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On behalf of the American Forest Resource Council (AFRC) and its members, thank you for the opportunity to comment on the Mud Creek Project.

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. Many of our members have their operations in communities within and adjacent to the Bitterroot National Forest and management on these lands ultimately dictates not only the viability of their businesses, but also the economic health of the communities themselves.

The Mud Creek project is located on the West Fork Ranger District immediately downstream of Painted Rocks Reservoir. The project area is 48,523 acres which includes 1,897 acres of private land and 166 acres of State lands. Thirty-five percent (17,171 acres) of the project area which includes private property is considered WUI, as defined by the Bitterroot Community Wildfire Protection Plan. Seventy-three percent (35,486 acres) of the project area has been identified as Community Protection based on results of the 2016 Bitterroot Wildfire Risk Assessment.

The current situation on this landscape shows that in the past, fires occurred regularly, happening about every 19 years. Over the past 129 years, however, only approximately 4% of the acres that should have experienced multiple fires have even burned once. This departure from natural disturbance patterns has led to major changes in fuels and vegetation composition. The most impactful changes to stand structure and composition affecting fire behavior within the Mud Creek Project area has been increases in small to medium-sized, shade tolerant conifers that are sensitive to fire and increases in surface fuel loadings due to insect activity and the disruption to the natural fire cycle. The departure from historic fire conditions also has implications for wildlife. Extended fire return intervals contribute to conifer encroachment in meadow habitats across the landscape. These habitats are important areas for wildlife species such as elk, mule deer, moose, and numerous songbirds.

The Mud Creek Project will have three main Purpose and Need or focal areas:

* Improve landscape resilience to disturbances (such as insects, diseases, and fire) by modifying forest structure and composition, and fuels.
* Design and implement a suitable transportation and trail system for long-term land management that is responsive to public interests and reduces adverse environmental effects.
* Conduct a programmatic Forest Plan amendment related to elk habitat objectives.

AFRC supports the Purpose and Need for this Project and the Proposed Action the Forest is taking to accomplish this which includes, Broad-scale Modeling and Project-level Field Assessment to determine a cross-walk between existing and desired vegetation conditions. We also appreciate the Forest reaching out to the public to help craft Alternatives during this scoping process. In that light, we offer the following suggestions that we believe will improve the planning document.

1. AFRC strongly believes that an additional purpose and need for this project should be included and that would

be adding economic viability & support to the local infrastructure. 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. Studies have shown that in Montana as many as 12 direct and indirect jobs are created for every million board feet of timber that is harvested.

2. AFRC believes the Forest should take this opportunity to treat as many acres in the Mud Creek Project as possible. There are multiple compelling reasons for this management including heavy fuels loading due to lack of regular fire occurrence, abundance of ladder fuels, insect and disease infestation and the proximity of this Project to the WUI.

The National Forests in Montana are very important for providing the raw materials that sawmills within the State need to operate. The timber products provided by the Forest Service are crucial to the health of our membership. Without the raw material sold by the Forest Service these mills would be unable to produce the amount of wood products that the citizens of this country demand. Without this material, our members would also be unable to run their mills at capacities that keep their employees working, which is crucial to the health of the communities that they operate in. These benefits can only be realized if the Forest Service sells their timber products through sales that are economically viable. This viability is tied to both the volume and type of timber products sold and the manner in which these products are permitted to be delivered from the forest to the mills. There are many ways to design a timber sale that allows a purchaser the ability to deliver logs to their mill in an efficient manner while also adhering to the necessary practices that are designed to protect the environmental resources present on Forest Service forestland.

3. AFRC appreciates a description of the possible project activities including Intermediate treatments, Irregular selection, and Regeneration harvests and where these treatments may be used. Again, AFRC suggests these treatments be used very broadly across the landscape because so many acres are out of balance due to fuel loading, insect and disease issues. As Table 3 in the documents points out there is a large variance between existing and desired vegetation conditions based on wildlife habitat needs.

Further pointing out the need for treatment as noted above is that 35 percent (17,171 acres) of the project area is considered WUI. The past history of large wildfires including those of 2017 need to be considered when developing a management plan for this area.

