

Ranger Steve Brown

June 10, 2021

Stevensville Ranger District

Bitterroot National Forest

88 Main Street

Stevensville, MT 59870

Re: Eastside Forest & Habitat Improvement Project

Comments e-mailed to Steve Brown and submitted to project webpage: <https://cara.ecosystem-management.org/Public/CommentInput?Project=59985>

Please confirm receipt of these comments.

Dear Ranger Brown,

Thank you for the opportunity to comment on scoping for the Eastside Forest & Habitat Improvement Project. I incorporate and attach Gail Goheen comments dated June 10, 2021 as reference. The May 11, 2021 two-page scoping letter states that the Forest Service is “proposing a mix of vegetation treatments including prescribed fire and non-commercial thinning which will cover the majority of the “east side” of the Bitterroot National Forest.” (Scoping at 1). The press release states that there will be no commercial timber harvests, and precludes areas with mapped lynx habitat or areas where grizzly bears may be present as identified by the U.S. Fish & Wildlife Service (FWS). This project is proposed under a categorical exclusion (CE) which releases the agency from analysis and documentation in an EIS or an EA under the authority provided by 36 C.F.R. 220.6(e)(6).

I am a member of the public. My property borders the Bitterroot National Forest (BNF) and I spend much of my day exploring the forest including many favorite spots on the Eastside of 93.

Considering NEPA requirements to collaborate with the public and share site-specific information on projects before the decision is made, the lack of information in the 2-page scoping letter is inadequate. To propose this project with so little information is disrespectful of the public that you serve. The maps provided of the project area and proposed timber stand and habitat improvement areas are low resolution making it difficult to discern where proposed activities are in relation to Inventoried Roadless Areas (IRA), the Sapphire Wilderness Study Area (WSA) and the Research Natural Area (RNA), and Riparian Areas, critical bull trout habitat, lynx habitat, and grizzly denning habitat, within the project boundaries. On May 19th, after the press release and 1/3 of the way to the comment deadline, GIS layers were shared on the project website. But these layers are inaccessible to the general public. It is the agencies responsibility to the NEPA process to make the information accessible and understandable to the public. It does not seem you are complying with NEPA and 40 C.F.R. § 1506.6(a): “Agencies shall ... Make diligent efforts to involve the public in preparing and implementing their NEPA procedures”.

Sadly the 2-page scoping document and low-resolution maps do not document what was promised in the press release. The maps seem to show proposed project activity areas abutting streams and taking place in bull trout critical habitat, lynx habitat, IRAs, WSAs and RNAs. Again, the information is not readily available to the public in violation of NEPA. Please also note that the maps that are provided in scoping do not explain abbreviations. For example, what is a PVT? A thorough and well thought out analysis or at the very least an adequately described project is not evident in scoping.

Scoping explains, “this project will be done entirely within a designated priority landscape.” Please explain how the project area and all proposed activities are in a priority landscape. What definition are you using and how do all proposed activity areas fall within that definition? It seems this project is using conditions-based analysis and site-specific information will be divulged only after the decision is recorded. This analysis is not supported by the new administration and should be abandoned as it does not involve the public in site specific analysis. Conditions based analysis also relies on design features and compliance with the Forest Plan (FP). The Bitterroot National Forest (BNF) has a poor track record of FP compliance and following regulations. It was recently reprimanded for ignoring Streamside Management Zone (SMZ) regulations on the Darby Lumber Lands II project. On the same project, BNF allowed project activities and log hauling during the wet season ignoring design features as specified in the Forest Plan, leaving deep ruts in the project area, and destroying roads.

Again, BNF has ignored FP standards by failing to introduce beavers as mandated in the FP Forest Plan standard 10 under wildlife and fish states, “Beaver **will** be introduced to suitable riparian habitat” (emphasis added, FP at II-20). We are not aware that any beaver introduction plan has been implemented. A map of suitable riparian habitat for beavers should be created as part of any BNF project especially one that proposes to improve habitat. Given the number of Eastside streams listed as impaired due to sediment the introduction of beaver should be a priority for habitat improvement. The cost of beaver introduction compared to the value gained makes it very efficient.

