April 16, 2021

Seth Carbonari
West Fork Ranger District
6735 West Fork Rd
Darby, MT 59829

Dear Seth:

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 has four main Purpose and Need or focal areas which AFRC supports:

- Improve landscape resilience to disturbances (such as insects, diseases, and fire) by modifying forest structure and composition and fuels.
- Reduce crown fire hazard potential within the wildland-urban interface, adjacent community protection zone, and low severity fire regimes.
- Improve habitat and forage quality and quantity for bighorn sheep, mule deer, elk, and other regionally sensitive species.
- 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.

While AFRC supports the Purpose and Need for the project, we offer the following comments for your consideration. These comments are to supplement the scoping comments that AFRC submitted on September 26, 2019.

1. AFRC strongly supports the use of Condition Based Management to improve landscape resilience to disturbances such as insects, disease, fire, and drought. The Condition-Based implementation approach is responsive to changing conditions and allows the flexibility to achieve desired conditions. The condition-based approach takes into consideration the landscape both spatially and temporally to address management needs more holistically and in a timelier manner than a series of individual projects.

2. In our scoping document we encouraged the Forest to include an additional Purpose and Need for this project of **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.

   AFRC members depend on a predictable and economical supply of timber products from Forest Service land to run their businesses and to provide useful wood products to the American public. This supply is important for present day needs but also important for needs in the future. This future need for timber products hinges on the types of treatments implemented by the Forest Service today. 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. While the treatments on the Mud Creek project are unlikely to directly address this long-term sustainability concern, they will

likely provide short-term products for the local industry and we want to ensure that this provision is an important consideration for the decision maker as the project progresses. As we will discuss later in this letter the importance of our members' ability to harvest and remove these timber products from the timber sales generated off this project is paramount. Studies in Montana have shown that as many as 12-15 direct and indirect jobs are created for every million board feet of timber that is harvested. The volume harvested in this project will greatly help the industry and surrounding communities.

Although adding economic viability & support to the local infrastructure is not one of the Purposes of the project—AFRC does support the proposed Upper Limits of the treatments for the project which includes:

- Commercial harvest – regeneration: 4,800 acres
- Commercial harvest – intermediate: 8,900 acres
- Non-commercial activities: 26,282 acres
    - Prescribed fire – site preparation: 4,800 acres
    - Prescribed fire – low severity: 28,235 acres
    - Prescribed fire – mixed severity: 12,125 acres

3. While AFRC supports the treatment regime, we are concerned about the amount of prescribed fire in the project. The Forest plans to use fire in various severity classes to treat 45,160 acres. Our concern is controlling these fires on the landscape when thirty-five percent (17,171 acres) of the project area is considered WUI, as defined by the Bitterroot Community Wildfire Protection Plan, and 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 Forest is going to need to use great caution when employing this much prescribed fire. Further, AFRC believes the Forest should consider programmatic language for salvaging burnt wood should the prescribed fires escape and burn additional commercial timber.

4. AFRC supports the Forests' decision to use regeneration harvest treatments in several areas that could create forest openings that exceed 40 acres in size. The use of regeneration harvests will likely be in areas of dwarf mistletoe in Douglas-fir and lodgepole pine. The continuity of dwarf mistletoe occurrence in the focal areas necessitates treatment on scales larger than 40 acres. In addition, these areas contain stands with moderate to high insect hazard rating based on stand age, diameter, and species composition. The Forest will have to get Regional Office approval for creation of openings over 40 acres and this will require a sixty-day public review (FSM 2470, section 2471.1, Region 1 supplement 2400-2016-1).

5. We suggest the use of Designation by Prescription for this project. At recent timber purchasers' meetings on the Lolo/Bitterroot Forests, we have found that industry favors the use of DxP and the answer was overwhelmingly positive to using this tool. This would be an excellent project for DxP inclusion. The various stands in both the warm dry ponderosa stands and cool moist stands lend themselves to straight-forward prescriptions that could be laid and implemented easily.

6. 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. However, only three site specific treatment areas in riparian habitat conservation areas, totaling approximately 19 acres, will be analyzed where treatment may improve riparian management objectives in accordance with the Inland Native Fish Strategy. AFRC would like the Forest to consider that 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 6meter 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.

The links to the studies mentioned above are listed below for reference.

