VIA Link: https://www.fs.usda.gov/project/flathead/?project=67436

January 24, 2025

Rob Davies, District Ranger
Hungry Horse Ranger District
P.O. Box 190340
10 Hungry Horse Drive
Hungry Horse, MT 59919

Dear Rob:

On behalf of the American Forest Resource Council (AFRC) and its members, thank you for the opportunity to provide scoping comments on the West Reservoir 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 Flathead 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 project area is approximately 129,000 acres in size and located completely on National Forest System Lands southwest of the town of Hungry Horse, MT, along the west side of the Hungry Horse Reservoir. The project is on both the Hungry Horse and Spotted Bear Ranger Districts. AFRC and our members are very familiar with the forest conditions in this Project since we have visited the area on several occasions. While the project area is large, there is a lot of land designated as recommended wilderness, inventoried roadless, eligible wild and scenic river, and backcountry use. Commercial treatments are only proposed on 2,001 acres of the project area and noncommercial treatments are proposed on 6,189 acres.

Based on our knowledge of the area and the conditions of the stands, AFRC supports the Purpose and Need for the Project which includes:

- Improve the diversity and resilience of terrestrial ecosystems and vegetation.
- Promote healthy forest conditions through management actions to meet forest plan desired conditions.
- Reduce fuel near developed recreation sites, structures, and other areas where wildfires may pose a threat to important community assets.
- Provide a mix of forest products to contribute to economic sustainability, providing jobs and income to local economies.
- Improve transportation infrastructure sustainability, fish passage and hydrologic processes by:
  ♦ Provide aquatic organism passage in fish bearing reaches of Clayton Creek (National Forest System Road 1633)
  ♦ Improve flow capacity and preserve hydrologic processes by replacing undersized culverts on Quintonkon Creek (National Forest System Road 381)

While AFRC supports the purpose and need of the project we offer the following comments that we hope will improve and bolster the planning document.

1.) AFRC is surprised that the Districts are only planning to treat 2,001 acres commercially. The chart below shows the land designations where management can take place.

6a General Forest Low-Intensity Veg. Mgmt.	18,619	A low intensity of timber harvest is expected in management area 6a, and regularly scheduled timber harvest would not occur (it is unsuitable for timber production). Management area 6a is in areas with a higher level of other resource considerations or site limitations that would restrict active vegetation management compared to management area 6b or management area 6c.
6b General Forest Moderate-Intensity Veg. Mgmt.	26,330	A medium intensity of timber harvest is expected to occur in management area 6b, and these areas will have regularly scheduled timber harvest (suitable for timber production). Management area 6b is in areas where other resource considerations or site limitations are expected to restrict active vegetation more than in management area 6c.
6c General Forest High-Intensity Veg. Mgmt.	2,263	A higher intensity of timber harvest is expected to occur in management area 6c compared to management area 6a or 6b, and these areas will have regularly scheduled timber harvest (suitable for timber production). Management area 6c is located in areas where other resource considerations or site limitations are expected to restrict vegetation treatments to a lesser degree than either 6a or 6b.

While we are pleased to see that providing a mix of forest products to contribute to economic sustainability, providing jobs and income to local economies is included in the Purpose and Need, AFRC strongly suggests that the Districts explore opportunities to treat more acres commercially to meet the Purpose and Need to a higher degree. We have previously highlighted

the importance of maximizing treatment acres during the NEPA process during our communications with the Forest Service. Our members depend on a predictable and economical supply of timber products off 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 future needs. 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 affect the long-term sustainability of the timber resources on Forest Service managed land.

We are pleased to see that regeneration harvest is proposed in the Project using seed tree and shelterwood treatments. Regeneration harvest is a crucial component to a sustainable timber management paradigm. Thinning opportunities will eventually be exhausted and without a regeneration component, so to will the Forest Service's timber supply. Please move forward with the proposed seed tree and shelterwood treatments and continue to explore and identify regeneration harvest opportunities on future projects.

Montana's forest products industry is one of the largest components of manufacturing in the state and employs roughly 7,000 workers earning about $300 million annually. Without the raw material sold by the Forest Service, DNRC, and private lands these mills would be unable to produce the amount of wood products that the citizens of this country demand. Without this material, the industry 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.

2.) We support the proposed logging plan which states: *The methods of tree removal for units with commercial products would be a combination of ground-based (tractor; tracked and or rubber-tired equipment) and skyline mechanized harvest. A combination of whole tree yarding and cut-to-length (CTL) methods are anticipated. Whole tree yarding may be used to remove forest fuels from the stand to a landing pile and excavator piling may be used to pile fuels.*

While the Districts recognize that various methods will be needed for product removal, AFRC would like to remind the Forest that there are many ways to design a timber sale that enables a purchaser 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. 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.