Please show that BNF has been monitoring in the project area as specified in the FP. Conditioned based analysis proponents claim that conditions on the ground might change and this form of NEPA allows for adaptation. Please show that you have followed the required monitoring and give specific examples of previous changes in methods based on the monitoring. Monitoring is essential for adaptive management, but monitoring is lacking and any changes in method are negligible if any on the BNF.

Please show that the project activities will not affect old growth as defined in the current FP including canopy cover, snag retention and percentages per management areas. Current old growth status should be mapped using stand exams and quantitative data required to define timber sale for contract purposes and compared to both the current forest plan definition and that resulting from applying the Green et al definition in the project area.

The impact of removing old growth stands of any tree species on nesting sites and home range habitat for, Bald Eagle, Boreal Owl, Flammulated Owl, Great Grey Owl and Northern Goshawk must be included in the project analysis. What is the potential impact on other wildlife species associated with old growth forests such as Pine Martin, Brown Creeper, Snowshoe Hare and Moose?

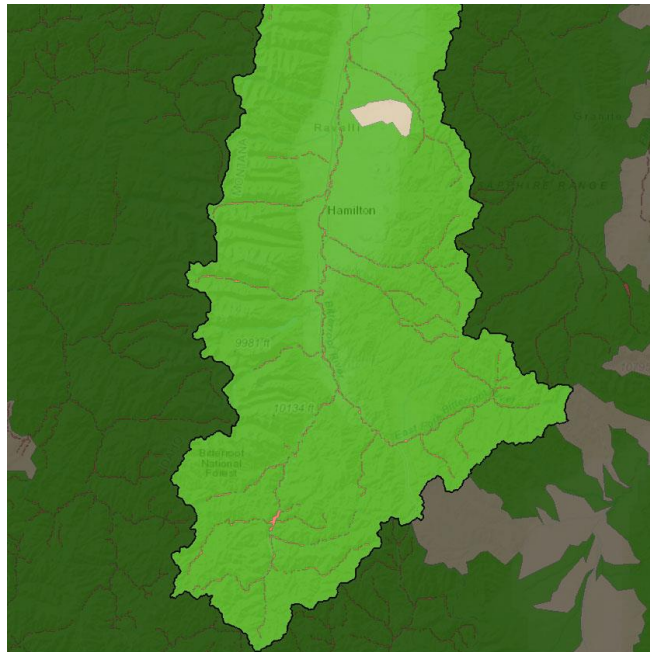
Though verbally we have heard the project will span 10 years, the scoping letter merely states “several years” (scoping at 1). Scoping also states the project is setting up the landscape for

future rotational burning. If this project is in conjunction with a rotational burning project, then this project should be included in the future project and an EIS should be created for it. What is the use of prepping for a project that has not yet been analyzed for effects to wildlife, climate change, natural resources, and the human environment? Is this project part of a larger plan that is not being shared with the public? At what frequency and in what locations will these rotational burns happen and how will they affect plant and animal life, old growth, IRAs, WSAs, lynx, wolverine, and the future of grizzly occupation in the area? It seems counterintuitive to spend ten years setting up a future project that has not been vetted and approved through NEPA. Shouldn't the setting up of the future project in fact be a part of the future project and be included in that NEPA process?

There are ongoing projects in the area, Darby Lumber Lands II, Cold Springs, and Meadow Vapor to name a few. Were these projects considered with this landscape scale work? How many roads decommissioned from these projects will be reopened in the Eastside project? Please provide NEPA for all roads, an inventory of all "undetermined" roads in the project area, and provide analysis of effects to bull trout, lynx, wolverine, elk, and grizzly bears, streams and fisheries.

The press release claims there will be no commercial logging. Please put that in writing in NEPA documentation. Please also state if mechanical means will be used for thinning and burning? What chemicals will be used to ignite moist fuels in cool conditions? When will burns happen? And how flexible will contractors be with weather. For instance, the Ambrose Saddle prescribed burn got out of hand, burned leave trees, and burned beyond planned areas. The weather had been predicted as mild with no wind until that morning when predictions called for high winds. Why didn't BNF postpone the burn? Ranger Steve Brown said the winds came out of nowhere; however, they were predicted that morning, so there was time to change course. But it seems the contracts were not flexible to change with last minute weather predictions. Inflexible contracts will create problems for extensive burning activities in the Eastside Project.

