very unlikely that another project, without the salvage portions will materialize to accomplish this important work in the time period that is needed before these areas become too inundated with fuels.

### **Large snags, green trees and wildlife trees.**

The verbiage in the scoping document in encouraging that proper step will be taken in these LSR and riparian areas to leave large trees, green trees, and wildlife trees, however, in previous, recent salvage projects in the Salmon River, we have seen other tactics taken. In the Salmon Salvage project, large numbers of the very largest green trees were removed, I believe using the Klamath Salvage Guidelines for tree mortality. These legacy trees are critically important on the landscape, for wildlife, and as seed site appropriate seed sources for the next generation of trees. The largest, trees should be left if they have any life left in them. Even if they only get two to five years seed the landscape their legacy is critical for the future. The largest trees, even as snags tend to remain on the landscape the longest, serving wildlife for decades. If these large trees have to be cut because they pose an imminent threat, they should be directionally felled and left in place.


It seems apparent from previous projects the 70% or greater chance of dying in the next 5 years is too liberal. This bar should be raised to assure better genetics for our future forests and that more legacy trees remain on the landscape.

### **Collaboration with local partnerships, non-profit organizations and Tribes**

Our local Tribes have deep knowledge of how to manage fire and forest ecosystems on this landscape. We encourage the forest to work with these groups, especially the Karuk Tribe in designing post fire projects. In November, the White House Office of Science and Technology Policy and the Council on Environmental Quality jointly released a memorandum that commits to elevating Indigenous Traditional Ecological Knowledge (ITEK) in federal scientific and policy processes. We encourage KNF planners to incorporate TEK and support robust and meaningful participation with Karuk Tribe in project planning, implementation and monitoring.

We urge the Klamath National Forest to work with the Western Klamath Restoration Partnership to help in the creation of a long-term fire management strategy for the Salmon River watersheds. Please consider the attached post-fire recommendations and collaborate with these willing partners in creating a strategy for the Salmon River ecosystem and communities that is maintainable and moves us towards a better future and relationship to fire.

Thank you,

  
Karuna Greenberg  
Restoration Director  
Salmon River Community Liaison  
Salmon River Restoration Council

### **Literature Cited**

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