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 Flathead National Forest market area with a variety of skills and equipment. Developing an EA 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 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 may be planned for cable harvest, there may be opportunities to use certain ground equipment such as fellerbunchers and processors in the units to make cable yarding more efficient. While we appreciate the language allowing ground skidding to occur on slopes over 35% if approved, we would like the Forest to allow ground-based equipment to operate on slopes up to 45%. Allowing the use of processors and fellerbunchers 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, safe, and available option for felling and yarding on steep slopes. This equipment has shown to contribute negligible ground disturbance when compared to traditional cable systems. The weight displacement provided by tethering allows tracked equipment to operate on steep ground with limited soil displacement or compaction. Standard psi levels for that tracked equipment are transferred to the tethering uphill. Other Forests in the Region have permitted this equipment to be used on Forest Service thinning stands on slopes up to 70%. It would be helpful if you would prepare your NEPA analysis documents in a manner that will facilitate this type of equipment. The effectiveness of harvesting and yarding low volume per acre on steep slopes is a significant obstacle to implementation. **We urge the Districts to consider allowing this equipment to be used where appropriate on the West Reservoir project to mitigate implementation obstacles.**

Green, P. Q., Chung, W., Leshchinsky, B., Belart, F., Sessions, J., Fitzgerald, S. A., Wimer, J. A., Cushing, T., Garland, J. J. (2019). Insight into the productivity, cost and soil impacts of cable-assisted harvesterforwarder thinning in western Oregon. *For. Sci.* 66(1):82–96

Key Point of the Green paper include:

- The use of cable assistance can reduce track coverage and reduce shear displacement, and thus likely lessen potential soil impact caused by forestry machines.

Garland, J., F. Belart, R. Crawford, W. Chung, T. Cushing, S. Fitzgerald, P. Green, *et al.* 2019. Safety in steep slope logging operations. *J. Agromedicine* 24(2):138–145.

Key Point of the Garland paper include:

- Use of new tethered-assist technology reduces exposure to hazards and reduces workers exposed to the most dangerous work in logging—felling and working on cable operations on steep slopes.

Finally, AFRC would like the Forest to examine the days that operations and haul are shut down due to hunting seasons and other outdoor recreation. The logging community has a limited operating time at best, and further reductions such as these only makes surviving in the logging business that much more difficult.

3.) AFRC is pleased to see that the Districts are planning to commercially treat portions of riparian areas. *Treatments in the riparian management zones are proposed to increase species diversity, protect large individual remnant western larch and western white pine, and to promote larger size classes. Commercial harvest is proposed within the outer riparian management zone. Activities proposed in riparian management zones would follow forest plan standards FW-STD-RMZ-01 through 06.*

AFRC strongly believes that managing in the riparian areas can help to achieve the goals of this Project. 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 Forest Plan describes the need for treatments that meet the need of multiple habitat types, and we encourage the Districts 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* 75:547558.

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.

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.

4.) The majority of the proposed commercial harvest is to be completed through commercial thinning (1,593 acres). To effectively reduce the fuel loadings and to improve the vigor of leave trees, AFRC recommends thinning these areas to basal area of 40 sq.ft. per acre. This not only achieves the goals stated above, but it will also increase the commercial sawlog volume being removed. The document currently recommends leaving 60-120 medium sized trees per acre and 30-60% canopy cover. We believe that the upper limits of this range will not accomplish your stated objective of fuel load reduction and growth and vigor improvement. This is especially true in lands located in the Wildland Urban Interface where fuels reduction is paramount.

5.) AFRC supports the work proposed in grizzly bear secure core habitat and in white bark pine areas. We support the proposals listed below. *The project proposes several different types of activities in lands identified as grizzly bear secure core as defined by the forest plan. These activities include both commercial and noncommercial vegetation treatments and road management to access these vegetation treatments. Project activities that require the use of roads will follow forest plan standards FW-STD-IFS-02 and 03. These activities and grizzly bear secure core are displayed on maps of the proposed action.*

The objective of whitebark pine restoration is to promote populations of cone-bearing trees, increase genetic diversity, increase white pine blister rust resistance and increase the proportion of whitebark pine across the landscape. For the West Reservoir Project, whitebark pine restoration will be accomplished using one of the following methods: Planting, Daylight/Release Treatments, Planting, and Prescribed Burns.

6.) AFRC believes that the use of Designation by Prescription might be a good tool for designating the trees to be harvested and those to be retained especially in commercial thinning, seed tree, improvement cuts, and shelterwood harvests. Prescriptions can be written to accomplish the goal of the Project of removing shade tolerant species and shifting towards more western larch and ponderosa pine.