Since there has been no analysis and the project area includes bull trout critical habitat (map to right), I would expect and propose that no roads be re-opened, pulled from storage, or re-bladed, and that no temporary roads will be constructed. If any of these activities is expected, an EIS is in order. We have verbal confirmation that no new roads will be built, but it is not specified in scoping. Protecting fisheries is vital to the local economy. Montana Fish Wildlife and Parks (FWP) puts Bitterroot River angler days (any one person who fishes a stream at any point during one day) estimates at over 130,000 per year with nearly 60,000 coming from non-residents. These fishermen are estimated to spend \$385



per day as compared to resident anglers who spend closer to \$80 per day. Altogether estimates put the angling economy at a sizeable \$28 million per year industry¹.

A recent ruling in the DLLII case, called out BNF for not completing travel planning by identifying the minimum road system. This should be completed before any other projects are proposed on the forest. FP states that roads that “cannot be maintained to design standards, will be closed.” The Willow Creek road blowout of a few years ago is indicative of the many roads that are not at Best Management Practices (BMP). At the very least, a minimum road system should be specified, an inventory of roads not meeting design standards should be created, and those that cannot be repaired and maintained into the future, should be permanently closed and decommissioned so that they will not be considered “undetermined” roads in the future.

The reliance on BMPs is a flawed approach that assumes they work. Ziemer and Lisle (1993) indicated that there are no reliable data showing that BMP’s are cumulatively effective in protecting aquatic resources. Espinosa et al. (1997) provided evidence from case histories in Idaho that BMP’s thoroughly failed to cumulatively protect streams from severe damage from roads and logging. In analyses of case histories of resource degradation by stereotypical land management (logging, grazing, mining, roads) several researchers have concluded that BMP’s increased watershed and stream damage because they encourage heavy levels of resource extraction under the false premise that resources can be protected by BMP’s ²(see also Rhodes et al., 1994 Espinosa et al., 1997).

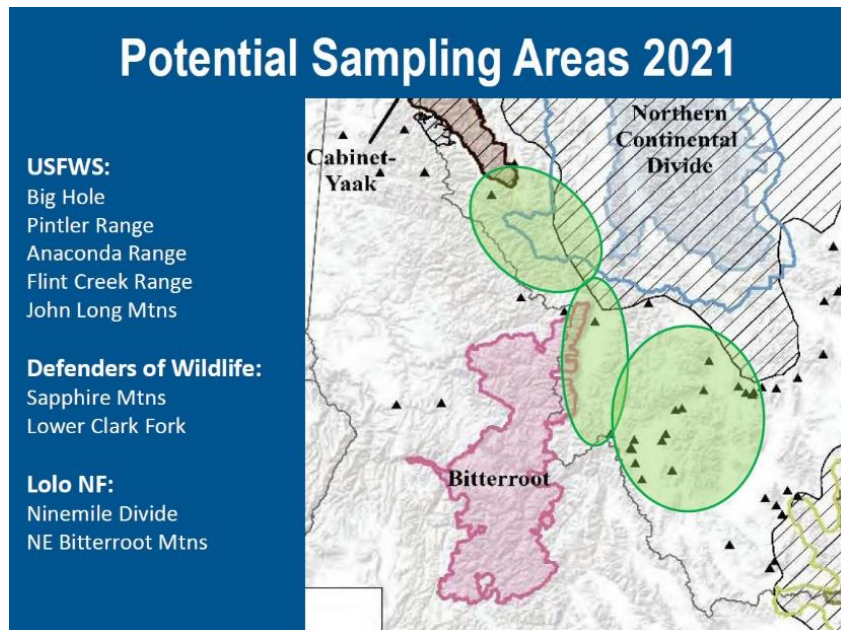
The premise that we can somehow improve resilience with thinning and low severity prescribed burning is questionable. And one must wonder at the insistence of putting out every fire immediately and then introducing fire because it has been suppressed. It is a cyclical nightmare that feeds on its own tail. Analysis of fire severity patterns in western ponderosa pine and mixed conifer forests showed that " that the traditional reference conditions of low-severity fire regimes are inaccurate for most forests of western North America. Instead, most forests appear to have been characterized by mixed-severity fire that included ecologically significant amounts of weather-driven, high-severity fire." "Biota in these forests are also dependent on the resources made available by higher-severity fire. Diverse forests in different stages of succession, with a high proportion in relatively young stages, occurred prior to fire exclusion. Over the past century, successional diversity created by fire decreased. Our findings suggest that ecological management goals that incorporate successional diversity created by fire may support characteristic biodiversity, whereas current attempts to 'restore" forests to open, low-severity fire conditions may not align with historical reference conditions in most ponderosa pine and mixed-conifer forests of western North America." ³