Janisch paper on stream temps:
https://www.sciencedirect.com/science/article/abs/pii/S0378112711007821

Dana Warren paper on light into the stream beds:
https://www.researchgate.net/publication/311850456_Long-term_effects_of_riparian_forest_harvest_on_light_in_Pacific_Northwest_USA_streams

Julie Burton Paper on headwater widths and wood recruitment:
https://www.semanticscholar.org/paper/Effects-of-riparian-buffer-width-onwood-loading-in-Burton-Olson/13c41421e2b6bf5eca847c4fb557235f3411127f

Edward Rashin article on Effectiveness of timber harvest practices for controlling sediment related water quality impacts:
https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1752-1688.2006.tb05303.x

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.

AFRC would also like the Forest to consider increasing the days allowed for log hauling. Often haul is curtailed around holidays, hunting seasons, vacation time, and winter activities. The number of days truckers can work has been significantly reduced in recent years and we suggest more liberal policies which would allow for more hauling days.

8. AFRC supports the Forests' decision to use a Forest Plan amendment that will allow old growth to be delineated at the stand level based on vegetation composition and structure as defined by Green et al. (1992. Stands smaller than 40 acres, if meeting old growth criteria, will be included, because they are valuable as a key characteristics of ecosystem diversity, notwithstanding their size. Using that modified measure of old growth, the project will maintain 3 percent of suitable timberland as old growth per third order drainage in management area 1 and 8 percent of suitable timberland as old growth per third order drainage in management areas 2 and 3A.

9. The Forest has developed a Road Management Plan that includes specified roads, temporary roads, decommissioning, storage, and other options. See the chart below:

Huc12 watershed	Add to system - store	Convert to trail (decommission road,	Decommission	Decommission - non-system	Maintain - close co-incident route[1]	Store	Decommission co-incident route[1]	Specified road construction	Temporary road construction	New trail construction	New trail from road	New trail from temporary road
Grand Total	0.76	21.01	13.90	7.98	0.40	15.49	34.84	9.76	33.80	3.09	0.58	1.28

AFRC is concerned about the number of miles of road to be decommissioned or stored. AFRC would like to remind the Forest that an intact road system is critical to the management of Forest Service land, particularly for the provision of timber products. Additionally, we believe that a significant factor contributing to increased fire activity in

the region is the decreasing road access to our federal lands. This factor is often overshadowed by both climate change and fuels accumulation when the topic of wildfire is discussed in public forums. However, we believe that a deteriorating road infrastructure has also significantly contributed to recent spikes in wildfires. This deterioration has been a result of both reduced funding for road maintenance and the federal agency's subsequent direction to reduce their overall road networks to align with this reduced funding. The outcome is a forested landscape that is increasingly inaccessible to fire suppression agencies due to road decommissioning and/or road abandonment. This inaccessibility complicates and delays the ability of firefighters to attack nascent fires quickly and directly. On the other hand, an intact and well-maintained road system would facilitate a scenario where firefighters can rapidly access fires and initiate direct attack in a more safe and effective manner.

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

a. Determination of any potential resource risk related to a road segment.
b. Determination of the access value provided by a road segment.
c. 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. 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 findings have shown the importance of forage and the creation of openings for early seral plants.

11. AFRC supports the concept of shaded fuel breaks along strategic roads within the project area. These fuel breaks should be wide enough to stop or slow down a fast-moving wildfire. At a minimum, these breaks should be 300 feet wide on either side of those roads. The stands within those fuel breaks should be thinned to a wide spacing and low basal area to reduce the threat of a crown fire going through the area. The purpose of the fuel breaks is to get the fire to lay down on the ground for suppression purposes. These could be especially effective in the WUI areas.

    AFRC further suggests that in areas around the WUI and high fire risk areas, the Forest reduce stocking levels to 40 sq. ft. of basal area. This will reduce the risk of wildfire while enhancing residual tree vigor.

12. AFRC has been involved in several Objection Resolution meetings with Region 1 National Forests. In those meetings, the issue of carbon sequestration has been discussed,

and some Objectors have pointed out the lack of information provided by the Forests in some of their documents. We would like to encourage the Bitterroot Forest to consider and possibly reference several documents related to carbon sequestration and 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:

a. 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.
b. 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.
c. 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:

a. 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.
b. 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.

Links to the above mentioned studies can be found at:

Lisa McCauley article on large scale forest restoration stabilizes carbon: https://esajournals.onlinelibrary.wiley.com/doi/full/10.1002/eap.1979

Andrew Gray article on Carbon stocks and accumulation rates in Pacific Northwest forests: role of stand age, plant community, and productivity: https://www.fs.usda.gov/treesearch/pubs/52237

Thank you for the opportunity to provide Draft EA comments on the Mud Creek Project. I look forward to following the Project's implementation as it moves forward.

Sincerely,

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