7.) We would like the District to review and consider a new study published by Johnston et al. that focuses on the benefits of mechanical thinning in regards to wildfire mitigation.

Johnston, James D., Olszewski, Julia H., Miller, Becky A., Schmidt, Micah R., Vernon, Michael J., Ellsworth, Lisa M. Mechanical thinning without prescribed fire moderates wildfire behavior in an Eastern Oregon, USA ponderosa pine forest. *Forestry and Ecology*. 501 (2021) 119674

Key points of the Johnston paper include:

- Mechanical thinning can moderate fire behavior in the absence of prescribed fire.

- Modeled crown fire potential declined immediately following thinning, undoubtedly due to significant reductions of ladder fuels that carry fire into the crown and crown density that facilitates spread between crowns.
- Increase in surface fuel and modeled fire behavior was offset by a steady decline in litter and a dramatic decline in duff over time
- Fuel loading in a dry ponderosa pine forest increased for a year or two after thinning and then declined.
- Woody fuel particles increased somewhat following thinning, but litter and duff fuel loading declined dramatically as a result of thinning.

8.) We would like to encourage the Districts to consider several documents related to climate change and carbon sequestration related to forest management.

Please consider the points below from a technical report by the Climate Change Vulnerability Assessment and Adaptation Project (SWOAP) in Southwest Oregon.

- Wood harvested from the forest, especially timber used for durable structures, can be reservoirs of long-term carbon storage (Bergman et al. 2014).
- Forests and their products embody a closed-loop system in which emissions associated with harvests and product use are eventually recovered as forests regrow.
- Although products may be retired in solid waste disposal sites, they decompose quite slowly, causing carbon to continue to be stored for many decades.
- Products derived from the harvest of timber from national forests reduce carbon emissions by substituting for more energy-intensive materials including concrete, steel, and plastics.

Please see the graph below from the IPCC (2007) that captures the ability of forests to "stack" carbon sequestration and storage through continual harvests. **Please consider adopting this graph into the West Reservoir project analysis.**

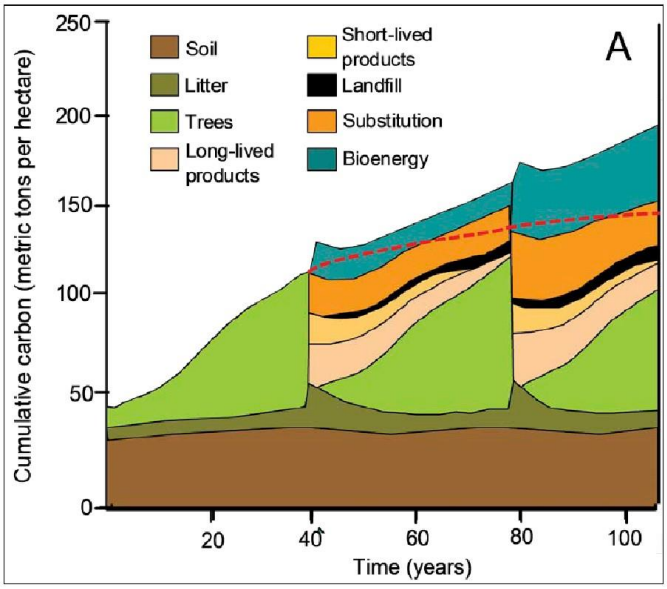

Figure 8.7—Carbon balance from a hypothetical forest management project in which the forest is harvested roughly every 40 years from land that started with low forest carbon stocks. This figure accounts for forest regrowth and carbon stored in wood products in use and landfills as well as the prevented release of fossil fuel carbon (also counted as stored carbon) via product substitution and biomass energy. It illustrates how forests can continue to accrue carbon over time with forest management. Figure is from McKinley et al. (2011) and adapted from IPCC (2007).

We believe that this graph encapsulates the forest management paradigm that would be most effective at maximizing carbon sequestration on a per-acre basis by "stacking" storage in wood products and regrowth of newly planted trees.

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

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

Key points of the McCauley paper include:

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

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

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

Key points of the Gray paper include:

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

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

In the absence of commercial thinning, the forest where this proposed action would take place would thin naturally from mortality-inducing natural disturbances and other processes resulting in dead trees that would decay over time, emitting carbon to the atmosphere. Conversely, the

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

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

Lippke, B., Oneil, E., Harrison, R., Skog, K., Gustavsson, L., Sathre, R. 2011 Life cycle impacts of forest management and wood utilization on carbon mitigation: knowns and unknowns, Carbon Management, 2:3, 303-333.

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

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

Thank you for the opportunity to provide scoping comments on the West Reservoir Project. We strongly believe there are additional opportunities for commercial harvest in these areas and we hope to see more acres included in the Draft EA.

Sincerely,

Tom Partin
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