¹ Goodwin, Zachary, Historic Legacies, Current Challenges, and an Unknown Future, Montana’s growing tourism economy. <https://storymaps.arcgis.com/stories/0c11d929745f45c6a72604250feff10d>

² Stanford, J. and J. Ward. “An Ecosystem Perspective of Alluvial Rivers: Connectivity and the Hyporheic Corridor.” *Journal of the North American Benthological Society* 12 (1993): 48 - 60.

³ Odion DC, Hanson CT, Arsenault A, Baker WL, DellaSala DA, et al. (2014) Examining Historical and Current Mixed-Severity Fire Regimes in Ponderosa Pine and Mixed-Conifer Forests of Western North America. *PLoS ONE* 9(2): e87852. doi:10.1371/journal.pone.0087852.

Though the Fish and Wildlife Service (FWS) “grizzly bears may be present area” is a small part of the project area, grizzlies will still be adversely affected by project activities in peripheral and connectivity areas. Furthermore, FWS is embarking on a multi-year grizzly search in the project area (see map). It seems FWS feel grizzlies may be present in the project area.



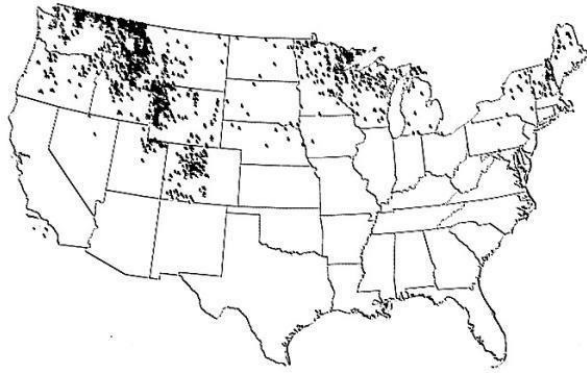
The press release announcing the Eastside project states that project activities will not occur in lynx habitat. Scoping documentation does not confirm this statement and stopping activities at the edge of lynx habitat does not take into consideration connectivity between areas of habitat on the forest. The Biological Assessment for Canada lynx documents the importance of peripheral areas as:

Peripheral populations may contain valuable genetic, physiological or behavioral adaptations that are unique to their ecological success. Because suitable habitats in areas where populations act as metapopulations are spatially separated, the persistence of a metapopulation is dependent on the efficiency and success of dispersing animals in reaching isolated patches of suitable habitat. When patches are fragmented and connections between patches do not exist, recolonization becomes problematic and the metapopulation may be unable to persist, even though patches of suitable habitat remain (Meffe and Carroll 1997⁴). Additional fragmentation and isolation of suitable habitat occurring as a result of land management activities can not only affect small isolated habitat patches supporting smaller populations but also large contiguous patches supporting higher population levels.⁵

⁴ Meffe, G.K., and C.R. Carroll. 1997. Principles of conservation biology. Sinauer, Sunderland, Massachusetts 22 Ruggerio, L.F., Aubry, K.B., Buskirk, S.W., Koehler, G.M., Krebs, C.J., McKelvey, K.S., and J.R. Squires (Eds.), Ecology and Conservation of Lynx in the United States. University of Colorado Press, Boulder, CO.

⁵ USDA Forest Service 1999. Biological Assessment of the Effects of National Forest Land and Resource Management Plans and Bureau of Land Management Land Use Plans on Canada Lynx. 149p.

The historical lynx habitat map (below) shows that the Bitterroot National Forest area has housed lynx in the past and the referenced link of currently occupied and unoccupied habitat shows the project area borders areas of current occupation⁶. There are core and peripheral or linkage areas. Ruggiero et al 1999⁷ also discuss the effects of fragmentation on competition with lynx by other carnivores and the loss of connectivity. The linkage areas and peripheral areas of lynx habitat will be affected by the project.