4. One of the listed benefits of this project will be to improve water quality and aquatic habitats in the entire Mud Creek watershed and portions of the Nelson Lake, Little West Fork, Lloyd Creek, Lower Blue Joint and Painted Rocks watershed areas of the Bitterroot Mountains. 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. The ACS describes the need for treatments that meet the need of multiple habitat types and we encourage the Forest to look for ways to incorporate treatments that meet those needs. 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 that the ACS mandates 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.

Benda, L.D. Litschert, S.E., Reeves, G. and R. Pabst. 2015. Thinning and in-stream wood recruitment in riparian second growth forests in coastal Oregon and the use of buffers and tree tipping as mitigation. Journal of Forestry Research.

Key points of the Benda paper include:

* 10-meter no-cut buffers maintained 93% of the in-stream wood in comparison to no treatment.

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.

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.

5. When using Regeneration harvests, we support creating forest openings larger than 40 acres. Patches developed by regeneration harvest would move toward naturally occurring opening size and patterns. AFRC supports creating openings larger than 40 acres and supports attaining approval by the Regional Forester (FSM 2471.1).

6. AFRC supports the Forest requesting a project specific amendment for elk habitat objectives for each project. A programmatic forest plan amendment will address the discrepancy between more recent scientific literature related to elk habitat effectiveness and the Forest Plan. Past theories on elk management focused on the need for cover, however, new finding have shown the importance of forage and the creation of openings for early seral plants.

7. The primary issues affecting the ability of our members to feasibly deliver 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 (i.e. dry conditions during wet season, wet conditions during dry season). 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 Bitterroot 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 proposal area is planned for cable harvest, there are opportunities to use certain ground equipment such as feller-bunchers and processors in the units to make cable yarding more efficient. Allowing the use of processors and feller-bunchers throughout these units can greatly increase its

economic viability, and in some cases decrease disturbance by decreasing the amount of cable corridors, reduce damage to the residual stand and provide a more even distribution of woody debris following harvest. 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.

8. We would like to encourage the Bitterroot Forest to consider a newly published document that considers the long-term impacts of forest thinning and forest restoration on carbon sequestration.

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 comparted 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.

9. 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 offer and sell timber products to the local industry in an economical manner. The road decommissioning proposed in this Project scoping notice likely represents a permanent removal of these roads and likely the deferral of management of those forest stands that they provide access to. The land base covered in the Mud Creek 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.

Recommendations provided in the Road Investment Strategy (RIS)* will likely be a starting point for the District to consider road infrastructure needs. The RIS directs the agency to analyze roads for decommissioning where "the resource risk from these roads potentially outweighs the access value and the road is very unlikely to be needed for administrative use in the future." The Strategy also directs the agency to analyze roads for closure where "the resource risk from these roads potentially outweighs the access value, but the road may be needed for administrative use in the future."

We would like the District to carefully consider the following three factors when making a decision to decommission any road in the project area:

* Determination of any potential resource risk related to a road segment
* Determination of the access value provided by a road segment
* Determination of whether the resource risk outweighs the access value (for timber management and other resource needs).

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

decommissioning.

10. The Forest is planning to conduct some prescribed burning without harvest. This would occur primarily in the warm and dry vegetation types. The locations are often steep, dry, and rocky and may have limited access. This treatment plans to only burn needle litter accumulations grasses, brush, forest litter and concentrations of down wood. AFRC requests that the Forest include a programmatic plan for the salvage of trees in these areas should the prescribed fires get out of control. AFRC is concerned that fire without mechanical treatment beforehand can be very explosive and can consume and kill merchantable timber.

11. AFRC believes that DXP could be an effective tool in this project. The current species composition is dominated by a grand fir understory, Douglas-fir, and ponderosa pine. A desired condition for the Bitterroot Forest Plan is to have more forest dominated by ponderosa pine and Douglas-fir. AFRC believes a DXP prescription could be used over a large part of the treatment area to achieve the desired species composition and be a cheaper method for designating harvest trees.

12. AFRC supports analyzing this project using an EA. There are no significant impacts being created by this action that would warrant an EIS.

Thank you for the opportunity to provide scoping comments on the Mud Creek Project. I look forward to following its implementation as it moves forward.

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