The importance of stepping stone areas to species in a changing climate is demonstrated in Saura et al 2014:

Synthesis and applications. Previous static connectivity models seriously underestimate the importance of stepping-stone patches in sustaining rare but crucial dispersal events. We provide a conceptually broader model that shows that

*stepping stones (i) must be of sufficient size to be of conservation value, (ii) are particularly crucial for the spread of species (either native or invasive or genotypes over long distances and (iii) can effectively reduce the isolation of the largest habitat blocks in reserves, therefore largely contributing to species persistence across wide spatial and temporal scales.*⁸

As shown in the Western Wildway Map (below), the project area is a part of the Continental Corridor connecting Mexico to Alaska and the regions of that corridor being addressed by scientists and advocates of connectivity for wildlife. This represents a conservation biology approach to landscape conservation which emphasizes linkage zones and connectivity for Canada lynx and other species. Project analyses on most if not all BNF projects seem to abandon conservation biology principles and connectivity linkage zones. Even though project activities will not be in designated lynx habitat, the project will most certainly affect important peripheral and connectivity areas.

⁶ https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5193020.pdf

⁷ Ruggiero, L.F., Aubry, K.B., Buskirk, S.W., Koehler, G.M., Krebs, C.J., McKelvey, K.S., Squires, J.R. (Eds.), Ecology and Conservation of Lynx in the United States. University of Colorado Press, Boulder, CO.

⁸ Suara, S., Bodin, O., and Fortin, M., Stepping stones are crucial for species' long-distance dispersal and range expansion through habitat networks. *Journal of Applied Ecology*, 2014, vol 51, 171-182.



A “hard look” must be conducted of habitat fragmentation, corridor functionality, vegetation treatments, road density, snowmobile, and ohv activity, trapping and other human activity as well as livestock grazing on Canada lynx. The project must also take into account new trapping laws in Montana, with extended seasons and the incorporation of wolf snaring, and what they will mean for lynx. That look must also include all Forest Plan requirements and intent as well

as embody the best available science applicable to Canada lynx.

Recently, a US District Court ruling remanded the USFWS withdrawal of its Proposed Rule to list the distinct population segment of the North American wolverine occurring in the contiguous United States as a threatened species under the Endangered Species Act for further consideration.⁹ The ruling reviewed the science relating to the selection of denning sites in combination with snow presence during the natal period and recent analyses of potential climate change effects to snow pack that indicate a severe reduction in snow cover during this century with negative implications to wolverine populations. This factor alone should place greater emphasis on habitat integrity and restoration for corridors, connectivity for both lynx and wolverine.

The ruling also emphasized that populations in the US, which exist as meta-populations “require some level of regular or intermittent migration and gene flow among subpopulations, in which individual subpopulations support one-another by providing genetic and demographic enrichment through mutual exchange of individuals.” If connectivity is lost, “an entire meta-population may be jeopardized due to subpopulations becoming unable to persist in the face of inbreeding or demographic and environmental stochasticity.”

The study by Copeland, 2010¹⁰, cited in the ruling, analyzed spring snow cover to determine overlap with known den sites, finding 97.9% overlap. They concluded that if reductions in snow cover continue to occur, “habitat conditions for the wolverine along the southern extent of its circumboreal range will likely be diminished through reductions in the size of habitat patches and an associated loss of connectivity, leading to a reduction of occupied habitat in a significant portion of the species range.” A second analysis by McKelvey, 2011¹¹ used Global Climate Models

⁹ US District Court for the District of Montana, Missoula Division. April 4, 2016. Defenders of Wildlife v US DOI. CV 14-246-M-DLC

¹⁰ Copeland, J. P.; McKelvey, K. S.; Aubry, K. B.; Landa, A.; Persson, J.; Inman, R. M.; Krebs, J.; Lofroth, E.; Golden, H.; Squires, J. R.; Magoun, A.; Schwartz, M. K.; Wilmot, J.; Copeland, C. L.; Yates, R. E.; Kojola, I.; and R. May. 2010. The bioclimatic envelope of the wolverine (*Gulo gulo*): do climatic constraints limit its geographic distribution? Canadian Journal of Zoology. 88: 233-246.

¹¹ McKelvey et al. 2011. Climate change predicted to shift wolverine distributions, connectivity, and dispersal corridors. Ecological Applications, 21(8), 2011, pp. 2882–2897.

to predict the change in distribution of persistent spring snow cover so that “for conservation planning, predicting the future extent and distribution of persistent spring snow cover can help identify likely areas of range loss and persistence, and resulting patterns of connectivity.”

McKelvey concluded that they expect, “the geographic extent and connective(ity) of suitable wolverine habitat in western North America to decline with continued global warming” and that “conservation efforts should focus on maintaining wolverine populations in the largest remaining areas of contiguous habitat and, to the extent possible, facilitating connectivity among habitat patches.”

In its Proposed Rule, the USFWS accepted these studies as the best available science with climate change as the driving factor. Other threats were considered of lower priority in comparison, “however, cumulatively they could become significant when working in concert with climate change if they further suppress an already stressed population.” The USFWS noted harvest, demographic stochasticity and loss of genetic diversity as these secondary factors but avoided mention of habitat integrity and fragmentation by roads, infrastructure and human activity or loss of prey base due to depletion of herbaceous plant communities and cover by livestock grazing.

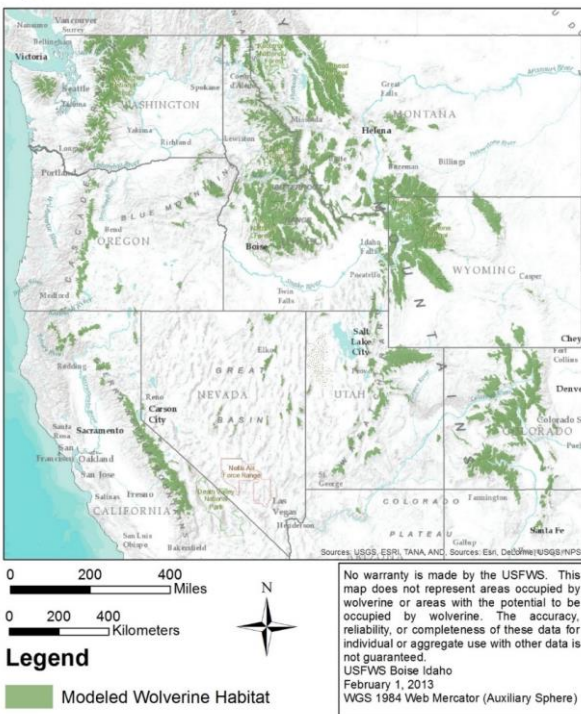
Robert Inman, PhD, a biologist and Director of the Greater Yellowstone Wolverine Program at the Hornocker Institute/Wildlife Society noted that the USFWS singled out a particular activity, fur trapping, that can cause mortality, while ignoring the full range of human activities such as road kill, before records were kept. So delineating habitat based on these records can understate actual range for wolverines. He also provides evidence that wolverines can den in areas lacking the presumed snow cover and that conditions suitable for competing for food are also a limiting factor. He further argues that road density was found to be a factor in an earlier telemetry-based habitat analysis, particularly at higher elevations. He also pointed out the extensive trapping that occurred in the US prior to records of wolverine and that they may well have been eliminated from suitable places before records were kept.¹²

So, while the USFWS emphasizes the role of connectivity and genetic exchange in maintaining meta-populations and genetic diversity, it avoids the identification of the connections vital to maintenance and recovery of species. The map of the USFWS modeled wolverine habitat (below)¹³ shows wolverine habitat areas in Montana, Idaho, Utah and Wyoming but provides no indication of travel corridors that wolverine might use to connect these.

¹² Review of the United States Fish and Wildlife Service’s Proposed Rule to List Wolverines as a Threatened Species in the Contiguous United States, May 2013. <https://www.federalregister.gov/documents/2013/02/04/2013-01478/endangered-and-threatened-wildlife-and-plants-threatened-status-for-the-distinct-population-segment>

¹³ <https://www.fws.gov/mountain-prairie/es/species/mammals/wolverine/02012013ModeledWolverineHabitatMap%20.jpg.pdf>

 Modeled Wolverine Habitat in Western United States



Prescribed burning, mechanical treatments, and road re-opening will promote the spread of invasive weeds. At the May Bitterroot Forest Collaborative meeting, District Ranger Steve Brown said that herbicides would be used in the project area using a previous forest-wide EIS. Please include the mapping of invasive species from that EIS as it overlaps the project area and explain how herbicides will be used to prevent weeds from spreading in the project area.

The eastside project is home to myriad springs and seep areas. Please provide a map of these areas and analyze the effects of project activities on these vital areas before the record of decision. Please also consider Boreal toads and analyze how project activities will affect them and their habitat.

Please provide references and on the ground examples demonstrating that your proposed treatments will likely be successful in improving resilience to insects, disease, and wildfire; improving forage quality and quantity; and improving habitat. Please demonstrate that such improvement is necessary for ecosystem health by being more specific about on the ground conditions and how these specific conditions will benefit from project activities.

A review of literature questions current policy and whether it is based on science. Lack of monitoring of post treatment effects leaves questions as to the efficacy of treatments. "While the use of timber harvests is generally accepted as an effective approach to controlling bark beetles during outbreaks, in reality there has been a dearth of monitoring to assess outcomes, and failures are often not reported. Additionally, few studies have focused on how these treatments affect forest structure and function over the long term, or our forests' ability to adapt to climate change. Despite this, there is a widespread belief in the policy arena that timber harvesting is an effective and necessary tool to address beetle infestations. That belief has led to numerous proposals for, and enactment of, significant changes in federal environmental laws to encourage more timber harvests for beetle control."¹⁴

¹⁴ Six, D.L., Biber, E., and E.L. Esposito. 2014. Management for mountain pine beetle outbreak suppression: does relevant science support current policy?. *Forests* 5(1):103-133. DOI: 10.3390/f5010103. <https://app.box.com/s/4y9y70lbqvza4xnn56a9764abhyr92h8>

What is meant by “improving the mosaic in previously burned areas.” (scoping at 1)? Please specify what an improved mosaic will look like and explain why the current mosaics from natural fires are inadequate. Natural fires offer essential disturbances that provide habitat for seral forest dependent species like black back and three toed woodpeckers and promote biodiversity.

Spring burning is unnatural and is harmful to ground nesting birds, spring grasses and forbs. Once those forbs and grasses are harmed, conifer seedlings can encroach on meadows which is contrary to the purpose and need of the project. There are no details on the thinning. Will machines be used? And what will be the maximum dbh be? Please be clear what activities will be a part of the project and what will not. The CE rule has a list of activities but specifies that the agency is not limited to these activities. Specifically what activities will be used in this project and how will they specifically affect the environment. What constitutes Habitat Improvement activities and Timber Stand Improvement activities?

Active management, by whatever name used, whether treatment, fuel reduction, logging, restoration, salvage, mastication cannot be effective in restoring ecosystem function or reducing large wildfires and are inappropriate in most situations. For example, in a letter to Congress, over one hundred scientists stated that in Wilderness and other protected areas (protected from logging etc.) "fires burned more severely in previously logged areas, while fires burned in natural fire mosaic patterns of low, moderate and high severity, in wilderness, parks, and roadless areas, thereby, maintaining resilient forests." They concluded their letter by stating, "Public lands were established for the public good and include most of the nation's remaining examples of intact ecosystems that provide clean water for millions of Americans, essential wildlife habitat, recreation and economic benefits to rural communities, as well as sequestering vast quantities of carbon. When a fire burns down a home it is tragic; when fire burns in a forest it is natural and essential to the integrity of the ecosystem, while also providing the most cost-effective means of reducing fuels over large areas. Though it may seem to laypersons that a post-fire landscape is a catastrophe, numerous studies tell us that even in the patches where fires burn most intensely, the resulting wildlife habitats are among the most biologically diverse in the West. For these reasons, we urge you to reject misplaced logging proposals that will damage our environment, hinder climate mitigation goals and will fail to protect communities from wildfire." ¹⁵

How will grazing allotments be affected by project activities. Thinning and burning will create competition for forage in the project area. How will this affect elk? Please provide a map of grazing allotments in the project area.

How will project activities affect White Bark Pine? Please supply a map of White Bark Pine and its habitat in the project area and overlay specific project activities. Analyze the affects of thinning and burning on White Bark Pine.

The purpose and need to “improve resilience to insect & disease and catastrophic wildfire in timber stands by modifying forest structures and composition, and fuel” (scoping at 1), is the same as the Mud Creek project. When I asked if the same results could be gleaned from hand

¹⁵ Geos Institute. 2018. Open Letter to Decision Makers Concerning Wildfires in the West.
<https://app.box.com/s/nemr8uoccubou8hubomjx4uhn6sfbu83>

thinning and prescribed burning on that project, we were told that the purpose and need would not be met without commercial activities. How is this project different?

Reinhardt et al 2008¹⁶ in a review on wildland fuel treatments in the US found the following:

- "Treating fuels to reduce fire occurrence, fire size, or amount of burned area is ultimately both futile and counter-productive" because most acreage burned is under extreme conditions which make suppression ineffective. If, due to treatments, moderate intensity fires are suppressed this leads to most acres burning under extreme conditions. Reducing burned area would not be desirable as large fires were common prior to European settlement and many western plant species are adapted to large, severe wildfires. Large fires generally have many areas lightly to moderately burned. Any fire "could offer a unique opportunity to restore fire to historically fire-dominated landscapes and thereby reduce fuels and subsequent effects."
- Reducing fuel hazard is not the same as ecosystem restoration. Treatments such as mastication and thinning may leave stand conditions that do not mimic historical conditions. Mastication breaks, chips, grinds canopy and surface woody material into a "compressed fuel bed" while thinning that removes fire-adapted species and leaves shade tolerant species do not mimic historical conditions. "Fire itself can best establish dynamic landscape mosaics that maintain ecological integrity."
- Thinning for fire hazard reduction should concentrate on the smaller understory trees to "reduce vertical continuity between surface fuels and the forest canopy." Thinning can increase surface fire behavior, for example, it increases surface wind speed and results in solar radiation and drying of the forest floor creating drier surface fuels.
- Fuel treatments are transient. Prescribed fire creates tree mortality with snag fall contributing to fuel loads, tree crowns expand to fill voids, trees continue to drop litter. Trees cut for harvest or killed by fire contribute limbs to the forest floor, increasing fuel loadings. Up to seven treatments may be needed to "return the area to acceptable conditions that mimic some historical range."
- Fire was historically more complex and everchanging than commonly believed and cannot be mimicked by prescribed burning. The low-severity model that is being pushed as "restoration" is no longer widely accepted by scientists. Prescribed fires do not have the variability of past wildfires, and thus cannot mimic them.
- Commercial Thinning and Prescribed out of season burning have negative ecological impacts. Out of season burning coincides with nesting season for birds. Smoke may drive them from their nest, possibly even kill nestlings, etc. Ground nesters will be most impacted. Spring burning can destroy emerging native grasses and forbs allowing for conifer encroachment and spread of invasive weeds.
- The probability that a fire will encounter a fuel treatment of any kind is low.

Scoping document does not disclose total project area acres, treated area acres, lynx habitat areas affected, IRAs areas affected, WSA areas affected, and RNA areas affected. Please rethink this analysis, be more specific in an EIS and restart the comment period.

References included in this comment are meant to be a part of the public record. If you have any difficulties finding the documents, please contact me and I will provide pdfs.

¹⁶ Reinhardt, E.D., Keane, R.E., Calkin, D.E., and J.D. Cohen. 2008. Objectives and considerations for wildland fuel treatment in forested ecosystems of the interior western United States. *Forest Ecology and Management*. 256:1997-2006. <https://app.box.com/s/loj3dqgz37akelxs18thqoqpkplmk533>

In short, the due diligence required of NEPA is not present in this project scoping. Extraordinary circumstances including endangered species, cultural sites, and habitat corridors are prevalent. This project requires an EIS and once a thorough analysis is complete, the agency should conclude that negative effects far outweigh the benefits and the science does not support the proposed actions.

Thank you for your time.

A handwritten signature in black ink, reading "Michele Dieterich". The signature is written in a cursive, flowing style with a large, stylized "M" and "D".

Michele Dieterich